

Acrachne racemosa (B.Heyne ex Roem. & Schult.) Ohwi. *Bull. Tokyo Sci. Mus.* 18: 1 (1947).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Eleusine racemosa* Heyne ex Roem. & Schult., *Syst.* 2: 583 (1817).

Type of Basionym or Protologue Information: India orientali, *D.B. Heyne s.n.*.

Recent synonyms: *Acrachne verticillata* (Roxb.) Chiov.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (616, as *Eleusine verticillata*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (208 as *Acrachne verticillata*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (167), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (79), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (1120), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (313).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (209, Pl.62 as *A. verticillata*), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (78), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 54A-C).

Derivation: from the Latin *racemus* (stalk of a cluster of grapes) and *-osa* (abundance). The spikelets are borne in racemes or contracted panicles.

Habit. Annual. Culms geniculately ascending or decumbent, 15–100 cm tall, 1–3 mm diam., 2–6 -noded. Lateral branches sparsely branched. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.5–1.3 mm long. Leaf-blades flat, 13–75 cm long, 3–12 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, a panicle of racemes, with racemose branches. Racemes 2–25, 1.5–10 cm long. Central inflorescence axis 0–15 cm long.

Spikelets. Spikelets sessile. Apical sterile spikelets rudimentary. Fertile spikelets many flowered, with at least 2 fertile florets (6–25), comprising 6–25 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–13 mm long.

Glumes. Glumes similar. Lower glume linear or lanceolate or elliptic or oblong, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume ovate, 1.5–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, mucronate.

Florets. Fertile lemma 2–3 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex entire, awned, 1 -awned. Median (principal) awn 0.3–0.9 mm long overall. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3. Grain 0.8–1.1 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall. Fortescue, Ashburton. **Northern Territory:** Victoria River. **Queensland:** Burke, Leichhardt, North Kennedy, South Kennedy.

Notes. Recorded from the Pilbara and Kimberley Regions of W.A., the Darwin area and Barkly Tableland of the N.T., and central eastern Qld; pan-tropical. Occurs in brown, sandy loam over loamy clay on coastal flats in association with low, deciduous, vine thickets in the Kimberley Region of W.A.; otherwise in monsoonal areas usually along creeklines on sandy or skeletal soils, with *Eucalyptus*, *Acacia* or *Atalaya* species.

Acroceras macrum Stapf. Prain, *Fl. Trop. Afr.* 9: 624 (1920). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Australian Distribution: New South Wales.

Agrostis australiensis Mez. *Repert. Spec. Nov. Regni Veg.* 17: 302 (1921). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Australian Bent.

Type of Basionym or Protologue Information: HT: *J.H. Maiden & W. Forsyth s.n.*, 1899, Australia: New South Wales, Mt. Kosciusko (B; IT: US-75369 (fragm. ex B)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (109), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (170).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (109).

Derivation: Australia plus the Latin *-ensis*, denoting origin. From Australia.

Habit. Annual. Culms erect, stature slender to delicate, 8–30 cm tall, 2 -noded. Mid-culm internodes glabrous. Leaves basal and cauline or cauline. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–2 mm long, erose, truncate or obtuse. Leaf-blades aciculate, conduplicate, 1–5 cm long, 0.4–1.4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 80(–150) cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–2.7 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.7–2 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex muticous or awned. Median (principal) awn dorsal. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** North East.

Notes. Endemic. S from the Brindabella Ra., N.S.W., A.C.T., Vic. and Tas. In damp areas from 60 m to alpine grasslands. Flowers Dec.-Feb.

Agrostis bettyae S.W.L.Jacobs. *Telopea* 9:679(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Southern Tablelands, Tallong [as ?Tallwong], Jan 1900, *W. Forsyth NSW-506461* (HT: NSW; IT: US).

Recent synonyms: sp.E of *AusGrass*; sp. F of *AusGrass*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (& as *A. sp. E* and *A. sp. F*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (109), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (169).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (109).

Derivation: named for Betty Jeanette Jacobs, wife of the author.

Habit. Perennial. Rhizomes absent or present (short and horizontal), short. Culms erect or geniculately ascending, stature slender to delicate, 90 cm tall, 4 -noded. Leaf-sheaths scaberulous (to scabrous between nerves). Ligule an eciliate membrane, 2–5 mm long, lacerate. Leaf-blades flat or involute, 1.5–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–35 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), laterally compressed, 1.8–2.2 mm long.

Florets. Fertile lemma 1.25–2 mm long. Lemma apex dentate, muticous. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs. **New South Wales:** Northern Tablelands, Central Tablelands, Southern Tablelands.

Notes. This is the taxon described as *A. sp. A* by Jacobs & Hastings (1993). Vickery at one stage considered naming this species *A. neoanglica*, but eventually included in her concept of *A. hiemalis* (Vickery 1941). The species presented here included a wider range of material, including much from outside the New England area. *Agrostis bettyae* differs from *A. scabra* in having the spikelets more clustered towards the ends of the branches, the lower whorl of the branches being more divided and having longer anthers (Jacobs 2001).

Endemic. Occurring in N.S.W. and Qld. Grows in montane woodland. Flowers summer.

Agrostis boormanii Vickery. *Contrib. N. S. Wales Nat. Herb.* 1:105 (1941). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: New South Wales: Harvey Ranges, Peak Hills, *J.L. Boorman, K, 11.1905*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (109), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (172).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (109).

Derivation: in honour of John Luke Boorman (1864–1938). Australian plant collector.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 30 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3 mm long, lacerate, obtuse. Leaf-blades filiform or linear, 5–10 cm long, 1–1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1.2–1.6 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn dorsal, 3–4 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands.

Notes. Endemic. Known only from the type locality. Flowers spring.

Agrostis capillaris* L. *Sp. Pl.* 62 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Browntop Bent.

Type of Basionym or Protologue Information: LT: Herb. *A. van Royen*, (L-912.356–69 (left-hand specimen); ILT: L). LT designated by Widen, *Fl. Fenn.* 5: ? (1971).

Recent synonyms: *A. tenuis* Sibth., *A. tenuis* Sibth. var. *aristata* (Parn.) Druce.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (155 as *A. tenuis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (183), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (395), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (109), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (166).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (183, fig.131), [1994] N.G.Walsh, *Flora of Victoria* 2, [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (109), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (168, Fig.25).

Derivation: from the Latin *capillis* (a hair) and *-are* (pertaining to). Inflorescence with filiform branches.

Habit. Perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect or geniculately ascending, 10–70 cm tall, 2–5 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.5–2 mm long (shorter than wide), truncate or obtuse. Leaf-blades flat or involute, 1–15(–20) cm long, 1–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong to ovate, 1–20 cm long, 1–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.2–2.7 mm long, without keel, 3–5 -nerved. Lemma surface glabrous. Lemma apex entire or dentate, muticous or awned. Median (principal) awn dorsal. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Dale. **South Australia:** Murray, Southern Lofty, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Snowfields, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. A major turf species (lawns and sports turf) in the cooler parts of Australia. Also a major weed of pastures especially in areas of low soil fertility.

Introduced. Occurs in temperate Australia. Native to Europe, now widely naturalized. Common as a weed of pastures and roadsides and invading native herb and grassfields in highland areas. Occurs mainly on poor, acidic soils. Flowers Nov.-Feb.

Infra-specific taxa: var. **capillaris**, var. **aristata**.
Lemma awnless **A. capillaris** var. **capillaris**
Lemma shortly awned **A. capillaris** var. **aristata**.

Agrostis capillaris var **capillaris***

Classification. Recent synonyms: *A. tenuis* Sibth. var. *tenuis*, *A. tenuis* Sibth. var. *tenuis*.
Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Agrostis capillaris var. **aristata*** (Parnell) Druce. *Fl. Oxfordshire* (ed. 2) 474 (1927).

Classification. Basionym and/or Replacement Name: *Agrostis vulgaris* var. *aristata* Parnell.,
Recent synonyms: *A. tenuis* Sibth. var. *aristata* (Parn.) Druce.
Australian Distribution: Victoria.

Agrostis diemenica D.I.Morris. *Telopea* 9:765 (2004). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Recent synonyms: *Agrostis* aff. *australiensis*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *A.sp.* B), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (170).

Habit. Perennial. Ligule an eciliate membrane, 1–3 mm long, entire or erose, truncate. Leaf-blades flat or involute, 12 cm long, 2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 10 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s).

Glumes. Upper glume 1.75–2.75 mm long.

Florets. Fertile lemma 2–2.5 mm long, 5 -nerved. Lemma apex muticous. Palea absent. Anthers 3.

Australian Distribution: Tasmania.

Tasmania: Central Highlands.

Notes. Endemic. Tas. In the Central Highlands at the edges of lakes, marshes or streams, in open situations.

Agrostis gigantea* Roth. *Tent. Fl. Germ.* 1: 31 (1788). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Black or Redtop Bent, Bent Grass, Creeping Bent-grass.

Type of Basionym or Protologue Information: Germany, Bremen: Roth.

Recent synonyms: *Agrostis stolonifera* L. var. *ramosa* (Gray) Veldkamp.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170 as *A. parviflora*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (155), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (184), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (109), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (167).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (184, fig. 132), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (109).

Derivation: from the Latin *giganteus* (very large), presumably for the genus.

Habit. Perennial. Rhizomes present, elongated. Culms geniculately ascending or decumbent, 40–150 cm tall, 3–6 -noded. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 1.5–6 mm long, erose or lacerate, truncate or obtuse. Leaf-blades flat, 5–20 cm long, 1–6(–8) mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong to ovate, effuse, 8–30 cm long, 3–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 2–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.3–2.3 mm long, without keel, 3–5 -nerved. Lemma surface glabrous. Lemma apex entire or dentate, muticous or mucronate or awned. Median (principal) awn dorsal. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Menzies, Warren. **South Australia:** Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Darling Downs. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** Gippsland Plain, Snowfields. **Tasmania:** King Island, West Coast, East Coast.

Notes. Introduced. Throughout Australia except the N.T., also occurring on Lord Howe Is. Native of Europe and temperate Asia. Grows near water, a weed of pasture and roadsides in lowland areas. Flowers Dec.-Feb.

Agrostis joyceae S.W.L.Jacobs. *Telopea* 9:680(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: New South Wales: Southern Tablelands: Prussian Creek, alt. 5600 ft (1707 m), Kosiuszko [as Kosiuzko] National Park, in leaf litter on rock ledge, 1 Feb 1974, J. Thompson 2031 (HT: NSW-506464).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (110), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (171).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (110).

Derivation: in honour of Joyce W. Vickery (1908–1979), Australian Botanist.

Habit. Annual. Culms erect or geniculately ascending, -40 cm tall, -2 -noded. Leaves mostly basal. Ligule an eciliate membrane, -3.5 mm long, obtuse. Leaf-blades -1.5 mm wide.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), 1.8–2.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, 1 -nerved. Upper glume lanceolate.

Florets. Fertile lemma 1.5–1.8 mm long. Lemma apex truncate, muticous.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Although it differs little from *A. thompsonae* and *A. parviflora* in its measurements, it grows sympatrically with these species and the specimens from a mixed collection can be readily separated on inflorescence characters. *Agrostis joyceae* differs readily from *A. parviflora* in the larger inflorescence with more flexuose branches and longer pedicels.

Agrostis muelleriana Vickery. *Contrib. N. S. Wales Nat. Herb.* 1:103 (1941). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Mueller's Bent.

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Australia: Victoria: Cobboras [Cobberas] Mountains, 6000 ft (K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (576, as *Agrostis muelleri*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (110), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (167).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [1994] N.G.Walsh, *Flora of Victoria* 2, [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (110), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (168, Fig.25).

Derivation: from the Latin *-ana* (indicating connection). In honour of Ferdinand Jacob Heinrich Mueller (1825–96). German-born Australian botanist.

Habit. Annual. Culms erect, 20–30 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–3 mm long, erose, truncate or acute. Leaf-blades filiform or linear, flat or conduplicate or involute, 3–10 cm long, 1–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 1–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.7–3.2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.3–3 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire or erose or dentate, muticous or mucronate, 1 -awned. Median (principal) awn dorsal, 1–1.5 mm long overall. Palea present or absent. Lodicules present. Anthers 3. Grain 1.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Snowfields. **Tasmania:** North East, Central Highlands, South West.

Notes. Native. Tas., Vic. and N.S.W. S from the Kosciusko area. Also in N.Z. In alpine and subalpine herbfields and sod tussock grassland, fens and bogs; often rocky. Flowers Dec.-Feb.

Agrostis parviflora R.Br. *Prodr.* 170 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Hair Bent.

Type of Basionym or Protologue Information: HT: *Nelson s.n.*, Feb 1792, Australia: Tasmania: Adventure Bay (BM).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (110), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (170).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [1994] N.G.Walsh, *Flora of Victoria* 2, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (110), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (168, Fig.25).

Derivation: from the Latin *parvus* (small) and *flos* (flower). Spikelets small or with few florets.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 15–40 cm tall, 2 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Ligule an eciliate membrane, 0.5–2 mm long, truncate or obtuse. Leaf-blades flat or conduplicate or involute, 1–10 cm long, 0.25–1(–1.5) mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 3–9(–12) cm long, 2–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 1.5–2 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.3–2 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire, muticous or awned. Median (principal) awn dorsal. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Snowfields. **Tasmania:** West Coast, Central Highlands, Ben Lomond, South West.

Notes. Endemic. Widespread in Tas., N.S.W. S from the Brindabella Ra., A.C.T. and Vic. From sea-level to altitudes of about 1200 m, in depressions, sod tussock grassland, and in fens, bogs and wet areas in alpine herbfields. Flowers Dec.-Mar.

Agrostis propinqua S.W.L.Jacobs. *Telopea* 9:681(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Winter Bent.

Type of Basionym or Protologue Information: New South Wales: Southern Tablelands: Diggers Creek Valley, Snowy R. Hydro-Electric Authority, growing on dry mineral soil of road embankment, 1954, *M. Mueller* 1900 (HT: NSW-506463).

Recent synonyms: sp.E of *AusGrass*; sp. F of *AusGrass*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (110), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (169).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (110).

Derivation: from Latin *propinquus* (neighbourhood), a reflection of Vickery's association of this species with *A. hiemalis*.

Habit. Perennial. Rhizomes absent or present, short. Culms erect or geniculately ascending, 80 cm tall, 4 -noded. Ligule an eciliate membrane, 2–5 mm long, lacerate. Leaf-blades flat or involute, 15 cm long, 1.5–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–35 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), laterally compressed, 1.5–2.5 mm long.

Florets. Fertile lemma 1.25–2 mm long. Lemma surface glabrous. Lemma apex dentate, muticous. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Known widely as *A. hiemalis* in Australia. At one time Vickery considered naming this a distinct species *A. propinqua*, but then placed it within her concept of *A. hiemalis*. Her concept of the species was wider than that used here, including some specimens now placed with *A. bettyae*. It differs from *A. scabra* in having the spikelets more clustered towards the end of the branches, the lower whorl of branches being more divided and shorter spikelets (Jacobs 2001).

Endemic. In N.S.W., Vic. and Qld. Often in damp or swampy areas. Flowers Nov.-Apr.

Agrostis stolonifera* L. *Sp. Pl.* 1: 62 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Creeping Bent.

Type of Basionym or Protologue Information: LT: *Herb. A. van Royen*, Europe (L-912.356–55). LT designated by Widén, *Fl. Fenn.* 5: ? (1971).

Key references (books and floras): [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (395), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (184), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (111), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (165).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (184, fig. 133), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (111).

Derivation: from the Latin *stolo* (shoot) and *fero* (bear). Plant with well developed underground stems, referring to stolons.

Habit. Perennial. Stolons present. Culms erect or geniculately ascending or decumbent, 8–40 cm tall, 2–5 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 1–7 mm long, erose or lacerate, obtuse. Leaf-blades flat, 1–18 cm long, 0.5–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong, dense or loose, 1–21 cm long, 0.4–2.5 cm wide, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 2–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.3 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex muticous or awned. Median (principal) awn subapical. Palea present, 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **Queensland:** Moreton, Wide Bay. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Otway Range, Volcanic Plain, Wannon. **Tasmania:** King Island, North West, North East, Midlands, East Coast, South West.

Notes. Hybridises with *Polypogon monspeliensis* to form *xAgropogon littoralis*.

Introduced. Native of Europe, widely introduced and naturalized in cooler temperate regions. A common lawn grass, particularly in golf and bowling greens. A weed of pastures, roadsides and waste areas, margins of marsh, beach sand. Flowers Sept.-Feb.

Agrostis thompsoniae S.W.L.Jacobs. *Telopea* 9:682(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: New South Wales: Southern Tablelands: Creek southwest of Hedkey Tarn, Kosciuszko [as Kosciusko] National Park, in gravel on wet creek flat with *Luzula*, 6 Feb 1978, J. Thompson 2889 (HT: NSW-506462).

Recent synonyms: sp.A; sp."B" of Jacobs & Hastings.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (111), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (171).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (111).

Derivation: In honour of Joy Thompson, Australian botanist.

Habit. Annual or perennial. Rhizomes absent or present, short. Stolons absent or present. Culms erect or geniculately ascending, stature slender to delicate, 50 cm tall, 2-noded. Leaves mostly basal. Ligule an eciliate membrane, 5 mm long, lacerate, obtuse. Leaf-blades flat, 13 cm long, 2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 12 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), laterally compressed, 1.5–2.5 mm long.

Glumes. Upper glume 1.5–2.25 mm long.

Florets. Fertile lemma 1.3–1.8 mm long. Lemma apex muticous. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Tasmania:** Central Highlands, Ben Lomond.

Notes. This is the taxon described by Morris (1991) as *A. sp. aff. parviflora*, and by Jacobs & Hastings (1993) as *A. sp. B*. It resembles *A. parviflora*. Named after Joy Thompson, botanist at the NSW National Herbarium.

Endemic. Central Highlands and Ben Lomond in Tas., S from Kosciusko in N.S.W. and Vic. Grows in depressions, sod tussock grasslands, and in fens, bogs and wet areas in alpine herbfields, and at the margins of rainforests. Flowers summer.

Agrostis venusta Trin. *Mem. Acad. Petersb. Ser. 6.* 6. 340 (1845). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Graceful Bent.

Type of Basionym or Protologue Information: HT: V.D.L. (LE-TRIN-1666.01 (& fig.)).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (576, as *Agrostis venusta*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (152), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (186), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (111), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (172).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (185, fig. 134), [1994] N.G.Walsh, *Flora of Victoria* 2, [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (111), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (168, Fig.25).

Derivation: Latin for beautiful, graceful. Mostly a reference to habit.

Habit. Annual. Culms erect, stature slender to delicate, 15–45 cm tall, 2-noded. Leaf-sheaths scaberulous or antrorsely scabrous or papillose. Ligule an eciliate membrane, 2–3.5(–6) mm long, lacerate, truncate or obtuse. Leaf-blades filiform, flat or conduplicate or involute, 2–8 cm long, 0.3–1(–1.5) mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, effuse, 2–15 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 2–3(–4) mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 2–3.7 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 1.5–3 mm long, without keel, 4–5-nerved. Lemma surface glabrous. Lemma apex entire or dentate, awned, 1-awned. Median (principal) awn dorsal, 3–6 mm long overall, without a column or with a twisted column. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Menzies, Warren. **South Australia:** Northern Lofty. **New South Wales:** Central Tablelands, Southern Tablelands, North-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Riverina, Snowfields, Wannon. **Tasmania:** King Island, Furneaux Group, West Coast, Central Highlands, Ben Lomond, East Coast, Mt Field, Mt Wellington.

Notes. Endemic. In damp areas, from sea level to alpine herbfields and grasslands. Flowers Oct.-Mar.

Aira caryophyllea* L. *Sp. Pl.* 1: 66 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Silver Hair Grass, Silvery Hair Grass.

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-85.22). LT designated by Clayton in Milne-Redhead & Polhill (ed.), *Fl. Trop. E. Africa*, Gramineae 1: 84 (1970).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (585), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (39), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (396), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (186), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (112), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (261 as spp. *caryophyllea*).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (187, fig. 135), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (43), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (112), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (260, Fig.35 as subsp. *caryophylla*).

Derivation: foliage resembling that of *Dianthus caryophyllus* (the Carnation or Pink).

Habit. Annual. Culms erect, 3–40(–55) cm tall, 2–3 -noded. Leaves mostly basal. Ligule an eciliate membrane, 2–5 mm long, erose, obtuse. Leaf-blades filiform, conduplicate or involute, 0.5–5.5 cm long, 0.3–1 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–12 cm long, (2–)3.5–10(–14) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong to ovate, laterally compressed, 2.3–3.1 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 2–3.1 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma (1.8–)2–2.4(–2.6) mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 2.6–3.6 mm long overall, with a twisted column. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.1–1.25 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren, Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs. **New South Wales:** Central Coast, South Coast, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** Lowan Mallee, Murray Mallee. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. Introduced. Throughout Australia except the N.T. Europe. Widespread in pastures and disturbed grassland. Flowers Sept.-Dec.

Aira caryophyllea susp. caryophyllea*

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Aira cupaniana* Guss. *Fl. Sic. Syn.* 1: 148 (1843). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Silver Hair Grass, Silvery Hair Grass.

Type of Basionym or Protologue Information: Itay: Sicily,.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (39), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (396), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (188), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (112), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (263).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (38, Pl. 9), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (86), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (43), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (188, Fig. 136), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler,

Grasses of New South Wales, 4th edn (112), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (260, Fig.35).

Derivation: from the Latin *-ana* (indicating connection). In honour of Francesco Cupani (1657–1780), Italian botanist, cleric and physician.

Habit. Annual. Culms erect or geniculately ascending, 10–40 cm tall, 2–3 -noded. Leaves mostly basal or cauline. Ligule an eciliate membrane, 1–6.2 mm long. Leaf-blades conduplicate or involute, 1–9.5 cm long, 0.3–1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong to ovate, laterally compressed, 1.3–2.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 1.3–2.3 mm long, hyaline or membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.25–2 mm long, without keel, 5 -nerved. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn dorsal, 1.8–2.5 mm long overall, with a twisted column. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond, Dale, Menzies, Warren, Eyre, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** North Kennedy, Darling Downs, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Introduced. Throughout mainland Australia except the N.T. Native to the Mediterranean. In disturbed areas or open woodland. Flowers Sept.-Mar.

Aira elegantissima* Schur. *Verh. Siebenb. Ver. Naturw.* 4: 85 (1853). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Delicate Hairgrass.

Type of Basionym or Protologue Information: Rumania, Hermannstadt: *Schur* .

Recent synonyms: *Aira elegans* Willd. ex Gaudin.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (189), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (113), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (263).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (189, fig. 137), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (43, as *A. elegans*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (113), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (260, Fig.35).

Derivation: from the Latin *elegans* (elegant) and *-issima* (most). Very attractive in some respect, usually the inflorescence.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 10–56 cm tall. Leaves mostly basal. Ligule an eciliate membrane, 3–6.2 mm long, acute. Leaf-blades filiform, flat or conduplicate or convolute, 2–8 cm long, 0.3–1.3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle obovate, effuse, 3–13 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.5–2.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–1.6 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 1.5–2 mm long overall, with a twisted column. Lodicules present. Anthers 3. Grain 0.95 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Dale, Eyre. **South Australia:** Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Riverina, Volcanic Plain, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Midlands, Ben Lomond, East Coast.

Notes. Introduced. Occurring across southern Australia and W.A., not recorded in Qld. or the N.T. Europe. Grows in pasture, disturbed grassland, waste land, roadsides or open woodland; often in drier sites on shallow, rocky soils. Flowers Sept.-Mar.

Aira praecox* L. *Sp. Pl.* 1: 62 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Early Hairgrass.

Type of Basionym or Protologue Information: CT: (LINN-85.21). LT designated by Cope, Taxon 41: 556 (1992); CT proposed by Jarvis, Taxon 41: 556 (1992).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (585), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (396), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (189), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (113), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (262).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (189, fig. 138), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (113).

Derivation: Latin for early. Flowering early in the spring.

Habit. Annual. Culms erect, 2–25 cm tall, 2–3 -noded. Mid-culm internodes glabrous or pubescent. Leaves mostly basal or cauline. Ligule an eciliate membrane, 1.5–4.3 mm long, entire, obtuse. Leaf-blades filiform, conduplicate or involute or convolute, 0.5–5 cm long, 0.3–0.6 mm wide. Leaf-blade surface smooth or scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 0.5–4.5 cm long, 0.2–0.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong to ovate, laterally compressed, 3–3.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, much thinner above, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 3–3.8 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 3.4–4.3 mm long overall, with a twisted column. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.4–1.6 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, New South Wales, Victoria, Tasmania.

Western Australia: Menzies, Eyre. **New South Wales:** Central Coast. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Wilsons Promontory, Snowfields, Volcanic Plain, Wannon. **Tasmania:** North West, North East, West Coast, Central Highlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Introduced. Temperate Australia excluding S. Australia. Native to Europe, also naturalised in the Americas and New Zealand. Usually a weed of sandy soils. Flowers July-Dec. Fruits Dec.-Jan.

Aira provincialis* Jord. ex Duval-Jouve. *Bull. Soc. Bot. Fr.* 12: 84 (1865). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: S. France,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (113), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (262).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (113).

Derivation: from the Latin *provincia* (province) and *-alis* (pertaining to). Relating to a province, in particular to Provincia, now Provence, France.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 10–50 cm tall. Ligule an eciliate membrane, 2–11 mm long, acute. Leaf-blades filiform, flat or convolute, 2–4 cm long, 0.3–1 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle obovate, effuse, 4–22 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 2.5 mm long overall, with a twisted column. Lodicules present. Anthers 3.

Continental Distribution: Europe and Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands.

Notes. Introduced. In the Blue Mtns, N.S.W. Native of Europe. Naturalised in parkland and disturbed woodland. Flowers spring-summer.

Alexfloydia repens B.K. Simon. *Austrobaileya* 3: 670 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *A.G. Floyd 2165*, 7 Apr 1991, Australia: New South Wales: North Coast Division: Boambee, Cordwells Creek, Dutton's Estate, Portion 40°30'45"S, 153°04'40"E (BRI-AQ540193; IT: BRI, CANB, DNA, K, L, MEL, MO-4616117, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (113).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (113).

Derivation: from the Latin *repo* (crawl). Rhizome well-developed.

Habit. Perennial. Stolons present. Culms decumbent, 18–24 cm tall, 3–4 -noded. Lateral branches sparsely branched. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades linear, 0.5–6 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s) (upper), without rachilla extension, elliptic, laterally compressed, 3–3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, chartaceous, 5–7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 3 mm long, chartaceous, without keels, 9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 9 -nerved.

Fertile lemma 1.5 mm long, without keel, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast.

Notes. Restricted to Boambee and Bonville areas of northern N.S.W.

Alloteropsis cimicina (L.) Stapf. *Fl. Trop. Afr.* 9: 487 (1919). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Milium cimicinum* L., *Mant.* ii. 184 (1771).

Type of Basionym or Protologue Information: India, Malabar: *Koenig* (LINN holo).

Recent synonyms: *Panicum cimicinum* (L.) Retz., *Axonopus cimicinus* (L.) P.Beauv.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. *cimex*, bug; *-ina*, resemblance. Mature spikelets bear a fanciful resemblance to a small bug.

Habit. Annual. Culms erect or geniculately ascending or decumbent, 15–120 cm tall. Mid-culm nodes bearded. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.7–1.8 mm long. Leaf-blades linear or lanceolate or ovate, 1.5–15 cm long, 4–20 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 4–11, 7–25 cm long. Central inflorescence axis 0–10 cm long.

Spikelets. Spikelets pedicelled, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, elliptic or ovate, dorsally compressed, 3.5–5.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume apex muticous. Upper glume ovate, 3.4–5 mm long, cartilaginous, without keels, 5 -

nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.4–5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 2–4.5 mm long overall. Palea apex entire. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, Leichhardt, Mitchell, North Kennedy, South Kennedy.

Notes. *Alloteropsis cimicina* can be distinguished from *A. semialata* by the annual habit, shape of the leaf blades and by the presence of the globose hairs on the upper palea.

Occurs throughout the tropics of the Old World. In tropical and subtropical sub-humid woodlands and coastal grasslands. It has little or no economic importance and the presence of coumarin, an aromatic substance, makes it a poor fodder species. Flowers mostly Jan.-May.

Alloteropsis semialata (R.Br.) Hitchcock. *Contr. U. S. Nat. Herb.* 12: 210 (1909). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Cockatoo Grass.

Basionym and/or Replacement Name: *Panicum semialatum* R.Br., *Prodromus Florae Novae Hollandiae* 1: 192. 1810.

Type of Basionym or Protologue Information: Australia:, *R. Brown 6101* (HT: BM; IT: K, US-75473 (fragm.)) *Littora Novae Hollandiae* intra tropicum.

Recent synonyms: *Axonopus semialatus* (R.Br.) Hook., *Alloteropsis eckloniana* (Nees) Hitchc.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum semialatum*), [1878] G.Bentham, *Flora Australiensis* 7 (472 as *Panicum semialatum*, 545 as *Arundinella schultzei*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (231), [1969] E.E.Henty, *Manual Grasses New Guinea* (25), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (114).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (229, Pl. 68), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (88), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (45), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (114).

Derivation: *L. semi*, half; *ala*, wing; *-ata*, possessing; Upper glumes winged.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 20–150 cm tall. Mid-culm internodes glabrous. Mid-culm nodes bearded. Lateral branches simple. Leaves basal and cauline. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane (ca 0.75mm) or a fringe of hairs, a ciliate membrane (ca 0.75mm), 0.4–0.6 mm long. Leaf-blades filiform, flat or convolute, 10–50 cm long, 1–10 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 2–4(–8), 2–22 cm long.

Spikelets. Spikelets pedicelled, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, ovate, dorsally compressed, 4–7.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume apex mucronate or awned. Upper glume ovate, 4.5–7 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5 -nerved.

Fertile lemma 3.5–7 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–3 mm long overall. Lodicules present. Anthers 2 or 3. Grain 1.3–1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes.

Notes. Extremely variable in the size and shape of the inflorescence and vegetative parts. On some specimens the area from the last lateral nerve and the margin reflexes outward and produces a distinctly winged spikelet. Ellis (1974) found both the Kranz and non-Kranz leaf anatomy in this species and discussed the significance of this unique situation. Gibbs Russell (1983), working with African material, correlated certain leaf

characteristics with leaf anatomy and recognized a subspecies, *A. semialata* subsp. *eckloniana* (Nees), Gibbs Russell) for the C3 specimens. This treatment could not be applied to Australian specimens.

In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, and coastal grasslands. Common throughout the tropics and subtropics of Australia. Flowers sporadically throughout the year but mostly Dec.-May.

Alopecurus aequalis* Sobol. *Flora Petropolitana* 16 (1799). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Habitat in locis uliginosis cum *Alopecurus geniculatus*, in lacubus natans est, *Sobolewski s.n.* (HT: LE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (190), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (253).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (191, fig. 139), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32).

Derivation: *L. aequus*, equal; *-alis*, pertaining to. Glumes or lemmas similar in length.

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent, 10–35 cm tall. Ligule an eciliate membrane, 2–5 mm long, acute. Leaf-blades 2–10 cm long, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–5 cm long, 0.3–0.6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, laterally compressed, 2–3.1 mm long.

Glumes. Glumes similar. Lower glume elliptic or oblong, membranous, keeled, 1-keeled, wingless, 3 -nerved. Lower glume surface indumented. Upper glume elliptic or oblong or ovate, 2–3.7 mm long, membranous, keeled, 1-keeled, wingless, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2–3.2 mm long, keeled, 4–5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn dorsal, 1–4 mm long overall. Palea absent. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales, Victoria.

New South Wales: South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Lowan Mallee, Murray Mallee, Riverina, Wannon, Wimmera.

Notes. Introduced. Recorded from Vic. and far SW, N.S.W. Native to most of Europe, Asia and North America. In wet places such as swampy areas and irrigation channels. Flowers Dec. Fruits Sept.-Mar.

Alopecurus geniculatus* L. *Sp. Pl.* 1: 60 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Marsh Foxtail.

Type of Basionym or Protologue Information: LT: *Herb. Burser* 1: 26, (UPS). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 245 (2000).

Recent synonyms: *A. australis* Nees.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (555), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (143 as *A. australis*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (435), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (190), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (115), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (255).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (90), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (191, fig. 140), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115).

Derivation: *L. genus*, knee; *-ulus*, diminutive. *-ata*, possessing. Plants with bent culms or awns.

Habit. Perennial. Culms erect or geniculately ascending or decumbent, 15–45 cm tall, 1–5 -noded. Ligule an eciliate membrane, 2–5 mm long, obtuse or acute. Leaf-blades 2–12 cm long, 1–7 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1.5–7 cm long, 0.3–0.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.5–3.5 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, wingless, 3 -nerved. Lower glume surface indumented. Upper glume oblong, 2.5–3.5 mm long, membranous, keeled, 1-keeled, wingless, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.3–3.5 mm long, keeled, 4–5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 3.5–7.7 mm long overall, with a twisted column. Palea absent. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Austin. Avon. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Gregory South, Maranoa, Warrego. **New South Wales:** Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Wannon, Wimmera. **Tasmania:** King Island, North East, Midlands, East Coast.

Notes. Clarke states "lemma ... margins free", but all Australian material, and European material under this name at CANB has the lemma connate for half its length.

Introduced. Throughout Australia except the N.T. Native to Europe, Asia and North America, widely introduced elsewhere. In damp lowland areas, occasionally partly submerged. Flowers Aug.-Nov. Fruits Oct.-Jan.

Alopecurus myosuroides* Huds. *Fl. Angl.* 23 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Slender Foxtail, Blackgrass, Black Twitch.

Type of Basionym or Protologue Information: In arvis et ad vias, *Hudson s.n.*.

Recent synonyms: *A. agrestis* L.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (145 as *A. agrestis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (397), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (191), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (115), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (256).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (192, fig. 141), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115).

Derivation: Gk. *mys*, mouse; *ourus*, tail; -oides, resemblance. Inflorescence resembling the tail of a mouse.

Habit. Annual. Culms erect or geniculately ascending or decumbent, 18–80 cm tall. Ligule an eciliate membrane, 2–5 mm long, truncate. Leaf-blades 3–16 cm long, 2–8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–12 cm long, 0.3–0.6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4.5–7 mm long.

Glumes. Glumes similar. Lower glume lanceolate or oblong or ovate, membranous or coriaceous, keeled, 1-keeled, winged on keel, winged narrowly, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate or oblong or ovate, 4.5–7 mm long, membranous or coriaceous, keeled, 1-keeled, winged on keel, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 4.5–7 mm long, keeled, 4–7 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn dorsal, 8–14 mm long overall, with a straight or slightly twisted column or with a twisted column. Palea absent. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Tasmania.

Western Australia: Drummond. **South Australia:** South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** North Coast, Central Tablelands, Central-Western Slopes. **Tasmania:** East Coast.

Notes. Minor weed species.

Introduced. Native of Europe. Weed of cultivated or disturbed ground.

Alopecurus pratensis* L. *Sp. Pl.* 1: 60 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Meadow Foxtail.

Type of Basionym or Protologue Information: LT: (LINN-82.1). LT designated by Cope, *Regnum Veg.* 127: 17 (1993).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (145), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (193), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (115), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (253 as spp. *pratensis*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (144, Pl. 42), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (193, fig. 142), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (115).

Derivation: L. *pratium*, a meadow; -ense, place of origin. Meadow species.

Habit. Perennial. Culms erect or geniculately ascending, 30–120 cm tall. Ligule an eciliate membrane, 1–2.5 mm long, obtuse. Leaf-blades 6–40 cm long, 3–10 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–13 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, laterally compressed, 4–6.2 mm long.

Glumes. Glumes similar. Lower glume elliptic or oblong, membranous, keeled, 1-keeled, wingless, 3 -nerved. Lower glume surface indumented. Upper glume elliptic or oblong, 4–6 mm long, membranous, keeled, 1-keeled, wingless, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 4–6 mm long, keeled, 4–5 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn dorsal, 6–10 mm long overall. Palea absent. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Austin. Dale, Menzies. **South Australia:** Murray, Southern Lofty. **New South Wales:** Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Otway Plain, Otway Range, Volcanic Plain. **Tasmania:** Midlands, East Coast.

Notes. Introduced. Occurring in temperate Australia. Native to Europe, naturalised in the Americas and New Zealand. Wet areas, useful as a pasture grass in areas of moderate to high rainfall. Flowers Aug.-Feb.

Alopecurus pratensis subsp. pratensis*

Amelichloa brachychaeta* (Godr.) Arriaga & Barkworth. *Sida* 22: 147 (2006). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Common name: Espartillo.

Basionym and/or Replacement Name: *Stipa brachychaeta* Godr., *Mem. Sect. Sci. Acad. Sci. Montpellier* 1: 450 (1853).

Type of Basionym or Protologue Information: HT: *Anon.*, 22 May 1848, France: du Port Juvenal Cultivé au Jardin Botanique (MPU (fragm.); OM: BAA-2979, hojas a & b (fragm.) de un probable ejemplar tipo). HT (probable).

Recent synonyms: *Achnatherum brachychaetum* (Godr.) Barkworth, *Jarava brachychaeta* (Godr.) Barkworth.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Achnatherum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (116 as *Achnatherum*), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (13 as *Achnatherum*), [1989] T.D.Stanley & E.Ross. *Flora of South East Queensland, Gramineae* 3 (116).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Achnatherum brachychaetum*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (116).

Derivation: from the latin *brachy* (short) and *chaeta* (bristle).

Habit. Perennial. Culms erect, 40–100 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.1–0.5 mm long, abaxially pilose, truncate. Leaf-blades filiform, flat or involute or convolute, 8–35 cm long, 0.5–3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 1–3 -nerved. Upper glume lanceolate, 5.5–8 mm long, hyaline, without keels, 1–3 -nerved.

Florets. Fertile lemma 4–5.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 10–18 mm long overall, with a straight or slightly twisted column. Column 2–6 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2–3 mm long (x0.9–1mm).

Continental Distribution: Australasia and South America.

Australian Distribution: New South Wales.

New South Wales: North-Western Slopes, Central-Western Slopes.

Notes. This species was confused with, and known by the same name as, the next species prior to the article by J.Everett & S.W.L.Jacobs, *Telopea* 4: 7–11 (1990).

Introduced from South America, recorded from near Merriwa (CWS) and Quirindi (NWS), New South Wales.

Amelichloa caudata* (Trin.) S.W.L.Jacobs & J.Everett. *Sida* 22: 148 (2006). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa caudata* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math* 1(1): 75 (1830).

Type of Basionym or Protologue Information: HT: *J. Lindley s.n.*, specimina Chilensia (LE-TRIN-1392.01 (& fig.) (photo, SGO-73107); IT: BAA-3001 (fragm.), US-2489479 (fragm. ex LE)).

Recent synonyms: *Achnatherum caudatum* (Trin.) S.W.L.Jacobs & J.Everett, *Jarava caudata* (Trin.) S.W.L.Jacobs & J.Everett.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Achnatherum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (116 as *Achnatherum*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (13 as *Achnatherum*), [1989] T.D.Stanley & E.Ross. *Flora of South East Queensland, Gramineae* 3 (116).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Achnatherum caudatum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (116).

Derivation: from the Latin *cauda* (tail) and *-ata* (possessing), referring to the elongated glumes.

Habit. Perennial. Culms erect, 55–100 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.1–0.5 mm long, abaxially pilose, truncate or obtuse. Leaf-blades straight or curved, filiform or linear, flat or involute or convolute, 25–70 cm long, 1–7 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 14–45 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 5–11 mm long, hyaline, without keels, 3 -nerved. Upper glume surface scabrous, glabrous or indumented.

Florets. Fertile lemma 4–6 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 12–25 mm long overall, with a straight or slightly twisted column. Column 2–9 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2–3 mm long (x1–1.4mm).

Continental Distribution: Australasia and South America.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: North-western (as *Achnatherum*), Flinders Ranges. **New South Wales:** Central-Western Slopes, South-Western Slopes. **Victoria:** Midlands. **Tasmania:** Furneaux Group.

Notes. An introduction from South America, uncommon on roadsides on the Western Slopes of New South Wales, from the Dunolly and Castlemaine districts of Victoria, where it appears to be spreading, and from Tasmania, where it is scattered on Flinders I. in Bass Strait.

Ammophila arenaria subsp. arenaria* (L.)Link. *Hort. Berol.* 1: 105 (1827). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Marram Grass.

Basionym and/or Replacement Name: *Arundo arenaria* L. *Species Plantarum* 1: 82. 1753.

Type of Basionym or Protologue Information: LT: (LINN-97.17). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 247 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (159), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (397), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (193), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (117), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (238 as spp. *arenaria*), [1989] T.D.Stanley & E.Ross. *Flora of South East Queensland, Gramineae* 3 (117).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (157, Pl. 47), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (194, Fig. 143), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (117), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (236, Fig.33).

Derivation: *L. arena*, sandy place; -*aria*, pertaining to. Of sandy habitats.

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 50–120 cm tall, 4-noded. Ligule an eciliate membrane, 10–30 mm long, acuminate. Leaf-blades involute or convolute, 20–60 cm long, 2–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 7–22.5 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 10–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 10–16 mm long, chartaceous, keeled, 1-keeled, 2–3-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 8–12 mm long, keeled, 5–7-nerved. Lemma apex entire or dentate, mucronate or awned. Median (principal) awn subapical, 0.25–0.5 mm long overall. Palea 2–4-nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond, Warren. **South Australia:** Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast. **Victoria:** East Gippsland, Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** No region given.

Notes. Coastal in all states except Qld & N.T. Native to the coasts of western Europe. Initially planted in many areas to stabilise coastal sand dunes, now naturalised. Flowers Sept.-Feb.

Amphibromus archeri* (Hook.f.) P.Morris. *Victorian Naturalist* 51:146 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Pointed Swamp Wallaby Grass.

Basionym and/or Replacement Name: *Danthonia archeri* Hook. f. *Flora Tasmaniae* 2: 122, t. 163B. 1858.

Type of Basionym or Protologue Information: ST: *Archer* 28, Australia: Tasmania: Cheshunt (K(central culm only); ILT: NSW). LT designated by Jacobs & Lapinuro, *Telopea* 2: 726 (1986).

Recent synonyms: *A. archeri* var. *papillosus* P.Morris.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (195), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (134).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (196, fig. 144), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20).

Derivation: in honor of William Archer (1820–74), English-born Tasmanian botanist.

Habit. Perennial. Culms erect, 60–120 cm tall, 1–3 mm diam., 2–4-noded. Mid-culm nodes glabrous. Leaf-sheaths smooth. Ligule an eciliate membrane, 4.5–12.5 mm long, acute. Leaf-blades flat or involute, 15–32 cm long, 2.5–5 mm wide. Leaf-blade surface smooth or scaberrulous, indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle 15–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 12–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5-nerved. Upper glume elliptic, 6.4–9.2 mm long, membranous, keeled, 1-keeled, 5–7-nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 6–8 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1–5 -awned. Median (principal) awn dorsal, 14.5–18 mm long overall, with a twisted column. Column 5–7.5 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.7–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Flinders Ranges, Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Wannon. **Tasmania:** North East, Central Highlands, Midlands, East Coast.

Notes. Endemic. In damp areas such as lagoons, waterholes and swamps, often on predominantly sandy soils.

Amphibromus fluitans Kirk. *Trans. & Proc. New Zealand Inst.* 16: 374 (1884). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: T. Kirk s.n., New Zealand: Waihi Lake, Waikato (WELT-68389). LT designated by Edgar & Connor, *Fl. New Zealand* 5: 298 (2000).

Recent synonyms: *Amphibromus gracilis* P. Morris.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (118), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (136), [1989] T.D.Stanley & E.Ross. *Flora of South East Queensland, Gramineae* 3 (118).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (118), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20).

Derivation: L. *fluito*, float. Leaves or rhizomes floating.

Habit. Perennial. Rhizomes absent or present. Stolons absent or present. Culms decumbent, 40–75 cm tall, 0.5–1.5 mm diam., 3–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 6.5–12 mm long, acute. Leaf-blades flat or involute, 10–25 cm long, 2–4.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 15–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4(5)-6-10(-12)), comprising (5-)6-10(-12) fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 9–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 3.4–4.5 mm long, chartaceous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 3.7–5 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 11–17 mm long overall, without a column or with a straight or slightly twisted column or with a twisted column. Lodicules present. Anthers 3. Grain 1.3–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: South-Western Slopes, South-Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Riverina, Wannon.

Notes. Also in N.Z. Usually in permanent swamps. Flowers Nov.-Mar.

Amphibromus macrorhinus S.W.L.Jacobs & Lapinuro. *Telopea* 2: 723 (1986). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Victoria: on the Wangaratta road, 6 mi [10 km] from Whitfield, 1 Nov 1960, small tussocks beside road in open position in flat farmland, *T. B. Muir 1682* (HT: NSW; IT: AD-96734057, MEL-100562).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (197), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (118), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (133), [1989] T.D.Stanley & E.Ross. *Flora of South East Queensland, Gramineae* 3 (118).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (197, fig. 145), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (118), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20).

Derivation: Gk. *makros*, large; *rhis*, nose. Lemma apex drawn out.

Habit. Perennial. Culms erect, 50–100 cm tall, 1–2.5 mm diam., 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 6–17 mm long, acute. Leaf-blades flat or involute, 15–30 cm long, 1.5–4 mm wide. Leaf-blade surface smooth to scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 20–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 10–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1–4 -nerved. Upper glume lanceolate, 4.2–7.5 mm long, membranous, keeled, 1-keeled, 5 -nerved. Upper glume surface smooth or papillose.

Florets. Fertile lemma 3.5–8 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 10–19 mm long overall, with a straight or slightly twisted column or with a twisted column. Column 3.5–6.8 mm long. Lodicules present. Anthers 3. Grain 1.5–2.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Riverina, Wannon, Wimmera. **Tasmania:** Midlands.

Notes. Similar to *A. nervosus* but distinguished by the awn which is inserted lower down, and the more drawn-out and chartaceous lemma apex.

Endemic. In southern Australia. Grows on floodplains and banks of inland and coastal rivers of southern Australia. Flowers in response to rain or flooding, often Oct.-Dec.

Amphibromus neesii Steud. *Syn. Pl. Glumac.* 1: 328 (1854). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Gunn 995, second sheet, left-hand specimen*, Van Diemen Land (K). LT designated by Jacobs & Lapinuro, *Telopea* 2: 718 (1986).

Recent synonyms: *Helicotrichon neesii* (Steudel) C.A.Stace.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (589), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (36), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (197), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (118), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (131).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (31 & 35, Pl. 7 & 8), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (198, fig. 146), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (47), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (118), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (118).

Derivation: in honor of Christian Gottfried Daniel Nees von Esenbeck (1766–1858) German botanist.

Habit. Perennial. Rhizomes absent or present, elongated. Culms erect, 80–150 cm tall, 1–2.5 mm diam., 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 4.5–10 mm long, acute. Leaf-blades flat or involute, 15–37 cm long, 2–4 mm wide. Leaf-blade surface smooth to scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 15–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5(–6)), comprising 2–5(–6) fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 8–14(–17) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 3–5 -nerved. Upper glume lanceolate, (4.6–)6.4–7.5(–8) mm long, membranous, keeled, 1-keeled, 5–7 -nerved.

Florets. Fertile lemma 5.9–8.4(–9) mm long, without keel, 5–7 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 13.8–25.5 mm long overall, with a twisted column. Column 4.8–6.5 mm long. Lodicules present. Anthers 3. Grain 2–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: South-eastern. **New South Wales:** Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North East, West Coast, Midlands, East Coast.

Notes. Previously often confused with *A. nervosus*.

Endemic. In SE Australia. Grows on floodplains and banks of inland rivers, and in marshes and lagoons, and flowers in response to rain or flooding. Flowers Oct.-Apr.

Amphibromus nervosus (Hook.f.) Baill. *Hist. Pl.* 12: 203 (1893). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Danthonia nervosa* Hook. f. *Flora Tasmaniae* 2: 121, t. 163A. 1858.

Type of Basionym or Protologue Information: LT: *R. Brown* 6622, Australia (BM, sheet with the original label; ILT: BM). LT designated by Jacobs & Lapinuro, *Telopea* 2: 721 (1986).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (397), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (198), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (119), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (132).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (198, fig. 147 & plate 6), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (119), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (119).

Derivation: *L. nervus*, nerve; -osa, abundance. With conspicuous nerves in the glumes or lemmas.

Habit. Perennial. Culms erect, 60–125 cm tall, 1–3 mm diam., 2–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 10–20 mm long, acute. Leaf-blades flat or involute, 15–30 cm long, 1.5–3.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 20–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 10–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3(–5) -nerved. Upper glume lanceolate, (3.1–)4.5–6.2(–6.7) mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 5–7.2 mm long, without keel, 5–7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 12–22 mm long overall, with a twisted column. Column 4–8.5 mm long. Lodicules present. Anthers 3. Grain 1.36–2.15 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Austin, Irwin, Drummond, Dale, Menzies, Warren, Eyre, Roe, Avon, Coolgardie. **South Australia:** Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain, Grampians, Midlands, Murray Mallee, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Closely resembling *A. neesii*, but distinguished by the awn, which arises from lower on the back of the lemma, the usually more scabrous lemma and the broader lemma apex.

Endemic. In southern mainland Australia. Swamps, floodplains and banks of inland rivers of southern mainland Australia. Flowers in response to rain or flooding.

Amphibromus pithogastrus S.W.L.Jacobs & Lapinuro. *Telopea* 2: 724 (1986). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Norway, via Oberon, 26 Jan 1953, moist situation, near swamp, *J. Vickery s.n.* (NSW-149945).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (119), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (133).

Illustrations: [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (119).

Derivation: Gk *pithos*, large earthenware winw-jar; *gaster*, belly. At maturity the lemma is completely swollen.

Habit. Perennial. Culms erect, 50–100 cm tall, 1–2 mm diam., 2–3 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–5 mm long, acute. Leaf-blades flat or involute, 10–20 cm long, 1.5–5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 8–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume elliptic, 4.7–7.3 mm long, membranous, keeled, 1-keeled, 5–7 -nerved.

Florets. Fertile lemma 5.6–7.5 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 9–16 mm long overall, with a twisted column. Column 3–5 mm long. Lodicules present. Anthers 3. Grain 1.6–2.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes.

Victoria: Eastern Highlands, Midlands, Volcanic Plain.

Notes. Similar to *A. neesii* but differing in the dark-coloured veins, the longer lemma lobes and the more swollen lemma.

Endemic. Grows in seasonally swampy areas. Flowers in response to rain or flooding; Nov.

Amphibromus recurvatus Swallen. *Amer. Journ. Bot.* 18: 415 (1931). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: collected in Broad River Valley National Park, Tasmania, Feb 1919, *L. Rodway* 1225 (HT: US-1447361) Swallen erroneously cited the collector as R.A. Black and the year as 1929, fide: Jacobs & Lapinuro, *Telopea* 2: 719 (1986).

Recent synonyms: *Helictotrichon recurvatum* (Swallen) T.A.Cope & T.B.Ryves.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (199), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (131).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (199, fig. 148), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig 20).

Derivation: L. reflexed. Spikelets with spreading or reflexed awns.

Habit. Perennial. Culms erect, 80–150 cm tall, 1–1.5 mm diam., 3–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 4–11 mm long, acute. Leaf-blades flat or involute, 15–30 cm long, 2–3.5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, 4–5.5 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 4–5.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 9–18 mm long overall, with a straight or slightly twisted column. Column 3.3–3.5 mm long. Lodicules present. Anthers 3. Grain 1.8–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Otway Plain, Volcanic Plain, Wannon. **Tasmania:** North West, North East, West Coast, Central Highlands, East Coast, South West, Mt Field.

Notes. Endemic. In wet areas such as lagoons, swamps and mountain tarns, from sea-level to about 1100 m. Flowers Nov.–Jan.

Amphibromus sinuatus S.W.L.Jacobs & Lapinuro. *Telopea* 2: 727 (1986). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Northern Tablelands: northern end of Llangothlin Lagoon, c. 4.5 km E of highway, 30.02S 151.46E, *Lapinuro*, *Jacobs & Wilson* 17 (NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (200), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (119), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (136).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (199, fig. 149), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (119), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20).

Derivation: *L. sinus*, curve; -ata, possessing. Lemma apex sinuate.

Habit. Perennial. Stolons present. Culms geniculately ascending or decumbent, 40–70 cm tall, 0.8–2 mm diam., 1–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 5–11 mm long, acute or acuminate. Leaf-blades 8–17 cm long, 1–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–21 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 9–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, (3.5–)4.3–6 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma (4.5–)6.2–8.2 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 14–26 mm long overall, with a straight or slightly twisted column or with a twisted column. Lodicules present. Anthers 3. Grain 2.3–2.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: South-eastern. **New South Wales:** Northern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Wannon. **Tasmania:** Midlands.

Notes. Endemic. In Tas. restricted to farm dams in the Midlands and the margins of L. Crescent, Vic. and N.S.W. in cold areas, permanent swamps. Flowers Nov.-Jan.

Amphibromus vickeryae S.W.L.Jacobs & Lapinpuro. *Telopea* 2: 725 (1986). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Darling: Beechboro, 3 mi [5 km] N of Guildford, Dec 1901, *Fitzgerald s.n.* (NSW-117393).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (134).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (135, Fig.20).

Derivation: in honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

Habit. Perennial. Culms erect, 50–100 cm tall, 1–3 mm diam., 4–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 9–12 mm long, acute. Leaf-blades 15–35 cm long, 3–4 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 7–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, oblong, laterally compressed, 8–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 3.6–4 mm long, membranous, keeled, 1-keeled, 5 -nerved.

Florets. Fertile lemma 5–5.5 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1–5 -awned. Median (principal) awn dorsal, 10–12 mm long overall, with a twisted column. Column 4–5 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Close to *A. nervosus*, differing in the more robust habit, larger lemmas, the short bristle produced at the end of each lemma lobe, and the more uniformly, finely hispid lemma back.

Endemic. Wet areas of coastal districts in the Darling region of W.A.

Amphibromus whitei C.E.Hubb. *Bull. Misc. Inf. Kew* 30 (1941). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Queensland: Maranoa District: Roma, on edge of large fresh-water swamp, 25 Oct 1933, *White 9580* (HT: K; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (132).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (92).

Derivation: in honor of Cyril Tenison White (1890–1950) Australian botanist.

Habit. Perennial. Culms erect or geniculately ascending, 20–35 cm tall, 3 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 4–8 mm long. Leaf-blades 7–15 cm long, 1–1.8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–10 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1–3 -nerved. Upper glume ovate, 2.3–3 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 3–4.5 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 8–14 mm long overall, with a twisted column. Anthers 1–3. Grain 1.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Maranoa.

Notes. Known only from the type location, Qld.

Amphipogon amphipogonoides (Steud.) Vickery. *Contrib. N. S. Wales Nat. Herb.* 1: 286 (1950).

Classification. (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Basionym and/or Replacement Name: *Pentacraspedon amphipogonoides* Steud., *Syn. Pl. Glumac.* 1: 151 (1854).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (138), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (398).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (136, Pl. 41).

Derivation: Gk. *-oides*, resembling. Gk. *amphi-*, double; pogon, beard. Both lemmas have several awns arising from incisions at their apices.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 20–40 cm tall, 3–6 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1–1.5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 5–7 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 3.5–4 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed. Palea 2 -nerved, without keels. Palea apex lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Warren.

Amphipogon avenaceus R.Br. *Prodr.* 175 (1810). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6229, no date, Australia: Western Australia, New Holland (BM; IT: US-75457 (fragm. ex BM)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. *-acea*, resembling. With inflorescences and/or spikelets similar to those of *Avena*.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 20–35 cm tall, 3–5 -noded. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 1–2 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 4 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 12–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, much thinner on margins, without keels, 3 -nerved. Upper glume lanceolate, 10–12 mm long, scarious, without keels, 3 -nerved.

Florets. Fertile lemma 8–9 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 4 mm long overall. Lateral lemma awns present. Palea 2 -nerved, without keels. Palea apex lobed, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Menzies, Warren, Eyre.

Amphipogon caricinus F.Muell. *Linnaea* 25: 445 (1852). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: LT: *Mueller s.n.*, Nov. 1851, Australia: South Australia (MEL). LT designated by Vickery, *Contr. New South Wales Herb.* 1(5): 289 (1950).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (447), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (281), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (120).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 2, A-E as var. *caricinus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (282, Fig. 218 as var. *caricinus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (120).

Derivation: *L. carex*, reed-grass; *-inus*, belonging to. Similar to *Carex*.

Habit. Perennial. Culms erect, 20–50 cm tall, 4-noded. Ligule a fringe of hairs. Leaf-blades convolute, 10–15 cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 2–4(–6) cm long.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent or rudimentary. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 6–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, chartaceous, without keels, 3-nerved. Upper glume ovate, 6–7 mm long, chartaceous, without keels, 3-nerved. Upper glume surface scabrous.

Florets. Fertile lemma 5–6 mm long, without keel, 3-nerved. Lemma surface glabrous or indumented. Lemma apex lobed, awned, 3-awned. Median (principal) awn 2.5–3 mm long overall. Lateral lemma awns present. Palea 2-nerved, without keels. Palea apex lobed, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Dampier. Giles, Fortescue, Ashburton, Carnarvon, Austin. Irwin, Dale, Menzies, Eyre, Roe, Avon, Coolgardie. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Burnett, Darling Downs, Gregory North, Maranoa, Mitchell, North Kennedy, Warrego, South Kennedy. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Grampians, Murray Mallee.

Notes. Infra-specific taxa: var. *caricinus*, var. *scaber*.

Lemmas with two vertical bands of hairs in lower part

A. caricinus var. *caricinus*

Lemmas uniformly hairy below lobes

A. caricinus var. *sericeus*

Bristles ciliate to tips

A. caricinus var. *scaber*

Bristles scabrous

Amphipogon caricinus var. *caricinus*

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Amphipogon caricinus var. *scaber* Vickery. *Contr. New South Wales Natl. Herb.* 1: 292 (1950).

Classification. Type of Basionym or Protologue Information: HT: *C.E. Hubbard* 5688, 11 Mar 1931, Australia: Queensland: Stanthorpe, 3000 ft. altitude, granite residue soil (NSW; IT: K, L, MO-2820808).

Australian Distribution: Queensland.

Amphipogon debilis R.Br. *Prodr.* 1: 175 (1810). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6228, no date, Australia: Western Australia: New Holland (BM; IT: K, US-75456 (fragm. ex BM)).

Recent synonyms: *A. debilis* var. *fallax* Domin, *J. Linn. Soc., Bot.* 41: 275 (1912).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [1878] G.Bentham, *Flora Australiensis* 7 (597), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (137), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (398).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (135, Pl. 40).

Derivation: L. weak. Culms decumbent often much branched at the base.

Habit. Perennial. Culms geniculately ascending or decumbent, 10–20 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades filiform, involute, 1–12 cm long, 1–2 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 1–2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 3 -nerved. Upper glume ovate, 3.5 mm long, membranous, without keels, 3 -nerved. Upper glume apex dentate.

Florets. Fertile lemma 7–10 mm long, without keel, 3 -nerved. Lemma apex lobed. Palea 2 -nerved. Palea apex lobed, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond, Dale, Menzies, Warren, Eyre, Roe.

Amphipogon laguroides R.Br. *Prodr.* 175 (1810). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6225, no date, Australia: Western Australia: New Holland (BM; IT: K, US-75455 (fragm. ex BM)).

Recent synonyms: *Amphipogon laguroides* R.Br. subsp. *havelii* T.D.Macfarl.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [1878] G.Bentham, *Flora Australiensis* 7 (599 as *Amphipogon laguroides*, *Amphipogon cygnorum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (138), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (399).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (135, Pl. 40).

Derivation: Gk. *-oides*, resembling. Resembling *Lagurus* in respect of the inflorescence.

Habit. Perennial. Rhizomes absent or present, short. Culms erect, 25–30 cm tall, 4–5 -noded. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades flexuous, convolute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate or globose, 1–1.5 cm long.

Spikelets. Spikelets sessile. Basal sterile spikelets rudimentary. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 5–6 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 4–5 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 5–6 mm long overall. Lateral lemma awns present. Palea 2 -nerved, without keels. Palea apex lobed, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Menzies, Warren.

Notes. Infra-specific taxa: subsp. *laguroides*, subsp. *havelii* T.Macfarlane.

Spikelets 7–18 mm long including awns; leaves soft **A. laguroides** subsp. **laguroides**

Spikelets c.25 mm long including awns; leaves stiff **A. laguroides** subsp. **havelii**

Amphipogon laguroides subsp. laguroides

Australian Distribution: Western Australia.

Amphipogon laguroides subsp. havelii T.Macfarlane. *Fl. Australia* 43: 374 (2002).

Classification. Type of Basionym or Protologue Information: Australia: Western Australia, Christmas Tree Well, Brookton Highway, Beverley, 6 Jun 2000, *F. Hart & J. Hart 891* (HT: PERTH; IT: NSW).

Australian Distribution: Western Australia.

Amphipogon sericeus (Vick.)T.D.Macfarl. *Fl. Australia* 43: 375 (2002). **Classification.** (GPWG 2001) : Subfamily Arundinoideae.

Basionym and/or Replacement Name: *Amphipogon caricinus* var. *sericeus* Vickery, *Contr. New South Wales Natl. Herb.* 1: 290 (1950).

Type of Basionym or Protologue Information: Australia: Queensland: Mt. Howitt Station, about eighty miles W. of Eromanga on drifted sand, *S.T. Blake 4/7/1936* (HT: STB-12064; IT: NSW-2708).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *A. caricinus* var. *sericeus*).

Inflorescence. Inflorescence solid, a panicle.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Amphipogon setaceus (R. Br.) T.Macfarlane. *Fl. Australia* 43: 374 (2002). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Basionym and/or Replacement Name: *Diplopogon setaceus* R.Br., *Prodromus Florae Novae Hollandiae* 176. 1810.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (176 as *Diplopogon setaceus*), [1878] G.Bentham, *Flora Australiensis* 7 (573 as *Diplopogon setaceus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (140 as *Diplopogon setaceus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Diplopogon setaceus*), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (412 as *Diplopogon setaceus*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (141, Pl.42 as *Diplopogon*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 2, J-M).

Derivation: L. seta, bristle; -acea, indicating resemblance.

Habit. Perennial. Culms 30–60 cm tall. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 15–25 cm long, 1 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle globose, 1–2.5 cm long.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent or rudimentary, 0–3 in number. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume elliptic, 7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 4–5 mm long overall, with a twisted column. Lateral lemma awns present. Palea 2 -nerved, without keels. Palea apex dentate, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Warren, Eyre.

Amphipogon strictus R.Br. *Prodr.* 175 (1810). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6227, no date, Australia: New South Wales (BM; IT: K, US-75453 (fragm. ex BM)).

Recent synonyms: *A. strictus* var. *brevisetus* Vickery, *A. strictus* var. *setifer* Benth., *A. strictus* var. *hirsutus* Vickery.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [1878] G.Bentham, *Flora Australiensis* 7 (597), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (137), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (283), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (120).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (135, Pl. 40), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (94), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (49), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 2, N-O), [2006] J.Jessop,

G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (283, Fig. 219 as var. *setifer*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (120 as var. *stricus*).

Derivation: L. erect. Inflorescence branches erect.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 25–35 cm tall, 3-noded. Mid-culm nodes glabrous. Leaves basal and cauline. Ligule a fringe of hairs. Leaf-blades convolute, 1–15 cm long, 2 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 1–2 cm long, 0.5 cm wide.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent or rudimentary, 0–3 in number. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 8–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3-nerved. Upper glume ovate, 5–7 mm long, membranous, without keels, 3-nerved.

Florets. Fertile lemma 6–8 mm long, without keel, 3-nerved. Lemma surface indumented. Lemma apex lobed, awned, 3-awned. Median (principal) awn 2–3.5 mm long overall. Lateral lemma awns present. Palea 2-nerved, without keels. Palea apex dentate, awned. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Carnegie, Helms, Fortescue, Ashburton, Carnarvon, Austin, Eucla, Irwin, Drummond, Menzies, Warren, Eyre, Roe, Avon, Coolgardie. **Northern Territory:** Victoria River, Central Australia North, Central Australia South. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Wannon.

Amphipogon turbinatus R.Br. *Prodr.* 175 (1810). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Amphipogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6226, no date, Australia: Western Australia: New Holland (BM; IT: US-75452 (fragm. ex BM)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [1878] G.Bentham, *Flora Australiensis* 7 (599), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (139), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (399).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (136, Pl. 41), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 2,F-I).

Derivation: L. *turbo*, a top; -*ata*, possessing. Spikelets top-shaped.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 30–50 cm tall. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades curved, filiform, involute, 10–15 cm long, 2–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle obovate, 1.5 cm long, 1.5 cm wide.

Spikelets. Spikelets pedicelled. Basal sterile spikelets rudimentary. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume lanceolate, 8–10 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented. Upper glume apex awned.

Florets. Fertile lemma 6–8 mm long, without keel, 3-nerved. Lemma surface indumented. Lemma apex lobed, awned, 3-awned. Median (principal) awn 6–8 mm long overall. Lateral lemma awns present. Palea 2-nerved, without keels. Palea apex lobed, awned. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond, Dale, Menzies, Eyre, Roe, Avon.

Ancistrachne maidenii (A.A.Ham.)Vickery. *Contrib. N. S. Wales Nat. Herb.* 3: 83 (1961). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Eriochloa maidenii*.

Type of Basionym or Protologue Information: Australia: New South Wales: Hawkesbury River, 3–5–1912, *Hamilton s.n.* (HT: NSW-52514).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (121).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (121).

Derivation: in honor of Joseph Henry Maiden (1859–1925) English-born Australian botanist.

Habit. Perennial. Culms decumbent, 30–100 cm tall, wiry, 8–20 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.4–0.6 mm long. Leaf-blades linear or lanceolate, flat or involute, 1–4 cm long, 1–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Racemes 1, 3–10 cm long.

Spikelets. Spikelets pedicelled, 1–2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, hyaline, without keels, 0–3 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 2.5–3 mm long, scarious, without keels, 5–9 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved.

Fertile lemma 2.2–2.7 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast.

Notes. A rare species with questionable taxonomic status.

In dry sclerophyll forests. Flowers Jan.–June.

Ancistrachne uncinulata (R.Br.)S.T.Blake. *Univ. Qld Pap. Dept. Biol.* 1(19): 5 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum uncinulatum* R. Br., *Prodromus Florae Novae Hollandiae* 191. 1810.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191 as *Panicum uncinulatum*), [1878] G.Bentham, *Flora Australiensis* 7 (482 as *Panicum uncinulatum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (121).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (96), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (51), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (121).

Derivation: *L. uncinulus*, small hook; -*ata*, possessing. With hooked hairs on the glumes and sterile lemma.

Habit. Perennial. Culms 30–200 cm tall, wiry. Ligule a fringe of hairs, 0.4–0.6 mm long. Leaf-blades recurved, 1–17 cm long, 1–8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle oblong or pyramidal, 2–14 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.7–5.1 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, chartaceous, without keels, 3–5 -nerved. Upper glume ovate, 3.7–5.1 mm long, chartaceous, without keels, 9–11 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 7–9 -nerved.

Fertile lemma 2.9–4 mm long, without keel, 5–7 -nerved.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Interesting features of this species include the highly branched culm, reflexed leaves and oblique orientation of the spikelets. Spikelet length distinguishes it from the other Australian species.

In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Widespread in tropical Australia. Flowers throughout the year, mostly Dec.–June.

Andropogon distachyos* L. *Sp. Pl.* 1046 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: CT: Herb. Burser I: 120 (UPS). LT designated by Clayton & Renvoize, *Fl. Trop. E. Afr. Gramineae*(3): 770 (1982); CT proposed by Jarvis, *Taxon* 41: 556 (1992).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: Gk. *dis*, twice; *stachys*, an ear of corn. Inflorescence two-branched inflorescence.

Habit. Perennial. Culms 25–100 cm tall. Lateral branches simple. Ligule an eciliate membrane, 1 mm long. Leaf-blades 7–20 cm long, 1–5 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 6–11 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 8–16 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, herbaceous or coriaceous, much thinner above, keeled, 2-keeled, winged on keel, winged broadly, 7–11 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, hyaline or chartaceous, keeled, 1-keeled. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 5–6 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 15–30 mm long overall, with a twisted column. Palea 0 -nerved, without keels.

Continental Distribution: Europe, Africa, Temperate Asia, and Tropical Asia.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Africa and Europe. Naturalised in one locality in south-western W.A. Flowers Oct.

Andropogon eucomus* Nees. *Fl. Afr. Austral. Ill.* 104 (1841).

Classification. Type of Basionym or Protologue Information: ST: *Ecklon s.n.*, South Africa: Circa Klein Drakenstein in pratis solo argillaceo

ST: *Drège s.n.*, South Africa: in pratis humidiusculis ad flumen Bergrivier (K).

ST: *C.W. Petersen s.n. in Herb. Lehm.*, South Africa ?

Andropogon gayanus* Kunth. *Enum. Pl.* 1: 491 (1833). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *Gay s.n.*, Senegal (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. -*ana*, indicating connection. In honor of Claude Gay (1800–1873) French botanist.

Habit. Perennial. Culms 150–250 cm tall. Lateral branches simple. Ligule an eciliate membrane. Leaf-blades 30–60 cm long, 4–20 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 5–8 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, keeled, 2-keeled. Lower glume surface glabrous. Upper glume lanceolate, chartaceous, keeled, 1-keeled. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–30 mm long overall, with a twisted column.

Continental Distribution: Africa, Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Eucla. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. Tropical Africa. Has been cultivated in W.A., N.S.W., N.T. and Qld; naturalised in N.T. and Qld in several localities. Flowers Oct.–July.

Andropogon virginicus* L. *Sp. Pl.* 1046 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: LT: " 7 virginicum", USA (LINN-1211.12). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 125 (1908); Campbell, J. *Arnold Arbor* 64: 224 (1983).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (122).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (98), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (53), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (122).

Derivation: L. *-ica*, belonging to. From Virginia, USA.

Habit. Perennial. Culms erect, 50–100 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades flat or conduplicate, 10–40 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, composed of racemes. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets absent or represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.5–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 2-keeled, wingless, 2 -nerved. Lower glume surface glabrous. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–26 mm long overall. Palea absent. Anthers 3.

Continental Distribution: Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes, Central-Western Slopes. **Victoria:** East Gippsland, Midlands.

Notes. Eastern United States and Mexico. In Australia naturalised in the coastal, tableland regions and western slopes of New South Wales, in coastal SE Qld and two localities of Victoria. Along roadsides and in low fertility pastures. Flowers Mar.–Dec.

Anisopogon avenaceus R.Br. *Prodr.* 176 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6223, no date, Australia: New South Wales (BM; IT: US-3168441 (fragm. ex BM)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (176), [1878] G.Bentham, *Flora Australiensis* 7 (598 as *A. strictus* var. *avenaceus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (123), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (14).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (55), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (123), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (69, Fig 10).

Derivation: L. *-acea*, resembling. With inflorescences and/or spikelets similar to those of *Avena*.

Habit. Perennial. Culms 50–100 cm tall. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 1.5 mm long. Leaf-blades involute, 10–30 cm long, 1–2 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, effuse, 15–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, linear, laterally compressed, 40–50 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, without keels, 7–11 -nerved. Lower glume apex muticous. Upper glume lanceolate, 40–60 mm long, herbaceous, without keels, 7–11 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 12–18 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 60–80 mm long overall, with a twisted column. Lateral lemma awns present. Palea 2 -nerved. Palea apex dentate. Lodicules present. Grain 7 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Coast, South Coast, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Gippsland Plain.

Notes. East Coast, from the Blue Mountains to Gippsland, altitude 5–900 m, common in open woodlands and heath on sandstones. Flowers Nov. (rarely at other times).

Anthosachne fertilis (S. Wang ex S.W.L. Jacobs & Barkworth) Barkworth & S.W.L. Jacobs. *Telopea*.

Classification. Recent synonyms: *Elymus fertilis* S. Wang ex S.W.L. Jacobs & Barkworth.

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (237), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (96 as *E. sp. A*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (237).

Australian Distribution: Queensland, New South Wales.

Anthosachne multiflora (Banks & Sol. ex Hook. f.) C. Yen & J.L. Yang. Yen et al, Xiao mai zu sheng wu xi tong xue [Triticeae biosystematics, *Kengyilia*, *Douglasdeweya*, *Agropyron*, *Australopyrum*, *Anthosachne*] 232 (2006). China Agricultural Press: Beijing. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Triticum multiflorum* Banks & Sol. ex Hook. f., *Fl. Nov.-Zel.* 1: 311 (1853).

Type of Basionym or Protologue Information: LT: *J. Banks & D. Solander s.n.*, 1769, New Zealand: Mercury Bay (BM). LT designated by Connor, New Zealand *J. Bot.* 32: 134 (1994).

Recent synonyms: *Elymus multiflorus* (Banks & Sol. ex Hook. f.) Á. Löve & Connor.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178 as *Triticum scabrum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (263), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (237), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (97 as var. *multiflorus*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (264, fig. 204 as var. *multiflorus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (237).

Habit. Perennial. Culms erect or geniculately ascending, 16–70 cm tall. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.3–0.6 mm long, membranous, truncate. Leaf-blades erect or drooping, flat, 4.1–28.5 cm long, 1.8–6.8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 7–15 cm long, bearing (3–)6–11(–18) fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (6–12), comprising 6–12 fertile floret(s), with diminished florets at the apex, elliptic to oblong, laterally compressed, 10–39 mm long.

Glumes. Glumes similar. Lower glume subulate or lanceolate or ovate, chartaceous or coriaceous, without keels, 3–7 -nerved. Lower glume apex muticous or awned. Upper glume lanceolate, 8–10 mm long, coriaceous, without keels, 3–7 -nerved.

Florets. Fertile lemma 6.5–13 mm long, keeled, 5 -nerved. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 1–16 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Norfolk I, Lord Howe.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Warrego, Wide Bay. **New South Wales:** Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Riverina.

Notes. Sparsely but wide-spread species. Specimens from coastal area of N.S.W., Vic., S.A., and Tas. differ from those from inland of northern N.S.W., and SE Qld. The former possess very short awns or awnless (average awn length: 0–7(–11.5) mm, mean: 5.4 mm), the latter, however, have longer awns (average: 4.4–16 mm, mean: 10.34 mm). Connor (1994) discussed the same confusion in New Zealand plants.

Found in SE Qld, eastern N.S.W., Vic, and Tas., usually from sand dunes of foreshore, river bank, or some inland area. Also in New Zealand.

Anthosacne multiflora var. multiflora

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Leichhardt, Burnett, Wide Bay, Darling Downs, Moreton, Warrego, Maranoa. **New South Wales:** Northern Tablelands, Southern Tablelands. **Victoria:** Riverina, Gippsland Plain, East Gippsland.

Anthosacne multiflora var. kingiana (Endl.) Barkworth & S.W.L. Jacobs. *Telopea*.

Classification. **Basionym and/or Replacement Name:** *Triticum kingianum* Endl., *Prodr. Fl. Norfolk.* 21 (1833).

Type of Basionym or Protologue Information: HT: *F.L.Bauer s.n.*, Norfolk Island (W).

Recent synonyms: *Elymus multiflorus* var. *kingianus* (Endl.) Connor.

Australian Distribution: Norfolk I, Lord Howe.

Anthosachne plurinervis (Vickery) Barkworth & S.W.L. Jacobs. *Telopea*.

Classification. **Basionym** and/or **Replacement Name:** *Agropyron scabrum* var. *plurinerve* Vickery, *Contr. New South Wales Natl. Herb.* 1(6): 342–343 (1951)

Recent synonyms: *Elymus plurinervis* (Vickery) Connor, *Elymus scaber* var. *plurinervis* (Vickery) B.K.Simon

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (237), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (99).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (100, Fig.14), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (237).

Anthosachne rectisetata (Nees) A. Love & H.E. Connor. *New Zeal. J. Bot.* 20: 183 (1982). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or **Replacement Name:** *Vulpia rectisetata* Nees.

Recent synonyms: *Elymus rectisetatus* (R.Br.) A.Löve.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (237), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (98).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (237).

Habit. Perennial. Culms erect or arching, 5.8–58 cm tall. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.2–1.2 mm long, membranous, truncate. Leaf-blades flat, 2.8–21 cm long, 1.6–4.7 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 6.7–38 cm long, bearing (2–)4–9(–11) fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets, 35–101 mm long.

Glumes. Lower glume subulate or oblong, chartaceous, (2–)3–4(–5) -nerved. Lower glume apex muticous or awned.

Florets. Fertile lemma 10–40 mm long, without keel or keeled, 5–6 -nerved. Lemma apex awned. Median (principal) awn 17–49 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Norfolk I.

Western Australia: Coolgardie. **South Australia:** Eyre Peninsula. **New South Wales:** Central-Western Slopes. **Victoria:** Murray Mallee, Lowan Mallee.

Notes. A few specimens from arid area (e.g., W.A.) appear annual. This species usually has longer lemma awns than other *Elymus* species in Australia, and probably was referred to "long-awned" form of *Elymus scaber* complex by some workers.

Usually grows in open area along road, on grassy hillside and burnt ground, or on flood plain of rivers.

Anthosachne scabra (R.Br.) Nevski. *Trudy Sredne-Aziatskogo Gosudarstvennogo Universiteta. Seriya 8b, Botanika* 17: 65 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or **Replacement Name:** *Triticum scabrum* R. Br., *Prodr.* 178 (1810).

Type of Basionym or Protologue Information: HT: Australia (FI); Habitat in capite Van-Diemen.

Recent synonyms: *Agropyron scabrum* (R.Br.) P.Beauv., *Elymus scaber* (R.Br.) A.Löve.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (665 as *Agropyrum scabrum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (195 as *Agropyrum scabrum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (416), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (264), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (238), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (98).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (196, Pl.58 as *Agropyron scabrum*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (38, as *Agropyron scabrum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (265, fig. 205 & plate 9 as var. *scaber*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (238).

Habit. Perennial. Culms erect or arching, 13.5–120 cm tall. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.2–0.9 mm long, hyaline or membranous, truncate. Leaf-blades flat or involute, 5–40 cm long, 1.8–6.9 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 15–25 cm long, bearing (1–)3–10(–13) fertile spikelets on each.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–20), comprising 2–20 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 25–35 mm long.

Glumes. Glumes similar. Lower glume subulate or oblong or ovate, chartaceous or coriaceous, without keels, (2–)3–5(–6) -nerved. Lower glume apex muticous or awned. Upper glume oblong, 12 mm long, coriaceous, without keels, 5–7 -nerved.

Florets. Fertile lemma 7–24.5 mm long, keeled, 5(–7) -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 9–47 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Dale, Menzies, Warren, Eyre, Coolgardie. **South Australia:** Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. Found throughout Australia except N.T.. Also in New Zealand.

var. **scaber**

Found in N.S.W., Vic., S.A., W.A., and Tas.. Occurs in various habitat, from islands up to mountains of 1650 m, in shallow sandy soil, along walking track of dry sclerophyll forests, in open woodland area, or in swampy area with rocks. Also in New Zealand.

var. **plurinervis**

Found in south-eastern Qld, also in north-east of N.S.W. (*n.v.*, *fide* Vickery), usually occurs in dark brown basal soil in open area, along road and fence lines.

Anthoxanthum aristatum* Boiss. *Voy. Bot. Espagne* 2: 638 (1842). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (144).

Derivation: *L. arista*, bristle; -*ata*, possessing. The apices of lemmas, paleas or glumes drawn out into a distinct awn.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 10–60 cm tall, 4–7 -noded. Lateral branches sparsely branched or branched. Leaves mostly basal. Ligule an eciliate membrane, 1.5–3 mm long. Leaf-blades 0.8–6 cm long, 1–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 1–4 cm long, 0.3–1.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 5–7.5(–8) mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume elliptic, 5–7.5(–8) mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, membranous, 1-keeled, 4–5 -nerved, awned. Lemma of upper sterile floret 3–4 mm long, erose, awned.

Fertile lemma (1.4–)1.6–2.1 mm long, without keel, 5 -nerved. Palea 1 -nerved, without keels. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and North America.

Australian Distribution: Victoria.

Victoria: Midlands.

Notes. Introduced. Recorded only from Vic. Endemic to SW Europe. Flowers Dec.–Jan.

Anthoxanthum odoratum* L. *Sp. Pl.* 28 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Anon.*, (LINN-46.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 19 (1993).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (557), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (28), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (399), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (200), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (123), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (144).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (27, Pl. 6), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (57), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (100), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (201, Fig. 150), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (123), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig. 22).

Derivation: L. *odora*, fragrance; -*ata*, possessing. Strongly scented with coumarin.

Habit. Perennial. Culms erect or geniculately ascending, stature robust to moderate or slender to delicate, 9.5–75(–105) cm tall, 1–3 -noded. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, 1–5(–7) mm long. Leaf-blades 1–31 cm long, 1.5–9 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 1–75(–120) cm long, 0.6–1.5 cm wide.

Spikelets. Spikelets sessile and pedicelled or pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 6–10.2 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume elliptic, 6.6–10.2 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, membranous, without keels, 4–5 -nerved, awned. Lemma of upper sterile floret 3–3.5 mm long, awned.

Fertile lemma 1.7–2.55 mm long, without keel, 5 -nerved. Palea 1 -nerved, without keels. Lodicules absent or vestigial. Anthers 2. Grain 2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond, Menzies, Warren. **South Australia:** Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Snowfields, Volcanic Plain, Wannon. **Tasmania:** King Island, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. Introduced. Extending S from the Darling Downs district Qld, across southern Australia. Widespread in Europe, Asia and North America. In cooler regions in open grassy situations from sea-level to c. 1200 m. Flowers Sept.-Feb. Fruits Nov.-?.

Apera interrupta (L.) P.Beauv. *Ess. Agrostogra.* 31,151 (1812).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (242).

Australian Distribution: Victoria.

Apluda mutica L. *Sp. Pl.* 82 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: India:, (LT: LINN-1213.1).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (544), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (19), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. blunt. Lacking awns or lemmas and/or glumes truncate.

Habit. Perennial. Culms decumbent or prostrate or sprawling, 30–300 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane, 1–1.3 mm long, abaxially glabrous. Leaf-blades 3–25 cm long, 1.5–10 mm wide.

Inflorescence. Inflorescence compound, composed of racemes. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets rudimentary or developed (pair unequal), male, 2–5 mm long. Companion spikelet glumes mucous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate or ovate, coriaceous, much thinner above, without keels or keeled, 2-keeled, winged on keel, winged narrowly, 11–13 -nerved. Lower glume surface glabrous. Upper glume lanceolate, chartaceous or coriaceous, keeled, 1-keeled, 5–9 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 90 % of length of spikelet, hyaline, 3 -nerved.

Fertile lemma 4 mm long, without keel, 3 -nerved. Lemma apex entire or lobed, mucous or awned, 1 -awned. Median (principal) awn from a sinus, 4–12 mm long overall, without a column or with a twisted column. Palea 0 -nerved, without keels.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook.

Notes. From India through SE Asia to the Torres Strait, where one collection is known from *Pandanus* woodland of Saibai Is.. Flowers July.

Aristida acuta S. T. Blake. *Proc. Roy. Soc. Qld* 51:169 (1940). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Queensland: Moreton District: near Villeneuve, on upper hill slope in cleared Eucalyptus forest on grey podzolised soil 400 ft., *S. T. Blake 13960* (HT: BRI; IT: BRI, K, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (126).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(17)), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (126).

Habit. Perennial. Culms 40–125 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths smooth or scabrous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 7–13 cm long, 1 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or elliptic, 15–30 cm long, 1–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7.7–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume apex awned. Upper glume lanceolate, 6.5–14 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume apex entire, awned.

Florets. Fertile lemma 7–9 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.5–6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, South Kennedy, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, Burke. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes.

Notes. *A. acuta* differs from *A. calycina* by the acuminate to awned glumes and by the panicle branches being naked at the base.

One record for tropical Queensland but mainly recorded from subtropical coastal Queensland to northern New South Wales. *Eucalyptus* woodlands and forests on poor soil. Flowering and fruiting December to April.

Aristida annua B.K.Simon. *Austrobaileya* 2: 87 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Queensland: Leichardt Dist.: Gindie via Springsure, 29 Mar 1958, *P. J. Skerman s.n.* (HT: BRI-11772).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20A-C).

Derivation: L. annual. Annuals.

Habit. Annual. Culms 25–50 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringe of hairs, 1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 7–15 cm long, 1–1.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 10–20 cm long, 5–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–8.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 7–8.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 5.5–6.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 10.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt.

Notes. *A. annua* is distinctive in that it is the only annual species with a convolute lemma and an open panicle.

Restricted to a small area of central Queensland. Black earth and basalt soils. Flowering and fruiting March, May to June.

Aristida anthoxanthoides (Domin) Henrard. *Meded. Rijks. Herb. Leiden* 54: 29 (1926). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida adscensionis* var. *anthoxanthoides* Domin, *Bibliotheca Botanica* 85(2): 343, t. 15, f. 9–12 (1915).

Type of Basionym or Protologue Information: HT: *M. Koch* 305, Oct 1899, Australia: South Australia: Mt. Lyndhurst, Flinders Ranges station (K; IT: BRI (photo, fragm.)).

Recent synonyms: *Aristida adscensionis* L. var. *subaequiglumis* Domin, *Aristida peregrina* Henrard, *Aristida depressa* Retz.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (563 as *Aristida depressa*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (168), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (449), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (318), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (126).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (167, Pl. 49), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(35)), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (318, Fig. 248), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (126).

Derivation: Gk. *-oides*, resembling. Similar to *Anthoxanthum*.

Habit. Annual. Culms 15–30 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 4–9 cm long, 1.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 8 cm long, 2.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate, 4–7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 5–7 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Helms, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. *A. anthoxanthoides* is different from all other species by the spiciform panicle and annual habit.

Recorded for a few isolated localities in Western Australia, but occurs mainly over most of the arid parts of mainland Australia. Generally found on clay soils in Mitchell grass plains (*Astrebla* spp) and alluvial soils. One of the more palatable species of *Aristida*. Flowering and fruiting all year.

Aristida arida B.K.Simon. *Austrobaileya* 2: 87 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Central Southern Region, 20.5 mi SE of Alice Springs, 17 Aug 1956, *M. Lazarides* 5725 (HT: BRI-21231; IT: CANB, MEL, NSW, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (319).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20D-G), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (319, fig. 249).

Derivation: L. dry. Growing in arid places.

Habit. Perennial. Culms 40–80 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, conduplicate or involute or convolute, 10–20 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 11–40 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 8–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, muticous.

Florets. Fertile lemma 7–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 7.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia.

Northern Territory: Central Australia South. **South Australia:** Lake Eyre, Flinders Ranges, Eastern.

Notes. *A. arida* is very similar to *A. nitidula*, differing in its uneven glumes, and also to *A. australis*, which differs by the lemma indumentum being completely smooth or very sparsely scaberulous.

Found in a zone to the east and west of Alice Springs, Central Australia and two localities in South Australia, one north-west of Lake Eyre and the other in the vicinity of Lake Torrens. Generally associated with mulga (*Acacia aneura*) on red earths, skeletal soil and sandstone. Flowering and fruiting all year but mainly April to September.

Aristida australis B.K.Simon. *Austrobaileya* 2: 88 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: South Australia: Southern Lofty: Adelaide Plains near Queenstown, 8 May 1967, *T. Smith s.n.* (HT: AD-96737133(photo, BRI); IT: BRI-279005).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (319).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20H-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (319, fig. 250).

Derivation: L. of the south.

Habit. Perennial. Culms 30–65 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades flexuous, flat, 5–10 cm long, 2–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 8–24 cm long, 0.2–0.3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume apex awned. Upper glume lanceolate, 13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, awned.

Florets. Fertile lemma 9–10 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Southern Lofty.

Notes. *A. australis* is very similar to *A. arida* and *A. nitidula*, with the exception of its completely smooth or very sparsely scaberulous lemmas. These three species are sympatric and are probably closely related.

Restricted to three localised regions of South Australia. Sandy soil. Flowering and fruiting February, May, August and September.

Aristida behriana F.Muell. *Trans & Proc. Vic. Inst. Advancem. Sci.* 1: 44 (1855). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *F. Mueller s.n.*, Australia: South Australia: Murray River (K (photo, BRI); ILT: MEL). LT designated by Henrard, *Meded. Rijks-Herb.* 54: 52 (1926).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (562), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (320), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (126).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 18B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (320, Fig. 251 & plate 11), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (126).

Derivation: L. *-ana*, indicating connection. In honor of Hans Hermann Behr (1818–1904), German-born, Australian botanist.

Habit. Perennial. Culms 22–43 cm tall, 1 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 10–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 8–13.5 cm long, 4–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 15–19.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 15–19 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 7–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6.6–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** Northern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** Grampians, Midlands, Murray Mallee, Riverina, Wimmera.

Notes. *A. behriana* differs from *A. obscura* by the denser panicles, smooth lemmas and terete peduncles.

More arid parts of New South Wales, Victoria and South Australia and a few records from the adjacent coastal parts of South Australia. Grasslands and open woodlands on red loams, sandy loams or gravelly loams. Flowering and fruiting all year.

Aristida benthamii Henrard. *Meded. Rijks. Herb. Leiden.* 58A: 246 (1932); 54C: 705 (1933).

Classification. (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *F. Mueller s.n.*, Australia: Queensland: Moreton Dist.: Brisbane River (K; ILT: BRI (fragm.)). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 706 (1933).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (126).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(38)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (126).

Derivation: in honor of George Bentham (1800–1884) English botanist.

Habit. Perennial. Culms 50–90 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, filiform or linear, flat or conduplicate or involute or convolute, 20–25 cm long, 3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 14–30 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5.5–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 5.5–9

mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous, glabrous. Upper glume apex entire or erose, mucous or mucronate.

Florets. Fertile lemma 3.5–7 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Tasmania.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Plains. **Tasmania:** East Coast.

Notes. *A. benthamii* is similar to *A. calycina*, but has smaller spikelets and also to *A. jerichoensis*, from it differs by its lateral awns differing in length from the median by more than 2 mm. It has two varieties, var. *benthamii* with smooth lemma furrows and var. *spinulifera* with tuberculate lemma furrows.

Var. benthamii

Mostly eastern Qld and NSW. The only taxon of *Aristida* recorded from Tasmania. *Eucalyptus*, *Acacia* and brigalow (*Acacia harpophylla*) woodlands and forests on sandy soils. Flowering and fruiting all year.

var. spinulifera

A few records from south-eastern Queensland and central New South Wales and a single record from central Queensland. *Eucalyptus* and *Acacia* woodlands and forests on sandy soils. Flowering and fruiting November to May.

Infra -specific taxa: var. *benthamii*, var. *spinulifera*.

Margins of lemma furrow with one to several rows of tubercles

A. benthamii var. *spinulifera*

Margins of lemma furrow smooth

A. benthamii var. *benthamii*.

Aristida benthamii* var. *benthamii

Australian Distribution: Queensland, New South Wales, Tasmania.

Aristida benthamii* var. *spinulifera B.K.Simon. *Austrobaileya* 2: 94 (1984).

Classification. Type of Basionym or Protologue Information: Australia: Queensland: Wide Bay District: Torbanlea, 2 May 1975, B. K. Simon & Andrews 2543 (HT: BRI-227406; IT: CANB, NSW, NT).

Australian Distribution: Queensland, New South Wales.

Aristida biglandulosa J.M.Black. *Trans. & Proc. Roy. Soc. S.A.* 57: 146, t.8, fig 9 (1933). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *R. Tate s.n.*, Jun 1894, Australia: Northern Territory: Central Australia: Glen Hellen (AD). LT designated by Simon, *Austr. Syst. Bot.* 5: 177 (1992).

Recent synonyms: *A. biglandulosa* var. *laevis* B.K.Simon.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (449), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (321).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(37)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 16D-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (321, fig. 252).

Derivation: *L. bis*, twice; *glans*, acorn; *-ula*, diminutive; *-osa*, possession. There are two swellings at the pedicel bases.

Habit. Perennial. Culms stature robust to moderate, 60–120 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 15–30 cm long, 3–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 20–30 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 5 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 10–16 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 11–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 7–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Flinders Ranges. **Queensland:** Burke, Gregory North, Maranoa, Mitchell, Warrego, Cook, South Kennedy.

Notes. *A. biglandulosa* differs from *A. pruinosa* by having glumes $\pm$ equal in length and from *A. calycina* var. *praealta* by having a lemma more than 10 mm long. It was originally thought that there were two varieties with smooth and tuberculate lemma furrows as in *A. calycina*, *A. benthamii* and *A. jerichoensis* but on close examination there appear to be some tubercles always present, although sometimes difficult to see.

Arid areas of the Northern Territory, South Australia and Queensland. Loams, alluvial soils and "desert" country of central Queensland. Flowering and fruiting December to October.

Aristida blakei B.K.Simon. *Austrobaileya* 2: 88 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: Warrego Dist.: Morven, 2 Apr 1936, *S.T. Blake 11000* (HT: BRI-254115; IT: AD, CANB, K, L, MEL, MO, NSW, NT, PERTH, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (127).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (127).

Derivation: in honor of Stanley Thatcher Blake (1911–1973), Queensland botanist.

Habit. Perennial. Culms 50–90 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, conduplicate or involute or convolute, 11–20 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 10–34 cm long, 4.5–7.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 9–15 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, awned.

Florets. Fertile lemma 8–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 9.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Central Australia South. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Mitchell, North Kennedy, Warrego, Moreton. **New South Wales:** Central-Western Slopes, North-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. *A. blakei* resembles *A. nitidula*, *A. platychaeta* and *A. arida* in its tuberculate or muricate lemmas but differs in its open panicle.

Scattered distribution in arid parts of the Northern Territory, Queensland and New South Wales. *Eucalyptus* and mulga (*Acacia aneura*) communities on sands and loams. Flowering and fruiting January, March to August, November.

Aristida burbridgeae B.K.Simon. *Austrobaileya* 2: 89 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Western Australia: Fortescue District: Mount Edgar, SE from Marble Bar. 11 Jun 1941, *N. T. Burbidge 1111* (HT: PERTH(photo, BRI); IT: PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20P-R).

Derivation: in honor of Nancy Tyson Burbidge (1912–1977) Australian botanist.

Habit. Perennial. Culms 20–45 cm tall, 3 -noded. Mid-culm internodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades flexuous, conduplicate or involute or convolute, 5–10 cm long, 1 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 8–17 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 9 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex entire.

Florets. Fertile lemma 8 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue, Ashburton.

Notes. *A. burbridgeae* differs from *A. latzii* by a distinctive marginal band of spines running the length of an otherwise smooth lemma.

Restricted to the Pilbarra region of Western Australia. "Growing among boulders". Flowering and fruiting February to March, June, August.

Aristida burraensis B.K.Simon. *Austrobaileya* 2: 89 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: North Kennedy District: Burra Range, 25 km W of Pentland, July 1975, *A. D. Chapman 1314* (HT: BRI-238092; IT: CANB, K, L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20S-U).

Derivation: *L. -ensis*, denoting origin. From the Burra Range, Queensland, Australia.

Habit. Perennial. Culms 40–80 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 7–14 cm long, 1 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 16–28 cm long, 2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6.6–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 6.5–8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire.

Florets. Fertile lemma 6 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: North Kennedy, Mitchell.

Notes. *A. burraensis* differs from *A. nitidula* by having smooth lemmas and from *A. latzii* by its shorter lemmas and more slender awns.

Restricted to the Burra Range of north central Queensland. Sandstone in *Eucalyptus similis* woodland. Flowering and fruiting July.

Aristida calycina R.Br. *Prodr.* 173 (1810). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *Brown 6198*, 14 Aug 1802, Australia: Queensland: Port Curtis Dist.: Keppel Bay (K; IT: BM, BRI, E.). LT designated by Henrard, *Meded. Rijks Herb.* 54: 71 (1926).

Recent synonyms: *Aristida armata* Henrard, *Aristida praealta* (Domin) Henrard, *Aristida glumaris* Henrard.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (173), [1878] G.Bentham, *Flora Australiensis* 7 (563), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (449 & 450 as *A. praealta*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (127).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(40)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (127).

Derivation: Gk. *kalyx*, cup; *-ina*, belonging to.

Habit. Perennial. Culms erect, 33–128 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths smooth to antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs,

0.3–1 mm long. Leaf-blades straight, filiform or linear, flat or conduplicate or involute or convolute, 20–25 cm long, 1–4 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear to elliptic, 12–31.5 cm long, 2–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5.5–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–7 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate, 5.5–20 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous or indumented. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 4–14 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria.

Western Australia: Giles, Fortescue. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North-Western Slopes, North-Western Plains. **Victoria:** Eastern Highlands, Midlands.

Notes. *A. calycina* differs from *A. benthamii* and *A. jerichoensis* by its larger spikelets and from *A. acuta* by the glumes not being awned and by the inflorescence branches usually bearing spikelets throughout its length. It also usually has prominent pulvini in the axes of the inflorescence branches. The glumes may be inverse. Three varieties are recognised - var. *praealta* with tuberculate lemma furrows and var. *calycina* and var. *filifolia* without tuberculate lemma furrows; the latter variety has filiform leaf blades.

Infra-specific taxa: var. *calycina*, var. *filifolia*, var. *praealta*.

Margins of lemma furrow with one to several rows of tubercles **A. calycina** var. *praealta*

Margins of lemma furrow smooth or lemma muricate towards apex

Leaf blades filiform and arranged basally on culm

A. calycina var. *filifolia*

Leaf blades not as above

A. calycina var. *calycina*

Aristida calycina var. *calycina*

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria.

Notes. Mainly in the wetter parts of Queensland and New South Wales. Also recorded from the Northern Territory and Victoria, with an anomalous record from the Eremaean region of Western Australia near the Northern Territory border. Acacia, brigalow (*Acacia harpophylla*), Callitris, Eucalyptus, Melaleuca and Triodia communities on red earths, sands and alluvial soils. Flowering and fruiting all year.

Aristida calycina var. *praealta* Domin. *Biblioth. Bot.* 20 (85): 345 (1915).

Classification. Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Feb 1910, Australia: Nord-Queensland: Cook Dist.: im Chillagoe-Distrikte in den Savannenwäldern (L (photo, BRI); IT: BRI).

Australian Distribution: Queensland, New South Wales.

Notes. Occurs in three main areas in Queensland and New South Wales and three outlying records in Queensland. Acacia, brigalow (*Acacia harpophylla*), Callitris, Eucalyptus, mulga (*Acacia aneura*) and Triodia communities on red earths, sands and alluvial soils. Flowering and fruiting all year.

Aristida calycina var. *filifolia* B.K.Simon. *Austrobaileya* 2: 95 (1984).

Classification. Type of Basionym or Protologue Information: Australia: Queensland: Cook District: Newcastle Range, 15 miles (24 km) SSE of Einasleigh; July 1954, *M. Lazarides* 4683 (HT: CANB-283117, CANB-283117).

Australian Distribution: Queensland.

Notes. Rocky terrain. Flowering and fruiting July.

Aristida capillifolia Henrard. *Meded. Rijks Herb.* 58A: 298, t.154 (1932), *op.cit.* 54C: 710(1933).

Classification. (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *R. Helms* 70, 18 Jun 1891, Australia: South Australia: Victoria dessert near Tarcoola, Gairdner-Torrens (L (photo, BRI); ILT: AD, BRI, K, NSW, MEL). LT designated by Simon, *Austral. Syst. Bot.* 5: 220 (1992).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (321).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 18E-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (322, fig. 253).

Derivation: *L. capillis*, hair; *folium*, leaf. Leaf-blades hair-like.

Habit. Perennial. Culms 20–80 cm tall, 2 mm diam., 3 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths smooth or scaberulous. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 3–10 cm long, 0.5–1.1 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 6–25 cm long, 0.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 3.5–8.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 5.3–8.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 5.4–7.4 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4–5.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Gardner, Fitzgerald. Giles. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre.

Notes. *A. capillifolia* differs from *A. strigosa* in having shorter lemmas and filiform leaf blades. Both species have distinctly scabrous lemmas, in this way differing from *A. nitidula*, *A. arida* and *A. platychaeta* with tuberculate-spiny lemmas.

Ranges of Central Australia, covering Western Australia, Northern Territory and South Australia. Rocky hills, sometimes with *Triodia irritans*. Flowering and fruiting all year but mainly June to September and December.

Aristida caput-medusae Domin. *Biblioth. Bot.* 85: 244, t.14 figs 3–5 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: auf den Sandhügeln dew Dividing Range bei Jericho (PR; IT: BRI, L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (127).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(24)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (127).

Derivation: *L. caput*, head; *Medusa*, monster with snakes for hair. Inflorescence a spike-like panicle and the spikelets with long trifid, twisted awns.

Habit. Perennial. Culms 33–85 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, conduplicate or involute or convolute, 2–4 cm long, 0.5–1 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate or ovate, 3.9–8 cm long, 1–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–9.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 4–8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 6–9.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4–6.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, South Kennedy, Warrego, Wide Bay, North Kennedy. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. *A. caput-medusae* has very distinctive morphological facies, including a knotty rootstock, fastigiate branching culms and a small uniquely shaped panicle, ovate in outline, resembling the head of the Medusa of Greek mythology, from which it derives its name. It has small spikelets similar to *A. vagans* in that the lemma extends beyond the glumes but differs from this species in that the panicle is smaller and regular in outline.

Central and south-eastern Queensland to northern New South Wales.

Acacia, and *Eucalyptus* communities on loams, sands and rocky soils. Flowering and fruiting all year.

Aristida contorta F.Muell. *Trans. & Proc. Vict. Inst. Advancem. Sci.* 1:44 (1855). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Australia: Victoria: on barren places on the Murray River (MEL (photo, BRI); IT: BRI, E, K).

Recent synonyms: *Aristida arenaria* Gaudich.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (561 as *Aristida arenaria*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (165 as *A. arenaria*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (452), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (322), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (127).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl.48 as *A. arenaria*), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(9)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 14A), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (322, Fig. 254), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (128).

Habit. Annual or perennial. Culms erect or geniculately ascending, 12–44 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades flexuous, filiform, conduplicate or involute or convolute, 3–10 cm long, 1 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 9–26 cm long, 4–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 12–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 12–30 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous, glabrous. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 4.9–7 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 25–121 mm long overall, with a twisted column. Column 7–26 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Fitzgerald, Hall. Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Irwin, Eyre, Roe, Avon. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Darling Downs, Gregory North, Maranoa, Gregory South, Port Curtis, South Kennedy, Warrego, North Kennedy, Mitchell. **New South Wales:** Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee.

Notes. *A. contorta* is extremely variable in habit depending on the availability of moisture. It is close to *A. holathera*, with which it probably hybridises, and differs by the culms being $\pm$ wavy and the lemma being 7 mm or less long and becoming brownish when mature, as opposed to purplish in *A. holathera*. Ecologically *A. contorta* is adapted to the driest regions of Australia.

Arid and semi-arid regions of all mainland states. *Eucalyptus* and mulga (*Acacia aneura*) woodlands on desert red earths, sandy and alluvial soils. Flowering and fruiting all year.

Aristida cumingiana Trin. & Rupr. *Sp. Gram.* 141 (1842). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Philippine Islands: Luzon:, *H. Cuming* 671 (HT: LE; ILT: G-Del, MO-2874635, US-80993 (fragm. ex G-Del)).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (29), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: in honor of Hugh Cuming (1791–1865) English naturalist and traveller.

Habit. Annual. Culms 8–30 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaves cauline. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, conduplicate or involute or convolute, 2–7 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 3–8 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 2–2.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 2–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 1.5–1.8 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. *A. cumingiana* has the smallest spikelets in Australian *Aristida* species with spikelets to 3 mm long. It is a delicate annual only recently collected in Australia for the first time and has an unusually widespread distribution for an *Aristida* species, extending from Australia to south-east Asia, China, India and tropical Africa.

Restricted in Australia to the north-western tip of Cape York Peninsula; also in New Guinea and extending throughout south-east Asia to China, India and tropical Africa. *Melaleuca* communities on alluvial soil. Flowering and fruiting June and September.

Aristida dominii B.K.Simon. *Austrobaileya* 2: 281 (1986). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: Cook District: 7 km N of North Kennedy R., 28 Apr. 1983, *J. R. Clarkson* 4801 (HT: BRI; IT: AD, CANB, DNA, K, MEL, MO, NSW, PERTH, QRS).

Recent synonyms: *Aristida hirta* auct. non Domin

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: in honor of Karel Domin (1882–1953) Czech educator and botanist who collected widely in Australia.

Habit. Annual. Culms erect, 13–50 cm tall. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.3–1 mm long. Leaf-blades curled or flexuous, filiform, conduplicate or involute or convolute, 8–16 cm long, 0.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 12–17 cm long, 1.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 17–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 17–21 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex awned.

Florets. Fertile lemma 5.1–9 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 48–89 mm long overall, with a twisted column. Column 10–25 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.5–5.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. *A. dominii* had been called *A. hirta* until it was shown that the type of the latter name was really a specimen of *A. superpendens* (Simon 1986). It differs from *A. superpendens* by its annual habit, having a culm height of less than 50 cm and smaller spikelets.

Scattered throughout northern Australia, but mostly in tropical Queensland. Sandy soils from granite and sandstone. Flowering and fruiting February to May, July to August.

Aristida echinata Henrard. *Meded. Rijks. Herb. Leiden* 58A :28 s, t.139 (1932), *op.cit.* 54C:713 (1933).

Classification. (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *W. McComb s.n.*, Apr. 1918, Queensland: Warrego Distr.; Morven (K (photo, BRI); IT: BRI). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 714 (1933).

Recent synonyms: *Aristida ramosa* var. *scaberula* Henrard.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (128).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(29)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (128).

Derivation: *L. spiny*. Inflorescence a very condensed panicle and the spikelets or auxillary structures are awned the whole thereby resemble a hedgehog.

Habit. Perennial. Culms stature robust to moderate, 50–120 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 6–12 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 5–15 cm long, 0.8–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6.3–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4–10 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 6.3–10 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Leichhardt, Maranoa, Moreton, Warrego, Wide Bay. **New South Wales:** Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. *A. echinata* differs from *A. ramosa* by the tuberculate surface of the lemma. It was formerly placed as a variety of *A. ramosa* (see comments under that species).

Southern Queensland to central New South Wales. *Acacia*, *Callitris*, blue-grass downs (*Dichanthium* spp.), *Eucalyptus*, and mulga (*Acacia aneura*) communities on loams, reearthings and sands. Flowering and fruiting August to July.

Aristida exserta S.T.Blake. *Proc. Roy. Soc. Qld* 51: 172, T.5, fig 6–9 (1940). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *Blake 6130*, 11 Jun 1934, Australia: Queensland: North Kennedy Dist.: Mt. Remarkable, near Pentland (BRI: IT: BRI, K, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(26)), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. exserted*. Peduncle longer than in related species.

Habit. Perennial. Culms 45–75 cm tall. Mid-culm internodes glabrous. Lateral branches branched or fastigate. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 4–8 cm long, 0.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–15 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume apex awned. Upper glume lanceolate, 6.5–10 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, awned.

Florets. Fertile lemma 7–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy, Warrego.

Notes. *A. exserta* is distinguished by the thin fastigiate culms, rather small spiciform panicles. It is superficially close to *A. capillifolia*, differing in its involute lemmas and its 3-nerved glumes.

Mainly from the northern Australia. Rocky outcrops and mountain ranges. Flowering and fruiting January to September but mainly March to July.

Aristida forsteri B.K.Simon. *Austrobaileya* 4: 147 (1994). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: Darling Downs District: head of Pariagara Creek, Wondul Range, 28.11S, 151.02E, 12 Apr 1992, *P.I.Foster & P. Machim PIF9793* (HT: BRI; IT: CANB, K, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 15).

Derivation: in honor of Paul Irwin Forster (1961-) Australian botanist.

Habit. Perennial. Culms erect, 25–50 cm tall, 1–1.5 mm diam., 2–3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.6 mm long. Leaf-blades straight, conduplicate or involute or convolute, 7–14 cm long, 1 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 7–13 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 3.5–4.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 3.2–4.2 mm long, membranous, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 2.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs.

Notes. Growing with *Triodia vella* Lazarides.

Restricted to type locality. Low open heath on shallow soil over sandstone. Flowering and fruiting Apr.

Aristida gracilipes (Domin)Henrard. *Meded. Rijks. Herb. Leiden* 54: 209 (1926). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida vagans* var. *gracilipes* Domin, *Repert. Spec. Nov. Regni Veg.* 9: 551 (1911).

Type of Basionym or Protologue Information: HT: *L. Leichhardt s.n.*, 11 Mar 1844, Australia: New South Wales: Moreton Dist.: Cameron's Bush (K: IT: BR, BRI (fragm. & photo ex K), BRI, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (128).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(20)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (128).

Derivation: *L. gracilis*, slender; *pes*, foot. Pedicels slender.

Habit. Perennial. Culms geniculately ascending, 60–115 cm tall. Mid-culm internodes glabrous. Lateral branches branched or fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, conduplicate or involute or convolute, 4–8 cm long, 0.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 12–21 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, 4–10 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 8–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. *A. gracilipes* has longer inflorescences without pulvini and has slightly longer glumes than *A. caput-medusae* and *A. vagans*, and is loosely tufted with bushy culms with many fine branches. Chapman (1991) is correct in stating that Lazarides (1980) is wrong in treating this as a sp. nov. (actually a nom. nov.) by Henrard as it is based on the same type as Domin's variety.

Mainly south-eastern Queensland with one record from northern New South Wales; a few other Queensland records. *Acacia*, brigalow (*Acacia harpophylla*), *Eucalyptus* communities, and rainforest fringes, on clays, loams and sandy soils. Flowering and fruiting all year but mainly January to July.

Aristida granitica B.K.Simon. *Austrobaileya* 2: 91, fig. 2A (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: North Kennedy District: Mt. Pring, 10 km W of Bowen, 18 Apr 1978, *Simon 3423* (HT: BRI-257519).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 17A-B).

Derivation: Eng. granite; L. *-ica*, belonging to. Growing on granitic soils.

Habit. Perennial. Culms erect, 75 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, conduplicate or involute or convolute, 10–21 cm long, 1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 7–19 cm long, 8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 12–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 12–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 8–9 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 34–36 mm long overall, with a twisted column. Column 12–14 mm long. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: North Kennedy.

Notes. *A.granitica* is similar to *A. dominii* and *A. superpendens* by having lateral awns which are dissimilar from the median in being somewhat shorter and thinner but the degree of dissimilarity is greater than in these species.

Known only from the type locality of Mt. Pring, near Bowen, Queensland. Granite sand soil. Flowering and fruiting April.

Aristida helicophylla S.T.Blake. *Proc. Roy. Soc. Qld* 51: 171, t.4, figs 8–12 (1940). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: Warrego District: between Charleville & Westgate, 20 Apr 1934, on red sand associated with *Eucalyptus melanophloia* & *Triodia*, *S. T. Blake 5411* (HT: BRI; IT: BRI, CANB, K, MEL).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (449), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (128).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(16)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (128).

Derivation: Gk. *helix*, twisted; *phyllon*, leaf. Old leaf-blades curled in the manner of a watch-spring.

Habit. Perennial. Culms 70–150 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades curled, flat or conduplicate or involute or convolute, 10–21 cm long, 2–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 12–32 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 6–8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 4–5.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn pseudo-articulate at base, without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Mitchell, North Kennedy, Warrego, South Kennedy, Gregory South, Maranoa.

Notes. *A. helicophylla* is similar to *A. inaequiglumis* and *A. ingrata* in having a pseudoarticulation but has much smaller spikelets than these species. Furthermore it differs from *A. inaequiglumis* by the glumes not being markedly dissimilar in length and from *A. ingrata* by the muricate lemma furrow.

Scattered areas in arid Queensland. *Acacia*, and *Eucalyptus* communities on red earths, sands and alluvial soils. Flowering and fruiting March to April, June to July, October.

Aristida holathera Domin. *Biblioth. Bot.* 85: 340, t.13. figs 18.19 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *Domin s.n.*, Dec 1910, Australia: Queensland: Cook Dist.: Hugel und Savannenwalder, bei Chillagoe (L-926.361–524 (photo, BRI, K); IT: BRI).

Recent synonyms: *Aristida browniana* Henrard, *Aristida muelleri* Henrard.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Aristida stipoides*), [1878] G.Bentham, *Flora Australiensis* 7 (561 as *Aristida stipoides*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (165 as *Aristida browniana*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (452 as *A. browniana*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (323), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (128).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl.48 as *A. browniana*), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(13)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 14B as var. *holathera*, 15A as var. *latifolia*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (323, Fig. 255 as var. *holathera*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (128).

Derivation: Gk. *holos*, wholly; *ather*, spike or ear of wheat. Awn not disarticulating from base of lemma at maturity.

Habit. Annual or perennial. Culms 28–128 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight or flexuous, filiform or linear, flat or conduplicate or involute or convolute, 10–25 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–41 cm long, 1–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 12–25 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 8–13.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 52–135 mm long overall, with a twisted column. Column 18–57 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.8–7.9 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Mueller, Canning, Carnegie, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Irwin, Drummond, Avon, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Burnett,

Gregory South. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee.

Notes. *A. holathera* is a widely distributed species that varies from a weak perennial or annual arid form (to which the name *A. muelleri* has been applied) to a stronger wet-area tropical perennial with its broad leaved form var. *latifolia*. It intergrades almost imperceptibly into *A. contorta* at the arid end of its range, differing only in its longer lemma which is purplish at maturity. The name *A. holathera* used to apply only to a form in which the lemma column was described as having a weak articulation and the awns were reported as being shorter, with the name *A. browniana* being used for the more commonly occurring form with a distinct lemma articulation and longer awns, but these differences were shown not to hold up on close inspection (Simon 1986).

Widespread over most of arid Australia and extending into the Philippines.

Infra-specific taxa: var. *holathera* var. *latifolia*.

Leaf blades to 1.5 mm wide, involute **A. holathera** var. *holathera*

Leaf blades more than 3 mm wide, flattened **A. holathera** var. *latifolia*

Aristida holathera var. *holathera*

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Notes. *Callitris*, *Eucalyptus*, mulga (*Acacia aneura*) and *Melaleuca* communities on sands, loams and alluvial soils. Flowering and fruiting all year.

Aristida holathera var. *latifolia* (B.K.Simon) B.K.Simon. *Austrobaileya* 2: 283 (1986).

Classification. Basionym and/or Replacement Name: *Aristida browniana* var. *latifolia* B.K. Simon, *Austrobaileya* 2(1): 95, f. 3A (1984).

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf: Goyder River Crossing; June 1972, *Latz 2811* (HT: BRI-238486; IT: CANB, DNA, NT).

Australian Distribution: Western Australia, Northern Territory.

Notes. A few scattered records from tropical Western Australia and the Northern Territory. Rock and sandy soils. Flowering and fruiting April, June to August.

Aristida hygrometrica R.Br. *Prodr.* 174 (1810). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *R. Brown 6196*, 14 Feb 1803, Australia: Northern Territory: Darwin & Gulf Region, Arnhem North Bay (Melville Bay) (BM; ILT: BRI (fragm., photo ex BM), E, K). LT designated by Henrard, *Meded. Rijks Herb.* 54(A): 248 (1927).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174), [1878] G.Bentham, *Flora Australiensis* 7, [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (165), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (167, Pl. 49), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(5)).

Derivation: Gk. *hygros*, water; *metron*, measure; -ike, belonging to. Aquatic or swamp species.

Habit. Annual. Culms erect or geniculately ascending, 29–84 cm tall. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths smooth, glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curled or flexuous, filiform, conduplicate or involute or convolute, 11–27 cm long, 0.8–1.2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 14.4–35 cm long, 7–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 25–43 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 25–42.6 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex awned.

Florets. Fertile lemma 8–16 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 138–235 mm long overall, with a twisted column. Column 53–85 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6.6–8.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Mitchell, North Kennedy, South Kennedy.

Notes. *A. hygrometrica* differs from *A. holathera* and *A. contorta* by larger spikelet dimensions all round especially the length and thickness of the column.

Mainly north of lat. 20 S with a few isolated southern records in Western Australia and the Northern Territory. Sandy and alluvial soils and often the dominant grass on extensive river levees. Often in *Eucalyptus* and *Melaleuca* woodland. Flowering and fruiting January to August, November.

Aristida inaequiglumis Domin. *Biblioth. Bot.* 85: 347 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: T: *K. Domin s.n.*, Mar 1910, Australia: Queensland: North Kennedy Dist.: Savannenwälder bei Pentland (PR; IT: BR, L (photo, BRI)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (169), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (450), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (324).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (167, Pl. 49), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(33)), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (324, Fig. 256).

Derivation: *L. inaequalis*, unequal; *gluma*, husk. Glumes differing in length and/or shape.

Habit. Perennial. Culms 32–155 cm tall, 1 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 1 mm long. Leaf-blades curled, flat or conduplicate or involute or convolute, 15–30 cm long, 2.3–4.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 13–40 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9–18.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 6.4–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 3.7–9 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn pseudo-articulate at base, without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3.1–7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Fitzgerald, Hall, Dampier, Mueller, Canning, Giles, Helms, Fortescue, Austin. **Northern Territory:** Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy, South Kennedy, Warrego, Gregory South.

Notes. *A. inaequiglumis* is closely allied to *A. pruinosa* in having inverse glumes which differ in length by more than 3 mm long. It differs from this species by being less robust and less pruinose, having a distinct pseudoarticulation and leaf blades which curl up at maturity. The lemma groove is almost always tuberculate, although there are a few records of specimens with smooth lemma grooves. It is recorded from more arid sites than *A. pruinosa*. It differs from *A. ingrata* by the glumes differing in length by more than 3 mm.

Occurs mainly over most of the northern Australia with a few outlying records from Western Australia, South Australia and Queensland. *Acacia*, *Callitris*, *Eucalyptus* and *Astrebla* communities on reearthings, sands and alluvial soils. Flowering and fruiting all year.

Aristida ingrata Domin. *Biblioth. Bot.* 85: 346 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: bei Barcaldine (PR; IT: BRI, L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. disagreeable*. The sharp callus enables the spikelets to catch on to clothing.

Habit. Perennial. Culms 41–155 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades curled, 10–23 cm long, 3–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 11–42 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous. Upper glume lanceolate, 6–12 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire or erose, mucicous or mucronate.

Florets. Fertile lemma 4–8 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn pseudo-articulate at base, without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Barkly Tableland. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy, Warrego.

Notes. *A. ingrata* differs from *A. sciuroides* by having smaller spikelets, a lemma pseudoarticulation and by the leaf blades curling up at maturity and from *A. inaequiglumis* by the glumes differing in length by less than 3 mm.

Occurs from northern Australia to more arid regions, less frequent in the latter. *Acacia*, *Eucalyptus*, *Eremophila*, gidgee (*Acacia cambagei*), mulga (*Acacia aneura*) and *Melaleuca* communities on redearths, loams, sands and alluvial soils. Flowering and fruiting all year but mainly March to August.

Aristida jerichoensis (Domin) Henrard. *Meded. Rijks. Herb. Leiden* 54A: 270 (1927). **Classification.**

(GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida ingrata* var. *jerichoensis* Domin, *Biblioth. Bot.* 85(2): 346 (1915).

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: Dividing Range bei Jericho (PR; IT: BRI, L (photo, BRI)).

Key references (books and floras): [1981] M. Lazarides in J. Jessop (ed.), *Flora of Central Australia* (449), [2002] D. Sharp & B. K. Simon, *AusGrass, Grasses of Australia*, [2006] J. Jessop, G. R. M. Dashorst, F. M. James, *Grasses of South Australia* (324), [2008] S. W. L. Jacobs, R. D. B. Walley & D. J. B. Wheeler, *Grasses of New South Wales* (129).

Illustrations: [1983] J. C. Tothill & J. B. Hacker, *Grasses of Southern Queensland* (106(41)), [2006] J. Jessop, G. R. M. Dashorst, F. M. James, *Grasses of South Australia* (325, Fig. 257 as var. *subspinulifera*), [2008] S. W. L. Jacobs, R. D. B. Walley & D. J. B. Wheeler, *Grasses of New South Wales*, 4th edn (129).

Derivation: L. *-ensis*, denoting origin. From Jericho, Queensland, Australia.

Habit. Perennial. Culms 30–60 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades flexuous, flat or conduplicate or involute or convolute, 16–18 cm long, 2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 4–15 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 5–9 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 4–7 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3.5–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** Flinders Ranges. **Queensland:** Burnett, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. *A. jerichoensis* is similar to *A. benthamii* from which it differs by its lemma awns being more subequal. It usually grows in more arid areas than *A. benthamii*. It has two varieties, var. *jerichoensis* with smooth lemma furrows and var. *subspinulifera* with muricate lemma furrows.

Infra-specific taxa: var. *jerichoensis*, var. *subspinulifera*.

Margins of lemma furrow with one to several rows of tubercles

A. *jerichoensis* var. *subspinulifera*

Margins of lemma furrow smooth

A. *jerichoensis* var. *jerichoensis*.

Aristida jerichoensis var. jerichoensis

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Notes. Extends from central Queensland to southern New South Wales. *Acacia*, *Eucalyptus*, and mulga (*Acacia aneura*) communities on reearthings and sands. Flowering and fruiting all year.

Aristida jerichoensis var. subspinulifera Henrard. *Meded. Rijks-Herb.* 58(A): 300 (1932).

Classification. Type of Basionym or Protologue Information: LT: *J. H. Maiden s.n.*, May 1913, Australia: New South Wales: New South Wales Plains, Nyngan (K (photo, BRI); ILT: BRI, L, NSW). LT designated by Simon, *Austr. Syst. Bot.* 5: 175 (1992).

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Notes. Extends from central Queensland to southern New South Wales with small outlying distributions in Northern Territory and South Australia. *Eucalyptus*, mulga (*Acacia aneura*) and *Triodia* communities on reearthings and clays. Flowering and fruiting all year.

Aristida kimberleyensis B.K.Simon. *Austrobaileya* 2: 91 (1984). **Classification.** (GPWG 2001) :

Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Western Australia: Cardner District: Carson Escarpment, 29 km ENE of Doongan, 23 March 1978, *M. Lazarides* 8660 (HT: CANB-283118; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*.

Derivation: *L. -ensis*, denoting origin. From the Kimberley Region of north-western Australia.

Habit. Perennial. Culms sprawling, 50–100 cm tall, 6-noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, flat or convolute or involute or convolute, 10–20 cm long, 2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 20–40 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3-nerved. Lower glume surface glabrous. Upper glume lanceolate, 10–14 mm long, membranous, keeled, 1-keeled, 1-nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 9–14 mm long, without keel, 3-nerved. Lemma apex awned, 3-awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. *A. kimberleyensis* is a distinctive sprawling, decumbent perennial with convolute lemmas not extending beyond the glumes, which are subequal or the lower slightly longer than the upper. It has spikelets which are superficially similar to those of *A. schultzei* but lack a lemma column, and to those of *A. sciuroides* but the lemma is convolute and has no pseudoarticulation and the lower glume is 3-nerved.

Restricted to the Kimberley region of Western Australia. Sandstone savanna communities. Flowering and fruiting January and March.

Aristida latifolia Domin. *Biblioth. Bot.* 85: 339 (1915). **Classification.** (GPWG 2001) : Subfamily

Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: ST: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Hughenden (L (2 sheets), PR). ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Savannenwälder am Walsh River nördlich von Chillagoe ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Grasflächen der Riling Downs bei Winton.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (169), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass*,

Grasses of Australia, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (325), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (129).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (167, Pl. 49), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(12)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 18A), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (325, Fig. 258), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (129).

Derivation: *L. latus*, broad; *folium*, leaf. Leaf-blades broad or relatively broad with respect to related species.

Habit. Perennial. Culms 20–131 cm tall, 2 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades curled, flat or conduplicate or involute or convolute, 35–70 cm long, 2–4.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 8–69 cm long, 3–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 8–17 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex entire or erose, awned.

Florets. Fertile lemma 8–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 18–59 mm long overall, with a straight or slightly twisted column or with a twisted column. Column 1–9 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–7.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Eastern. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains.

Notes. *A. latifolia* differs from *A. macroclada* and *A. psammophila* by its subequal glumes and from *A. schultzei* and *A. warburgii* by the 1-nerved lower glume. There is some variability in the development of the lemma column, which is sometimes reduced to 1–2 spirals.

All mainland states in cracking clay soils, except Victoria. Mainly tropical. A major problem to the pastoral industry on the Mitchell grass (*Astrebla* spp) grasslands (Filet 1990). *Acacia*, brigalow (*Acacia harpophylla*), blue-grass downs (*Dichanthium* spp), *Eucalyptus*, gidgee (*Acacia cambagei*), Mitchell grass (*Astrebla* spp), *Eremophila* and *Melaleuca* communities on clays, reearth, sandy and alluvial soils. Flowering and fruiting all year.

Aristida latzii B.K.Simon. *Austrobaileya* 2: 91 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Northern Territory: Central Northern: Mt. Riddoch, 13 Sep 1973, P. K. Latz 4163B (HT: BRI-238482; IT: AD, CANB, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 17C-D).

Derivation: in honor of Peter Kenneth Latz (1941-) Australian botanist.

Habit. Perennial. Culms 45–90 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 10–20 cm long, 1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–37 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 7–10 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire.

Florets. Fertile lemma 7–9 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. *A. latzii* is a distinctive species with rigid culms and long rigid filiform leaves. It differs from *A. nitidula* by the lemmas being smooth and not tubercled and from *A. latzii* by the flattish awns.

Restricted to the Macdonell and Harts Ranges of Central Australia. Rocky platforms of quartzite ridges. Flowering and fruiting January, March to October.

Aristida lazaridis B.K.Simon. *Austrobaileya* 2: 92 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Queensland: Gregory North District: 20 miles (32 km) NNW of Duchess, 17 Aug. 1954, *M. Lazarides* 4807 (HT: BRI-178996; IT: AD, CANB, MEL, NSW, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 17E-F).

Derivation: in honor of Mike Lazarides (1928-) Australian botanist.

Habit. Perennial. Culms 40–140 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades curled, flat or conduplicate or involute or convolute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 10–45 cm long, 5–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9–19 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous. Lower glume apex mucous. Upper glume lanceolate, 8–19 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 7–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Fortescue. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Gregory North, Leichhardt, Mitchell, North Kennedy, Port Curtis, South Kennedy.

Notes. *A. lazaridis* differs from all other species by the involute lemma from the furrow of which one margin usually protrudes rather noticeably. It is superficially similar to *A. leptopoda* in its open panicle but that species has convolute lemmas. *A. lazaridis* also differs from *A. leptopoda* in the type of soil it grows on (q.v.).

Mainly from the North-Eastern phytogeographic zone of Barlow with a few records from adjacent zones. *Eucalyptus* communities on red earths, sandy soils and loams although it has been recorded from clay soils. Flowering and fruiting February to August.

Aristida leichhardtiana Domin. *Repert. Spec. Nov. Regni Veg.* 9: 551 (1911). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *Leichhardt s.n.*, 10 Jan 1847, Australia: Queensland: Port Curtis District: Dry-beef Creek (K (photo, BRI); IT: BRI (fragm.), L, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (129).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(23)), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (129).

Derivation: *L. -ana*, indicating connection. In honor of Friedrich Wilhelm Ludwig Leichhardt (1813–1848) German-born physician and Australian explorer.

Habit. Perennial. Culms stature slender to delicate, 25–45 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 6–12 cm long, 1–1.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 5–8 cm long, 3–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4.5–12 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous. Upper glume apex entire.

Florets. Fertile lemma 9–10.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. *A. leichhardtiana* differs from *A. personata* by the culms and inflorescences being much smaller.

South-eastern Queensland to the central tablelands of New South Wales. *Eucalyptus* communities on rocky and sandy soils, occasionally on clay loams. Flowering and fruiting October to July.

Aristida leptopoda Benth. *Fl. Austral.* 7: 562 (1878). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *Leichardt s.n.*, Australia: New South Wales: Central Coast, Liverpool Plains (K). LT designated by Simon, *Austr. Syst. Bot.* 5: 206 (1992).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (562), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (129).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(21)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (129).

Derivation: Gk. *leptos*, slender; *pous*, foot. Pedicel slender.

Habit. Perennial. Culms 30–65 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Lateral branches branched or fastigate. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 15–30 cm long, 3.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 14–25 cm long, 12–23 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9–22 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 9–22 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 12–17 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 8–10.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, Warrego, Cook, South Kennedy. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. *A. leptopoda* is an open headed species differing from *A. behriana* and *A. obscura* by a larger panicle with the branches naked at the base. It is also similar to *A. lazardis* but for the convolute lemma.

Found mainly on cracking clay soils from central and southern Queensland to northern New South Wales. A major problem to the pastoral industry on the Mitchell grass (*Astrebla* spp) grasslands (Filet 1990). Brigalow (*Acacia harpophylla*), *Eucalyptus*, blue-grass downs (*Dichanthium* spp.), and Mitchell grass (*Astrebla* spp) communities on clays and loams. Flowering and fruiting November to July, September (one record).

Aristida lignosa B.K.Simon. *Austrobaileya* 2: 94 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Queensland: South Kennedy District: *Hazelwood Creek*, W. of Eungella Dam, 9 April 1978, *Simon* 3339 (HT: BRI-264061; IT: CANB, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (130).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (130).

Derivation: L. *lignum*; wood; -osa, abundance. Culms woody.

Habit. Perennial. Culms erect, stature robust to moderate, 100–200 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 15–30 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or lanceolate, 7–30 cm long, 0.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 7–10 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 6–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands.

Notes. Central and south-eastern Queensland to northern New South Wales. *Acacia* communities in rocky areas. Flowering and fruiting January to November.

Aristida longicollis (Domin)Henrard. *Meded. Rijks. Herb. Leiden* 54: 14 (1926). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida adscensionis* var. *longicollis* Domin, *Biblioth. Bot.* 85(2): 343, t. 15, f. 5–8 (1915).

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Feb 1910, Australia: Queensland: Burke Dist.: dürre Hügel bei Cloncurry (L (photo, BRI); IT: BRI, L).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (452), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (130).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(25)).

Derivation: *L. longus*, long; *collum*, neck. Column of awn long.

Habit. Perennial. Culms 50–80 cm tall, 3 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 9–18 cm long, 2–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 9.5–20 cm long, 3–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, 7–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 5–9.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn with a straight or slightly twisted column. Column 1–5 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4–6.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Central Australia North. **Queensland:** Burke, Gregory North, Mitchell.

Notes. *A. longicollis* is similar to *A. psammophila* in its spicate panicle but differs from this species by its lemma being scabrous all over apically and by the lemma column consisting of only a half spiral at the most. *A. longicollis* was reported in error from New South Wales by Wheeler, Jacobs & Norton (1990).

Three arid areas of the Northern Territory and Queensland. Rocky, sandy soils and red earths. Flowering and fruiting February to June, September (one record).

Aristida macroclada Henrard. *Meded. Rijks. Herb. Leiden* 54A: 325 (1927). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *J. E. Tennison Woods & M. Holtze* 12, 1886, Australia: Northern Territory: Darwin and Gulf Region (K; IT: BRI (fragm., photo ex K), MEL).

Recent synonyms: *Arisrida novaeguineae* Ohwi.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (29), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 16B-C, as var. *queenslandica*).

Derivation: Gk. *makros*, large; *klados*, stem. Panicle branches long and slender.

Habit. Perennial. Culms 60–100 cm tall, 5–9 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 15–30 cm long, 1–2.3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 17–24 cm long, 3–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, 6–15 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 5.5–9.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 11–37 mm long overall, with a straight or slightly twisted column or with a twisted column. Column 1–8 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. *A. macroclada* differs from *A. psammophila* and *A. longicollis* by the inflorescence being loose to open and the branches being naked at the base. It exists as two subspecies, one with a very short column and the other with a fairly well developed column.

Infra -specific taxa: subsp. *macroclada*, subsp. *queenslandica*.

Column of many spirals **A. macroclada** subsp. **queenslandica**

Column of 1/2–1 spiral **A. macroclada** subsp. **macroclada**

Aristida macroclada var. **macroclada**

Australian Distribution: Northern Territory, Queensland.

Notes. The "top end" of the Northern Territory, one record from Cape York Peninsula, and a few records from New Guinea. *Eucalyptus*, and *Melaleuca* communities on sandy and loamy soils. Flowering and fruiting January (one record), March to July.

Aristida macroclada var. **queenslandica** (B.K.Simon) Veldkamp. *Reinwardtia* 12: 137 (2004).

Classification. Basionym and/or Replacement Name: *Aristida macroclada* subsp. *queenslandica* B.K. Simon, *Austrobaileya* 2(1): 95, f. 3B (1984).

Type of Basionym or Protologue Information: Australia: Queensland: Cook District: Stoney Creek Falls, near Cairns, 18 May 1962, *S.T. Blake 21741* (HT: BRI-065923; IT: BRI-207306, CANB, MEL, NSW).

Australian Distribution: Queensland.

Notes. Tropical coastal Queensland. One record from New Guinea. *Eucalyptus*, *Casuarina* and *Melaleuca* communities on sandy and loamy soils. Flowering and fruiting February to June, August.

Aristida muricata Henrard. *Meded. Rijks. Herb. Leiden* 58A: 286 (1932). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *W.D. Brown* 63, Jun 1913, Australia: New South Wales, Golun (L-932.55–106 (photo, BRI); IT: BRI (fragm.), K, NSW). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 729 (1933).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (130).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(39)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (130).

Derivation: L. rough. Glumes bear short hard points.

Habit. Perennial. Culms 50–90 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 9–19 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 17–30 cm long, 1–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 8–12 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous. Upper glume apex entire or erose.

Florets. Fertile lemma 7.5–8.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, South Kennedy, Gregory South. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. *A. muricata* differs from all other species by the muricate and involute lemmas and perennial habit.

Central inland Queensland to central inland New South Wales with records also from north and far inland Queensland. Brigalow (*Acacia harpophylla*), *Eucalyptus* communities on sandy, loamy and alluvial soils. Flowering and fruiting December to July.

Aristida nitidula (Henrard) S.T. Blake ex J.M. Black. *Fl. South Australia* Ed. 2, 1: 83 (1943). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida nitidula* (Henrard) S.T. Blake ex Black, *Trans. & Proc. Roy. Soc. South Australia* 67: 46 (1943).

Type of Basionym or Protologue Information: HT: *Kempe* 4, 1879, Australia: Northern Territory: Central Southern Station, Mission, Finke River (L (photo, BRI); IT: K, MEL).

T: *H.J. Kempe* 28, 1879, Australia: Northern Territory, Finke River (L).

Key references (books and floras): [1952] C.A. Gardner, *Flora of Western Australia* 1 *Gramineae* (166), [1981] M. Lazarides in J. Jessop (ed.), *Flora of Central Australia* (450), [2002] D. Sharp & B.K. Simon, *AusGrass, Grasses of Australia*, [2006] J. Jessop, G.R.M. Dashorst, F.M. James, *Grasses of South Australia* (326), [2008] S.W.L. Jacobs, R.D.B. Walley & D.J.B. Wheeler, *Grasses of New South Wales* (130).

Illustrations: [1983] J.C. Tothill & J.B. Hacker, *Grasses of Southern Queensland* (106(31)), [2005] K. Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 119A–B), [2006] J. Jessop, G.R.M. Dashorst, F.M. James, *Grasses of South Australia* (327, Fig. 259), [2008] S.W.L. Jacobs, R.D.B. Whalley & D.J.B. Wheeler, *Grasses of New South Wales*, 4th edn (130).

Derivation: *L. niteo*, shine; *-ula*, exhibiting tendency. Spikelets glossy.

Habit. Perennial. Culms 35–82 cm tall, 1 mm diam., 1 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths antrorsely scabrous. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, conduplicate or involute or convolute, 12–17 cm long, 0.7–1 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 12–28 cm long, 0.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6.3–10.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 6.2–9.6 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 6–10 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.6–6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Fortescue, Ashburton, Carnarvon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Flinders Ranges, Eastern. **Queensland:** Burke, Gregory North, Warrego, Mitchell. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. *A. nitidula* is very similar to *A. arida* except that the glumes are subequal.

Mainly occurs in central Australia and the Lake Eyre region, but also in all mainland states except Victoria. *Acacia* (especially mulga - *Acacia aneura*) communities on rocky and sandy soils. Flowering and fruiting all year.

Aristida obscura Henrard. *Meded. Rijks. Herb. Leiden* 54A: 385 (1927). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *D. W. J. Hatten* 29, May 1900, Australia: New South Wales: Bourke Dist.: North Western Plains (L-926.156–886 (photo, BRI); IT: K, NSW).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (326), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (130).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(22)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 18C), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (326, Fig. 260), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (130).

Derivation: L. dark. Spikelets dark-colored.

Habit. Perennial. Culms 25–40 cm tall. Mid-culm internodes pubescent. Lateral branches branched. Leaf-sheaths antrorsely scabrous, hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat, 10–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose, 7–15 cm long, 5–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 13–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 13–21 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 11–14 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6–10 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Helms, Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burnett, Darling Downs, Maranoa, Warrego. **New South Wales:** Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. *A. obscura* differs from *A. behriana* by the more open panicles, the tuberculate-spiny lemmas and compressed peduncles.

Concentrated in two main areas in central Australia and another in an area from Chareville to Cobar. In all mainland states except Victoria. *Eucalyptus* and mulga (*Acacia aneura*) communities on loams and red earths. Flowering and fruiting November to September.

Aristida perniciosa Domin. *Biblioth. Bot.* 85: 340 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Feb 1910, Australia: Queensland: Cook District: Eucalyptus-Walder bei Mareeba (L (photo, BRI); IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(11)).

Derivation: L. *per*, very; noxious, harmful; -*osa*, abundance. Callus very sharp and readily entangling in wool and clothing.

Habit. Perennial. Culms erect, 40–137 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades curled or flexuous, flat or conduplicate or involute or convolute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–39 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 11–18.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 5 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 11–18.3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire, awned.

Florets. Fertile lemma 7–14 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 21–44 mm long overall, with a twisted column. Column 5–10 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5.4–7.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Leichhardt, North Kennedy, Port Curtis.

Notes. The setting up of a new section *Perniciosae* to accommodate this species was discussed in Simon, 1992. Lazarides (1980) is correct in observing the involute lemma and normal glumes, contrary to the illustrations and descriptions by Domin (1915) and Henrard (1927, 1931).

One record from the Kimberley region, Western Australia, three from the "top end" of the Northern Territory, and a number from tropical and subtropical Queensland. *Eucalyptus* and *Melaleuca* communities on sands and loams. Flowering and fruiting January to July, September (one record).

Aristida personata Henrard. *Meded. Rijks. Herb. Leiden* 58A: 290 (1932). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *C.T. White* 3396, 25 Feb 1927, Australia: Queensland: Port Curtis Dist.: inter Rockhampton et Westwood (L-928.18–7 (photo, BRI); IT: BRI, K). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 732 (1933).

Recent synonyms: *Aristida ramosa* R.Br. var. *speciosa* Henrard.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (328), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (131).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(2, 28)), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (328, Fig. 261), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (131).

Derivation: L. masked, that is, resembling something else. Readily confused with another species.

Habit. Perennial. Culms stature robust to moderate, 60–120 cm tall. Mid-culm internodes glabrous. Lateral branches fastigiate. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 8–16 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–30 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9.5–11.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 6–11.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 9.5–10.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6–8.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray. **Queensland:** Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Warrego. **New South Wales:** Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains.

Notes. *A. personata* differs from *A. ramosa* by the inflorescence being a loose to open panicle. It was formerly recognised as a variety of *A. ramosa* (see comments under that species).

Eastern Australia from central Queensland to Adelaide. Brigalow (*Acacia harpophylla*), *Eucalyptus*, *Casuarina* communities on sandy and alluvial soils, loams and clays. Flowering and fruiting all year.

Aristida platychaeta S.T.Blake. *Proc. Roy. Soc. Queensland* 51: 174 (1940). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Queensland: Maranoa District: Mitchell, on open downs on dark greenish brown silty clay 1100 ft., 3 May 1934, *S. T. Blake* 5701 (HT: BRI; IT: BRI).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (451), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (131).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(30)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (131).

Derivation: *G. platys*, broad; *chaete*, bristle. Awns flattened.

Habit. Perennial. Culms 15–50 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Ligule a fringe of hairs, 1 mm long. Leaf-blades curled or flexuous, flat or conduplicate or involute or convolute, 4–8 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–23 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 5–7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, mucronate.

Florets. Fertile lemma 5–6 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Maranoa, Warrego. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. *A. platychaeta* differs from *A. nitidula* and *A. arida* by the lemmas being shorter and the leaf blades being flat and flexuose to curly.

Central southern Queensland to the north-western plains of New South Wales. *Eucalyptus* and mulga (*Acacia aneura*) communities on loamy and rocky areas. Flowering and fruiting December to May, August (one record), October (one record).

Aristida polyclados Domin. *Biblioth. Bot.* 85: 338 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Feb 1910, Australia: Nord-Queensland: Cook Dist.: bei Chillagoe (L (photo, BRI); IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(7)).

Derivation: Gk. *polys*, several; *klados*, branch. Plants with much branched culms often with the branches in fascicles.

Habit. Annual. Culms geniculately ascending, 29–40 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, filiform, flat or conduplicate or involute or convolute, 8–11 cm long, 0.5–1.8 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 7–19 cm long, 8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 17–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume lanceolate, 13–20 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire, awned.

Florets. Fertile lemma 7–8 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 47–111 mm long overall, with a twisted column. Column 15–35 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3.7–5.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Gregory North.

Notes. *A. polyclados* differs from other species of section *Arthratherum* by having inverse glumes.

One record from the Kimberly region, Western Australia, one record from the "top end" of the Northern Territory, but mainly recorded from a few tropical dry areas of Queensland. It also occurs on Soemba Island, Indonesia. *Eucalyptus* woodlands on sandy soils and alluvial sites. Flowering and fruiting January to March, May to July.

Aristida pruinosa Domin. *Biblioth. Bot.* 85: 345 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: NT: *M. Lazarides 4369*, 15 Mar 1954, Australia: Queensland: Burke Dist.: Mt. Isa (BRI; INT: AD, CANB, MEL, NSW, NT, PERTH). NT designated by Simon, *Austr. Syst. Bot.* 5: 169 (1992).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (168), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (167, Pl. 49), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(34)).

Derivation: L. bluish-green. Leaf-blades are covered with short white hairs.

Habit. Perennial. Culms erect, 60–153 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight or flexuous, flat or conduplicate or involute or convolute, 20–40 cm long, 2–4.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 15–37 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous. Upper glume lanceolate, 7.6–15 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex muticous.

Florets. Fertile lemma 5.4–13.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Fortescue, Ashburton. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Mitchell, North Kennedy, South Kennedy, Gregory North.

Notes. *A. pruinosa* differs from *A. inaequiglumis* by its more robust and pruinose habit, the absence of leaf blades which curl up at maturity and the absence of a lemma pseudoarticulation, although there may be a change in colour at the junction of the lemma apex and awns. With regards to its pruinose culms, tuberculate lemma furrows and robust stature it resembles *A. calycina* var. *praealta* and *A. biglandulosa* but these species differ in having subequal glumes.

Northern Australia from the Kimberley to central Queensland. *Eucalyptus*, *Melaleuca* and *Triodia* communities on reearth, sands and alluvial soils. Flowering and fruiting all year.

Aristida psammophila Henrard. *Meded. Rijks. Herb. Leiden* 58A :229 (1932). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *C.T. White s.n.*, Apr 1916, Australia: Queensland: Darling Down Dist.: Dalby (K (photo, BRI); IT: BRI). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 735 (1933).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (131).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(14)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (131).

Derivation: Gk. *psammos*, sand; *phileo*, love. Growing in sandy places.

Habit. Perennial. Culms 60–120 cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, conduplicate or involute or convolute, 7–15 cm long, 1–1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 12–16 cm long, 3–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 7–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous. Upper glume apex entire, awned.

Florets. Fertile lemma 7–10.5 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn with a straight or slightly twisted column or with a twisted column. Column 1.3–3 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 4.8–5.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Darling Downs, Maranoa, North Kennedy, Warrego. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. *A. psammophila* is similar to *A. longicollis* in its spicate panicle but differs from this species by the lemma being scabrous only on the margin apically and the lemma column consisting of at least one complete spiral.

Three small regions from Queensland to northern New South Wales. *Eucalyptus*, blue-grass (*Dichanthium* spp) and Mitchell grass (*Astrebla* spp) communities on reearth, loams and clay soils. Flowering and fruiting January to February, April to May, July.

Aristida queenslandica Henrard. *Meded. Rijks. Herb. Leiden* 54B: 488 (1928). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *P.A. O'Shanesy 13*, 1879, Australia: Queensland: Leichhardt Dist.: on ridges near Cometville (L-925.125–52 (photo, BRI); IT: MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (131).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(4)).

Derivation: L. *-ica*, belonging to. From Queensland, Australia.

Habit. Perennial. Culms erect, 25–109 cm tall, 1–2 mm diam., 2–4 -noded. Mid-culm internodes glabrous or hirsute. Lateral branches simple or sparsely branched or branched or fastigate. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades curled or flexuous, flat or conduplicate or involute or convolute, 20–40 cm long, 2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, loose, 7–64 cm long, 2–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6.2–10.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 5–10.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 4.6–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 3.6–6.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Maranoa. **New South Wales:** North Coast.

Notes. *Aristida queenslandica*

A. queenslandica is a distinct species with lateral awns only about 2/3 the length of the median. Its two varieties by the culm internodes being hirsute in var. *queenslandica* and glabrous in var. *dissimilis*.

Var. *queenslandica*

Most records are from tropical and subtropical coastal Queensland. Represented in the Northern Territory by four specimens from the "top end" and in N.S.W. by one specimen. *Eucalyptus* communities on rocky areas and sandstone hills. Flowering and fruiting December to August.

var. *dissimilis*

Recorded from pockets of tropical and subtropical coastal Queensland, sometimes spreading inland, with one specimen recorded from northern New South Wales. *Eucalyptus* communities on granite sands. Flowering and fruiting January to April, June, November.

Infra-specific taxa: var. *queenslandica*, var. *dissimilis*.

Culm internodes with pilose hairs, especially at base

A. *queenslandica* var. *queenslandica*

Culm internodes glabrous

A. *queenslandica* var. *dissimilis*.

Aristida queenslandica* var. *queenslandica

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (131).

Australian Distribution: Northern Territory, Queensland, New South Wales.

***Aristida queenslandica* var. *dissimilis* (S.T.Blake) B.K.Simon. *Austrobaileya* 2: 96 (1984).**

Classification. Basionym and/or Replacement Name: *Aristida dissimilis* S.T. Blake, *Proc. Roy. Soc. Queensland* 51: 170, t. 4, f. 4–7 (1940).

Type of Basionym or Protologue Information: HT: *S.T. Blake 5945*, 7 Jun 1934, Australia: Queensland: North Kennedy District: Townsville, on sandy soil on exposed rocky slopes, densely tufted, erect at base, dark green (BRI; IT: BRI, CANB, K, MEL, US-2962844).

Australian Distribution: Queensland, New South Wales.

Aristida ramosa R.Br. *Prodr.* 173 (1810). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *R. Brown 6199*, Australia: New South Wales: Central Coast, Port Jackson (BM; IT: BRI, E, K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (173), [1878] G.Bentham, *Flora Australiensis* 7 (563), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (132).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(27)), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (59), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: *L. ramosus*, branch; *-osa*, abundance. Inflorescences or culms much branched.

Habit. Perennial. Culms erect, 37–103 cm tall, 2 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 6–12 cm long, 0.6–2 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 8–27 cm long, 1.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous. Upper glume lanceolate, 5.2–10.7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth to scabrous, glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 6–14.1 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8.7 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Western Australia, Queensland, New South Wales, Victoria.

Western Australia: Drummond, Dale. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Warrego. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Riverina, Volcanic Plain.

Notes. Wetter areas of eastern Australia from central Queensland to South Australia and one anomalous collection from the Darling Range in south-west Western Australia. Also southwestern Pacific. *Acacia*, brigalow (*Acacia harpophylla*), blue-grass downs (*Dichanthium* spp), *Eucalyptus*, *Eremophila* and *Triodia* communities, rainforest fringes on clays, reedeaths, sandy and alluvial soils. Flowering and fruiting all year.

Aristida ramosa x vagans Classification. (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 37–103 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades flat or conduplicate or involute or convolute, 12 cm long, 2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 8–27 cm long, 1.5–6 cm wide.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension.

Glumes. Lower glume lanceolate, 1(–3) -nerved. Lower glume surface glabrous. Upper glume lanceolate, 5.2–10.7 mm long, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire or erose, mucronate.

Florets. Fertile lemma 6–14.1 mm long. Lemma apex awned, 3 -awned. Median (principal) awn 8–20 mm long overall, without a column. Lateral lemma awns present. Grain 5–8.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

Notes. This is the only formally recognised hybrid in Australian *Aristida* species. It occurs over a fairly wide region of New South Wales where both postulated parents also are found. It shares with *A. vagans* the character of the lemma projecting for some distance beyond the glumes and with *A. ramosa* the general size of the spikelets. I recognised two other hybrids previously (*A. ramosa* x *A. jerichoensis* and *A. ramosa* x *A. echinata*) (Simon 1984) but they were shown not to maintain the morphological boundaries applied to them on more critical examination.

New South Wales.

Flowering and fruiting January to April, June, September to December.

Aristida schultzi Mez. *Repert. Spec. Nov. Regni Veg.* 17:149(1921). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *F. Schultz* 765, Jun 1870, Australia: Northern Territory: Darwin & Gulf Dist.: Port Darwin (B; IT: BRI, FI, K, LE, US-81260 (fragm. ex B)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: in honor of Frederick Schultze (fl. 1869) who collected in northern Australia.

Habit. Perennial. Culms 35–65 cm tall. Mid-culm internodes glabrous. Lateral branches fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.4–0.6 mm long. Leaf-blades flexuous, flat or conduplicate or involute or convolute, 10–25 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 22 cm long, 2–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 11–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–7 -nerved. Lower glume apex awned. Upper glume lanceolate, 7.5–21 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, awned.

Florets. Fertile lemma 10–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 25–37 mm long overall, with a twisted column. Column 5–7 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 7–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Leichhardt, North Kennedy.

Notes. *A. schultzi* is similar to *A. warburgii* in having a 3–7-nerved lower glume but differs from this species in that the median awn is not thicker than the laterals.

Mainly northern N.T. and Queensland. *Eucalyptus* and *Melaleuca* communities. Flowering and fruiting January to February, April to September.

Aristida sciuroides Domin. *Biblioth. Bot.* 85: 347 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: LT: *K. Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: Barcaldine (L; ILT: BRI). LT designated by Simon, *Austr. Syst. Bot.* 5: 178 (1992). ST: *Domin s.n.*, Mar 1910, Australia: Queensland: Mitchell Dist.: Jericho (PR).

Recent synonyms: *Aristida borealis* B.K.Simon.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(36)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 20N-O).

Derivation: Gk. *skiouros*, squirrel; *-oides*, resembling. Inflorescence resembles a squirrel's tail.

Habit. Perennial. Culms stature robust to moderate, 70–200 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades curled or flexuous, flat or conduplicate or involute or convolute, 10–21 cm long, 2 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 16–60 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10.5–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex awned. Upper glume lanceolate, 10.5–17 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, muticous.

Florets. Fertile lemma 8.5–13 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 7.5–9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook, Darling Downs, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego, Leichhardt.

Notes. *A. sciuroides* differs from *A. ingrata* by having larger spikelets, by a lack of a lemma pseudoarticulation and by the leaf blades not curling up at maturity.

Three main areas of inland tropical and subtropical Queensland and two other records from the Gulf region of Queensland. *Eucalyptus* communities on redearths, sands and sandstone habitats. Flowering and fruiting November to September.

Aristida spuria Domin. *Biblioth. Bot.* 85: 341 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: NT: *S. T. Blake 8349*, 30 Mar 1935, Australia: Queensland: North Kennedy Dist.: Castle Hill, Townsville (BRI; INT: AD, B, BO, CANB, CBG, DNA, EA, K, L, LAE, MBA, MEL, MO, NOU, NSW, NT, PERTH, PRE, QRS, SP, SRGH, US). NT designated by Simon, *Austr. Syst. Bot.* 5: 150 (1992).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (132).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(3)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: *L. spurious*. The lateral awns of the lemma are insignificant or absent, the spikelets then resembling those of *Stipa*.

Habit. Perennial. Culms decumbent, 20–91 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches fastigiate. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curled or flexuous, filiform, conduplicate or involute or convolute, 8–12 cm long, 0.5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 11–29 cm long, 0.9–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume lanceolate, 6.5–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous or indumented. Upper glume apex dentate, awned.

Florets. Fertile lemma 7–12.5 mm long, without keel, 3 -nerved. Lemma apex awned, 1–3 -awned. Median (principal) awn 10–29 mm long overall, with a twisted column. Column 4–9 mm long. Lateral lemma awns absent or present. Palea without keels. Anthers 3. Grain 4.8–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North-Western Slopes.

Notes. As the type could not be located a neotype has been selected from a specimen from the type locality. It has many duplicates, recently widely distributed from material in the S.T.Blake archives in BRI, matches the type description and was cited by Blake (1944) and Lazarides (1980). *A. spuria* differs from *A. utilis* by the glabrous culm internodes and the setaceous leaf blades.

Recorded from isolated areas of coastal and sub-coastal Queensland, with one record from New South Wales. *Eucalyptus* woodlands, sometimes in elevated areas and off-shore islands. Sandy and loamy soils. Flowering and fruiting January to June.

Aristida strigosa (Henrard)S.T.Blake ex J.M.Black. *Fl. South Australia Ed.2*, 1: 83 (1943). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Basionym and/or Replacement Name: *Aristida calycina* var. *strigosa* Henrard, *Meded. Rijks-Herb.* 58(A): 297 (1932).

Type of Basionym or Protologue Information: LT: *R. Helms 23*, 15 May 1891, Australia: South Australia: Arkaringa Creek, Elder Exploring Expedition (K (photo, BRI); IT: AD, BRI, BRI (fragm. ex K), MEL). LT designated by Henrard, *Meded. Rijks-Herb.* 54(C): 708 (1933).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (166), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (450), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (329), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (132).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (106(32)), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 19C-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (329, Fig. 262), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: *L. covered with short, bristle-like hairs. One or more organs covered with bristle-like hairs.*

Habit. Perennial. Culms 50–120 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths scaberulous or antrorsely scabrous. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 9–18 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 16–36 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8.5–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, 7–12 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 8.5–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Ashburton. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Eastern. **Queensland:** Gregory North, Gregory South, Warrego. **New South Wales:** North Far Western Plains.

Notes. *A. strigosa* resembles *A. capillifolia* in that it has distinctly scabrous lemmas as opposed to tuberculate spiny lemmas found in *A. nitidula*, *A. arida* and *A. platychaeta*. It differs from *A. capillifolia* by having flat to conduplicate leaf blades and longer lemmas.

Mainly from southern part of the N.T. to northern South Australia with scattered distribution in all mainland states except Victoria. Rocky creek beds and associated sandy or loamy alluvial soils. Flowering and fruiting January to November.

Aristida superpendens Domin. *Biblioth. Bot.* 85: 339 (1915). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *K. Domin s.n.*, Feb 1910, Australia: Queensland: Cook Dist.: in den Savannenwaldern bei Mareba (L (2 sheets; photo, BRI); IT: BRI).

Recent synonyms: *Aristida hirta* Domin.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. super*, above; *pendeo*, hang. Spikelets pendulous in upper part of spikelet.

Habit. Perennial. Culms erect, 60–120 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths scaberulous or antrorsely scabrous, glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades curled, filiform or linear, flat or conduplicate or involute or convolute, 15–27 cm long, 0.6–1.2 mm wide. Leaf-blade surface scaberulous or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, 14–34 cm long, 5–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 16–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 16–21 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 8–12.6 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 46–133 mm long overall, with a twisted column. Column 11–34 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 5.6–7.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. *A. superpendens* differs from *A. dominii* by its perennial habit, its culms being 60 cm or more tall and by its larger spikelets.

A few records from the "top end" of the Northern Territory, but most collections from tropical north Queensland. Extends to Buru, Indonesia. *Eucalyptus* and *Melaleuca* woodlands on granite sand and alluvial soils. Flowering and fruiting January to August.

Aristida thompsonii B.K.Simon. *Austrobaileya* 4: 145 (1994). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: Queensland: North Kennedy District: 9.5 km W of Homestead, 20.21S 114.531E, 30 Aug 1992, *E.J. Thompson & P.R. Sharpe* CHA232 (HT: BRI; IT: AD, CANB, DNA, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 13).

Derivation: in honor of Edward John Thompson (1949-) Australian ecologist.

Habit. Perennial. Culms erect, 20–40 cm tall, 1–1.5 mm diam., 3–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades conduplicate or involute or convolute, 10–25 cm long, 0.5–0.75 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 6–10 cm long, 0.3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, 1 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume lanceolate, 6–7 mm long, membranous, 1 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 5.5–6 mm long, without keel, 5 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Anthers 3. Grain 4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: North Kennedy.

Notes. Bluish green leaves due to being glaucous.

Restricted to type locality. Patchy heath of *Kunzea callida* on flat rock area. Flowering and fruiting August.

Aristida utilis F.M.Bailey. *Queensland Agric.J.* 18: 340 (1907). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *M. Webb s.n.*, May 1907, Australia: Queensland: Cook District: near Cooktown (BRI; IT: K (photo, US-1447336), US-1162453).

Recent synonyms: *Aristida streptachne* Domin.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Streptachne stipoides*), [1878] G.Bentham, *Flora Australiensis* 7 (572 as *Streptachne stipoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(4)).

Derivation: L. useful.

Habit. Perennial. Culms 53–130 cm tall. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades curled or flexuous, flat or conduplicate or involute or convolute, 10–21 cm long, 1.5–2 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 15–48 cm long, 1–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 8–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 8.3–17 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 8–20 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1–3 -awned. Median (principal) awn 14–40 mm long overall, with a twisted column. Column 5–9 mm long. Lateral lemma awns absent or present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, Port Curtis, Burnett.

Notes. *Utilis* var. **grandiflora**

This is a giant form of *A. utilis* and may be a reflection of its proximity to alumina deposits.

Utilis var. **utilis**

Two records from the "top end" of the Northern Territory, a number of records from coastal Queensland and a few records from Papua New Guinea. *Eucalyptus* woodland in granite sand country. Flowering and fruiting January to August.

utilis var. **grandiflora**

Known only from the type locality at Andoom, Cape York Peninsula, Queensland. Collected from a regenerated mine site. Flowering and fruiting April.

Infra-specific taxa: var. **utilis**, var. **grandiglumis**.

Lemma to 12 mm long; glumes to 12 mm long

Lemma more than 17 mm long; glumes more than 15 mm long

A. utilis var. **utilis**

A. utilis var. **grandiflora**

Aristida utilis var. utilis

Australian Distribution: Northern Territory, Queensland.

Aristida utilis var. grandiflora B.K.Simon. *Austrobaileya* 2: 95 (1984).

Classification. Type of Basionym or Protologue Information: Australia: Queensland: Cook District: Andoom, Apr. 1982, A. Morton 1653 (HT: BRI-285806).

Australian Distribution: Queensland.

Aristida vagans Cav. *Icon. Desc. Pl.* 5: 45 (1799). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *Anon. s.n.*, Australia: New South Wales: Central Coast, Port Jackson (MA (photo, BRI)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (173), [1878] G.Bentham, *Flora Australiensis* 7 (562), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (132).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(19)), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (59), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: *L. vago*, wander. Culms much branched.

Habit. Perennial. Culms 38–85 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat or conduplicate or involute or convolute, 5–12 cm long, 1–1.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 6–11.5 cm long, 3–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8.5–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, 3.5–7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose.

Florets. Fertile lemma 8.5–12 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6–9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Moreton, Wide Bay, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. *A. vagans* is similar to *A. caput-medusae* in having small spikelets in which the lemma extends beyond the glumes, but it differs from this species by the inflorescence being larger and irregular in outline.

South-east coastal Australia from south-eastern Queensland to the Victorian border; two records from outside this range. *Eucalyptus* communities on rocky and sandy soils. Flowering and fruiting all year.

Aristida vickeryae B.K.Simon. *Austrobaileya* 2: 94 (1984). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: Australia: New South Wales: South Far Western Plains: between Euston and Gol Gol, 15 Oct. 1949, J. W. Vickery (HT: NSW-144387; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (132).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: *L. -ana*, indicating connection. In honor of Joyce Winifred Vickery (1908–1979) Australian botanist.

Habit. Perennial. Culms 20–45 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringe of hairs, 0.3–0.7 mm long. Leaf-blades flexuous, filiform, conduplicate or involute or convolute, 4–16 cm long, 0.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 12–15 cm long, 3–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucous. Upper glume lanceolate, 12–13 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire, mucronate.

Florets. Fertile lemma 10 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn without a column. Lateral lemma awns present. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Far Western Plains, South Far Western Plains.

Notes. *A. vickeryae* is distinguished from related species (*A. leptopoda*, *A. obscura* and *A. behriana*) by the panicle which is about twice as long as wide. The spikelets differ from *A. ramosa* by having larger glumes and by the lemma being shorter than the upper glume.

Restricted to the Murray River area of south-western New South Wales near Euston. Flowering and fruiting October.

Aristida warburgii Mez. *Repert. Spec. Nov. Regni Veg.* 17: 149 (1921). **Classification.** (GPWG 2001) : Subfamily Aristidoideae. Aristideae.

Type of Basionym or Protologue Information: HT: *E.F. Warburg 19535*, no date, Australia: Queensland: Wide Bay Dist.: near Maryborough (B; IT: BRI (fragm. & photo ex B), US-2489454 (fragm. e xB)). Collection no. is annotated on sheet, but not cited in publication.

Recent synonyms: *Aristida heterochaeta* Henrard, *Aristida intricata* S.T.Blake.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (133).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (104(10)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (133).

Derivation: in honor of Otto Warburg (1859–1938) German botanist.

Habit. Perennial. Culms 30–90 cm tall. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 8–16 cm long, 1 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, 11–15 cm long, 2–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8.5–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–7 -nerved. Upper glume lanceolate, 8.5–17 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume apex entire or erose.

Florets. Fertile lemma 7–11 mm long, without keel, 3 -nerved. Lemma apex awned, 3 -awned. Median (principal) awn 22–50 mm long overall, with a twisted column. Column 5–17 mm long. Lateral lemma awns present. Palea without keels. Anthers 3. Grain 6–7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, Wide Bay. **New South Wales:** North Coast, Central Coast, Central Tablelands, North-Western Slopes.

Notes. Coastal New South Wales to south-eastern Queensland and northern Queensland to New Guinea. *Eucalyptus* and *Melaleuca* communities on sandy soils. Flowering and fruiting all year.

Arrhenatherum elatius (L.) P.Beauv. ex J.Presl & C.Presl. *Fl. Friburg* 1:113 (1825). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena elatior* L., *Sp. Pl.* 1: 79 (1753).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (586 as *Arrhenatherum avenaceum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (39 as var. *bulbosum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (202), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (133), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (127, 128 as var. *elatius*, var. *bulbosum*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (40, Pl. 10 as var. *bulbosum*), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (110, as var. *bulbosum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (203, fig. 151 as var. *bulbosum*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (61 as var. *bulbosum*), [2008] S.W.L.Jacobs, R.D.B.Whalley &

D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (133), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: Poaceae 2 (129, Fig.19 as var. *bulbosum*).

Derivation: L. taller. Culms taller than those of related species.

Habit. Perennial. Culms erect, 50–180 cm tall, 3–5 -noded. Mid-culm nodes glabrous or pubescent. Leaves cauline. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule an eciliate membrane, 0.5–2(–3) mm long, abaxially hairy. Leaf-blades 10–23(–40) cm long, 4–10 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 9–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret or many flowered, with at least 2 fertile florets, comprising 1 basal sterile florets (male), comprising 1(–3) fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 7–11 mm long. Rachilla internodes elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 7–11 mm long, membranous, keeled, 1-keeled, 3(–5) -nerved.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret chartaceous, much thinner above, 7 -nerved, awned.

Fertile lemma 7–10 mm long, without keel or keeled, 7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn subapical, 0.9–12 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies, Warren. **South Australia:** Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Midlands, Otway Range, Riverina, Volcanic Plain. **Tasmania:** North West, North East, West Coast, East Coast.

Notes. 1(0). Basal culm internodes not swollen; glumes slightly shorter than or equalling the proximal lemma **a. var. elatius**

Basal culm internodes swollen; glumes approximately 1/2 the proximal lemma in length **b. var. bulbosum**

Arrhenatherum elatius (L.) P.Beauv. ex J.Presl & C.Presl **var. elatius**

Ornamental form with striped green and yellow leaves also seen from Canberra.

Occurs in Qld, W.A. and SE Australia. Native of Asia, now widespread in Europe, Africa and North America. A weed of dry grasslands. Flowers Nov.-Jan.

1 var. elatius

Occurs in Qld and SE mainland Australia. A weed of dry grasslands. Flowers Nov.-Jan. Fruits Nov.

var. bulbosum (Willd.) Spenn.

In Tas, N.S.W., A.C.T. and Vic. A weed of roadsides and perennial crops, particularly in areas of high rainfall. Flowers Nov.-Feb. Fruits Nov.

Infra-specific taxa: var. *elatius*, var. *bulbosum*.

Basal internodes swollen and globose **A. elatius** var. *bulbosum*

Basal internodes not swollen **A. elatius** var. *elatius*

Arrhenatherum elatius var. *elatius*

Australian Distribution: New South Wales.

Arrhenatherum elatius var. *bulbosum*

Classification. Key references (books and floras): [2002] J.Wheeler, N.Marchant & M.Lewington, Flora of the South West (400 as *A. bulbosum*).

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Arthrargrostis aristispicula B.K. Simon. *Austrobaileya* 2 :238 (1986). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Almaden: Simon 5598 & Clarkson (BRI holo, CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. arista*, bristle; *spica*, thorn; -ula, diminutive. Lemma shortly awned.

Habit. Annual. Culms 20–60 cm tall. Ligule a fringed membrane, a ciliate membrane, 0.3–0.5 mm long. Leaf-blades linear, 2–10 cm long, 1–5.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–25 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 5.5–7.5 mm long. Rhachilla internodes elongated between glumes and elongated below proximal fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7 -nerved. Lower glume surface indumented. Lower glume apex mucronate. Upper glume elliptic, 5.5–7 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface indumented. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, awned.

Fertile lemma 1.5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Northeastern Queensland.

Arthrargrostis brassiana

Australian Distribution: Queensland.

Arthrargrostis clarksoniana B.K. Simon. *Austrobaileya* 3: 585 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Cook Dist.: 16 km from Meripah homestead on road to the south, 13.49S 142.22E, 11 May 1987, *J. R. Clarkson & B. K. Simon 7149* (HT: BRI-AQ452649; IT: MBA, NSW)

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: In honor of John Richard Lindsay Clarkson (1950-) Scots-born Australian botanist.

Habit. Annual. Culms erect or geniculate ascending, stature slender to delicate, 40–80 cm tall, 2–4 -noded. Lateral branches sparsely branched. Ligule a fringed membrane, a ciliate membrane, 0.5 mm long. Leaf-blades lanceolate, 3–10 cm long, 20 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 23–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 3.5–4 mm long. Rhachilla internodes elongated between glumes and elongated below proximal fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume elliptic or ovate, membranous, without keels, 5–7 -nerved. Lower glume surface indumented. Lower glume apex muticous. Upper glume elliptic, 3.5–4 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 1.5 mm long, without keel. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Northern Cape York Peninsular and one record from northern N.T.

Arthrargrostis deschampsoides (Domin) M. Lazarides. *Nuytsia* 5: 286 (1985). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum deschampsoides*.

Type of Basionym or Protologue Information: HT: *Domin 1208*, Feb 1910, Australia: Queensland: North Kennedy District (PR). Castle Hill, Townsville.

Recent synonyms: *Panicum deschampsoides* Domin.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: Gk. *-oides* resembling. Resembling *Deschampsia*.

Habit. Annual. Culms 17–60 cm tall, 4 -noded. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.8 mm long. Leaf-blades linear, 2–10 cm long, 1–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–25 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 4–5 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7 -nerved. Lower glume surface glabrous. Lower glume apex muticous or awned. Upper glume lanceolate, 3–4.5 mm long, membranous, without keels, 7–11 -nerved. Upper glume surface scabrous. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9 -nerved, muticous or awned.

Fertile lemma 1.5–2.1 mm long, without keel, 5–7 -nerved. Anthers 3. Grain 1.2–1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. In tropical and subtropical sub-humid woodlands. A distinctive and rare species of the North Kennedy district of Qld. Flowers Feb.-July.

Arthraxon castratus (Griff.) Nayar. ex Bor. *Fl.Assam* 5: 376 (1940). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon castratus* Griff. *Not. Pl. Asiat.* 3: 89 (1851).

Type of Basionym or Protologue Information: "Suddyah in campis graminosis: January 2nd, 1836", Griffith 292 (HT: K) IGS: "See Hack. Monog. 349.".

Key references (books and floras): [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (21), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. castro*, castrate. Sessile spikelet of pair only one present.

Habit. Perennial. Culms sprawling, 60–200 cm tall. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1.2 mm long. Leaf-blades lanceolate, 3–11 cm long, 6–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame. Racemes flexuous. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 6–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, without keels, 7–9 -nerved. Lower glume surface glabrous. Upper glume lanceolate, chartaceous, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline or membranous.

Fertile lemma 4.4–5.5 mm long, without keel, 1 -nerved. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn dorsal, 10–20 mm long overall, with a twisted column. Column 6–8 mm long. Palea present. Anthers 3. Grain 2.5–3.3 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Only one Australian record from sclerophyll woodland of Horn Is., Torres Strait. India, Sri Lanka. Flowers July.

Arthraxon hispidus (Thunb.) Makino. *Bot. Mag. (Tokyo)* 26: 214 (1912). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Phalaris hispida* Thunb. *Fl. Jap.* 44 (1784).

Type of Basionym or Protologue Information: HT: *Thunberg 1776*, Japan (UPS (IDC 1036)).

Recent synonyms: *Arthraxon ciliaris* P.Beauv.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (524 as *Arthraxon ciliare*), [1969] E.E.Henty, *Manual Grasses New Guinea* (as *A. ciliaris*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (21), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (134).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (112), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (63), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (134).

Derivation: *L.* bearing coarse stiff hairs. Plant wholly or partly rough to the touch.

Habit. Annual. Culms sprawling, stature slender to delicate, 15–75 cm tall, 0.3–1 mm diam. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.5–2 mm long. Leaf-blades lanceolate or ovate, 1–6 cm long, 4–25 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 3–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, much thinner on margins, without keels, 7–9 -nerved. Lower glume surface glabrous. Upper glume lanceolate, chartaceous, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, hyaline or membranous, 2 -nerved.

Fertile lemma 2–6 mm long, without keel, 1 -nerved. Lemma apex dentate or lobed, muticous or awned, 1 -awned. Median (principal) awn dorsal, 0–20 mm long overall, with a straight or slightly twisted column or with a twisted column. Palea absent. Anthers 2. Grain 3.5–5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and North America.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Moreton, Wide Bay. **New South Wales:** North Coast, Northern Tablelands.

Notes. Fringes of rainforests and wet *Eucalyptus* forests of coastal SE Qld and northern N.S.W. Extends through New Guinea to India, and Japan. Flowers Mar.--July.

Arundinaria*

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Australian Distribution: New South Wales.

Arundinaria simonii f. variegata* (Hook. f.) Rehder. *Bibl. Cult. Trees* 638 (1949).

Australian Distribution: Norfolk I.

Arundinella grevillensis B.K. Simon. *Austrobaileya* 1:463 (1982). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Arundinelleae.

Type of Basionym or Protologue Information: Australia: Queensland: Mt. Greville, *Simon & Sharpe* 2528 (HT: BRI-227421; IT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. *-ensis*, denoting origin. From Mt. Greville, south-east Queensland, Australia.

Habit. Perennial. Rhizomes present, elongated. Culms 12–25 cm tall. Lateral branches sparsely branched. Leaves mostly basal. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1 mm long. Leaf-blades straight, filiform, involute, 4–7 cm long, 1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3–7 -nerved. Upper glume ovate, 5 mm long, membranous, keeled, 1-keeled, 5 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 5 -nerved.

Fertile lemma 2.5 mm long, without keel. Lemma apex awned, 1 -awned. Median (principal) awn 4.5 mm long overall, with a twisted column. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. Known only from the trachyte rocks of some mountain peaks of SE Qld.

Arundinella montana S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 1(18): 16 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Arundinelleae.

Type of Basionym or Protologue Information: Moreton Dist., Mt. Ngungun, in rock crevices, 300–700 ft one of the abundant plants on the upper part of the mountain, *Blake 14143*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. mons*, mountain; *-ana*, indicating location. Growing on mountains.

Habit. Perennial. Rhizomes present, short. Culms 30–90 cm tall, 5–13 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.5–0.7 mm long, truncate. Leaf-blades straight, involute, 5–19 cm long, 1.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 8–23 cm long, 1–3 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 4–5.2 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma, shiny. Lower glume ovate, membranous, keeled, 1-keeled, 3–7 -nerved. Lower glume apex awned. Upper glume lanceolate, membranous, keeled, 1-keeled, 5–7 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 5 -nerved.

Fertile lemma 2.75–3 mm long, without keel, 5 -nerved. Lemma apex entire or dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 3.8–6 mm long overall, with a twisted column. Column 1–2 mm long. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Moreton.

Notes. Known only from the trachyte rocks of the Glass House Mountains, Mt Barney, Mt Ernest and Mt Maroon, SE Qld. .

Arundinella nepalensis Trin. *Gram. Pan.* 62 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Arundinelleae.

Type of Basionym or Protologue Information: Nepal.; *Wallich s.n. in Herb. Lindley* (HT: LE; IT: K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum strictum*), [1878] G.Bentham, *Flora Australiensis* 7 (545), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (224), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (135).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (223, Pl. 66), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (114), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (65), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (135).

Derivation: *L. -ense*, denoting origin. From Nepal.

Habit. Perennial. Rhizomes present, short. Culms erect, 180 cm tall, 1.5–5 mm diam., 2–5 -noded. Mid-culm nodes pubescent. Lateral branches simple or sparsely branched. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades straight, flat, 8–40 cm long, 3–10 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or pyramidal, 5–40 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 4–7 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume ovate, membranous, keeled, 1-keeled, 5 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 3–5 -nerved.

Fertile lemma 2–3 mm long, without keel, 3–5 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 4–6 mm long overall, with a twisted column. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.6 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Tropical Africa, Madagascar, India to China and tropical and subtropical Australia. Savanna woodlands of tropics and subtropics, particularly in wetter areas. Flowers year round. .

Arundinella setosa Trin. *Gram. Pan.* 63 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Arundinelleae.

Type of Basionym or Protologue Information: Nepal; *Lindley s.n.* (T: K).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (32), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. *seta*, bristle; *-osa*, abundance. Glumes and/or lemmas awned or attenuated.

Habit. Perennial. Rhizomes present, short. Culms 50–120 cm tall, 2–5 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades straight, flat, 10–40 cm long, 2–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 5–30 cm long, 3–6 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled, 1–2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 5–7 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume elliptic, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex mucronate or awned. Upper glume elliptic, 5.5–7 mm long, membranous, keeled, 1-keeled, 5 -nerved. Upper glume surface scabrous. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 3–5 -nerved.

Fertile lemma 2.5–3 mm long, without keel, 3–5 -nerved. Lemma apex dentate, awned, 3 -awned. Median (principal) awn from a sinus, 5–9.5 mm long overall, with a twisted column. Column 3.5 mm long. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy.

Notes. From Indo-Malesia and SE Asia to tropical Qld and N.T. Tropical savanna woodlands. Flowers Jan.-Aug. .

Arundo donax* L. *Sp. Pl.* 81 (1753). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Arundineae.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (133), [1969] E.E.Henty, *Manual Grasses New Guinea* (33), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (285), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (135).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (116), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (67), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.1, E-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (284, Fig. 220), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (132).

Derivation: reed-like in habit.

Habit. Perennial. Rhizomes present, elongated. Culms erect, stature reed-like, 200–800 cm tall, 0.5 mm diam. Mid-culm internodes hollow, thin-walled. Leaves cauline. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades drooping, 5–100 cm long, 10–80 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 30–60 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 8–15 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex muticous. Upper glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 6–12 mm long, without keel, 3–9 -nerved. Lemma surface indumented. Lemma apex muticous or mucronate or awned. Median (principal) awn 1–3 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Norfolk I, Macquarie, Heard.

Western Australia: Drummond, Dale, Menzies, Warren. **Northern Territory:** Central Australia South. **South Australia:** Eastern, Yorke Peninsula, Southern Lofty. **Queensland:** Cook, Moreton, North Kennedy, Darling Downs. **New South Wales:** North Coast, Central Coast.

Notes. Introduced from the Mediterranean, widespread in Australia, disturbed sites, often along stream or canal banks. Flowers March to July.

Astrebla elymoides F. Muell. ex F. M. Bailey. *Ill. Monogr. Grasses Queensland* 1: pl. 8 (1878).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Astreble pectinata* var. *elymoides* F. Muell. ex F.M.Bailey, *Bot Bull. Dept. Agric. Queensland* 13: 15 (1896).

Type of Basionym or Protologue Information: from North Queensland and from meeting with it the Warrego in 1876 during the long drought' holo: not designated.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (204), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (448), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (136).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (203, Pl. 60), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 81E-G), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (136).

Derivation: Gk. *-oides*, similar to. Resembling *Elymus* with respect to the inflorescence.

Habit. Perennial. Culms erect or geniculately ascending, 80–120 cm tall, 4–5 -noded. Ligule a fringe of hairs. Leaf-blades 12–35 cm long, 3–5 mm wide.

Inflorescence. Inflorescence solid, a raceme (spicate). Racemes 1, 12–35 cm long, 2–3 mm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1–2 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 10–20 mm long.

Glumes. Glumes dissimilar. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 11–17 mm long, membranous, without keels, 7–11 -nerved.

Florets. Fertile lemma 10–15 mm long, without keel, 3 -nerved (in the body). Lemma apex lobed, awned. Median (principal) awn 6–12 mm long overall. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Fitzgerald, Dampier. Fortescue, Carnarvon. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Cook, Burke, South Kennedy, Port Curtis, Leichhardt, Darling Downs, Gregory North, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, North Far Western Plains.

Notes. The leafy tussocks are moderately palatable when young, but the rather coarse mature foliage and the numerous long flowering culms are not normally grazed. In general the species is considered less valuable than *A. pectinata*.

Distributed across most of the N.T. and Qld S of 15°S, excepting the Channel country of Qld, extending into north- central N.S.W. with a few occurrences recorded from the Pilbara and Kimberley regions of W.A. It often occurs with *A. squarrosa*. In central Australia, sometimes on alluvial soils as well as the usual cracking clays, and is associated with *A. pectinata*, *Eragrostis setifolia* (Neverfail) and to a lesser extent with *Acacia cambagei* (Gidgee). Elsewhere usually found on treeless downa often subject to seasonal or occasional inundation, with other *Astrebla* species, *Iseilema* spp. (Flinders Grass) and *Dichanthium* spp. (Bluegrass): flowers after rain.

Astrebla lappacea (Lindl.) Domin. *Biblioth. Bot.* 85: 372 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Danthonia lappacea* Lindl., *Three Exped. Australia* 1: 309 (1838).

Type of Basionym or Protologue Information: IT: *Coll. Ukn. s.n.*, no date, Australia: along the Bogan (US-0865614 (fragm. ex Cambridge)).

Recent synonyms: *Astrebla triticoides* (Lindl.) F.Muell. ex Benth.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (602 as *Astrebla triticoides*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (204), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (448), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (338), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (136).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (203, Pl. 60), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (118), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 81K-M), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (339. Fig. 271), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (136).

Derivation: *L. lappa*, burr; *-acea*, indicating resemblance. Lemmas shortly awned and overlapping.

Habit. Perennial. Rhizomes present, short. Culms erect or decumbent, 30–90 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades 8–30 cm long, 4–5 mm wide.

Inflorescence. Inflorescence solid, a raceme (spicate). Racemes 1–2, straight or arcuate, 5–30 cm long, 5–13 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7–18 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, scarious, keeled, 1-keeled, 1–3(–7) -nerved. Upper glume ovate, 6.5–13 mm long, scarious, without keels, 7–13 -nerved.

Florets. Fertile lemma 2–4 mm long, without keel, 3 -nerved (in the body). Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 4–14 mm long overall. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia South. **South Australia:** North-western, Lake Eyre, Flinders Ranges, Eastern. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Bentham misapplied Lindley's epithet *lappacea* to *A. squarrosa* q.v..

Occurs in inland areas of eastern Australia N of 36°S excluding Cape York Penin. and the channel country of SW Qld and NE S.A., with isolated reports from the Pilbara area of W.A. It is sparsely present in the SE corner of the N.T. Only localised, disjunct colonies of *A. lappacea* occur in central Australia, mainly in gilgais and depressions on cracking clay soils with *A. pectinata* grasslands and *Acacia cambagei* (Gidgee). *Astrebala lappacea* dominates large areas in central and north-central Qld while in southern Qld and in N.S.W. it is sometimes locally dominant but more often mixed with *A. pectinata* and other grasses such as *Panicum*, *Bothriochloa* and *Aristida*. Flowers after rain.

Astrebala pectinata (Lindl.) F. Muell. ex Benth. *Fl. Austral.* 7: 602 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Danthonia pectinata* Lindl. *Three Exped. Australia* 2: 26 (1838).

Type of Basionym or Protologue Information: IT: *Coll. Ukn.* 60, 1836, Australia: eastern Australia (US-0865621 (fragm.)). From cambridge.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (602), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (202), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (448), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (339), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (137).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (203, Pl. 60), [1984] N.T.Burbridge. rev. S.W.L.Jacobs, *Australian Grasses* (69), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 81H-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (340, Fig. 272), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (137).

Derivation: *L. pecten*, comb; *-ata*, possessing. Inflorescence with spikes or racemes bearing a fanciful resemblance to a comb.

Habit. Perennial. Rhizomes present, short. Culms erect, 15–120 cm tall, 6–9 -noded. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades 7–25 cm long, 2.7 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 3–13 cm long, 10–20 mm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 8–20 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate or ovate, chartaceous, much thinner on margins, keeled, 1-keeled, 5–9 -nerved. Upper glume lanceolate or ovate, 8–13 mm long, chartaceous, without keels, 7–16 -nerved.

Florets. Fertile lemma 3–5 mm long, without keel, 3 -nerved (in the body). Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 6 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Hall. Giles, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern. **Queensland:** Burke, Darling Downs, Gregory North, Maranoa, Mitchell, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. *Astrebla pectinata* is a vigorous perennial that persists under adverse conditions such as heavy stocking and drought. Pastures dominated by the species produce an abundance of fodder and thus are capable of maintaining large numbers of stock for long periods. They are particularly valuable in good seasons when associated short-lived grasses and forbs are prolific. At least one collection with a paniculate inflorescence has been made, the individual being out-breeding. Cleistogamy is common, and the species is remarkably uniform across its distribution.

Distributed across most of inland Australia between 15°S and 33°S (N of 28°S in W.A.), except the Great Sandy, Gibson and Great Victoria Deserts of W.A. This species is the dominant grass over most of the Barkly Tableland and headwaters of the Georgina R. in the N.T. with much smaller areas of dominance at the head of Sturt Ck and N of Mt Hay. Occurrences in W.A. and S.A. are restricted to relatively small pockets of cracking clay soils, for example, between ridges in hilly areas, in depressions and drainage lines. Through Qld and N.S.W. *A. pectinata* may become locally dominant but generally it is less abundant than *A. lappacea* or other perennial grasses. Associated taxa include other *Astrebla* species, *Eragrostis setifolia*, *Eulalia aurea*, *Iseilema* and *Aristida*; flowers after rain.

Astrebla squarrosa C. E. Hubbard. *Bull. Misc. Inform.* 259 (1928). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Longreach, Apr 1913, *Bick s.n.*

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (202), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (448), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (341), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (137).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (203, Pl. 60), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 81A-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (341, Fig. 273), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (137).

Derivation: L. spreading at right angles from a common axis. Inflorescence arms held at right angles to common axis.

Habit. Perennial. Rhizomes present, short. Culms erect, 20–150 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 7–40(–50) cm long, 3–6 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, (4–)7–18 cm long, 15–30 mm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 8–25 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1–3 -nerved. Lower glume apex mucronate. Upper glume elliptic, 6–11 mm long, chartaceous, without keels, 9–11 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 4.5–7 mm long, without keel, 3 -nerved (in the body). Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 5 mm long overall. Lateral lemma awns present. Palea apex lobed. Lodicules present. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **South Australia:** Lake Eyre, Flinders Ranges. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Plains.

Notes. Distributed from the Kimberley region of W.A. across the northern part of the N.T. and through most of Qld, just reaching northern N.S.W. and the NE corner of S.A. It usually occurs as a minor element in communities dominated by *A. lappacea* or *A. pectinata* and reaches its highest frequency on lower-lying ground which receives run-off from adjacent areas. On the Barkly Tableland *A. squarrosa* extends farther N to higher rainfall areas than either *A. pectinata* or *A. elymoides* and in these areas it sometimes occurs as relatively pure

stands. It has been reported from heavy, cracking clays of all colours on plains and river flats, sometimes with *Lysiphyllum* or *Excoecaria*, or in *Dicanthium-Eulalia* grassland and cleared Brigalow areas; flowers after rain.

Australopyrum pectinatum (Labill.) Á.Löve. *Repert. Spec. Nov. Regni Veg* 95: 443 (1984).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Festuca pectinata* Labill. *Nov. Holl. Pl.* 1: 21, t. 25 (1805).

Type of Basionym or Protologue Information: Habitat in capite Van-Diemen, *Labillardiere s.n.*.

Recent synonyms: *Agropyron pectinatum* (Labill.) P.Beauv.; *Agropyron bownei* (Kunth) Tsvelev, *Novosti Sist. Vyssh. Rast.*, 10: 35 (1973).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (666 as *Agropyron pectinatum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (138), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (108).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (138).

Derivation: *L. pecten*, comb; *-ata*, possessing. Inflorescence with spikes or racemes bearing a fanciful resemblance to a comb.

Habit. Perennial. Culms 11.5–60 cm tall. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.2–0.5 mm long, hyaline or membranous, truncate or acute. Leaf-blades flat or involute, 5–12(–16) cm long, 1–4 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, oblong, 3–8 cm long, bearing (8–)14–17 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–10(–12) mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume linear or ovate, chartaceous or cartilaginous or coriaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex muticous or mucronate or awned. Upper glume lanceolate, 5 mm long, coriaceous, keeled, 1-keeled, 5–7 -nerved.

Florets. Fertile lemma 5–13 mm long, keeled, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 2–5 mm long overall.

Continental Distribution: Australasia and North America.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Darling Downs, Moreton. **New South Wales:** Southern Tablelands, Central-Western Slopes.

Tasmania: North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. In this treatment *A. pectinatum* is treated in the narrow sense of Vickery (1951) (but not considered to be restricted to Tasmania) and Löve (1984), and does not include *A. retrofractum* as proposed by Willis (1970) and Simon (1986). *Australopyrum pectinatum* and *A. retrofractum* are separable by a number of morphological and anatomical characters (see discussion under *A. retrofractum*). A population of smaller and less indumented individuals has been collected from the lower slopes of Mt. Barrow, Tas.

Endemic. Flowers Dec.-April.

Australopyrum retrofractum (Vickery) Á.Löve. *Repert. Spec. Nov. Regni Veg* 95: 443 (1984).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Agropyron retrofractum* Vickery *Contr. New South Wales Natl. Herb.*.

Type of Basionym or Protologue Information: Australia: New South Wales: Rock Flat near Cooma, *E. Betche*, 2.1893. (NSW. No. 9116. Duplicate at K.), (HT: NSW-9116; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (138), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (108).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (138), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (109, Fig.16).

Derivation: *L. retro*, backwards; *fractus*, broken. With retrorse hairs on the rachis.

Habit. Perennial. Culms erect, 20–95 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.2–1 mm long, hyaline, truncate. Leaf-blades flat or involute, 5–15(–26) cm long, 1–5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 1.5–6 cm long, bearing 4–19 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–9), comprising 5–9 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 8–20 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate or oblong or ovate, cartilaginous or coriaceous, keeled, 1-keeled, 5 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 5–7 mm long, coriaceous, keeled, 1-keeled, 7 -nerved.

Florets. Fertile lemma 8.5–10 mm long, without keel or keeled, 5–8 -nerved. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 0.5–3 mm long overall. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central-Western Slopes. **Victoria:** East Gippsland.

Notes. *Australopyrum retrofractum* is treated in the sense of Vickery (1951), and is not placed within *A. pectinatum* as proposed by Simon (1986), nor is it considered to include *A. velutinum* at subspecific rank as circumscribed by Löve (1984).

Endemic. Flowers Nov.-Jan.

Australopyrum velutinum (Nees) B.K.Simon. *Austrobaileya* 2: 241 (1986). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Agropyron velutinum* Nees *Hooker's J. Bot. Kew Gard. Misc.* 2: 417 (1843).

Type of Basionym or Protologue Information: Australia: In Chilton, Surrey Hills, Insulae Van Diemen, Febrero 1837, *Gunn* 770.

Recent synonyms: *Australopyrum retrofractum* subsp. *velutinum* (Nees) A.Löve, *Agropyron velutinum* Vickery.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (665 as *Agropyron velutinum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (138), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (110).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (138), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (109, Fig.16).

Derivation: L. velvety. Plant in whole or in part covered with dense short hairs.

Habit. Perennial. Culms 7–68 cm tall. Leaf-sheaths hairy. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.1–0.5 mm long, hyaline or membranous, truncate or obtuse. Leaf-blades flat or involute or convolute, 3.8–5.3(–15) cm long, 1.75–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, oblong, 2.5–3 cm long, bearing 5–10 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (6–10), comprising 6–10 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–11 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume elliptic or ovate, chartaceous or cartilaginous or coriaceous, keeled, 1-keeled, 5–7 -nerved. Lower glume apex muticous or awned. Upper glume ovate, 5–6 mm long, coriaceous, keeled, 1-keeled, 9 -nerved.

Florets. Fertile lemma 5–7 mm long, without keel or keeled, 5–9 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 1–2 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: North-Western Slopes. **Victoria:** Snowfields. **Tasmania:** Central Highlands.

Notes. Some individuals from the Victorian Alps are more heavily indumented than those from the N.S.W. Alps.

Endemic. Locally common in tall alpine herbfield and sod tussock grassland. Flowers Jan.-March.

Austrochloris dichanthioides (Everist) Lazarides. *Austr. J. Bot. Supp.* 5: 35 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris dichanthioides* Everist, *Queensland Agric. J.* 49(5): 432, t. 155 (1938).

Type of Basionym or Protologue Information: IT: *W. White* 6, May 1936, Australia: Queensland: Warrego Dist. (US-2830884). HT: *White s.n.*, May 1936, Australia: Queensland: Warrego Dist: Oakwood, N of Charleville (BRI).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (465), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (120 & 156(10)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 45).

Derivation: Gk. *-oides*, resembling. Similar to *Dichanthium*.

Habit. Perennial. Culms erect, 40–100 cm tall, 4–7 -noded. Leaves cauline. Ligule a fringe of hairs, 0.4–0.9 mm long. Leaf-blades flat, 5–16 cm long, 1.5–3 mm wide.

Inflorescence. Inflorescence digitate, with racemose branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, cuneate, dorsally compressed, 4.5–5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume linear or oblong, membranous, without keels, 1 -nerved. Upper glume lanceolate or elliptic, 3–5 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 2.3–3.4 mm long, without keel, 3 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 1.5–3 mm long overall. Anthers 3. Grain 1.1–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Gregory North, Mitchell, Warrego, South Kennedy, Gregory South.

Notes. Known only from a few collections in southern and NW Qld. Recorded habitats include stony, lateritic ridges, tablelands with scattered Red Mulga and Bloodwood, flat or shallow depressions in dry regions, open grassland, red soil on edges of watercourses.

Austroderia richardii* (Endl.) N.P. Barker & H.P. Linder. *Ann. Mo. Bot. Gard.* **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Arundo richardii* Endl., *Ann. Wiener Mus. Naturgesch.* 1: 158 (1836).

Type of Basionym or Protologue Information: HT: *Herb. Richard* 29, New Zealand: Havre de l'Astrolabe (P; IT: CHR-236584 (fragm. ex P)).

Recent synonyms: *Cortaderia richardii* (Endl.) Zotov, *New Zealand J.Bot.* 1:84 (1963).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.3, H).

Habit. Perennial. Culms stature robust to moderate, 200–300 cm tall. Mid-culm internodes hollow. Ligule a fringe of hairs. Leaf-blades 60–100 cm long, 5–20 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, dense, 30–60 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 18–35 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume linear, hyaline, without keels, 1 -nerved. Upper glume linear, 20–35 mm long, hyaline, without keels, 1 -nerved. **Florets.** Fertile florets female.

Fertile lemma 6–15 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 8–12 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, Central Highlands.

Notes. Tasmania, introduced from New Zealand, along sandy stream banks. Flowers Jan. to Feb.

Austrostipa acrociliata (Reader) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa acrociliata* Reader, *Victoria Naturalist* 13: 167 (1897).

Type of Basionym or Protologue Information: HT: *F. Reader s.n.*, 1895, Australia: Victoria: Sandy Desert, Lowan Shire (MEL-59867; IT: MEL-59869?, MEL-59868).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (178 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (69), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (151), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (22).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (69, Fig. 30), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (151), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Derivation: Gk. *akros*, at the tip; L. *cilium*, hair; -ata, possessing. Glume apices hairy.

Habit. Perennial. Rhizomes present, short. Culms stature robust to moderate, 60–150 cm tall, woody. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Ligule an eciliate membrane, 2.5–6 mm long, membranous, truncate or obtuse. Leaf-blades 3–10 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 20–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, much thinner above, without keels, 3 -nerved. Upper glume oblong, 6–8 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 5–6 mm long, without keel. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 30–70(–90) mm long overall, with a twisted column. Column 7–17 mm long. Palea without keels. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Eucla, Drummond, Eyre, Coolgardie. **South Australia:** Nullabor, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** Lowan Mallee, Murray Mallee.

Notes. Sandy areas of the western plains of New South Wales and Victoria; arid areas of South Australia and on limestone of the Nullarbor Plain.

Austrostipa aphylla (Rodway) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa aphylla* (Rodway) Townrow, *Pap. & Proc. Roy. Soc. Tasmania* 104: 85, 96 (1970).

Type of Basionym or Protologue Information: LT: Rodway 995, Nov 1897, Australia: Tasmania: Huon Road, Hobart (HO). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 27 (1986).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (39).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Derivation: Gk. *a-*, without; *phyllon*, leaf. The leaves lack blades.

Habit. Perennial. Rhizomes present, short. Culms erect, stature slender to delicate, 50–90 cm tall, 0.5–1 mm diam., 3–4 -noded. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.1–0.4 mm long, membranous, bilobed or trilobed, obtuse. Leaf-blades involute, 2–4.5 cm long, 1–1.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 11–17(–25) cm long, 3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 13.5–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 3 -nerved. Upper glume linear, 12.5–15 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 8–11 mm long, without keel. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 60–85 mm long overall, with a twisted column. Column 35–51 mm long. Palea without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: North East, East Coast, South West.

Notes. *Austrostipa aphylla* is superficially similar to *A. muelleri*, especially because of the reduction and deciduous nature of the leaf blades, but *A. aphylla* differs markedly in that the margins of the lemma are not or scarcely continued as distinct membranous lobes and the lemma has a minute crown of hairs.

South-eastern Tasmania.

Austrostipa aquarii (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa aquarii* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 27 (1986).

Type of Basionym or Protologue Information: Northern Territory: Waterhouse range, 24.02S, 133.36E, 3 Feb. 1976. Erect perennial, rare in skeletal soil, walls of gully, sand, *Latz 6349* (HT: NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (17).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2A).

Derivation: *L. aquarius*, water man. From the Waterhouse Range, Northern Territory, Australia.

Habit. Perennial. Rhizomes present, short. Culms 50–100 cm tall, 1.5 mm diam., 5–6 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long, abaxially hairy, obtuse. Leaf-blades involute or convolute, 30–60 cm long, 1–2 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 14–20 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 10–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 9–10 mm long, hyaline, without keels, 3 -nerved.

Florets. Fertile lemma 3.5–5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 40–50 mm long overall, with a twisted column. Column 10–15 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. Similar to *A. hemipogon* but differing in the smaller spikelet with narrow-fusiform lemma (turbinate in *A. hemipogon*) and slender awn.

Central Australian Ranges, on hillsides.

Austrostipa aristiglumis (F.Muell.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa aristiglumis* F. Mueller, *Trans. & Proc. Victorian Inst. Advancem. Sci.* 43 (1855).

Type of Basionym or Protologue Information: In bushy parts of the Murray Desert, *F. Mueller*.

Recent synonyms: *Stipa fusiformis* Hughes.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (570 as *Stipa aristiglumis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (151), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (52).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (151), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: *L. arista*, bristle; *gluma*, husk. With awned subtending glumes or lemmas.

Habit. Perennial. Culms erect, 100–200 cm tall, 2.5 mm diam., 3 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.8–3 mm long, truncate or obtuse. Leaf-blades flat or convolute, 20–40 cm long, 3–6 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 20–40(–55) cm long, 6–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 8–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3 -nerved. Upper glume oblong, 6–12 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 4–7.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 25–40 mm long overall, with a twisted column. Column 4–17 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Port Curtis, Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. The callus is very short relative to the overall length of the floret in this species.

On heavy soils west of the Great Dividing Range from southern Queensland to Victoria.

Austrostipa bigeniculata (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa bigeniculata* Hughes, *Bull. Misc. Inform. Kew* 1922: 20 (1922).

Type of Basionym or Protologue Information: HT: *R.T. Baker s.n.*, Jan 1887, Australia: New South Wales: Cooma (K; IT: US-993695).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (151), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (52).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (151), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: *L. bis*, twice; *geniculata*, kneed. Awn of lemma bent in two places.

Habit. Perennial. Culms erect, 20–100 cm tall, 2–4 -noded. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long, truncate. Leaf-blades filiform, involute or convolute, 20–45 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–45 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 15–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 9–15 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 7.3–10.5 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 30–60 mm long overall, with a twisted column. Column 12–22(–26) mm long. Palea without keels. Lodicules present. Anthers 3. Grain 3.5–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** East Coast.

Notes. Wooded areas of the Central and Southern Tablelands and Slopes of New South Wales, and scattered through Victoria.

Austrostipa blackii (C.E.Hubbard) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa blackii* C.E. Hubb., *Bull. Misc. Inform. Kew* 1925: 431 (1925).

Type of Basionym or Protologue Information: HT: *J.M. Black* 2, Australia: South Australia: Jamestown (K(photo, CANB; IT: AD, MEL-59881(probably)).

Recent synonyms: *S. clelandii*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (81), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (152), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (53).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (81, Fig. 42), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (152), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig.5).

Derivation: in honor John McConnell Black (1855–1951) Scots-born South Australian botanist.

Habit. Perennial. Culms erect or geniculately ascending, 100 cm tall, 1.5–2.5 mm diam., 3–4 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.3–1.5 mm long, abaxially hairy, truncate. Leaf-blades flat or involute, 10–20 cm long, 2–5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–30 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 10–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3 -nerved. Upper glume oblong, 8–15 mm long, membranous, without keels, 4–5 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 5–7 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 28–40(–50) mm long overall, with a twisted column. Column 6–20 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3.4–3.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Austin. Coolgardie. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** Northern Tablelands, Central Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** East Coast.

Notes. Widespread on heavier soils in New South Wales, Victoria and South Australia with a few records from Western Australia.

Austrostipa blakei (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa blakei* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 34 (1986).

Type of Basionym or Protologue Information: Australia: Queensland: Warrego: Charleville, 4 Apr 1936, open places on sand, ca. 950 ft, tufted, erect, 2–3 ft, dark green, spikelets paler, *S.T. Blake 11024* (HT: BRI-250581).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (152), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (45).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (152), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: in honor of Stanley Thatcher Blake (1911–1973), Queensland botanist.

Habit. Perennial. Culms 30–100 cm tall, 1–2 mm diam., 2–4 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 1–2.5 mm long, truncate. Leaf-blades involute, 15–28 cm long, 1.5–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 20–35 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 14–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 13–17 mm long, hyaline, without keels, 5 -nerved.

Florets. Fertile lemma 7–8 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 70–100 mm long overall, with a twisted column. Column 9–13 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Maranoa, Mitchell, Warrego.

Notes. Mainly on sandy soils in western Queensland.

Austrostipa breviglumis (J.M.Black) S.W.L.Jacobs & J.Everett. *Telopea* 6 : 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa breviglumis* J. M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941).

Type of Basionym or Protologue Information: LT: *J.B. Cleland s.n.*, 8 Oct 1927, Australia: South Australia: Lyndoch (AD; ILT: MEL-59884). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 35 (1986).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (70), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (22).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (70, fig. 31), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Derivation: *L. brevis*, short; *gluma*, husk. One or both glumes short with respect to the length of the spikelet.

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 150 cm tall, 2.5 mm diam., 2–4 -noded. Mid-culm nodes glabrous. Lateral branches branched. Leaves cauline. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule an eciliate membrane, 1–7 mm long, membranous, truncate. Leaf-blades flat or involute, 10–20 cm long, 2–2.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 20–40 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 5–6.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3–5 -nerved. Lower glume surface indumented. Upper glume lanceolate, 4.5–6 mm long, hyaline, without keels, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 3–4.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 20–35 mm long overall, with a twisted column. Column 5–15 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Flinders Ranges, Northern Lofty, Southern Lofty. **Victoria:** Midlands.

Notes. This tall species has sturdy culms with up to several branches at the nodes, although not whorled, and lacks a basal tuft of leaves.

Central and southern Victoria and into the Lofty Regions of South Australia.

Austrostipa campylachne (Nees) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa campylachne* Nees, *Pl. Preiss.*, 2: 99 (1846).

Type of Basionym or Protologue Information: LT: *Preiss 1848*, Australia: "In solo sublimoso jugi montium Darling's-range, Perth Herb. Preiss. no. 1848. -- ad flumen Cygnorum. Drummond." (MEL-59990). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 37 (1986).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (403), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (19).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2G).

Habit. Culms 80 cm tall. Ligule an eciliate membrane, 0.3–0.6 mm long, membranous, truncate. Leaf-blades involute, 1.5–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–20 cm long.

Spikelets. Fertile spikelets 1-flowered, 14–23 mm long.

Glumes. Lower glume lanceolate. Upper glume lanceolate, 14–18 mm long.

Florets. Lemma apex awned. Median (principal) awn 50–70 mm long overall, with a twisted column. Column 30 mm long. Grain 4–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Warren.

Notes. The south-west of Western Australia.

Austrostipa centralis (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa centralis* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 39 (1986).

Type of Basionym or Protologue Information: Australia: Northern Territory: Mt. Riddock, 23.06S 134.38E, erect perennial, common in skeletal soil, southern slope of metamorphic hill, 13 Sep 1973, *P.K. Latz 4305* (HT: NT-41138).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (56).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2M).

Derivation: *L. centrum*, centre of a circle; *-ale*, pertaining to. From Central Australia.

Habit. Perennial. Rhizomes present, short. Culms 40–80 cm tall, 1 mm diam., 4–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 0.6–1 mm long, scarious, abaxially hairy, acute. Leaf-blades involute, 10–25 cm long, 1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–20 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 13–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, hyaline, without keels, 3 -nerved. Lower glume surface indumented. Upper glume elliptic, 12–16 mm long, hyaline, without keels, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 5–9 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire or dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 50–60 mm long overall, with a twisted column. Column 12–25 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. The panicle of this species is sparse, with relatively few (less than 30) spikelets.

Slopes of the Central Australian Ranges.

Austrostipa compressa (R.Br.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 584 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa compressa* R.Br, *Prodr.* 175 (1810).

Type of Basionym or Protologue Information: HT: *A. Menzies s.n.*, Australia: Western Australia: King Georges Sound (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (567 as *Stipa compressa*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (176 as *Stipa compressa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (403), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (25).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: *L. comprimo*, squeeze together. Culms flattened.

Habit. Annual. Culms 20–70 cm tall. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–11 mm long, membranous, erose or bilobed or trilobed. Leaf-blades filiform or linear, involute or convolute, 1–5.5 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 9–14 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 7–8 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 70–170 mm long overall, with a twisted column. Column 20–40 mm long. Palea without keels. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond, Menzies, Warren, Eyre.

Notes. Mainly sandy areas near the coast of south-western Western Australia.

Austrostipa crinita (Gaudich.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa crinita* R.Br., *Prodr.* 175 (1810).

Type of Basionym or Protologue Information: HT: *Labillardiere s.n.*, Australia: Western Australia: Shark Bay (P; IT: G, FI-W).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (182 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (30).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Derivation: L. with long hair. Hairy as of leaf-blades or awns invested in long weak hairs.

Habit. Perennial. Rhizomes present, short. Culms 50–100 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.5–2 mm long. Leaf-blades filiform, flat or involute, 1–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 7.5–12 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5 mm long, without keel. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 23–40 mm long overall, with a twisted column. Column 7–12 mm long. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Canning, Carnarvon. Irwin.

Notes. The apical coma-like lemma hairs conceal the lemma/awn junction.

Islands and coast around the Shark Bay area of Western Australia.

Austrostipa curticoma (Vickery) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa curticoma* Vickery, *Telopea* 2(1): 11 (1980).

Type of Basionym or Protologue Information: Australia: South Australia: Mt. Lofty Ranges, 3 km S of Mt. Barker, 13 Oct 1974, *M.D. Crisp* 884 (CBG-058899).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (82), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (53).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (82, fig. 43), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: L. *curtus*, short; *coma*, hair-tuft. With a short tuft of hairs at the apex of the lemma.

Habit. Perennial. Culms 60–120 cm tall, 2–3 mm diam., 3–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.5–1.5 mm long, abaxially hairy, truncate. Leaf-blades flat or involute, 15–30 cm long, 3–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30 cm long, 5–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 12–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3 -nerved. Upper glume oblong, 9–14 mm long, membranous, without keels, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 6.5–8 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 45–65 mm long overall, with a twisted column. Column 9–25 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Grampians, Midlands, Volcanic Plain.

Notes. This species has characteristic tufts of hairs about 1 mm long on the auricles.

Heavier soils of the Lofty regions of southern South Australia, Kangaroo Island and extending into the Grampians, Victoria.

Austrostipa densiflora (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa congesta* Summerh. & C.E. Hubb., *Bull. Misc. Inform. Kew* 1925: 362 (1927).

Type of Basionym or Protologue Information: HT: *Etheridge s.n.*, 1865, Australia: South Victoria (K).

Recent synonyms: *S. densiflora*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (101), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (152), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (19).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (101, Fig. 63), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (152), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig.2C).

Derivation: *L. densus*, dense; *flos*, flower. Inflorescences congested.

Habit. Perennial. Culms 60–150 cm tall. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 0.1–4 mm long, entire or lacerate, truncate. Leaf-blades involute or convolute, 6–13 cm long, 1–4.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 10–30 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 14–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Lower glume surface indumented. Upper glume lanceolate, 12–16 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented.

Florets. Fertile lemma 6 mm long, without keel. Lemma surface indumented. Lemma apex awned, 1-awned. Median (principal) awn 30–45 mm long overall, with a twisted column. Column 13–20 mm long. Palea without keels. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Flinders Ranges, Eastern, Murray, Southern Lofty, Kangaroo Island. **Queensland:** Darling Downs. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Riverina, Snowfields, Wimmera.

Notes. Tablelands and western slopes of the Great Dividing Range, from southern Queensland into Victoria and higher areas of southern South Australia, usually on low fertility soils.

Austrostipa dongicola (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa dongicola* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 46 (1986).

Type of Basionym or Protologue Information: Australia: Western Australia: Blackoak Donga, Kanandah Station, ca. 20 km N of Naretha Donga, 16 Sep 1974, *M.G. Brooker 160* (HT: CANB-249733; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (54).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Derivation: *L. -cola*, dweller. Growing in shallow gullies, that is dongas (from Zulu, udonga) in Western Australia.

Habit. Perennial. Rhizomes present, short. Culms 100 cm tall, 1.3–2.2 mm diam., 3–4-noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.8–1.5 mm long, abaxially hairy, truncate or obtuse. Leaf-blades erect, straight or flexuous, flat or involute, 15–35 cm long, 3–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 14–30 cm long, 1–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 7–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3-nerved. Upper glume oblong, 8–11 mm long, membranous, without keels, 5-nerved.

Florets. Fertile lemma 5–6.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 30–40 mm long overall, with a twisted column. Column 10–15 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Eucla.

Notes. This species is similar to *A. curticoma* but differs in the villous column of the awn, smaller spikelet dimensions, the glabrous palea, and the conspicuous, glabrous nodes. It differs also from *A. blackii* in the villous awn column and in its shorter coma.

Nullarbor Plain, Western Australia.

Austrostipa drummondii (Steud.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa drummondii* Steud., *Syn. Pl. Glumac.* 1: 128 (1854).

Type of Basionym or Protologue Information: *Drummond IV 378 [as 578]* see Vickery et al., *Telopea* 3: 47 (1986) for discussion about the type collection miscitation.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (567 as *Stipa drummondii*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (176 as *Stipa Drummondii*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (438 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (72), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (153), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (45).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (73, Fig. 34), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (153), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Derivation: in honor of James Drummond (c. 1784–1863) Scots-born Australian botanist.

Habit. Perennial. Culms 30–100 cm tall, compressible. Lateral branches simple. Leaf-sheaths smooth or scaberulous or antrorsely scabrous, hairy. Ligule an eciliate membrane, 1.5–4 mm long, truncate or obtuse. Leaf-blades flat or involute, 1–6 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 6–11 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 40–90 mm long overall, with a twisted column. Column 11–21 mm long. Palea without keels. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Eucla, Irwin, Dale, Eyre, Roe, Avon, Coolgardie. **South Australia:** Nullabor, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Lowan Mallee, Midlands, Murray Mallee, Riverina, Wimmera.

Notes. Sandy areas of the western plains of New South Wales and Victoria, extending across South Australia into the southern regions of Western Australia.

Austrostipa echinata (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa echinata* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 50 (1986).

Type of Basionym or Protologue Information: South Australia: Hindmarsh I., E of Goolwa, 10 Oct 1945, F.M. Hilton s.n. (HT: NSW-117382).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (91), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (32).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (92, fig. 54), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Culms erect, 50 cm tall, 1.5–2 mm diam., 3–4 -noded. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 1.5–2.5 mm long, membranous, abaxially hairy, truncate or obtuse. Leaf-blades erect, involute or convolute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–20 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 21–23 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 14–18 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth to scabrous.

Florets. Fertile lemma 8–10 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 90–110 mm long overall, with a twisted column. Column 10–35 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, South-eastern.

Notes. Coastal and near-coastal areas of South Australia.

Austrostipa elegantissima (Labill.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa elegantissima* Labill., *Nov. Holl. Pl.* 1: 23, t. 29 (1804 [1805]).

Type of Basionym or Protologue Information: LT: *Labillardiere s.n.*, Australia: W. Australia: "Habitat in capite Van-Diemen." (FI-W). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 51 (1986).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (565 as *Stipa elegantissima*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (172 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (67), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (153), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (59).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (173, Pl.50 as *Stipa*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (67, Fig. 28), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (153), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig 2).

Habit. Perennial. Rhizomes present, short or elongated. Culms sprawling, 100–300 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–5 mm long, membranous, lacerate, obtuse. Leaf-blades involute, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 15–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 7–11 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 8 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 20–55 mm long overall, with a twisted column. Column 8–15(–20) mm long. Palea without keels. Grain 4–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Canning, Carnegie, Ashburton, Austin. Eucla, Irwin, Dale, Eyre, Roe, Avon, Coolgardie. **South Australia:** Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. Southern Western Slopes and Plains of New South Wales, extending into Victoria, across the mallee regions of South Australia and the southern regions of Western Australia.

Austrostipa eremophila (Reader) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa eremophila* Reader, *Victoria Naturalist* 17: 154 (190).

Type of Basionym or Protologue Information: HT: *F.M. Reader s.n.*, 1898, Australia: Victoria: Sandy Desert. Lowan (MEL-59873).

Recent synonyms: *Stipa dura*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (180 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (98), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (153), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (56).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (98, Fig. 60), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (153), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig. 2K).

Habit. Perennial. Culms erect or geniculately ascending, 60–100 cm tall. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5–1.5 mm long, truncate. Leaf-blades involute or convolute, 25–55 cm long, 1.5–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 13–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 10–18 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 10 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 50–90(–110) mm long overall, with a twisted column. Column 15–38 mm long. Palea without keels. Grain 3.4–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Eucla, Avon, Coolgardie. **South Australia:** Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** South-Western Slopes, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Lowan Mallee, Midlands, Murray Mallee, Volcanic Plain, Wimmera.

Notes. A variable species in which occasional specimens may exhibit one of the following variations: hairy leaf sheath orifices, almost glabrous lemmas, long lemma lobes, or hairy awn bristles (like *A. plumigera*).

Southern Slopes and Plains of New South Wales, north-western regions of Victoria, across the southern half of South Australia and the Nullarbor Plain into the south of Western Australia. Mainly in woodlands or mallee but not uncommon on the limestone areas of the Nullarbor Plain.

Austrostipa exilis (Vickery) S.W.L.Jacobs & J.Everett. *Telopea* 6 :585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa exilis* Vickery, *Telopea* 2(1): 13 (1980).

Type of Basionym or Protologue Information: Australia: South Australia: Northern York Peninsula, Section 155, Hundred of Wiltunga, ca. 140 km NNW of Adelaide, 21 Oct 1966, *Copley* 799 (HT: AD-9670326).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (92), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (32).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (93, fig. 55; plate 3), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Culms erect, 40–60 cm tall, 2 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, hairy. Ligule an eciliate membrane, 0.5–2.5 mm long, membranous, obtuse. Leaf-blades flexuous, filiform, involute or convolute, 5–25 cm long, 0.2–0.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 7–8 mm long, hyaline, without keels, 5 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 4.5–5.5 mm long, without keel. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 35–55(–60) mm long overall, with a twisted column. Column 15–21 mm long. Palea without keels. Anthers 3. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Eucla, Eyre, Roe. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Midlands.

Notes. Heath and scrub on sandy soil in southern South Australia, barely extending into Victoria and Western Australia (although not on the Nullarbor Plain).

Austrostipa feresetacea (Vickery, S.W.L.Jacobs & J.Everett) S.W.L. Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa feresetacea* Vickery, S.W.L. Jacobs & J. Everett.

Type of Basionym or Protologue Information: Australia: Northern Territory: Mount Giles, 23.39S 132.55E, 19 Sep 1976, spreading perennial, rare in skeletal soil, side of gully in shistose [shistose] hill, *P.K. Latz 6605* (HT: NT-5110; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (27).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (154).

Habit. Perennial. Culms 50–100 cm tall, 0.4–1.2 mm diam., compressible, 3 -noded. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 3.5–8 mm long, membranous, acute or acuminate. Leaf-blades involute or convolute, 15–30 cm long, 0.7–0.9 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 6–12 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 4–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 4–6 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3–4.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 12–18 mm long overall, with a twisted column. Column 3.5–10 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. Rocky hillsides of the Central Australian Ranges.

Austrostipa flavescens (Labill.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa flavescens*.

Type of Basionym or Protologue Information: HT: *Labilliere s.n.*, Australia (FI-W; IT: G, K).

Recent synonyms: *Stipa aphanoneura*, *S. compacta*, *S. elatior*, *S. hirsuta*, *S. tenuiglumis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (566 as *Stipa flavescens*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (180 as *S. hirsuta*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (403), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (93), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (154), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (29).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (94, Fig. 56), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (154), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, stature robust to moderate, 40–120 cm tall, 3–4 -noded. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.6 mm long, truncate. Leaf-blades flat or involute or convolute, 9–54 cm long, 2–7 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–40 cm long, 2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9.8–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3-nerved. Lower glume surface indumented. Upper glume lanceolate, 8.5–12(–14) mm long, hyaline, without keels, 5-nerved. Upper glume surface indumented.

Florets. Fertile lemma 7.5–12 mm long, without keel. Lemma surface indumented. Lemma apex entire or dentate or lobed, awned, 1-awned. Median (principal) awn 40–70 mm long overall, with a twisted column. Column 8–30 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 3.5–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Eucla, Drummond, Menzies, Eyre. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** South Coast. **Victoria:** East Gippsland, Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain, Wannon. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, East Coast.

Notes. Headlands and sandy soils close to the coast of all southern States, including New South Wales.

Austrostipa geoffreyi (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 585 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa geoffreyi*.

Type of Basionym or Protologue Information: Western Australia: Lake King, 33°05'26S 119°33'37E, 12 Feb 1993, S.W.L. Jacobs 7030 (HT:NSW-293105. IT:PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (35).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Rhizomes present, short. Culms 180 cm tall. Ligule an eciliate membrane, 6–12 mm long, membranous, acute. Leaf-blades involute, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 30–40 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, 10–16 mm long.

Glumes. Lower glume lanceolate. Upper glume lanceolate, 12–16 mm long.

Florets. Lemma apex lobed, awned. Median (principal) awn 50–80 mm long overall, with a twisted column. Column 10–20 mm long. Grain 6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Warren, Roe.

Notes. Similar to *A. juncifolia* but differs in being considerably more robust with wider sheaths, longer leaves, a denser inflorescence, an awn to 7 cm long, and larger in its floral parts.

Known only from the islands of, and the causeway across, Lake King, a salt lake in southern Western Australia.

Austrostipa gibbosa (Vickery) S.W.L.Jacobs & J.Everett. *Telopea* 6: 586 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa gibbosa* Vickery, *Telopea* 2: 14 (1980).

Type of Basionym or Protologue Information: South Australia: Burnside Distr.: Beaumont Common, ca. 6 km SE of Adelaide, 11 Oct 1942, Cleland s.n. (AD-96323216).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (83), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (154), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (51).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (83, Fig. 44), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (154), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Perennial. Culms erect, 100–150 cm tall, 1.5–2.5 mm diam., 2–3-noded. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long, abaxially hairy, truncate. Leaf-blades flat or convolute, 15–30 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30(–40) cm long, 1.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 11–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 3 -nerved. Upper glume elliptic, 8–13 mm long, membranous, without keels, 5 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 4.5–6 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 25–35(–50) mm long overall, with a twisted column. Column 5–20 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** South-Western Slopes, South-Western Plains. **Victoria:** Midlands, Riverina, Volcanic Plain, Wimmera.

Notes. The floret of this species is gibbous, with an eccentric awn.

South-western New South Wales, north-western Victoria and the Northern Lofty and Southern Lofty Regions of South Australia.

Austrostipa hemipogon (Benth.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 586 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa hemipogon* Benth., *Fl. Austral.* 7: 569 (1878).

Type of Basionym or Protologue Information: LT: *Drummond* 376, Australia: Western Australia (K; ILT: MEL). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 63 (1986).

Recent synonyms: *Stipa indepressa*, *S. nobilis*, *S. plagiopogon*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (569 as *Stipa hemipogon*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (178 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (101), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (20).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (173, Pl.50 as *Stipa nobilis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (102, fig. 64), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2B, fig. 3A-E).

Habit. Perennial. Culms erect, stature robust to moderate, 40–100 cm tall. Leaf-sheaths smooth or scaberulous. Ligule a fringed membrane, a ciliate membrane, 0.3–3 mm long, membranous, truncate. Leaf-blades erect, involute or convolute, 2–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 10–30 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 10–17 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 6.5–8.5 mm long, without keel. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 30–67 mm long overall, with a twisted column. Column 10–20 mm long. Palea without keels. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Eucla, Irwin, Drummond, Menzies, Eyre, Avon, Coolgardie. **South Australia:** Flinders Ranges, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Lowan Mallee, Midlands, Murray Mallee, Volcanic Plain.

Notes. Southern regions of South Australia and Western Australia, and western Victoria.

Austrostipa juncifolia (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 586 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa juncifolia* Hughes, *Bull. Misc. Inform. Kew* 1921: 11 (1921).

Type of Basionym or Protologue Information: HT: *Drummond*, 4th coll. no. 377, Australia: Western Australia: Swan River (K(photo, CANB)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (174 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (34).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (175, Pl.51 as *Stipa*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Perennial. Rhizomes present, short. Culms erect, stature reed-like, 60–100 cm tall, 2–3 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2.5–8 mm long, membranous, obtuse. Leaf-blades erect, aciculate, involute or convolute, 30–60 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 16–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 9–10 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 7 mm long, without keel. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn 25–50 mm long overall, with a twisted column. Column 10–20 mm long. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Eyre, Roe, Avon, Coolgardie.

Notes. Similar to *A. geoffreyi* and also to *A. stipoides*, differing from the latter in several dimensions, including a wider, more open panicle and the awn longer with respect to the floret.

Margins of salt lakes or saline depressions in the southern areas of Western Australia.

Austrostipa lanata (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 586 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa lanata* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 68 (1986).

Type of Basionym or Protologue Information: Western Australia: 7 mi [11 km] N of Mundrabilla Homestead, found growing on gently undulating calcareous plain up to height of 45 cm in a herbfield, 31 Jul 1974, Mitchell 2 (HT: PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (84), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (28).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (84, fig. 45), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Culms 45 cm tall, 1–2 mm diam., 1–2 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–1.5 mm long, truncate. Leaf-blades flat or involute, 20 cm long, 1.5–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 19–26 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 14–19 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 6.5–8 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire, awned, 1 -awned. Median (principal) awn 65–80 mm long overall, with a twisted column. Column 10–30 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Eucla. **South Australia:** Gairdner-Torrens Basin, Eastern.

Notes. Arid regions of southern Western Australia and central and western South Australia.

Austrostipa macalpinei (Reader) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.**

(GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa macalpinei* Reader, *Victoria Naturalist* 15: 143 (1899).

Type of Basionym or Protologue Information: Hilly Mallee country and sandy heaths, Lowan, Dimboola Shire, 1892, F.M. Reader s.n..

Recent synonyms: *Stipa lachnocolea*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (176 as *S. McAlpinei*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (86), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (25).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (87, fig. 48), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Annual. Culms erect, stature robust to moderate, 20–90 cm tall, 1 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1–15 mm long, membranous, truncate or obtuse. Leaf-blades filiform, flat or involute or convolute, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 22 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 8–14 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 7 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 60–200 mm long overall, with a twisted column. Column 14–40 mm long. Palea without keels. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Irwin, Drummond, Eyre, Avon. **South Australia:** Eyre Peninsula, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Grampians, Lowan Mallee.

Notes. The species can be readily recognised by the characteristic hairs on the leaf sheaths.

Drier parts of western Victoria, in heath and near coastal localities in southern South Australia and in the southern regions of Western Australia (but apparently not on the Nullarbor Plain).

Austrostipa metatoris (J.Everett & S.W.L.Jacobs) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa metatoris* J. Everett & S.W.L. Jacobs, *Telopea* 2(4): 399 (1983).

Type of Basionym or Protologue Information: IT: *J. Everett & S. Jacobs 341*, 16 Oct 1981, Australia: New South Wales (US-3267702).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (154), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (57).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (154), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig. 2L).

Habit. Perennial. Culms erect or geniculately ascending, 100 cm tall, 1.5–2.5 mm diam., 2–3 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Leaves basal and cauline. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1–2.2 mm long, abaxially pilose, lacerate, truncate or obtuse or acute. Leaf-blades involute, 20–40 cm long, 2–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 15–25 cm long, 3–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 16–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 10–15 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 7–8.2 mm long, without keel. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 55–65 mm long overall, with a twisted column. Column 11–25 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 3.5–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales.

South Australia: South-eastern. **New South Wales:** South-Western Plains, South Far Western Plains.

Notes. Sandy areas of south-western New South Wales and south-eastern South Australia.

Austrostipa mollis (R.Br.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa mollis* R. Br., *Prodr.* 174 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown* 6205, 1802–1805, Australia (BM(photo, CANB); IT: K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (403), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (102), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (155), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (17).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (103, fig. 65), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (155), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2D).

Habit. Perennial. Culms erect, 30–150 cm tall, 1–3.5 mm diam., 3–6 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliate membrane, 0.03–3 mm long, membranous, abaxially pilose, truncate. Leaf-blades involute, 15–45 cm long, 1.5–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 10–30 cm long, 5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 17.4–23 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 15–21 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 6.6–10.5 mm long, without keel. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 45–100 mm long overall, with a twisted column. Column 16.5–35 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Menzies, Eyre, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, Midlands, Ben Lomond, East Coast.

Notes. Widespread on sandy and/or low nutrient soils of the southern States, including New South Wales.

Austrostipa muelleri (Tate) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa muelleri* Tate, *Trans. & Proc. Roy. Soc. South Australia* 7: 70 (1885).

Type of Basionym or Protologue Information: South Australia: open parts in the stringy bark forests (*Eucalyptus obliqua*) at Uraidla, Mt. Lofty Range, and scrublands c. Mt. Jagged, towards Encounter Bay, flowering in October, *R. Tate s.n.* (HT: AD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (87), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (40).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (88, fig. 49), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Rhizomes present, short. Culms erect or decumbent, 50–100 cm tall, 0.7–0.9(–1.2) mm diam., wiry. Lateral branches fastigiate or suffrutescent. Leaves cauline. Leaf-sheath auricles present. Ligule a fringe of hairs. Leaf-blades filiform, 0.1 cm long, 0.15 mm wide.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, terete, 18–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or herbaceous, much thinner on margins, 3 -nerved. Upper glume lanceolate, 15–30 mm long, membranous or herbaceous, without keels, 5 -nerved. Upper glume surface scabrous (upper 20 %).

Florets. Fertile lemma 13–20 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 50–100 mm long overall, with a straight or slightly twisted column. Column 40–55 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Otway Range, Wannon.

Notes. This species has spreading to decumbent, often scrambling, culms.

Woodland and shrubland of southern Victoria and south-eastern South Australia.

Austrostipa multispiculis (J.M.Black) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa multispiculis* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941).

Type of Basionym or Protologue Information: LT: *J.B. Cleland s.n.*, Nov 1926, Australia: South Australia: Port Noarlunga (AD-97421231). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 78 (1986).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (95), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (33).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (95, fig. 57), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Rhizomes present, short. Culms geniculately ascending, 50–100 cm tall. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 0.2–0.7 mm long, truncate. Leaf-blades filiform, involute, 20–40 cm long, 1–8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, effuse, 20–40 cm long, 3–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 10–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 6.5–10 mm long, hyaline, without keels, 5 -nerved.

Florets. Fertile lemma 6–8 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 25–40 mm long overall, with a twisted column. Column 15–25 mm long. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Northern Lofty, Southern Lofty, Kangaroo Island.

Notes. Northern Lofty, Yorke Peninsula and Southern Lofty regions of South Australia.

Austrostipa mundula (J.M.Black) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa mundula* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 65: 333 (1941).

Type of Basionym or Protologue Information: HT: *J.B. Cleland s.n.*, 12 Nov 1933, Australia: South Australia: Chaunceys Line (N of Lake Alexandrina) (AD-97423406; IT: AD-96323226, AD-96323235, AD-97422298(in part), ADW-44028, ADW-44191, MEL-59957).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (96), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (32).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (96, fig.58), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Culms geniculately ascending, 20–60 cm tall. Mid-culm nodes pubescent. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 0.3–3 mm long, membranous, truncate. Leaf-blades erect, curved, filiform, convolute, 6–8 cm long, 0.5–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or elliptic, 5–12 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 14–26 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 8–14 mm long, hyaline, without keels, 5 -nerved.

Florets. Fertile lemma 7 mm long, without keel, 55 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 50–80 mm long overall, with a twisted column. Column 22–30 mm long. Palea without keels. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Victoria:** Grampians, Lowan Mallee, Wannon.

Notes. South-eastern South Australia, extending into Victoria.

Austrostipa nitida (Summerh. & C.E.Hubb.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa nitida* Summerh. & C.E. Hubb., *Bull. Misc. Inform. Kew* 1927: 60 (1927).

Type of Basionym or Protologue Information: HT: *F.D. Warren s.n.*, 25 Aug 1926, Australia: South Australia: Finnis Springs (S of Lake Eyre) (K(4 sheets; photo, CANB); IT: AD-9742294, MEL-59959).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (436 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (73), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (155), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (43).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (251 as *Stipa nitida*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (73, Fig. 34), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (155), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Culms erect, 75 cm tall, 1–3 mm diam., 2–3 -noded. Mid-culm internodes glabrous or pilose. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane or a fringed membrane, 0.3–1 mm long, truncate. Leaf-blades flat or involute, 20–40 cm long, 1–2 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 25–55 cm long, 0.5–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 8–13 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 8–13 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5–6 mm long, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 45–70 mm long overall, with a twisted column. Column 6–9 mm long. Palea without keels. Grain 2.5–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Giles, Helms, Ashburton, Carnarvon, Austin. Eucla, Irwin, Roe, Avon, Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Warrego, Maranoa. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Lowan Mallee, Wimmera, Riverina, Midlands.

Notes. Widespread on sandy soils of the drier winter rainfall areas in all mainland States.

Austrostipa nivicola (J.H.Willis) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa nivicola* J. H. Willis, *Victoria Naturalist* 73: 149 (1957).

Type of Basionym or Protologue Information: HT: *J.H. Willis s.n.*, 2 Feb 1949, Australia: Victoria: Bogong High Plains, 1650 m, grassy slopes of Middle Creek, near Rover Scout Hut, 2 Feb 1949 (MEL; IT: NSW-116164).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (155), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (40).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (155), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 25–50 cm tall, 1 mm diam., firm, 2–3 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.4–1.5 mm long, truncate. Leaf-blades involute or convolute, 10–20 cm long, 1.5–3.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 5–20 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 20–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 4 -nerved. Lower glume surface indumented. Upper glume lanceolate, 15–20 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 12–15 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 85–130 mm long overall, with a twisted column. Column 45–70 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 6–7.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Southern New South Wales and northern Victoria on the Australian Alps and Bimberi Range.

Austrostipa nodosa (S.T.Blake) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa nodosa* S.T. Blake, *Proc. Roy. Soc. Queensland* 62: 89 (1952).

Type of Basionym or Protologue Information: HT: *S.T. Blake 16914*, 1 Sep 1946, Australia: South Australia: Flinders Ranges in Parachilna Gorge, between Blinman and Parachilna Spring (BRI-008016, BRI-008017; IT: AD, L).

Recent synonyms: *Stipa effusa*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (74), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (155), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (46).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (74, Fig. 35), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (155), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Culms erect, 50–100 cm tall, 1–2 mm diam., 3–5 -noded. Leaves basal and cauline. Ligule an eciliate membrane, 0.5–2 mm long, truncate. Leaf-blades flat or involute, 15–30 cm long, 1–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle 15–50 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, terete, 10–15 mm long.

Glumes. Glumes similar. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 7–19 mm long, hyaline, without keels, 5 -nerved.

Florets. Fertile lemma 4–7 mm long, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 45–100 mm long overall, with a twisted column. Column 5–10 mm long. Palea without keels. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Lowan Mallee, Wimmera, Wannon, Grampians, Riverina, Midlands, Volcanic Plain, Gippsland Plain, Wilsons Promontory, East Gippsland. **Tasmania:** Midlands, East Coast.

Notes. Widespread in all southern mainland States including New South Wales.

Austrostipa nullanulla (J.Everett & S.W.L.Jacobs) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa nullanulla* J. Everett & S.W.L. Jacobs, *Telopea* 2(4): 398 (1983).

Type of Basionym or Protologue Information: New South Wales: Nulla Nulla, 2 km S of gate at northern end of Bluff paddock, saltbush. mallee, *Myoporum* sp., 25 Nov 1980, J. Everett & S.W.L. Jacobs 133 (HT: NSW; IT: AD)

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (84), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (156), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (27).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (85, Fig. 46), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (156), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Culms erect, 40–50 cm tall, 1–2 mm diam., 2 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–5(–10) mm long, membranous, lacerate. Leaf-blades flat or involute, 15–20 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 13–19 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 9–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 8–10 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5–6 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire, awned, 1 -awned. Median (principal) awn 50–70 mm long overall, with a twisted column. Column 18–25 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2.7–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: North-western, Eyre Peninsula, Murray. **New South Wales:** South Far Western Plains. **Victoria:** Murray Mallee.

Notes. South Far Western Plains of New South Wales, Victoria and west into South Australia.

Austrostipa nullarborensis (Vickery, S.W.L.Jacobs & J.Everett) S.W.L. Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa nullarborensis* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 88 (1986).

Type of Basionym or Protologue Information: Western Australia: Abrakurrie Cave, 18 mi [29 km] NW of Eucla, open depression near entrance to cave, 23 Sep 1965, A.C. Beauglehole 13395 (NSW; IT: CANB, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (23).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Rhizomes present, short. Culms 50–100 cm tall, 1(–3) mm diam., 4–5 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth to antrorsely scabrous, glabrous on surface or hairy. Ligule an eciliate membrane, 2–3 mm long, truncate. Leaf-blades flat, 10–25 cm long, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 4–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 4–5.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 3–4 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire or dentate or lobed, awned, 1 -awned. Median (principal) awn apical or from a sinus, 14–30 mm long overall, with a twisted column. Column 5–13 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Eucla.

Notes. Nullarbor Plain in Western Australia.

Austrostipa oligostachya (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa oligostachya* Hughes, *Bull. Misc. Inform. Kew* 1921: 12 (1921).

Type of Basionym or Protologue Information: HT: *Robertson 534*, Australia: Victoria: Wando Vale [as Wndu Vale], growing in tussocks (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (88), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (40).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (89, fig. 50), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Rhizomes present, short. Culms 30–100 cm tall, 2 -noded. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.5–2 mm long, truncate. Leaf-blades curved, filiform, involute or convolute, 12–20 cm long, 0.5–2 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 10–15 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 9 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 50–70 mm long overall, with a twisted column. Column 18–25 mm long. Palea without keels. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Southern Lofty, South-eastern. **Victoria:** Grampians, Midlands, Volcanic Plain, Wannon, Wimmera.

Notes. South western Victoria and the Southern Lofty Region of South Australia.

Austrostipa petraea (Vickery) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa petraea* Vickery, *Telopea* 2: 15 (1980).

Type of Basionym or Protologue Information: South Australia: Flinders Ranges, Brachina Gorge, Oraparinna National Park, western portion, 18 Sep 1971, *J.Z. Weber 2577* (HT: AD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (90), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (35).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (90, fig. 52), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Perennial. Rhizomes present, short. Culms erect, 50–100 cm tall, 1.5–2 mm diam., 3–5 -noded. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.1–1 mm long, membranous, truncate. Leaf-blades conduplicate or involute, 25–50 cm long, 1.5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 11–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 6 -nerved. Upper glume lanceolate, 11–13 mm long, membranous, without keels, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 7–9.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 40–55 mm long overall, with a twisted column. Column 10–25 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Flinders Ranges, Eastern, Northern Lofty.

Notes. Apparently endemic to the Flinders Ranges and the Eastern Region close to the Ranges in South Australia.

Austrostipa pilata (S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa pilata* S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 92 (1986).

Type of Basionym or Protologue Information: South Australia: Murray: Monarto City Centre site, lake site area, growing under mallee, 26 Nov 1974, D.E. Simon 9072 (HT: NSW; IT: ADW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (74), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (46).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (75, fig.36), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Culms erect, 40–85 cm tall, 0.8–1 mm diam., firm, 2–3 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long, membranous, abaxially hairy, entire or lacerate, truncate. Leaf-blades involute, 6–12 cm long, 0.8–6 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–20 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 7–9 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 4–5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 40–50 mm long overall, with a twisted column. Column 7–11 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2.7–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Flinders Ranges, Northern Lofty, Murray. **Victoria:** Murray Mallee.

Notes. The pungent leaf blades are notable.

Flinders Ranges, Northern Lofty and Murray Regions of South Australia.

Austrostipa platychaeta (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996). **Classification.**

(GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa platychaeta* Hughes, *Bull. Misc. Inform. Kew* 1921: 16, f. 17 & 17A (1921).

Type of Basionym or Protologue Information: HT: *Koch 1133 pro parte*, Australia: Western Australia: Lake Cowcowing (K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (177 as *Stipa platychaeta*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (437 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (71), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (156), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (23).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (71, Fig. 32), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (155), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 60–200 cm tall, wiry or woody, 5–10 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1–6 mm long, membranous, truncate or obtuse. Leaf-blades flat or involute, 7–15 cm long, 1–8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 12–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 6–10(–12) mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 60–80(–90) mm long overall, with a twisted column. Column 10–15 mm long. Palea without keels. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Austin. Eucla, Eyre, Roe, Avon, Coolgardie. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Lowan Mallee, Midlands, Murray Mallee, Riverina.

Notes. Plains of New South Wales and north-western Victoria, across all but the far north of South Australia, and widespread in southern Western Australia. Usually on sandy soils in woodland or mallee.

Austrostipa plumigera (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa plumigera* Hughes, *Bull. Misc. Inform. Kew* 1921: 20, f. 25 & 25A (1921).

Type of Basionym or Protologue Information: HT: *R. Helms s.n.*, 29 Jun 1891, Australia: South Australia: Elder Exploring Expedition, Camp 10, 27.16S 130.04E (K; IT(probable): AD-97434003, AD-97424088, MEL-59969, NSW-1513321, NSW-15121, NSW-16019, NSW-16020, NSW-16021).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (437 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (99), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (57).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (99, fig. 61), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, fig.2I).

Habit. Perennial. Rhizomes present, short. Culms 30–60 cm tall, 2–3 -noded. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 0.5–2.5 mm long, truncate or acute. Leaf-blades flat, 15–35 cm long, 2–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 12–15 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 8 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 70–110 mm long overall, with a twisted column. Column 20–26 mm long. Palea without keels. Grain 3.5–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Eucla. **South Australia:** North-western, Nullabor, Gairdner-Torrens Basin, Eyre Peninsula.

Notes. Distinctive in the entire awn being plumose, with hairs 0.5–1 mm long.

North-western South Australia and the Nullarbor Plain, extending into Western Australia.

Austrostipa puberula (Steudel) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa puberula* Steud., *Syn. Pl. Glumac.* 1: 128 (1854).

Type of Basionym or Protologue Information: HT: *Drummond IV* 379, Australia (P; IT: K, MEL-59971, MEL-59972, MEL-59973).

Recent synonyms: *Stipa arachnopus*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (183 & 179 as *Stipa arachnopus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (100), [2008] S.W.L.Jacobs, R.D.B.Walley &

D.J.B.Wheeler, *Grasses of New South Wales* (156), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (58).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (100, Fig. 62), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (156), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig. 2H).

Habit. Perennial. Culms 30–80 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.2–0.5 mm long, truncate. Leaf-blades filiform, involute, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense, 15–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, chartaceous, without keels, 3 -nerved. Upper glume ovate, 6–12 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 6 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 25–65 mm long overall, with a twisted column. Column 8–20 mm long. Palea without keels. Grain 2–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Eucla, Roe, Coolgardie. **South Australia:** Nullabor, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** South-Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Wimmera.

Notes. South-western New South Wales and north-western Victoria, the Eyre Peninsula and Nullarbor Plain in South Australia, extending into Western Australia.

Austrostipa pubescens (R.Br.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa pubescens* R.Br., *Prodr.* 174 (1810).

Type of Basionym or Protologue Information: LT: *R. Brown 6203 (sheet II)*, 1802–1805, Australia: New South Wales: Port Jackson (BM; IT: K). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 97 (1986).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (569 as *Stipa pubescens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (157), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (41).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (157), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (48 & 55, Fig 7 & 8).

Habit. Perennial. Rhizomes present, short. Culms erect, 80–150 cm tall, 1–4 mm diam., firm, 2–3 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.4–1(–1.5) mm long, scarious, truncate or obtuse. Leaf-blades flat or involute or convolute, 25–50 cm long, 2–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 15–30 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 17–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume linear, 15–20 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 11–15 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 60–100 mm long overall, with a twisted column. Column 30–70 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 5–8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Leichhardt, Moreton, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands.

Notes. The palea is distinctly shorter than the lemma, whereas in *A. pubinodis* the palea is more or less equal to the lemma.

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Sandstone areas of south-eastern Queensland and eastern New South Wales.

Austrostipa pubinodis (Trin. & Rupr.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa pubinodis* Trin. & Rupr., *Sp. Gram. Stipac.* 50 (1842).

Type of Basionym or Protologue Information: "Terra Van Diemen" [Tasmania], *Hooker s.n.*.

Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (89), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (157), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (41).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (89, Fig. 51), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (157), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Perennial. Rhizomes present, short. Culms 60–110 cm tall, 3–5 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 1.5–2 mm long, obtuse. Leaf-blades filiform, involute or convolute, 15–50 cm long, 1–2.5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 11–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 20–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 15–21 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 11–13 mm long, without keel. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 55–95 mm long overall, with a twisted column. Column 30–60 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 6–7.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** South Coast. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Volcanic Plain, Wannon. **Tasmania:** North West, North East, West Coast, Midlands, East Coast, South West, Mt Wellington.

Notes. Sandstone and sandy areas of Tasmania and southern Victoria, extending into South Australia.

Austrostipa pycnostachya (Benth.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa pycnostachya* Benth, *Fl. Austral.* 7: 568 (1878).

Type of Basionym or Protologue Information: HT: *Drummond 121*, 1849, Australia: Western Australia: Int. S.W. Australia (K; IT: CANB-237004, MEL-59978).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (568 as *Stipa pycnostachya*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (177 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (50).

Illustrations: [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Rhizomes present, short. Culms 15–60 cm tall, wiry. Ligule an eciliate membrane, 3–5(–7) mm long, membranous, acute. Leaf-blades aciculate, conduplicate or involute or terete, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, dense, 5–14 cm long.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent or rudimentary. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 10–14 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 3 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 30–50 mm long overall, with a twisted column. Column 8–15 mm long. Palea without keels. Grain 2–2.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Eyre, Roe, Coolgardie.

Notes. Confined to the south-west of Western Australia in the Coolgardie, Roe, Eyre and Darling Districts.

Austrostipa ramosissima (Trin.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Urachne ramosissima* Trin., *Gram. Unifl. Sesquifl.* 173 (1824).

Type of Basionym or Protologue Information: HT: *Sieber* 82, (LE; IT: BM, K, L, P). see Hughes, Kew Bull. Misc. Inf (1921); also Vickery et al., *Telopea* 3 : 101 (1986): 28. 1921.

Recent synonyms: *Stipa ramosissima*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (157), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (61).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (157), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Rhizomes present, short. Culms erect, 100–250 cm tall, 0.5–7 mm diam., woody, 6–9 -noded. Mid-culm internodes glabrous. Lateral branches fastigiate. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.25–0.5 mm long, membranous, erose. Leaf-blades 35–40 cm long, 1–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–20(–50) cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 2.3–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 2.4–2.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface smooth. Upper glume apex erose.

Florets. Fertile lemma 1.8–2.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 14–30 mm long overall, with a twisted column. Column 4–7 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 1.5–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Lord Howe (*).

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Usually in moist, well-drained gullies, near forest or woodland margins in eastern mainland States, including Lord Howe Island.

Austrostipa rudis (Spreng.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa rudis* Spreng., 4: Cur. Post. 31 (1827).

Type of Basionym or Protologue Information: HT: *Sieber* 66, Australia (?; IT: K, MEL59980, MEL-59982).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (158), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (38 as subsp. *rudis*, subsp. *australis*, 39 as subsp. *nervosa*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (158).

Habit. Perennial. Rhizomes absent or present, short. Culms geniculately ascending, 60–120 cm tall, 2–4 mm diam., firm, 2–4 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.5–2 mm long, scarious, abaxially hairy, truncate or acute. Leaf-blades erect, involute or convolute, 20–40 cm long, 2–5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 25–50 cm long, 1.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 8–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or oblong, membranous, without keels, 3 -nerved. Lower glume surface glabrous or indumented. Upper glume linear or oblong, 7–14.5 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface asperulous, glabrous or indumented. Upper glume apex erose.

Florets. Fertile lemma 5–11.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 20–90 mm long overall, with a twisted column. Column 4.5–45 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3–6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Burnett, Darling Downs, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Otway Range, Volcanic Plain, Wannon. **Tasmania:** North West, Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. Three subspecies are recognised, following J.Everett & S.W.L.Jacobs, *Telopea* 2: 395 (1983).

A widespread species of higher areas in eastern Australia, from south-eastern Queensland to Tasmania.

subsp. rudis

On sandstone in higher areas of south-eastern Queensland and eastern New South Wales and Victoria.

subsp. australis

Sandstone in higher areas of eastern Victoria, and Tasmania.

subsp. nervosa

Sandstone in higher areas of south-eastern Queensland, eastern New South Wales and Victoria.

Infra -specific taxa: subsp. **australis**, subsp. **rudis**, subsp. **nervosa**.

Awn 60–90 mm long with column 32–45 mm long

A. rudis subsp. **australis**

Awn less than 60 mm long with column to 25 mm long

Column 20–25 mm long; callus 1.5–2.5 mm long

A. rudis subsp. **rudis**

Column less than 20 mm long; callus 0.8–1.7 mm long

A. rudis subsp. **nervosa**

Austrostipa rudis subsp. rudis

Classification. Basionym and/or Replacement Name: *Stipa rudis* Spreng. *Syst. Veg.* 4: Cur. Post. 31 (1827).

Type of Basionym or Protologue Information: HT: *Sieber* 66, Australia (?; IT: K, MEL59980, MEL-59982).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Australian Distribution: Queensland, New South Wales, Victoria.

Austrostipa rudis subsp. australis (J.Everett & S.W.L.Jacobs) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996).

Classification. Basionym and/or Replacement Name: *Stipa rudis* subsp. *australis* J. Everett & S.W.L. Jacobs.

Type of Basionym or Protologue Information: Australia: Tasmania: Risdon Vale, 18 Jan 1949, robust coarse grass, spreading panicle, abundant, *J. Vickery s.n.* (NSW-108620).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Australian Distribution: New South Wales, Victoria, Tasmania.

Austrostipa rudis subsp. nervosa (Vickery) S.W.L.Jacobs & J.Everett. *Telopea* 6: 587 (1996).

Classification. Basionym and/or Replacement Name: *Stipa nervosa* Vickery, *Contr. New South Wales Natl. Herb.* 1: 335 (1951).

Type of Basionym or Protologue Information: Australia: New South Wales: Central Coast: Epping, Oct 1913, *W.F. Blakely s.n.* (HT: NSW-8491).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Australian Distribution: Queensland, New South Wales, Victoria.

Austrostipa scabra (Lindley) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa scabra* Lindl., *J. Trop. Australia* 31 (1848.).

Type of Basionym or Protologue Information: HT: *Mitchell* 125, 1846, Australia: New South Wales: Moora, on the Bogan River (CGE; IT: NSW).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (570 as *Stipa scabra*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (177 as *Stipa*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (437 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (75), [2008] S.W.L.Jacobs, R.D.B.Walley &

D.J.B.Wheeler, *Grasses of New South Wales* (158), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (47 as subsp. *scabra*, 48 as subsp. *falcata*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (175, Pl.51 as *Stipa*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (77, Fig. 38, as subsp. *scabra* & subsp. *falcata*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (158).

Habit. Perennial. Culms 30–60 cm tall, compressible. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.3–5 mm long, membranous, bilobed, truncate. Leaf-blades conduplicate or involute or convolute, 0.7–2 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 6–13 mm long, hyaline, without keels, 3–5 -nerved.

Florets. Fertile lemma 4–5 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 30–70 mm long overall, with a twisted column. Column 5.5–15 mm long. Palea without keels. Grain 2.5–4.5 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T.

Western Australia: Giles, Helms, Austin. Eucla. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Warrego. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** East Coast.

Notes. Two subspecies are recognised, with geographic distributions predominantly in different areas, but with extensive overlap.

A widespread species occurring in all states and Northern Territory.

subsp. *scabra*

Widespread through southern Queensland, New South Wales and South Australia; extending into Victoria, Western Australia, Tasmania and Northern Territory. Most abundant in the summer rainfall region.

subsp. *falcata* (Hughes) S.W.L.Jacobs & J.Everett

Mainly Tableland and southern areas of New South Wales, Victoria and South Australia, just getting into southern Queensland. Most abundant in the winter rainfall region.

Infra-specific taxa: subsp. *scabra*, subsp. *falcata*.

Inflorescence narrow; ligules 0.6–1mm long **A. *scabra* subsp. *scabra***

Inflorescence spreading; ligules 0.3–0.6mm long **A. *scabra* subsp. *falcata***

Austrostipa scabra* subsp. *scabra

Classification. Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44 & 48, Fig 6 & 7).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T.

***Austrostipa scabra* subsp. *falcata* (Hughes) Vickery, S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996).**

Classification. Basionym and/or Replacement Name: *Stipa falcata* Hughes, *Bull. Misc. Inform. Kew* 1921: 14 (1921).

Type of Basionym or Protologue Information: HT: *McArthur 141*, Australia: New South Wales: Murrumbidgee (K).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, A.C.T.

Austrostipa semibarbata (R.Br.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 588 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa semibarbata* R.Br., *Prodr.* 174 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6204*, Australia: Tasmania: Port Dalrymple (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (568 as *Stipa semibarbata*), [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (179 as *Stipa*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (437 as *Stipa semibarbata* var. *semibarbata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (404), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (103), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (159), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (20).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (104, Fig. 66), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (159), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig. 2).

Habit. Perennial. Culms 30–100 cm tall, 3–5 -noded. Mid-culm nodes pubescent. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 1–2 mm long, truncate. Leaf-blades erect, involute or convolute, 15–35 cm long, 1–3(–7) mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 17–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 3 -nerved. Upper glume linear, 15–25 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 7–8 mm long, without keel. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 70–110 mm long overall, with a twisted column. Column 30–40 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 5.5–6.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** South Coast, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain, Wimmera. **Tasmania:** North East, Central Highlands, Midlands, East Coast.

Notes. Widespread in Victoria, Tasmania and South Australia, extending into southern New South Wales and southern Western Australia.

Austrostipa setacea (R.Br.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa setacea* R.Br., *Prodr.* 174 (1810).

Type of Basionym or Protologue Information: LT: *Brown s.n.*, 1802–1805, Australia: New South Wales: Port Jackson (BM). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 113 (1986).

Recent synonyms: *Stipa brachystephana*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (174 as *Stipa*), [1878] G.Bentham, *Flora Australiensis* 7 (568 as *Stipa setacea*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (437 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (80), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (159), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (26).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (80, Fig. 41), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (159), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Perennial. Culms erect or geniculately ascending, 40–80 cm tall, 1 mm diam., 2–4 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–9 mm long, membranous, obtuse. Leaf-blades conduplicate or involute, 15–30 cm long, 0.5–1.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–20 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 9–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 7–10 mm long, hyaline, without keels, 5 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 5.5–7 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 25–40 mm long overall, with a twisted column. Column 5–8 mm long. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Flinders Ranges, Eastern, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Maranoa. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Grampians, Midlands, Volcanic Plain, Wimmera.

Notes. Widespread but not common in southern Queensland, New South Wales, southern Victoria and southern South Australia.

Austrostipa stipoides (Hook. f.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Dichelachne stipoides* Hook. f., *Fl. Nov.-Zel.* 1: 294, t. 66 (1853).

Type of Basionym or Protologue Information: LT: *Hooker s.n.*, New Zealand: Bay of Islands (K). LT designated by Townrow, Pap. Proc. Roy. Soc. *Tasmania* 112: 277–287 (1978).

Recent synonyms: *Stipa stipoides*, *Stipa teretifolia*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (567 as *Stipa teretifolia*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (174 as *Stipa teretifolia*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (91), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (159), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (35).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (91, Fig. 53), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (159), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (37, Fig 5).

Habit. Perennial. Culms erect, 30–120 cm tall, wiry, 3–4 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–9 mm long, obtuse. Leaf-blades erect, acuminate, conduplicate or involute, 20–70 cm long, 0.6–1.1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–25 cm long, 2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 15–21 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 12–21 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 8.5–12.5 mm long, without keel. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 20–40 mm long overall, with a twisted column. Column 10–15 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** South Coast. **Victoria:** East Gippsland, Gippsland Plain, Wilsons Promontory, Wannon. **Tasmania:** North West, North East, West Coast, Midlands, East Coast, South West.

Notes. Coastal areas of southern New South Wales, Victoria, Tasmania, South Australia and New Zealand.

Austrostipa stuposa (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa stuposa* Bull. *Misc. Inform. Kew* 1921: 20f, 24 & 24A (1921).

Type of Basionym or Protologue Information: HT: *Gunn 1480*, 5 Jan 1840, Australia: Tasmania: New Norfolk (K(photo, CANB)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (104), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (160), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (21).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (104, Fig. 67), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (160), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig.2).

Habit. Perennial. Culms erect or geniculately ascending, 80–140 cm tall, 2–3.5 mm diam., 3–5 -noded. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.3–1 mm long, membranous, truncate. Leaf-blades involute or convolute, 19–30 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 17–35 cm long, 7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 18–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 12–20 mm long, membranous, without keels, 5 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 7.6–11.5 mm long, without keel. Lemma surface indumented. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn 45–70 mm long overall, with a twisted column. Column 19–36 mm long. Palea without keels. Lodicules present. Grain 4–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, Southern Lofty, South-eastern. **New South Wales:** South Coast, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Otway Plain, Volcanic Plain, Wimmera. **Tasmania:** North East, Central Highlands, Midlands, East Coast.

Notes. Scattered through southern New South Wales, Victoria and South Australia, common in Tasmania.

Austrostipa tenuifolia (Steud.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa tenuifolia* Steud., *Syn. Pl. Glumac.* 1: 128 (1854).

Type of Basionym or Protologue Information: HT: *Drummond IV 391*, Australia (P; IT: K, MEL-59997).

Recent synonyms: *Stipa eriopus*, *S. leptophylla*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (570 as *Stipa eriopus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (180 & 174 as *Stipa leptophylla*, 179 as *Stipa eriopus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (404), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (78), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (49).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (78, fig. 39), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Culms 30–100 cm tall. Ligule a fringed membrane, a ciliate membrane, 0.8–4 mm long, truncate. Leaf-blades filiform, involute, 0.5–2(–3) mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, effuse, 15–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 12–18 mm long, membranous, without keels, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 8 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 50–120 mm long overall, with a twisted column. Column 11–16(–20) mm long. Palea without keels. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Austin. Irwin, Drummond, Dale, Menzies, Eyre, Roe, Avon, Coolgardie. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern.

Notes. Differs from the Queensland species *A. blakei* by having a dense line of long white hairs on the auricles or sheath lobes instead of being glabrous or with only a few hairs.

Southern regions of Western Australia and east to the Yorke Peninsula in South Australia.

Austrostipa trichophylla (Benth.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa trichophylla* Benth., *Fl. Austral.* 7: 570 (1878).

Type of Basionym or Protologue Information: HT: *Drummond 122*, Australia: Western Australia (K (photo, CANB); IT: MEL-60010, MEL-60011).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (570 as *Stipa trichophylla*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (179 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (79), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (160), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (49).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (79, Fig. 40), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (160), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (24, Fig.2F-H).

Habit. Perennial. Culms 20–60 cm tall. Mid-culm nodes glabrous or pubescent. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.5–1 mm long, membranous, obtuse. Leaf-blades filiform, involute, 0.3–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle oblong, 13–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 3 -nerved. Upper glume linear, 8–11.5 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 5–6 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 38–60(–75) mm long overall, with a twisted column. Column 6–13 mm long. Palea without keels. Grain 2.3–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, New South Wales, Victoria.

Western Australia: Helms, Carnarvon, Austin. Eucla, Irwin, Menzies, Eyre, Roe, Avon, Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** South-Western Plains, North Far Western Plains. **Victoria:** Lowan Mallee, Midlands.

Notes. Scattered and uncommon in the drier areas of New South Wales, Victoria, South Australia, Northern Territory and southern Western Australia.

Austrostipa tuckeri (F.Muell.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa tuckeri* F. Muell., *Fragm.* 9: 128 (1881).

Type of Basionym or Protologue Information: HT: *Garard Tucker s.n.*, Australia: between the Lach and Darlington River (MEL; IT: NSW).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (172 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (68), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (160), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (59).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (173, Pl. 50 as *Stipa*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (68, Fig. 29), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (160), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Rhizomes present, short. Culms 20–50 cm tall, wiry. Mid-culm nodes pubescent. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 2.5–6 mm long, membranous, obtuse. Leaf-blades flat or involute, 0.3–4.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 8–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 5–9 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 5 mm long, without keel. Lemma surface indumented. Lemma apex entire, awned, 1-awned. Median (principal) awn 30–35 mm long overall, with a twisted column. Column 10 mm long. Palea without keels. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Austin. Coolgardie. **South Australia:** Eastern, Murray. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Murray Mallee.

Notes. Mainly on the Western Plains of New South Wales but also on the North and Central Western Slopes, and in Victoria, South Australia and Western Australia.

Austrostipa variabilis (Hughes) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa variabilis* D.K.Hughes, *Kew Bull.* 1921, 15 (1921).

Type of Basionym or Protologue Information: HT: *Drummond* 961, Australia:Western Australia (K (photo, CANB); IT: MEL-59987).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (182 as *Stipa*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (438 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (50).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Culms erect, 30–80 cm tall, 1–1.5 mm diam., 1–3 -noded. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–2 mm long, truncate. Leaf-blades flexuous, involute or convolute, 9–25 cm long, 0.5–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 10–35 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, much thinner above, without keels, 3 -nerved. Upper glume lanceolate, 8.5–15 mm long, membranous, without keels, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 6–8 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn 50–70(–90) mm long overall, with a twisted column. Column 11–25 mm long. Palea without keels. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Austin. Eucla, Irwin, Drummond, Menzies, Eyre, Roe, Avon, Coolgardie. **South Australia:** Nullabor, Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, South-eastern.

Notes. Southern Western Australia and eastwards to southern regions of South Australia.

Austrostipa velutina (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa velutina* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 126 (1986).

Type of Basionym or Protologue Information: South Australia: Nullarbor: Head of Bright, 7 Aug 1973, Noble s.n. (HT: NSW-117409).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (97), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (33).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (97, fig. 59), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (31, Fig 4).

Habit. Perennial. Culms geniculately ascending, 30–80 cm tall, 1.5–2 mm diam. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.2–1 mm long, membranous, abaxially hairy, entire or erose, truncate or obtuse. Leaf-blades flat or involute or convolute, 20–40 cm long, 2–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15 cm long, 0.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 9–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Lower glume surface indumented. Upper glume lanceolate, 6.5–10 mm long, membranous, without keels, 5-nerved. Upper glume surface indumented.

Florets. Fertile lemma 5–6.5 mm long, without keel, 5-nerved. Lemma surface indumented. Lemma apex entire or lobed, awned, 1-awned. Median (principal) awn 30–45 mm long overall, with a twisted column. Column 7–25 mm long. Palea 2-nerved, without keels. Lodicules present. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Eucla. **South Australia:** Nullabor, Eyre Peninsula.

Notes. Coast and islands of the Great Australian Bight.

Austrostipa verticillata (Nees ex Spreng.) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa verticillata* Nees ex Spreng., *Syst. Veg.* 4(Cur. Post.): 30 (1827).

Type of Basionym or Protologue Information: LT: *Sieber* 64, Australia (K; ILT: BM, BRI, L, MEL, P). LT designated by Vickery, Jacobs & Everett, *Telopea* 3: 127 (1986).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (172 as *Stipa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (161), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (60).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (161), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (44, Fig 6).

Habit. Perennial. Rhizomes present, short. Culms erect, 50–100 cm tall, woody. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–8 mm long, membranous, truncate. Leaf-blades 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate, 15–60 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Upper glume lanceolate, 3–5 mm long, membranous, without keels, 3-nerved.

Florets. Fertile lemma 3 mm long, without keel, 5-nerved. Lemma surface indumented. Lemma apex entire, awned, 1-awned. Median (principal) awn 33–53 mm long overall, with a straight or slightly twisted column or with a twisted column. Column 7–30 mm long. Palea 2-nerved, without keels. Lodicules present. Anthers 3. Grain 2.1–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Warrego, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains.

Notes. Widespread through eastern Queensland and the central and northern parts of New South Wales.

Austrostipa vickeryana (J.Everett & S.W.L.Jacobs) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa vickeryana* J. Everett & S.W.L. Jacobs. *Telopea* 2(4): 397 (1983).

Type of Basionym or Protologue Information: Australia: South Australia: Ifoud Lake, Nullarbor Plain Series R502 BArton 5121 74, 30.55S 132.05E, common grass, forming dense clumps, heads open, spreading, 2 Oct 1975, R.J. Chinnock 2729 (HT: AD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (85), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (28).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (86, fig. 47), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (55, Fig 8).

Habit. Annual or perennial. Culms 20–45 cm tall, 2–2.5 mm diam., 1–2-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 2.5–8(–13) mm long, lacerate. Leaf-blades flat or conduplicate, 9–18 cm long, 1.5–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 9–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 14–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 9–14 mm long, membranous, without keels, 5-nerved. Upper glume surface asperulous, glabrous or indumented.

Florets. Fertile lemma 6–7 mm long, without keel, 5-nerved. Lemma surface glabrous. Lemma apex awned, 1-awned. Median (principal) awn 80–125 mm long overall, without a column or with a twisted column. Column 15–32 mm long. Palea 2-nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Coolgardie. **South Australia:** Nullabor, Gairdner-Torrens Basin.

Notes. Inland saline areas of eastern Western Australia, where it has not been collected recently, to central South Australia.

Austrostipa wakoolica (Vickery, S.W.L.Jacobs & J.Everett) S.W.L.Jacobs & J.Everett. *Telopea* 6: 589 (1996). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa wakoolica* Vickery, S.W.L. Jacobs & J. Everett, *Telopea* 3(1): 129 (1986).

Type of Basionym or Protologue Information: IT: *D.L.W. Henderson 117410*, 5 Nov 1947 or 11 May 1947, Australia: New South Wales (US-2980313).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (161), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (58).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (161), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (18, Fig. 2J).

Habit. Perennial. Culms erect or geniculately ascending, 100 cm tall, 1.5–3 mm diam. Mid-culm internodes pubescent or hirsute. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.5–0.8 mm long, abaxially pilose, truncate or obtuse. Leaf-blades flat or involute, 20–40 cm long, 1.5–2.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 30–36 cm long, 3–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 11–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner above, without keels, 3-nerved. Upper glume lanceolate, 9–11 mm long, membranous, without keels, 5-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 5.5–6.5 mm long, without keel. Lemma surface indumented. Lemma apex dentate or lobed, awned, 1-awned. Median (principal) awn from a sinus, 35–60 mm long overall, with a twisted column. Column 7–25 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: South-Western Plains.

Notes. Floodplains of the Murray River tributaries of the South Western Plains of New South Wales.

Avellinia michelii* (Savi) Parl. *Pl. Nov.* 61 (1842). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Bromus michelii* Savi, *Bot. Etr.* 1: 78 (1808).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (63), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (434), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (404), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (205), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (154).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (61, Pl. 16), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (204, fig. 152), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (155, Fig.23).

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 6–30 cm tall. Mid-culm internodes pubescent. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.4–1 mm long, truncate. Leaf-blades 10–20(–50) cm long, 0.6–1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 2–7 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–4), comprising 2–4 fertile floret(s), with a barren rachilla extension, oblong or cuneate, laterally compressed, 3–5.1 mm long.

Glumes. Glumes dissimilar, shiny. Lower glume linear, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 3–5.1 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3–5 mm long, without keel, 3–5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn from a sinus, 1–2 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Irwin, Drummond, Dale, Menzies, Warren, Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Range, Wilsons Promontory, Volcanic Plain, Wannon, Wimmera.

Notes. Lemma is 5-veined (not 1–3), apex is entire, and awn does not arise from a sinus as described for *Avellinia*.

Vic. and S.A. Occasional weed of sandy soils; dry sites, on sand in heath, mallee and dunes. Flowers Sept.-Nov.

Avena barbata* Pott ex Link. Schrader, *Jour. für die Bot.* 1799 (2): 315 (1800). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: Pott s. n., Jul 1796, Lusitania, ex cult. mea 1796 (LE). LT designated by ?; cited by Ali Chaudahry, Grass. Saudi Arabia 118 (1989).

Recent synonyms: *A. alba* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (37), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (434), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (405), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (206), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (162), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (125).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (38, Pl. 9), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (71), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (207, Fig. 153), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (162).

Habit. Annual. Culms erect or geniculately ascending, 30–140 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–6 mm long, abaxially scaberulous or abaxially hairy, obtuse. Leaf-blades 6–30 cm long, 2–20 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 7.5–36.5(–50) cm long, 6–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 16–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–10 -nerved. Upper glume elliptic, 16–30 mm long, membranous, without keels, 7–10 -nerved.

Florets. Fertile lemma 12–26 mm long, without keel, 7–9 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1–3 -awned. Median (principal) awn dorsal, 30–60 mm long overall, with a twisted column. Lateral lemma awns present. Palea apex erose or dentate. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Carnarvon. Irwin, Drummond, Dale, Menzies, Warren, Roe, Avon. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South Far Western Plains. **Victoria:** Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, Midlands, East Coast.

Notes. Introduced. Native of the Mediteranean, now widely established in warmer temperate and tropical regions. Common weed of disturbed land such as roadside, railyards and pasture. Flowers Sept.-Jan. Fruits Oct.-Dec.

Avena byzantina* K.Koch. *Linnaea* 21: 392 (1848). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: T: (B).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (162).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (162).

Habit. Annual. Culms erect or geniculately ascending, 50–150 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, 3–7 mm long, abaxially hairy. Leaf-blades 15–30 cm long, 2–9(–15) mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 10.5–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–4), comprising 2–4 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 25–30(–35) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, (7–)9 -nerved. Upper glume elliptic, 25–33 mm long, membranous, without keels, (7–)9–11 -nerved.

Florets. Fertile lemma 15–20 mm long, without keel, 7 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 25–35 mm long overall, without a column. Palea apex lobed. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Tropical Asia, and South America.

Australian Distribution: Western Australia, Lord Howe.

Western Australia: Roe.

Notes. Introduced. Flowers Oct.-Nov. Fruits Oct.-Nov.

Avena fatua* L. *Sp. Pl.* 80 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Herb. Linn. 95/9 (LINN lecto).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (588), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (37), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (434), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (208), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (162), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (126).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (38, Pl. 9), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (122), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (208, Fig. 154), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (71), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (162), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (162, Fig.24).

Habit. Annual. Culms erect or geniculately ascending, 30–125(–160) cm tall, 3–5 -noded. Leaves mostly basal or basal and cauline or cauline. Ligule an eciliate membrane, 4–6 mm long, abaxially hairy. Leaf-blades 10–45 cm long, 3–15 mm wide. Leaf-blade surface scaberrulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 7–40 cm long, 5–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 18–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 7–11 -nerved. Upper glume lanceolate, 18–30 mm long, membranous, without keels, 7–11 -nerved.

Florets. Fertile lemma 14–22 mm long, without keel, 7–9 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 25–48 mm long overall, with a twisted column. Palea apex entire or dentate. Anthers 3. Grain 6–8 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Austin. Irwin, Drummond, Avon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Maranoa, Moreton, Warrego, Wide Bay. **New South Wales:** Central Coast, South Coast, Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, East Coast, South West.

Notes. Introduced. All Australian states and territories. Probably native to the Mediterranean but widely naturalized. Common weed of disturbed ground and cereal crops. Flowers July-Dec. Fruits ?-Dec.

Avena ludoviciana

Classification. Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (as *A. sterilis* var. *ludoviciana*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (163), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (124).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (163).

Avena sativa* L. *Sp. Pl.* 79 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Herb. Clifford.* 25, *Avena* 1, (BM). LT designated by Baum, *Taxon* 23: 579–583 (1974).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (37), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (434), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (208), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (163), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (123).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (208, Fig. 155), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (163).

Habit. Annual. Culms erect, 25–125(–180) cm tall. Leaves cauline. Ligule an eciliate membrane, 3–6 mm long, abaxially glabrous or abaxially hairy. Leaf-blades 8–45 cm long, 3–14(–25) mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, effuse, 6–40 cm long, 5–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret ((1-)2–3), comprising (1–)2–3 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 18–32 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, (7–)8–11 -nerved. Upper glume lanceolate, 22–32 mm long, membranous, without keels, (7–)10–12 -nerved.

Florets. Fertile lemma 15–23 mm long, without keel, 7–9 -nerved. Lemma surface glabrous. Lemma apex dentate, muticous or awned, 0–1 -awned. Median (principal) awn dorsal, 15–40 mm long overall, with a twisted column. Palea apex dentate or lobed. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond, Dale, Menzies, Avon. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Moreton, Port Curtis, Warrego. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** No region given.

Notes. Widely cultivated in temperate regions as a cereal crop or for forage.

Introduced. All states and territories except the N.T., also on Lord Howe Is. Native of Europe. Common on roadsides as an escape from cultivation. Flowers Sept.-May.

Avena sterilis* L. *Sp. Pl.* ed. 2: 118 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Recent synonyms: *A. ludoviciana*, *A. persica*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (209 as supb. *ludoviciana*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (163), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (124).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *A. ludoviciana*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (209, Fig.156 as subsp. *ludoviciana*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (163), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (109, Fig.16).

Habit. Annual. Culms geniculately ascending or decumbent, 30–180 cm tall, 2–5 -noded. Leaves mostly basal or basal and cauline or cauline. Ligule an eciliate membrane, 3–8 mm long, abaxially glabrous or abaxially hairy. Leaf-blades 8–60 cm long, 4–18 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, effuse, 10–45 cm long, 5–25 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–5), comprising 2–5 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 23–50 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 7–11 -nerved. Upper glume lanceolate, 20–50 mm long, membranous, without keels, 7–11 -nerved.

Florets. Fertile lemma 15–40 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 30–80 mm long overall, with a twisted column. Palea apex dentate. Anthers 3. Grain 11–12 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Avon. **South Australia:** North-western, Lake Eyre, Northern Lofty, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis. **New South Wales:** Central Coast. **Victoria:** Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera. **Tasmania:** East Coast.

Notes. 1(0). Lemma awn arising from the lower 1/2 of the lemma; callus c. 2.6 mm long **2a.** subsp. **sterilis**

Lemma awn arising from the midpoint of the lemma; callus 1.2–2 mm long **2b.** subsp. **ludoviciana**.

Introduced. Native to the Mediterranean. Weed of roadsides. Flowers Sept.-Dec. Fruits Sept.-Dec.-?.

subsp. **sterilis**

N.S.W. Occasional weed of roadsides, bushland and crops, occasionally grown for ornamental purposes. Flowers spring. Fruits Sept.-Dec.-?.

subsp. **ludoviciana**

All states and territories except the N.T. Weed of roadsides. Flowers Sept.-May. Fruits Sept.-Dec.-?.

Avena strigosa* Schreb. *Spic. Fl. Lips.* 52 (1771). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178 as *A. nervosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (163), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (125).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (163).

Habit. Annual. Culms erect or geniculately ascending, 60–150 cm tall, 3–5 -noded. Leaves cauline. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 8–40 cm long, 3–12 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 8–30 cm long, 3–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 17–26 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–9 -nerved. Upper glume lanceolate, 14–26 mm long, membranous, without keels, 5–9 -nerved.

Florets. Fertile lemma 10–17 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, awned, 3 -awned. Median (principal) awn dorsal, 20–35 mm long overall, with a twisted column. Lateral lemma awns present. Anthers 3.

Continental Distribution: Europe, Africa, Australasia, and South America.

Australian Distribution: Victoria, Tasmania.

Victoria: Midlands. **Tasmania:** East Coast.

Notes. Introduced. Recorded in Tas., Vic., N.S.W. and W.A.?? Native to parts of Europe. A weed of cereal, mostly oat crops; apparently rare. Flowers Dec.-Jan.

Axonopus compressus* (Sw.) Beauv. *Ess. Agrostogr.* 154 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Milium compressum* Sw., *Nova Genera et Species Plantarum seu Prodromus* 24 (1788).

Type of Basionym or Protologue Information: Jamaica.; *Shakespear s.n.* (HT: S?; IT: BM).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (238), [1969] E.E.Henty, *Manual Grasses New Guinea* (33), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (164).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (239, Pl. 70), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (124), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (164).

Habit. Perennial. Stolons present. Culms decumbent, 15–60 cm tall. Mid-culm nodes pubescent. Ligule a fringed membrane, a ciliolate membrane, 0.4–0.6 mm long. Leaf-blades linear or lanceolate, flat or conduplicate, (1.5–)3–8(–250) cm long, 3–12 mm wide.

Inflorescence. Inflorescence digitate or subdigitate, with spicate branches. Racemes 2–5, 3–10 cm long. Central inflorescence axis 0–2 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2–2.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate or elliptic or oblong or ovate, 2.1–2.8 mm long, membranous, without keels, 4–5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, 4–5 -nerved.

Fertile lemma 1.5–2.4 mm long, without keel, 4 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales, Lord Howe, Christmas Is.

Western Australia: Drummond, Menzies, Warren. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** Central Coast.

Notes. *Axonopus compressus* is morphologically and cytologically variable, and consequently Black (1963) recognized 5 varieties. It is closely related to *A. fissifolius*, another widespread weedy species. Diagnostic features of *A. compressus* include the relatively short upper lemma and leaf shape.

Introduced. Native to the tropics and subtropics of North America, but is now widespread throughout the tropics of the world. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, Brigalow forests, and tropical and subtropical sub-humid woodlands. It is a weedy species but makes a suitable lawn grass. Flowers Jan.-May.

Axonopus fissifolius* (Raddi) Kuhl. *Comm. Linh. Electr. Matto Grosso Amaz., Anexo 5 Bot.*, 11: 87 (1922). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Paspalum fissifolium* Raddi *Agrostogr. Bras.* 26 (1823).

Type of Basionym or Protologue Information: HT: *G. Raddi s.n.*, no date, Brazil: Guanabara: prope Rio de Janeiro (PI; IT: BM, FI, G-Delessert, US-2766195 (fragm. ex FI), US (fragm. ex FI)).

Recent synonyms: *A. affinis*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (33 as *A. affinis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (405 as *A. affinis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (425), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (16).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *A. affinis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (426, Fig. 356), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (164).

Habit. Perennial. Rhizomes present, short. Stolons absent or present. Culms 10–60 cm tall. Mid-culm nodes glabrous. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades flat or conduplicate, 4.5–22 cm long, 1.5–7 mm wide.

Inflorescence. Inflorescence compound, with spicate branches. Racemes 2–4, 1.5–7 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.6–2.1 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, membranous, without keels, 2–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, 2–5 -nerved.

Fertile lemma 1.5–2 mm long, without keel.

Continental Distribution: Africa, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Norfolk I.

Western Australia: Menzies, Warren. **South Australia:** Southern Lofty. **Queensland:** Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Burnett. **New South Wales:** North

Coast, Central Coast, South Coast, Southern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Riverina.

Notes. *Axonopus fissifolius* is morphologically similar to *A. compressus*. Both grow well in disturbed waste areas and persist in dry periods.

Introduced; native to the tropics of North America but now widely introduced. In tropical heaths, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers sporadically throughout the year.

Bambusa arnhemica F. Muell. Austral. Journ. Pharm. (Dec. 1886) 447. **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Type of Basionym or Protologue Information: HT: *M. Holtz s.n.*, Australia: on the Daly-River.

Key references (books and floras): [2009] A. Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (353).

Illustrations: [2009]. A. Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (356, Fig. 48).

Habit. Perennial. Culms 1000 cm tall, 60 mm diam. Mid-culm internodes glabrous. Leaf-sheath auricles present. Ligule an eciliate membrane, entire. Leaf-blades linear, 30 cm long, 45 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets (10–)15–40 mm long.

Glumes. Lower glume 7 -nerved. Upper glume 2.5–3 mm long, 7–9 -nerved.

Florets. Fertile lemma 7–8 mm long, without keel, 14–16 -nerved. Palea 11–16 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Endemic; in N.T. Usually on river banks. Flowers Aug.-Nov., Feb., Apr. Fruits Sept.

Bambusa balcooa* Roxb. *Fl. Ind.* 2:196 (1832). **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Type of Basionym or Protologue Information: LT: *Roxb. Icones 1402*, (K). LT designated by Stapleton, Edinb. *J. Bot.* 51: 12 (1994).

Recent synonyms: *B. arundinacea* auct.

Habit. Perennial. Rhizomes present, short. Basal leaf sheaths absent. Culms erect, 1600–2000 cm tall, 75–150 mm diam., woody. Mid-culm internodes hollow, thick-walled. Mid-culm nodes pubescent. Lateral branches dendroid. Leaves cauline. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades lanceolate or oblong, 15–30 cm long, 25–50 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets 1 or more flowered, with 1 fertile floret (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 7–15 mm long.

Glumes. Glumes 0–2 empty glumes.

Florets. Fertile lemma 6–7 mm long, without keel. Lodicules present. Anthers 6.

Continental Distribution: Africa, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, New South Wales.

Queensland: Moreton.

Bambusa vulgaris* Schrad. *Wendl. Coll. Pl.* ii. 26. t. 47. (1810). **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Type of Basionym or Protologue Information: T: *Anon.*, India: cultivated (BM (possible)).

Recent synonyms: *B. arundinacea* auct.

Key references (books and floras): [2008] S.W.L. Jacobs, R.D.B. Walley & D.J.B. Wheeler, *Grasses of New South Wales*.

Habit. Perennial. Rhizomes present, short. Basal leaf sheaths absent. Culms geniculately ascending, 1500–2000 cm tall, 40–100 mm diam., woody. Mid-culm internodes hollow, thin-walled. Lateral branches dendroid. Leaf-sheaths hairy. Leaf-sheath auricles present. Ligule an eciliate membrane. Leaf-blades lanceolate, 15–30 cm long, 18–45 mm wide.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets 1 or more flowered, with 1 fertile floret (4–12), comprising 4–12 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–20 mm long.

Glumes. Glumes similar. Lower glume ovate, coriaceous, without keels. Upper glume ovate, coriaceous, without keels.

Florets. Fertile lemma 9–11 mm long, without keel, 11–15 -nerved. Palea 6 -nerved. Lodicules present. Anthers 6.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton.

Bothriochloa biloba S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 2(3): 27 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Type of Basionym or Protologue Information: Australia, Warialda: Hadley.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (167).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(2)), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (167).

Habit. Perennial. Culms erect or geniculately ascending, 50–100 cm tall, 3–7 -noded. Mid-culm nodes glabrous. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long. Leaf-blades flat or revolute, 7–20 cm long, 3–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with ramose branches. Racemes 3–6, 4–10 cm long. Central inflorescence axis 0.7–1.5 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas, 4.2–5.7 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic, dorsally compressed, 6.5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, without keels, 13–15 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 0 -nerved. Upper glume surface asperulous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 66–75 % of length of spikelet, hyaline.

Fertile lemma 3–4.3 mm long, without keel, 3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 20–25 mm long overall, with a twisted column. Anthers 3. Grain 3.2–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Found on clay soils of the Darling Downs, Qld and the tablelands and western slopes of the Gt Divide in northern N.S.W. extending to Sydney. It is thought to be of limited fodder value. Flowers Nov.–Jun.

Bothriochloa bladhii (Retz.) S. T. Blake. *Proc. Roy. Soc. Queensland* 80: 62 (1969). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Andropogon bladhii* Retz., *Observ. Bot.* 2: 27 (1781).

Type of Basionym or Protologue Information: China: ?; *Bladh s.n.* (HT: LD; IT: SI (photo)).

Recent synonyms: *B. intermedia*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (202 as *Andropogon intermedius*), [1878] G.Bentham, *Flora Australiensis* 7 (531 as *Andropogon intermedius*), [1969] E.E.Henty, *Manual Grasses New Guinea* (36 as *B. intermedia*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (24), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (487), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (168).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (126 & 128(4)).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 50–150 cm tall. Lateral branches simple or sparsely branched. Ligule an eciliate membrane. Leaf-blades 10–55 cm long, 2–12 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes, with ramose branches. Panicle 3–14 cm long. Racemes numerous, 1.8–5 cm long. Central inflorescence axis 0.3–2 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, 2.5–4 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 3–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, without keels, 5–7 -nerved. Lower glume surface indumented. Upper glume lanceolate or oblong, keeled, 1-keeled, 3–4 -nerved.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 - nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 10–25 mm long overall, with a twisted column. Palea absent. Grain 2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Christmas Is.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Gairdner-Torrens Basin, Flinders Ranges. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. There are two subspecies.

Sessile spikelets not or very rarely pitted, 3.5–4 mm long subsp. **bladhii**

Sessile spikelets always pitted, 3–3.5 mm long subsp. **glabra**.

Subsp. **bladhii**

An important and widespread native forage grass of *Eucalyptus* forests and woodlands of the Australian tropics and subtropics, particularly on heavy soils.

Found in all mainland states except Vic; possibly naturalised in S.A. Extends through New Guinea and SE Asia to India. Flowers Oct.-Aug.

subsp. **glabra**

Naturalised in a few localities of Qld and N.S.W. Tropical Africa to Taiwan. Flowers Apr.

Infra -specific taxa: subsp. **bladhii**, subsp. **glabra**.

Sessile spikelets c. 4 mm long, not or vary rarely pitted

B. bladhii subsp.

bladhii

Sessile spikelets c. 3.5 mm long, sessile or pedicelled spikelet always pitted ***B. bladhii** subsp. **glabra**

Bothriochloa bladhii subsp. bladhii

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (167).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Christmas Is.

Bothriochloa bladhii subsp. glabra (Roxb.) B.K. Simon. *Austrobaileya* 3(1): 79 (1989).

Classification. Basionym and/or Replacement Name: *Andropogon glaber* Roxb. *Fl. Ind.*, 1: 271 (1820).

Type of Basionym or Protologue Information: India: Bengal: elevated spots, *Roxburgh s.n.* (HT: BM (photo BRI, K); IT: K (photo BRI)).

Australian Distribution: Queensland.

Bothriochloa bunyensis B.K. Simon. *Austrobaileya* 1: 455 (1982). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Type of Basionym or Protologue Information: HT: *B.K. Simon 3530*, 26 Jan 1980, Australia: Queensland: Darling Downs, Bunya Mts., 3630 m, -26.53 S, 151.36 E (BRI-256874; IT: AD, B, BRI, K, L, MEL, MO, NSW, NT, PERTH, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(3)).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 30–60 cm tall, wiry, 2–4 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.5–1 mm long. Leaf-blades 6–12 cm long, 2–5 mm wide.

Inflorescence. Inflorescence subdigitate, with ramose branches. Central inflorescence axis 1.1–1.5 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes, 12–13 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 8–9 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, much thinner on margins, without keels, 13 -nerved. Lower glume surface glabrous. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, hyaline.

Fertile lemma 4 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 20–25 mm long overall, with a twisted column. Palea apex erose. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burnett, Darling Downs, Moreton.

Notes. Restricted to Bunya Mountains and adjacent regions of the Great Divide in Qld. Flowers Jan.--May.

Bothriochloa decipiens (Hackel) C. E. Hubbard. *Bull. Misc. Inform.* 444 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Andropogon pertusus* var. *decipiens* Hack., *Monogr. Phan.* 6: 483 (1889).

Type of Basionym or Protologue Information: Australia, Queensland, pr. Rockhampton, *O'Shannon s.n.*

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (168).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(9) & 130), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (168).

Habit. Perennial. Culms erect or geniculately ascending, 30–200 cm tall, 5–9 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.75–1.5 mm long, truncate. Leaf-blades flat or revolute, 6–25 cm long, 2–6 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with ramose branches. Racemes 4–7 cm long. Central inflorescence axis 0.6–1.3 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes, 2.5–3.75 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.75–5.25 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, cartilaginous, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60 % of length of spikelet, hyaline.

Fertile lemma 1.75–2 mm long, without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 15–24 mm long overall, with a twisted column. Palea absent. Anthers 1. Grain 1.85–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Northern Territory: Barkly Tableland. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains.

Notes. A widespread grass in open forest country of subtropical N.S.W. and Qld and tropical Qld. It is not as palatable as some of the other native species and sometimes becomes locally dominant where preferred species have been grazed out. There are two varieties.

Slender plants to 100 cm tall; leaf lamina somewhat hairy 9a. var. **decipiens**

Robust plants 100–200 cm tall; leaf lamina glabrous 9b. var. **cloncurrensis**.

Var. **decipiens**

Occurs mainly in the eastern parts of N.S.W. and Qld. Naturalised in one locality in N.T. Flowers all year.

var. **cloncurrensis**

Occurs in tropical N.T. (rare) and tropical Qld and considered to be more useful as a fodder grass than the type variety. Flowers Jan.--Sept. and Nov.

Infra-specific taxa: var. **decipiens**, var. **cloncurrensis**.

Slender plants to 1 m tall **B. decipiens** var. **decipiens**

Robust plants 1–2 m tall

B. decipiens var. **cloncurrrens**

Bothriochloa decipiens var. **decipiens**

Australian Distribution: Queensland, New South Wales.

Bothriochloa. decipiens var. **cloncurrrens** (Domin) C.E. Hubb. *Kew Bulletin* 1934: 44 (1934).

Classification. Basionym and/or **Replacement Name:** *Andropogon decipiens* var. *cloncurrrens* Domin, *Biblioth. Bot.* 85(2): 266 (1915).

Type of Basionym or Protologue Information: Australia: West-Queensland: dürre Grashügel bei Cloncurry, Mar 1910, *Domin s.n.*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(10)).

Australian Distribution: Western Australia, Northern Territory, Queensland.

Bothriochloa erianthoides (F. Muell.) C. E. Hubbard. *Bull. Misc. Inform.* 444 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or **Replacement Name:** *Andropogon erianthoides* F. Muell., *Fragm.* 10: 75 (1876).

Type of Basionym or Protologue Information: ST: *Dr. Wuth s.n.*, no date, Australia: Springsure (W; IST: US-76245 (fragm. ex W)). ST: *Dr. Woolls s.n.*, Australia: In tractibus Maneroo ST: *Dr. Leichhardt s.n.*, Australia: Darling's Downs.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (529 as *Andropogon erianthoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (168).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(1)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (168).

Habit. Perennial. Culms erect or geniculately ascending, 80–150 cm tall. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 1.5–4 mm long, obtuse. Leaf-blades 7–30 cm long, 5–8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate, with ramose branches. Racemes 6–10 cm long. Central inflorescence axis 0.7–1 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes, 3–4 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, dorsally compressed, 7–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, without keels, 9–18 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 16–18 mm long overall, without a column. Palea present. Anthers 3. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Darling Downs, Leichhardt, Maranoa, North Kennedy, Port Curtis, Warrego, Wide Bay, South Kennedy. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. Found on clay soils of the western plains and slopes of the Gt Divide in central to southern Qld and northern N.S.W (rare). Regarded as an excellent drought resistant fodder grass but it has now been eaten out from areas it once occupied. Flowers Dec.--Sept.

Bothriochloa ewartiana (Domin) C. E. Hubbard. *Bull. Misc. Inform.* 444 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or **Replacement Name:** *Andropogon ewartianus* Domin, *Biblioth. Bot.* 85: 269 (1915).

Type of Basionym or Protologue Information: "West-Queensland: Grastriften bei Hughenden ...", *Domin, II. 1910.*

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (328 as *Dichanthium*), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (487), [2002] D.Sharp &

B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (509), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (169).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (329, Pl.96 as *Dichanthium*), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(5)), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (511, Fig. 437), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (169).

Habit. Perennial. Culms erect or geniculately ascending, 30–60 cm tall, 6–9-noded. Lateral branches simple or sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, truncate. Leaf-blades flat or conduplicate or revolute, 7–15 cm long, 3–6 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with ramose branches. Racemes 3.5–7 cm long. Central inflorescence axis 1–2.5 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 3.5–4.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or oblanceolate, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, without keels, 9–11-nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, hyaline.

Fertile lemma without keel. Lemma apex entire, awned, 1-awned. Median (principal) awn apical, 17–25 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Giles, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South.

South Australia: North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains.

Notes. A valuable drought resistant fodder grass of the drier grasslands and *Eucalyptus* forests. Flowers all year.

Bothriochloa insculpta* (A.Rich.) A. Camus. *Ann. Soc. Linn. Lyon* 76: 165 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Andropogon insculptus* Hochst. ex A. Rich. *Tent. Fl. Abyss.* 2: 458 (1850).

Type of Basionym or Protologue Information: LT: Schimper, *pl. Schimp. Abyss., sect. I*, 80, 22 Sep 1837, Ethiopia: Tigray, Scholoda (US-76201 (fragm.); ILT: K, US-925384, US-1093899 (ex BM), WAG). LT designated (as holotype) by Marchi & Longhi-Wagner, *Bol. Inst. Bioci.* 57: 38 (1998). ST: *Quartin-Dillon s.n.*, Crescit in montosis provinciae Chiré.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (36), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (24), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (169).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(6)), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (169).

Habit. Perennial. Stolons absent or present. Culms geniculately ascending or decumbent or prostrate or sprawling, 25–200 cm tall. Lateral branches simple or branched. Ligule an eciliate membrane, 2 mm long. Leaf-blades 4–30 cm long, 2–8 mm wide.

Inflorescence. Inflorescence subdigitate, with ramose branches. Racemes 2–8 cm long. Central inflorescence axis 0–3 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, 3.5–5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume lanceolate, cartilaginous, without keels, 11–13-nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 15–25 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and South America.

Australian Distribution: Queensland.

Queensland: Moreton, Port Curtis, Wide Bay, Darling Downs.

Notes. Tropical Africa, Yemen and India. Introduced to Australia where it is highly valued as a forage grass, especially cvs. Hatch and Bisset. It has become naturalised in central coastal and SE Qld. Flowers Nov.--Jan.

Bothriochloa macra (Steud.) S. T. Blake. *Proc. Roy. Soc. Queensland* 80: 64 (1969). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Andropogon macer* Steud., *Syn. Pl. Glumac.* 1: 371 (1854).

Type of Basionym or Protologue Information: IT: *Urville*, Australia: Montagnes bleues (Montes coerul.) (S-G399). Kew negative 7190.

Recent synonyms: *B. ambigua*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (509), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (169).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(8)), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (75), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (510, fig. 438), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (169).

Habit. Perennial. Culms geniculately ascending, 30–100 cm tall, 2–8 -noded. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 1.5–2.5 mm long, truncate. Leaf-blades flat or revolute, 5–30 cm long, 2.5–5.5 mm wide. Leaf-blade surface scaberrulous, indumented.

Inflorescence. Inflorescence subdigitate, with ramose branches. Racemes 5–10 cm long. Central inflorescence axis 0.7–2 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes or rudimentary, comprising 2 unequal glumes without lemmas, 4.5–6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, dorsally compressed, 5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 5–7 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 75 % of length of spikelet, hyaline.

Fertile lemma without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 20–23 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 3–3.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

South Australia: Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** East Coast.

Notes. Exists in both pitted and unpitted states leading to previous problems of identification, being confused with both *Dichanthium sericeum* and *Bothriochloa decipiens*.

Grows on soils of low fertility mainly on the tableland area of N.S.W. but extending through Vic. to Tas. and S.Aus. and to southern Qld; naturalised in New Guinea, Norfolk Is. and New Zealand. Flowers Oct.--July.

Bothriochloa pertusa* (L.) A. Camus. *Ann. Soc. Linn. Lyon* 76: 164 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Holcus pertusus* L. *Mant. Pl.* 2: 301–302 (1771).

Type of Basionym or Protologue Information: LT: *India orientalis* (LINN-1212.16). LT designated by Clayton, *Kew Bull.* 32: 4 (1977).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (201 as *Andropogon pertusus*), [1878] G.Bentham, *Flora Australiensis* 7 (530 as *Andropogon pertusus*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (24), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (128(7)).

Habit. Perennial. Stolons present. Culms erect or geniculately ascending or prostrate, 15–70 cm tall. Mid-culm nodes glabrous or bearded. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades 5–30 cm long, 2.5–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with ramose branches. Central inflorescence axis 1–3 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 3.8 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume elliptic, cartilaginous, without keels, 3–7 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 1.8 mm long, without keel. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn apical, 15–20 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Dampier. Avon. **Northern Territory:** Darwin & Gulf. **Queensland:** Leichhardt, North Kennedy, Port Curtis, South Kennedy, Warrego, Cook, Burke, Darling Downs.

Notes. Introduced to Australia where it is a good fodder grass in regions of moderate to low fertility soils. It is naturalised fairly widely in tropical N.T. and Qld. India to Indonesia. Flowers Feb.--Nov.

Bothriochloa saccharoides

Australian Distribution: A.C.T. (formerly*).

Brachyachne ambigua* Ohwi. *Bull. Tokyo Sci. Mus.* 18: 11 (1947). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Dorzelo 3169*, Dec 1924, Java: Gersik, east Java, on low rocky hill (BO; IT: L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 50F-J).

Habit. Annual. Stolons absent. Culms geniculately ascending or decumbent, 30–55 cm tall. Ligule an eciliate membrane, 0.3 mm long, truncate. Leaf-blades 1–10 cm long, 1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, keeled, 1-keeled, wingless, 1 -nerved. Upper glume lanceolate, 2–3.5 mm long, coriaceous, keeled, 1-keeled, wingless, 1 -nerved.

Florets. Fertile lemma 1.8–2 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Grain 1–1.6 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. A weed of rice crops in northern Australia.

Plants of *B. ambigua* closely resemble those of *B. tenella* but differ by the compressed (not turgid) grain, the approximate (almost contiguous) keels of the palea, somewhat longer glumes, and in characteristic plants by the absence of indumentum between the nerves of the lemma. In spikelet structure it is more like *B. convergens*, which differs by its usually bearded sheath auricles, larger spikelets, winged glumes, and relatively short floret.

Introduced; confined to the N of the N.T. within 350 km of Darwin, and NE W.A. near the border; recorded from Java, Lesser Sunda Is., Papua, and northern Australia. Australian plants occur as weeds of cultivation or disturbed sites, usually in heavy-textured black soils of sub-coastal plains and river flood plains, often in association with *B. convergens*.

Brachyachne ciliaris (Kuntze) C. E. Hubbard. *Bull. Misc. Inform.* 448 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynodon ciliaris* Benth. *Fl. Austral.* 7: 610 (1878); *Capriola ciliaris* Kuntze, *Revis. Gen. Pl.* 2: 764 (1891).

Type of Basionym or Protologue Information: Central Australia: Charlotte Waters, *Giles s.n.*

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (610 as *Cynodon ciliaris*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (466), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (343), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (170).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 50B-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (342, Fig. 274), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (170).

Habit. Annual. Culms geniculately ascending or decumbent, 5–25 cm tall. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.6–1 mm long. Leaf-blades 1–3 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels, 1 -nerved. Upper glume oblong, 3–4 mm long, coriaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–2.6 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex mucronate. Palea 2 -nerved. Grain 1–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin. **Queensland:** Burke, Gregory North, Gregory South, Warrego. **New South Wales:** North Far Western Plains, South Far Western Plains.

Notes. Distinguished by villous leaves, high colour, relatively long ligule, inflorescence of usually 2 stiff spikes, firm dissimilar glumes, subapically bearded floret, acute callus, and scarcely compressed grain. The spikes resemble those of *B. convergens*, but this species has glumes with acute winged keels, a strongly compressed grain, and usually glabrous foliage. Also, the nerves of the lemma and keels of the palea, though ciliate or pubescent, lack a subapical tuft.

Endemic; occurs in the arid and low rainfall areas of inland Australia from Alice Springs E across the L. Eyre basin between 20°S and 31°S, and within 300 km of the Qld coast around the Tropic of Capricorn; Usually on sandy, gravelly or stony slopes or plains, including gibber plains.

Brachyachne convergens (F.Muell.) Stapf. *Hooker's Ic. Pl.* t. 3099: (1922). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynodon convergens* F. Muell., *Fragmenta Phytographiae Australiae* 8: 113 (1873).

Type of Basionym or Protologue Information: Victoria R., N.T., *Else*; holo: MEL; iso: K.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (610as *Cynodon convergens*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (214), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (466), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (170).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (213, Pl. 63), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 50A-E, Fig. 51A), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (170).

Habit. Annual or perennial. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 20–60 cm tall. Ligule a fringed membrane, 0.5 mm long. Leaf-blades 3–6 cm long, 2–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, coriaceous, keeled, 1-keeled, winged on keel, winged broadly, 1 -nerved. Upper glume oblong, 3–5 mm long, coriaceous, keeled, 1-keeled, winged on keel, 1 -nerved.

Florets. Fertile lemma 2.2–2.8 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Grain 1.7–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego, Port Curtis. **New South Wales:** Central Coast, North-Western Plains.

Notes. Considered good dry season fodder in northern Australia.

The strongly flattened grain and contiguous keels of the palea distinguish it from other species in Australia. From *B. tenella* and *B. ambigua*, *B. convergens* differs further by its greater spikelet dimensions, usually bearded sheath auricles, and coarser usually stoloniferous habit. The spikes resemble those of *B. ciliaris* which, however, can be recognized by its villous foliage, inflorescence of usually two spikes, and the subapical fringe on the lemma and palea.

Endemic; occurs in summer rainfall area across the continent N of the Tropic of Capricorn, excluding desert areas of the N.T. and W.A., and S central Qld, with a few records from northern N.S.W. and the central E coast; Recorded from a range of habitats including claypans, river banks, levees and floodplains, irrigated cotton fields, gorges and sandplains, often in disturbed areas such as roadsides; in red, brown grey or black soils of light to heavy texture; colonizes bare patches and also found in association with *Astrebla* or other grasses, and in dense to open woodland, brigalow, pindan or monsoon vine thicket; usually common or dominant in the understorey where it occurs.

Brachyachne prostrata C. A. Gardner & C. E. Hubbard. *Hooker's Icon Pl.* 34: t. 3362 (1938).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Gardner s.n.*, 2 Aug 1927, Australia: Western Australia: Ereman Prov: 1 mi N of (PERTH; IT: K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (214), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (467), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Stolons absent. Culms prostrate, 5–10 cm tall. Lateral branches branched. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades lanceolate, 1–11 cm long, 0.5–1.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes 1.3–1.8 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate or elliptic or oblong, laterally compressed, 3–3.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic or oblong, 3–3.5 mm long, indurate, without keels, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–2.5 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 1.2–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Victoria River, Central Australia North. **Queensland:** Gregory North.

Notes. This distinctive species is readily recognized by its prostrate habit, pseudo-stolons and short, spatheate often enclosed spikes.

Endemic; W.A. and western N.T., arid areas along the flanks of the Great Sandy, Gibson and Great Western Deserts, including the Pilbara region; One record for Qld. Occurs in arid areas on stony flats and plains, including gibber plains (hard red stony soil) and granite elevated 'breakaway' country, sometimes between tussock grasses or *Acacia* shrubs; usually infrequent.

Brachyachne tenella (R. Br.) C. E. Hubbard. *Bull. Misc. Inform.* 448 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynodon tenellus* R. Br., *Prodr.* 187 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6239*, Australia: Northern Territory: Arnhem Land, Caledon Bay (BM; IT: E, K, US-865639 (fragm. ex BM)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (187 as *Cynodon tenellus*), [1878] G.Bentham, *Flora Australiensis* 7 (609 as *Cynodon tenellus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (212), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (136), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 50K-O).

Habit. Annual or perennial. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 20–60 cm tall. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades 5–10 cm long, 1–2 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or obovate, laterally compressed, 1.5–2.5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume oblong, membranous, keeled, 1-keeled, wingless, 1 -nerved. Upper glume oblong, 1.5–2.5 mm long, membranous, keeled, 1-keeled, wingless, 1 -nerved.

Florets. Fertile lemma 1.2–1.5 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 1 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Leichhardt, Mitchell, North Kennedy, Port Curtis, South Kennedy.

Notes. Distinguished by the slender spikes, relatively small spikelets, an acute wingless keel on the glumes, minute obtuse callus, rather distant keels on the palea, and a grain which is not compressed. The indumentum between the nerves on the lemma is distinctive, although sometimes also occurring less markedly in *B. ambigua*.

Endemic; from the W.A. Kimberley region across the northern half of the N.T. to Normanton in Qld, and in the eastern half of Qld in the drier inland regions; In swampy areas and flood plains both inland and near the coast, sometimes in water, usually on heavy soils, with other grasses, occasionally in woodland; flowers Jan.–Mar. in the Kimberley.

Brachypodium distachyon* (L.) Beauv. *Ess. Agrostogr.* 101, 155, 156 (1812). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Brachypodieae.

Basionym and/or Replacement Name: *Bromus distachyos* L., *Fl. Palaest.* 13 (1756).

Type of Basionym or Protologue Information: LT: (LINN-93.48). LT designated (as NT) by Schippmann & Jarvis, *Taxon* 37: 158, f. 1 (1988). Jarvis now believes this to be original material, so that a lectotype designation is correct (fide: Jarvis, The Linnaean Plant Name Typification Project).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (86), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (261), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (171), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (79).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (87, Pl. 24), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (262, Fig. 203 & plate 8), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (171), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (84, Fig. 12).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 3–37(–50) cm tall. Lateral branches branched. Leaves cauline. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.4–2 mm long, abaxially hairy. Leaf-blades 1–13 cm long, 0.9–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme (spike-like). Racemes 1, 2–8(–10) cm long, bearing 1–7 fertile spikelets on each.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–16), comprising 5–16 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–30 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, coriaceous, without keels, 5(–7) -nerved. Lower glume apex muticous. Upper glume oblong, 6–8.5 mm long, coriaceous, without keels, 7–11 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 8–10.2 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn (1–)4.5–15 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Dale, Menzies, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, South-Western Slopes. **Victoria:** Grampians, Lowan Mallee, Riverina, Volcanic Plain. **Tasmania:** East Coast.

Notes. Native to the Mediterranean, now widely introduced and naturalised in temperate regions world-wide. Uncommon; usually on sandy, rocky soils, in dry disturbed areas. Flowers Sept.-Dec.

Briza maxima* Linn. *Sp. Pl.* 70 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Seguier s.n.*, (LINN-88.6). LT designated by Hubbard in Milne-Redhead & Polhill (ed.), *Fl. Trop. E. Africa, Gramineae* 1: 53 (1970).

ST: *van Royen s.n.*, unknown (L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (660), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (128), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (406), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (114), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (172), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (340).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (129, Pl. 38), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (79), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (115, Fig. 74), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (172).

Habit. Annual. Culms erect or decumbent, 10–65 cm tall. Mid-culm internodes hollow. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat, 5–20 cm long, 2–8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate or obovate, 2–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–20), comprising 5–20 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 10–25 mm long.

Glumes. Glumes similar. Lower glume elliptic or ovate, chartaceous, without keels, 7–9 -nerved. Upper glume elliptic or ovate or obovate, 5–7 mm long, chartaceous, without keels, 7–10 -nerved.

Florets. Fertile lemma 6–8 mm long, keeled, 7–13 -nerved. Lemma surface glabrous or indumented. Lemma apex entire. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Dale, Menzies, Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Mitchell, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, Midlands, East Coast.

Notes. Introduced. Also on Lord Howe Is. Native in the Mediterranean and widely introduced in temperate regions. Common on disturbed and sandy areas. Flowers Aug.-Dec.

Briza minor* Linn. *Sp. Pl.* 70 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: CT: *Anon.*, Habitat in Helvetia, Italia (LINN-88.1). LT designated by Hubbard, *Fl. Trop. E. Afr. Gram.* 53 (1970); CT proposed by Jarvis, *Taxon* 41: 558 (1992).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (660), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (130), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (406), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (114), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (172), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (340).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (138), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (79), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (116, fig. 75), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (172).

Habit. Annual. Culms erect or decumbent, 7–60 cm tall. Mid-culm internodes solid. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades flat, 3–14 cm long, 2–9 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or obovate, 4–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–8), comprising 4–8 fertile floret(s), with diminished florets at the apex, ovate or orbicular, laterally compressed, 2.5–5 mm long.

Glumes. Glumes similar. Lower glume elliptic or orbicular or obovate, chartaceous, without keels, 3–5 -nerved. Upper glume subulate or ovate, 2–5.5 mm long, chartaceous, without keels, 3–5 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, 7–9 -nerved. Lemma surface glabrous. Lemma apex entire, muticous. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.25 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Carnarvon. Drummond, Dale, Menzies, Eyre, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast, South West.

Notes. Introduced. Native to the Mediterranean and widely introduced into temperate regions. A weed of disturbed areas often occurring with *B. maxima*. Flowers Aug.-Dec.

Briza subaristata* Lam. *Encycl.* 1: 187 (1791). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: HT: *P. Commerson s.n.*, no date, Uruguay: Montevideo (P-LAM; IT: CP, LE-TRIN-2555.01, (fragm. & Illustr.), R, US-865549 (fragm. ex P-LAM)).

Recent synonyms: *B. triloba*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (172), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (342).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (172), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (341, Fig. 45).

Habit. Perennial. Culms erect, 28–60 cm tall, 2 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–3 mm long. Leaf-blades flat or involute, 6–25 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic or oblong, 2.5–15 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–11), comprising 6–11 fertile floret(s), with diminished florets at the apex, ovate or orbicular, laterally compressed or terete, 1.75–5.5 mm long.

Glumes. Glumes similar. Lower glume orbicular or obovate, membranous, keeled, 1-keeled, 3–7 -nerved. Lower glume surface indumented. Upper glume elliptic or orbicular, 1.5–3.3 mm long, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1.8–5 mm long, keeled, winged on margins, 5–7 -nerved. Lemma apex entire or dentate, muticous or mucronate or awned, 1 -awned. Median (principal) awn from a sinus, 0.5–1 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 1. Grain 1–1.5 mm long.

Continental Distribution: Africa, Australasia, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: North Coast, Central Coast, Southern Tablelands.

Notes. Introduced. Native of S America. Grows in long-established low-fertile soils.

Bromus alopecuroides* Poir. *Voy. Barb.* 2: 100 (1789). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: Barbaria, El Kala,.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (95 as *Serrafalcus alopecuroides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop,

G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (253), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (174), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (82).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (254, Fig. 195), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (174).

Habit. Annual. Culms erect or geniculately ascending, 10–80 cm tall. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades 5–22 cm long, 1–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic or oblong, 2–20 cm long, 1–3 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–11), comprising 6–11 fertile floret(s), with diminished florets at the apex, lanceolate or oblong or ovate, laterally compressed, 20–45 mm long.

Glumes. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 8–20 mm long, membranous, without keels or keeled, 5–9 -nerved.

Florets. Fertile lemma 9–18 mm long, without keel, 7–9 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 6–20 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and North America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Avon. **South Australia:** Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Maranoa. **New South Wales:** Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** East Coast.

Notes. Introduced. N.S.W. Vic., S.A. and W.A. Native of the Mediterranean. An occasional weed of crops, pastures and roadsides. Flowers Oct.-Dec. Fruits Oct.-Jan.

Bromus arenarius Labill. *Nov. Holl. Pl.* 1: 23 (1804). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: Hab. in terrâ Von, *Leuwin* .

Recent synonyms: *B. japonicus*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178), [1878] G.Bentham, *Flora Australiensis* 7 (661), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (96 as *Serrafalcus patulus*, *Serrafalcus arenarius*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (432), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (406), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (254), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (174), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (82).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (255, Fig. 196 & plate 7), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (174), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (84, Fig. 12).

Habit. Perennial. Culms erect or geniculately ascending, 4–75 cm tall. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades 4–24 cm long, 1–7 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 2.8–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–14), comprising 4–14 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 13–45 mm long.

Glumes. Lower glume lanceolate, membranous, without keels or keeled, (1–)3–4(–5) -nerved. Lower glume surface indumented. Upper glume lanceolate, (7.8–)8–11.5 mm long, membranous, without keels or keeled, 5–7(–9) -nerved. Upper glume surface indumented.

Florets. Fertile lemma 9.3–18 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, (6.5–)9–15 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia and North America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Carnarvon, Austin. Eucla, Irwin, Drummond, Dale, Menzies, Eyre, Roe, Avon, Coolgardie. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges,

Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Maranoa, Warrego. **New South Wales:** North Coast, Central Coast, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Snowfields, Volcanic Plain. **Tasmania:** East Coast.

Notes. Native. Across southern Australia, predominantly in W.A. and offshore islands, SW N.S.W., with a few scattered collections in S.A., Vic. and Qld. Introduced in America, South Africa and New Zealand (?). Commonly in grasslands and shrublands on sand, sandy loam or cracking clay, along dry creeklines, lake beds or floodplains liable to periodic inundation; or in soil pockets in rocky outcrops. Flowers Aug.-Dec. Fruits Aug.-Jan.

Bromus brevis* Steud. *Symb. Bot.* 2: 22 (1791). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: HT: *Gillies s.n.*, Argentina: Mendoza (?; IT: K(fragm., US)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (174), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (89).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (174).

Habit. Perennial. Culms 15–75 cm tall. Lateral branches simple. Leaf-sheaths hairy. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades flat or conduplicate, 5–26 cm long, 1–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic or oblong, 2–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–12), comprising 6–12 fertile floret(s), with diminished florets at the apex, lanceolate or elliptic or oblong or ovate, laterally compressed, (9–)11–24 mm long.

Glumes. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5(–7) -nerved. Upper glume lanceolate, 6.6–9 mm long, membranous, keeled, 1-keeled, 5–9 -nerved.

Florets. Fertile lemma 8–14 mm long, keeled, 5–9 -nerved. Lemma surface glabrous or indumented. Lemma apex mucicous or mucronate or awned, 1 -awned. Median (principal) awn subapical, 0.3–2 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: New South Wales, Tasmania.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes. **Tasmania:** East Coast.

Notes. Introduced. N.S.W. and from two sites in southern Tas. Native of S. America. Flowers Aug.-Jan.

Bromus catharticus* Vahl. *Symb. Bot.* 2: 22 (1791). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *P. Commerson s.n.*, no date, Peru: Lima (US-865523). LT designated by Pinto-Escobar, *Caldasia* 11(54): 9–16 (1976); also discussed in *Bot. Jahrb. Syst.* 102: 447 (1981); and Hitchcock, *Amer. J. Bot.* 21: 127 (1934).

Recent synonyms: *B. unioides*, *B. willdenowii*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (662 as *Ceratochloa unioides*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (104 as *Ceratochloa cathartica*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (407), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (256), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (174), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (90).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (103, Pl.29 as *Ceratochloa*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (81 as *B. catharticus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (256, Fig. 197), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (174), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (84, Fig. 12).

Habit. Perennial. Culms erect or geniculately ascending, 80–100 cm tall. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades 10–30 cm long, 3–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, effuse, 10–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–12), comprising 6–12 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 16–40 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 5–9 -nerved. Upper glume lanceolate, 11–17 mm long, chartaceous, keeled, 1-keeled, 9–13 -nerved.

Florets. Fertile lemma 12–20 mm long, keeled, 9–13 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn subapical, 1–9 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Menzies, Warren, Avon. **South Australia:** Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Mitchell, Moreton, South Kennedy, Warrego, Wide Bay, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, Midlands, East Coast.

Notes. Introduced. All states except the N.T., also Lord Howe Is. Native of S. America. Widespread in disturbed areas. Flowers Oct.-Jan.

Bromus cebadilla* Steud. *Syn. Pl. Glum.* 1:321 (1854). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: ST: *C.G. Bertero 117*, 1828, Chile: Juan Fernandez Islands: Rancagua (P; IT: US-865524 (fragm. ex P)). Also type of *Bromus stamineus* E. Desv..

ST: *Bertero 118*,

ST: *Bertero 861*,

ST: *Bertero 1411*,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (90).

Habit. Perennial. Culms 130 cm tall. Leaf-blades 15–43 cm long, 3–7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle loose, 11.5–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–10), comprising 6–10 fertile floret(s), elliptic, (1.5–)20–30 mm long.

Glumes. Lower glume lanceolate, keeled, 5–7 -nerved. Upper glume lanceolate, 9.7–13.9 mm long, keeled, 7–9 -nerved.

Florets. Fertile lemma 11–14 mm long, keeled, 7–9 -nerved. Lemma apex awned. Median (principal) awn subapical, (2–)3–10 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Eastern Highlands, Midlands, Wannon. **Tasmania:** East Coast.

Notes. Spikelet indumentum somewhat variable.

Introduced. Occasionally recorded from Vic. and A.C.T., apparently common in and near Hobart, Tas. Native of S. America. Flowers Nov.-Jan.

Bromus commutatus*

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (85).

Bromus diandrus* Roth. *Symb. Bot.* 2: 22 (1791). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: NT: *Gr. Bromoides, locustis maximus, lanuginosum, Italicum. Hist. Nat.: 261, no. 444, (OXF (Scheuzer Herb.)).* NT designated by Sales, Edinb. *J. Bot.* 50(1): 8 (1993).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (98 as *Bromus gussonii*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (432), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (407), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (256), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (175), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (86).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (97, Pl.27 as *B. gussonii*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (257, Fig. 198), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (175).

Habit. Annual. Culms erect or geniculately ascending, 35–150 cm tall, 3–6 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 3–6 mm long, lacerate. Leaf-blades 4–25 cm long, 2–8 mm wide. Leaf-blade surface scaberrulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 6.5–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–8), comprising 5–8 fertile floret(s), with diminished florets at the apex, obovate or cuneate, laterally compressed, (20–)27–60 mm long.

Glumes. Glumes dissimilar. Lower glume linear, chartaceous, without keels or keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 20–45 mm long, chartaceous, without keels or keeled, 1-keeled, 3(–5) -nerved.

Florets. Fertile lemma 17–45 mm long, without keel or keeled, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn apical or subapical, 35–75 mm long overall. Lodicules present. Anthers 2–3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Carnarvon. Irwin, Drummond, Dale, Menzies, Avon. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, Midlands, East Coast, South West.

Notes. Introduced. Tas., N.S.W., A.C.T., Vic., W.A. and S.A., also Lord Howe Is. Native of the Mediterranean and western Asia, widely naturalized. Widespread, a weed of disturbed sites and crops. Flowers Sept.-Dec.

Bromus hordeaceus* Linn. *Sp. Pl.* 1: 77 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Morison, Pl. Hist. Univ.* 3: s. 8, pl. 7, f. 18 (1699), LT designated by Smith in Cafferty et al., *Taxon* 49(2): 248 (2000).

ET: (LINN-93.7). ET designated by Smith in Cafferty et al., *Taxon* 49(2): 248 (2000).

NT: *Anon.*, (LINN-93.7). NT designated by P.M. Smith, *Notes Roy. Bot. Gard. Edinb.* 42: 499 (1985), but not correct as there is original material [see Smith in Cafferty et al., *Taxon* 49(2): 247 (2000)].

Recent synonyms: *B. mollis*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (96 as *Serrafalcus hordeaceus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (407), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (257), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (175), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (85).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (97, Pl.27 as *Serrafalcus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (258, Fig. 199 as subsp. *hordeaceus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (175), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (84, Fig. 12, 91, Fig.13).

Habit. Annual. Culms erect or geniculately ascending, 5–108 cm tall, 2–9 -noded. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–3 mm long, erose. Leaf-blades (3.5–)5–22 cm long, (2–)3–7 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong or ovate or obovate, 1.5–16 cm long, 0.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–12), comprising 6–12 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 12–22 mm long.

Glumes. Glumes similar. Lower glume oblong or ovate, chartaceous, without keels, 3–7 -nerved. Upper glume elliptic, 5–9 mm long, chartaceous, without keels, 5–9 -nerved.

Florets. Fertile lemma 7–11 mm long, without keel, 7–9 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 3–10 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Dale, Menzies, Eyre, Avon. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton, Warrego. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Midlands, East Coast.

Notes. 1(0). Glume nerves obscure **4a.** subsp. **hordeaceus**

Glume nerves prominent **4b.** subsp. **molliformis**.

Introduced.

subsp. **hordeaceus**

In all states but the N.T. Native of Europe and Asia, naturalized in many countries. A weed of disturbed areas, crops, pasture and gardens.

subsp. **molliformis**

Native of the Mediterranean. Widespread, often occurring as a weed in pastures. Flowers Oct.-Nov. Fruits Oct.-Jan.

Bromus inermis* Leyss. *Fl. Halens.* 16 (1761). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: In pratis fertilibus succulentis Pomariis in den Pulverweiden im Amstgarten ad Belberg Crollwitz et alibi frequens,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (175), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (89).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (175).

Habit. Perennial. Rhizomes present, elongated. Culms 30–123 cm tall. Mid-culm internodes pubescent. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane. Leaf-blades 10–40 cm long, 4–11 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense, 10–28 cm long, 4–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–13), comprising 5–13 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 15–30 mm long.

Glumes. Lower glume lanceolate, membranous, without keels, 1 -nerved. Upper glume lanceolate, 6–11 mm long, membranous, without keels or keeled, 3 -nerved.

Florets. Fertile lemma 8–13.5 mm long, without keel or keeled, 5–7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn subapical or from a sinus, 2.5–10 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains.

Notes. Cultivated as a fodder crop in parts of E and eastern central Europe, but of no economic importance in Australia.

Introduced. Naturalized in N.S.W. Native of Europe. Grows in disturbed areas. Flowers Nov.

Bromus lithobius* Trin. *Linnaea* 10: 303 (1836). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: HT: *E.F. Poppig s.n. mis. [Kunze]*, Dec. 1828, Chile austr.: in lapidosis Andium de St. Rosa (LE-TRIN-2951.02; IT: US-865494 (fragm. ex W), W).

IT: *Kunze*, Chil. austr.: Antuco (LE-TRIN-2951.01). *mis e plantis Poppigii* 1832 : Pg. coll. III. 41.

Recent synonyms: *B. fonkii*, *B. cebadilla* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (258), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (86).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (258, Fig. 200).

Habit. Perennial. Culms 25–80 cm tall. Lateral branches simple. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 4 mm long. Leaf-blades 9–33.5 cm long, 2–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–9), comprising 4–9 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 14–27 mm long.

Glumes. Lower glume lanceolate, membranous, keeled, 1-keeled, 5 -nerved. Lower glume surface indumented. Upper glume lanceolate, 7–9.7 mm long, membranous, keeled, 1-keeled, 7 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 8–11.5 mm long, keeled, 7 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn apical or subapical, 3–6 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: South-eastern. **New South Wales:** Southern Tablelands. **Victoria:** Eastern Highlands, Gippsland Plain, Midlands, Riverina. **Tasmania:** East Coast.

Notes. Introduced. Naturalized in Vic. in a few localities mainly near Melbourne and also in Tas. Also known from a collection from the southern tablelands, N.S.W., and a cultivated specimen from W.A. Native to central and southern America. Flowers Oct.-Jan.

Bromus madritensis* Linn. *Cent. Pl.* 1 :5 (1755). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Loefling s.n.*, Spain: manifesto prope Madritum (LINN-93.55). LT (as NT) designated by P.M. Smith, Notes Roy. Bot. *Gard. Edinb.* 43: 500 (1985).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (99), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (259), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (408), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (175), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (87).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (259, Fig. 201), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (175), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (91, Fig.13).

Habit. Annual. Culms erect or geniculately ascending, 10–60 cm tall, 2–4 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 1.5–4 mm long, lacerate. Leaf-blades 3–20 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2.5–15 cm long, 1.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–13), comprising 4–13 fertile floret(s), with diminished florets at the apex, obovate or cuneate, laterally compressed, 20–45 mm long.

Glumes. Glumes dissimilar. Lower glume linear, chartaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 8–15 mm long, chartaceous, without keels or keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 12–19 mm long, without keel, 7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 10–22 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Moreton. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands.

Notes. Introduced. Native of the Mediterranean, widely naturalized in temperate countries. Typically on sandy soil, or dry, rocky areas. Flowers Aug.-Dec.

Bromus molliformis*

Classification. Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (95 as *Serrafalcus molliformis*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (176).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (176).

Bromus racemosus* Linn. *Sp. Pl.* ed. 2: 114 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Anon.*, (LINN-93.31). LT designated by P. M. Smith, *Notes Roy. Bot. Gard.* 42: 499 (1985).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (176), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (83).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (176).

Habit. Annual. Culms erect or geniculately ascending, 10–150 cm tall, 2–7(–9) -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–3 mm long, erose. Leaf-blades 5–20 cm long, 2–5(–8) mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, dense, 4–33.5 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–9), comprising 4–9 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 10.5–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, chartaceous, without keels, 3–5 -nerved. Upper glume elliptic, 4.5–8 mm long, chartaceous, without keels or keeled, 5–9 -nerved.

Florets. Fertile lemma 6.5–8.3 mm long, without keel, 7–9 -nerved. Lemma surface glabrous. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 3.5–10 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales, Victoria.

New South Wales: South Coast, Northern Tablelands. **Victoria:** Gippsland Plain, East Gippsland.

Notes. Introduced. N.S.W. with a single collection seen from S.A. and two from Vic. Native of much of Europe. In disturbed, often swampy ground. Flowers Nov.-Dec. Fruits Dec.-Jan.

Bromus rubens* Delile, *nom nud. Cent. Pl.* 1: 5 (1755). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Loefling 84*, Spain (LINN-93.28). LT (as NT) designated by P.M. Smith, *Notes Roy. Bot. Gard. Edinb.* 43: 500 (1985).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (99), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James,

Grasses of South Australia (260), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (176), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (88).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (260, Fig. 202), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (176).

Habit. Annual. Culms erect or geniculately ascending, 5–42 cm tall. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades (1.7–)4–12 cm long, 2–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or obovate, 2–10 cm long, 2–5 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, elliptic or ovate or cuneate, laterally compressed, 15–30 mm long.

Glumes. Lower glume linear, membranous, much thinner on margins, without keels, 1 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 7–13.5 mm long, membranous, without keels or keeled, 3 -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 10–17 mm long, without keel or keeled, 5–7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 7–23 mm long overall. Lodicules present. Anthers 3. Grain 8–11 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Irwin, Dale, Eyre, Roe, Avon, Coolgardie. **South Australia:** Nullabor, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Warrego. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. Introduced. Native of the Mediterranean. Widespread, favours disturbed sites, generally on sandy soils. Flowers July-Dec.

Bromus scoparius*

Bromus secalinus* Linn. *Sp Pl*: 76 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: CT: *Anon.*, (LINN-93.1). NT designated by P. M. Smith, Notes Roy. Bot. Gard. Edinburgh 42: 498 (1985); CT proposed by Jarvis, *Taxon* 41: 559 (1992).

ST: *van Royen s.n.*, (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (176), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (86).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (176).

Habit. Annual. Culms erect, 20–120 cm tall, 5–7 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2 mm long, erose. Leaf-blades 10–25 cm long, 4–10 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–11), comprising 4–11 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 10–25 mm long.

Glumes. Glumes dissimilar. Lower glume oblong or ovate, coriaceous, without keels, 3–5 -nerved. Upper glume elliptic or ovate, 5–8.5 mm long, coriaceous, without keels or keeled, 5–7 -nerved.

Florets. Fertile lemma 6–10 mm long, without keel, 7–9 -nerved. Lemma surface glabrous. Lemma apex muticous or awned, 1 -awned. Median (principal) awn subapical, 0–8 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands, Central Tablelands.

Notes. Introduced. Native of the Mediterranean. Disturbed areas. Flowers Dec-Jan.

Bromus sterilis* Linn. *Sp. Pl.* 77 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Loefling* 82, Spain (LINN-93.19). LT designated by Smith, *Notes Roy. Bot. Gard. Edinburgh* 42:500 (1985). According to Veldkamp, *Blumea* 35: 497 (1991) this is a mistake as the specimen represents *Bromus diandrus* Roth..

CT: *C.E. Hubbard* 9045, 15 Jun 1932, England: Surrey: Tothill, near Headley, scattered plants in derelict hay-field on heavy soil overlying chalk (E; INT: K). CT proposed by Sales, *Taxon* 41: 584 (1992).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (662), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (177), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (87).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (177).

Habit. Annual. Culms erect or geniculately ascending, 12–100 cm tall, 3–5 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 2–4 mm long, erose. Leaf-blades 5–20 cm long, 2–7 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 3–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–10), comprising 4–10 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 20–35 mm long.

Glumes. Glumes dissimilar. Lower glume linear, chartaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 7.5–20 mm long, chartaceous, keeled, 1-keeled, 3(–5) -nerved.

Florets. Fertile lemma 8–25 mm long, without keel or keeled, 5–7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 15–40 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, New South Wales, Victoria, Tasmania.

Western Australia: Dale. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Riverina. **Tasmania:** Midlands, East Coast.

Notes. Introduced. Flowers Nov.-Jan. Fruits Dec.-Jan.

Bromus tectorum* Linn. *Sp. Pl.* 77 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Bromeae.

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-93.25). LT designated by Smith, *Notes Roy. Bot. Gard. Edinb.* 42: 500 (1985).

Recent synonyms: *B. tectorum* var. *hirsutus*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178 as *Bromus tectorum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (177), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (88).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (177).

Habit. Annual. Culms erect or geniculately ascending, 5–60 cm tall, 2–5 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 2–5 mm long, lacerate. Leaf-blades 2–16 cm long, 1.5–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–8), comprising 1–8 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 10–25 mm long.

Glumes. Glumes dissimilar. Lower glume linear, chartaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 6–13 mm long, chartaceous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 9–16 mm long, without keel or keeled, 3–7 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 10–25 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Coast, Southern Tablelands, South-Western Plains. **Victoria:** Gippsland Plain, Riverina, Volcanic Plain.

Notes. Introduced. Weed of disturbed areas. Flowers Sept.-Dec. Fruits Sept.-Dec.

Calamagrostis epigejos* (L.) Roth. *Tent. Fl. Germ.* 1: 34 (1788). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Arundo epigeios* L., *Sp. Pl.* 1: 81. 1753.

Type of Basionym or Protologue Information: HT: (LINN (photo GH)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (237).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (236, Fig.33).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 60–200 cm tall, 2–3 -noded. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–12 mm long, lacerate, truncate. Leaf-blades flat or involute, 10–70 cm long, 3–14 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate to oblong, 15–30 cm long, 3–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 4.5–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4.5–5 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 2–4 mm long, without keel, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 3–4 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: Tasmania.

Tasmania: East Coast.

Notes. Recorded only near Copping in SE Tas. Native to Europe, Asia and Africa.

Calypsochloa gracillima C. E. Hubbard. *Hooker's Icon. Pl.* 33: t. 3210, 1–3 (1933). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *H.S. Bloxsome s.n.*, 1931, Australia: Queensland (K; IT: US-1539929 (fragm. ex K)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (144).

Habit. Perennial. Stolons present. Culms decumbent, 10–30 cm tall, wiry. Mid-culm internodes pilose. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaves cauline. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.25–0.4 mm long. Leaf-blades linear to lanceolate, 1.2–4 cm long, 2–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme (spike-like). Racemes 1, 1–1.5 cm long, bearing 5–7 fertile spikelets on each.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–5.1 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume surface glabrous or indumented. Upper glume ovate, 3.4–4.7 mm long, herbaceous, without keels, 7 -nerved. Upper glume surface tuberculate, indumented.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, herbaceous, 5–9 -nerved.

Fertile lemma 2.4–4 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–3 mm long overall. Palea 2 -nerved, without keels. Lodicules present. Grain 1.6–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, North Kennedy, Port Curtis, South Kennedy.

Notes. This species has been poorly collected and intensive fieldwork is needed to fully reveal the range in morphological variation. The cleistogamous spikelets are sessile and occur singly or in pairs in the upper axils. These spikelets are c. 5.5 mm long and differ in shape and lack the setae of the chasmogamous spikelet. A well-formed caryopsis is always present.

In Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Jan.-Aug.

Capillipedium parviflorum (R.Br.) Stapf. *Fl. Trop. Afr.* 9: 169 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Holcus parviflorus* R. Br., *Prodr.* 199 (1810).

Type of Basionym or Protologue Information: Australia:..

Key references (books and floras): [1810]. R.Brown, *Prodromus* (199 as *Holcus parviflorus*), [1878] G.Bentham, *Flora Australiensis* 7 (537 as *Chrysopogon parviflorus*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (25), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (178).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (83), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (178).

Habit. Perennial. Culms erect or geniculately ascending, 50–150 cm tall. Lateral branches simple or sparsely branched. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades 10–30 cm long, 2–7 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle oblong, 8–25 cm long, 2.5–9 cm wide. Racemes bearing 1(–2) fertile spikelets on each. Rhachis obsolete or evident.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster or 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 2.5–3.8 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong, dorsally compressed, 2.8–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, membranous, keeled, 2-keeled, 6 -nerved. Upper glume ovate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned. Median (principal) awn 10–16 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes.

Notes. Widespread in *Eucalyptus* woodlands of subtropical and tropical Eastern Australia and a few records from central NSW, tropical N.T. and W.A. Extends to tropical Africa and Asia. Flowers Nov.--Aug.

Capillipedium spicigerum S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 2(3): 43 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Queensland: Moreton Dist., 2 June 1940, S.T. Blake 14267 (HT: ?; IT: L, US-1865562).

Key references (books and floras): [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (26), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (178).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (146), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (83), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (178).

Habit. Perennial. Culms 100–150 cm tall. Lateral branches simple. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades 20–40 cm long, 5–8 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate or ovate, 10–25 cm long, 5–7 cm wide. Racemes 3–8 cm long, bearing 3–8 fertile spikelets on each. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 2.5–4 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or oblong, dorsally compressed, 3–4.2 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, membranous, keeled, 2-keeled, 8–9 -nerved. Lower glume surface indumented. Upper glume ovate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50–75 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned. Median (principal) awn 12–18 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.7–2.8 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Widespread in *Eucalyptus* forests and woodlands of tropical, subtropical and rarely temperate eastern Australia. One record from N.T. Extends to New Guinea, the Philippines and New Caledonia. Flowers Nov.--Sept.

Catapodium marinum* (L.) C. E. Hubbard. Kew Bulletin 375 (1954). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca marina* L., *Amoen. Acad.* 4: 96 (1759).

Type of Basionym or Protologue Information: LT: *Newton s.n.*, ex Herb. Plukenet in Herb. Sloane, Hortus Siccus 84: 87 verso (BM). LT designated by Stace & Jarvis, Bot. J. Linn. Soc. 91: 440 (1985).

Recent synonyms: *Desmaziera marina*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (296).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 3–24 cm tall. Ligule an eciliate membrane, 0.5–3 mm long, erose, acute. Leaf-blades flat, 1–10 cm long, 1–3.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence solid, a raceme. Panicle linear or oblong, 0.5–7 cm long, 0.4–1.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–12), comprising 4–12 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, coriaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 2–3.5 mm long, coriaceous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 2.4–3.8 mm long, keeled, 5 -nerved. Lemma surface glabrous. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, and Temperate Asia.

Australian Distribution: Victoria, Tasmania.

Victoria: Gippsland Plain. **Tasmania:** King Island, North West.

Notes. Introduced. Recorded from NW Tas., 1 record in Vic. and also from W.A. Native to Europe and the Mediterranean. Coastal in sandy soils. Flowers Sept.-Dec. Fruits Dec.-Jan.

Catapodium rigidum* (L.) C. E. Hubbard. Dony, *Fl. Bedford.* 437 (1953). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa rigida* L., *Flora Anglica* 10 (1754).

Type of Basionym or Protologue Information: LT: *Bauhin, C., Prodr. icon.* 6 (1620), LT designated by Stace in Cafferty et al., *Taxon* 49(2): 256 (2000).

LT: *Anon.*, (LINN-87.37). LT designated by Stace & Jarvis, Bot. J. Linn. Soc. 91: 439 (1985), but this lectotypification is ineffective as the specimen is not original material [fide Cafferty et al., *Taxon* 49(2): 256 (2000)].

Recent synonyms: *Desmaziera rigida*, *Scleropoa rigida*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (99 as *Scleropoa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (406 as *Desmazeria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (116), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (196 as *Desmazeria*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (296).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (101, Pl.28), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (117, fig. 76), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (85), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (196 as *Desmazeria rigidum*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (298, Fig. 40).

Habit. Annual. Culms erect or geniculately ascending, 2–34 cm tall, 2–5 -noded. Ligule an eciliate membrane, 1–3 mm long, obtuse. Leaf-blades flat, 1–15(–27) cm long, 0.5–4.7 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear or lanceolate or elliptic or ovate, dense or loose, 1–10 cm long, 0.5–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.8–10.2 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, coriaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, 1.3–2.2 mm long, coriaceous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.8–3 mm long, without keel, 5 -nerved. Lemma surface glabrous. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Eyre, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, South-Western Slopes, North Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, East Coast.

Notes. Introduced. Native in Europe and the Mediterranean, including north Africa, introduced to the Americas and southern Africa. In dry habitats, often sand or sandy soil, often coastal. Flowers July–Nov. Fruits Nov.–Mar.

Cenchrus biflorus* Roxb. *Fl. Indica* 1: 238 (1820). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Roxburgh s.n.*, India: "A native of the interior, elevated, dry parts of the Coromandel Coast." (BM).

Recent synonyms: *C. barbatus*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms geniculately ascending, 5–90 cm tall. Mid-culm internodes hollow, thin-walled, glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches branched. Leaves basal and cauline. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 1.3–2 mm long. Leaf-blades linear or lanceolate, 2–25 cm long, 2–7 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, 2–15 cm long. Racemes 2–15 cm long.

Spikelets. Spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below (2–4mm diam). Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5–6 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 0–1 -nerved. Upper glume ovate, 2.5–3.5 mm long, membranous, without keels, 1–5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 70–80 % of length of spikelet, membranous, 3–5 -nerved, muticous or mucronate.

Fertile lemma 3.5–6 mm long, without keel, 5 -nerved. Anthers 3. Grain 1.1–1.3 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Dampier. **Northern Territory:** Victoria River, Barkly Tableland. **Queensland:** Warrego.

Notes. Introduced. In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, and arid tussock grasslands. Flowers Apr.–Aug.

Cenchrus brownii* Roem. & Schult. *Syst. Veg.* 2: 258 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *R. Brown s.n.*, Australia (BM; IT: US (fragm.)).

Recent synonyms: *Cenchrus inflexus*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197 as *Cenchrus inflexus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms geniculately ascending, 25–110 cm tall. Ligule a fringe of hairs, 0.6–1.3 mm long. Leaf-blades 8–40 cm long, 4–13 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear or oblong, 3–12 cm long, 1.5 cm wide. Racemes 3–12 cm long, 1.5 mm wide.

Spikelets. Spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4–6 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 1 -nerved. Upper glume ovate, 2.2–4.9 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 80–90 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 4–6 mm long, without keel, 5 -nerved. Anthers 3. Grain 1.9–2.6 mm long.

Continental Distribution: Africa, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. Introduced. In tropical and subtropical sub-humid woodlands. A rare escapee of no economic importance. Flowers Apr.-June.

Cenchrus caliculatus Cav. *Icon. Descr. Pl.* 5: 39 (1799). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Society Islands: Baba, *Née s.n.* (HT: MA) "Amicorum insula" = Friendly Islands ?.

Recent synonyms: *C. australis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197 as *Cenchrus australis*), [1878] G.Bentham, *Flora Australiensis* 7 (497as *Cenchrus australis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (179).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (87), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (179).

Habit. Perennial. Rhizomes present. Stolons present. Culms stature robust to moderate, 40–200(–300) cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1–1.6 mm long. Leaf-blades 14–56 cm long, 3–19 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, loose (internodes 1–3.2mm), 8.2–23.5 cm long, 1–2.8 cm wide. Racemes 8.2–23.5 cm long, 1–2.8 mm wide.

Spikelets. Spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.8–6.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume ovate, 2.4–4.8 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.8–6.1 mm long, without keel, 3 -nerved.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, New South Wales, Norfolk I.

Queensland: Burke, Burnett, Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Leichhardt. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes.

Notes. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and arid and semi-arid low woodlands. Flowers Dec.-May.

Cenchrus echinatus* Steud. ex Doell, in syn. *Sp. Pl.* 1050 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Herb. van Royen*, (L-912.356–116; ILT: L). LT designated by Veldkamp in Jarvis et al., *Regnum Veg.* 127: 31 (1993); not Hitchcock, *Contr. U.S. Natl. Herb.* 12: 127 (1908). ST: *Dickinson s.n.*, Bermuda (BM-SL).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (286), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (479), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (432), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (180).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (287, Pl. 83), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (87), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (434, Fig. 363), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (180).

Habit. Annual or perennial. Rhizomes absent or present. Stolons absent. Culms geniculately ascending, 10–90 cm tall. Ligule a fringe of hairs, 0.8–1.4 mm long. Leaf-blades 4–25 cm long, 3–10 mm wide.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, 2–10 cm long. Racemes 2–10 cm long.

Spikelets. Spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 5–7 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume ovate, 3.8–5.7 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 5–7 mm long, without keel, 5 -nerved. Grain 3 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Fitzgerald, Dampier, Canning, Carnarvon, Irwin, Drummond, Avon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast.

Notes. A widespread noxious weed, morphologically similar to and easily confused with *C. brownii*. It generally has larger, wider-spaced burrs, straighter spines and relatively small lower bristles.

Introduced; W.A., N.T., Qld, and N.S.W. In temperate rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, eucalypt shrublands, arid tussock grasslands, arid hummock grasslands, coastal grasslands, and tropical sub-humid grasslands. Flowers sporadically throughout the year.

Cenchrus longispinus* (Hackel) Fernald. *Rhodora* 45: 388 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *C. pauciflorus* var. *longispinus* Hack., *Allg. Bot. Z. Syst.* 9: 169 (1903).

Type of Basionym or Protologue Information: LT: *Kneucker 426* [= *Harger 426*], 13 Aug 1902, USA: Connecticut: Oxford (ISC-227735; ILT: US-557281). LT designated by DeLisle, Iowa St. J. *Sci.* 37: 298 (1963).

Recent synonyms: *C. tribuloides* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (288 as *C. tribuloides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (435), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (180).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (289, Pl.84 as *C. tribuloides*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (435, Fig. 365), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (180).

Habit. Annual. Rhizomes absent. Stolons absent. Culms geniculately ascending or decumbent, 9–90 cm tall. Ligule a fringe of hairs, 0.6–1.7 mm long. Leaf-blades 6.3–18.7 cm long, 3–7.2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, dense (internodes 2–5mm), 4.1–10.2 cm long, 1.2–2.2 cm wide. Racemes 4.1–10.2 cm long, 1.2–2 mm wide.

Spikelets. Spikelets sessile, 2–3 in the cluster. Involucre composed of bristles, connate into a cup below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 6–7.8 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume ovate, 4.4–6 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 80 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 5.8–7.6 mm long, without keel, 3 -nerved.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Avon. **Northern Territory:** Central Australia South. **South Australia:** Flinders Ranges, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burnett, Darling Downs, Maranoa, Moreton. **New South Wales:** North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** Gippsland Plain, Murray Mallee, Riverina.

Notes. It is frequently difficult to distinguish this species from *C. incertus*. *Cenchrus longispinus* typically has longer spikelets, large burr, longer and more numerous spines. These species appear to intergrade and it may be appropriate to treat *C. longispinus* as a variety of *C. incertus*; however, intensive studies of the American material are needed before this decision can be made. Both species are noxious weeds of no commercial value.

Introduced. In temperate rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, and tropical sub-humid grasslands. Flowers Jan.-July.

Cenchrus robustus R.D. Webster. *Austral.Paniceae* 27(1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: T: Queensland, Kaban via Ravenshoe, [June 1950] *G.R. Walsh s.n.* (BRI, holotype).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (181).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (181).

Habit. Perennial. Rhizomes present, short. Stolons absent. Culms erect, 40–100 cm tall, 10–20 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades 6–22 cm long, 3–7 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, 4–8 cm long. Racemes 4–8 cm long.

Spikelets. Spikelets sessile, 1–2 in the cluster. Involucre composed of bristles, connate into a disc below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7.3–9 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, hyaline or membranous, without keels, (0–)1 -nerved. Upper glume ovate, 2.8–4.1 mm long, membranous, without keels, 1–3 -nerved. Upper glume surface asperulous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 7.5–9 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Burke, North Kennedy, Burnett, Wide Bay, Moreton.

Notes. *Cenchrus robustus* is closely related to *C. caliculatus* however, it has significantly larger burrs and spikelets. This species is only known from few collections.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers Feb.-Oct.

Cenchrus spinifex* Cav. *Icon.* 5: 38, t. 461 (1799). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Hab. in Regne chilensi iuxta fundum Longavi, neonon prope Montavideol.,

Recent synonyms: *Cenchrus incertus* M. A. Curt., *Boston J.Nat. Hist.* 1: 135 (1837); *C. pauciflorus*, *C. tribuloides* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (286 as *C. incertus*, 288 as *C. pauciflorus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *C. incertus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (434 as *C. incertus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (as *C. incertus*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (287, Pl.83 as *C. incertus*, 289, Pl.84 as *C. pauciflorus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (434, fig. 364), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (180 as *C. incertus*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 5–80 cm tall. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades 2–18 cm long, 2–6 mm wide.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, 2–8.5 cm long, 0.8–2 cm wide. Racemes 2–8.5 cm long, 0.8–2 mm wide.

Spikelets. Spikelets sessile, 2–4 in the cluster. Involucre composed of bristles, connate into a cup below (cleft on 2 sides). Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5–5.8 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume ovate, 2.8–5 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 3.4–5.8 mm long, without keel, 3 -nerved. Anthers 3. Grain 1.3–3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Drummond. **South Australia:** Eyre Peninsula, Northern Lofty, Murray. **Queensland:** Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Riverina.

Notes. Introduced. In temperate rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, and tropical sub-humid grasslands. Flowers Dec.-May.

Centotheca lappacea (L.) Desv. *Nouv. Bull. Sci. Soc.Philom. Paris* 2: 189 (1810). **Classification.** (GPWG 2001) : Subfamily Centothecoideae. Tribe Centotheceae.

Basionym and/or Replacement Name: *Cenchrus lappaceus* L.*Sp. Pl. (ed. 2)*, 1488 (1763).

Type of Basionym or Protologue Information: LT: (LINN-1212–15). LT designated by ?; cited by Monod de Friodville, *Blumea* 19: 59 (1971).

Recent synonyms: *C. latifolia*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (640), [1969] E.E.Henty, *Manual Grasses New Guinea* (47), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–100 cm tall. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades lanceolate, 8–12 cm long, 15–20 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–25 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2–3 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed or terete, 5–8 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex mucronate. Upper glume oblong, 3.2 mm long, herbaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 3–3.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex mucronate. Palea 2 -nerved. Lodicules present. Anthers 2.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Northern Qld. From Africa to Polynesia and Australia. In lowland rainforest near water, usually on the edge of streams or in swamps. Flowers recorded all months except Jan., Mar., Sept. & Nov.

Centotheca philippinensis (Merr.) Monod de Froideville. *Bull. Tokyo Sci. Mus.* 18: 10 (1947).

Classification. (GPWG 2001) : Subfamily Centothecoideae. Tribe Centotheceae.

Basionym and/or Replacement Name: *Ramosia philippinensis* Merr. *Philipp. J. Sci.* 11: 2 (1916).

Type of Basionym or Protologue Information: HT: *Ramos BS 23607*, [Aug 1915], Philippines (PNH+; IT: K, L).

Recent synonyms: *C. longilamina*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending, 21–100 cm tall. Mid-culm internodes solid. Lateral branches branched. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 2.5–15.5 cm long, 3–12 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–20 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1–3 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed or terete, 4–8 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate or elliptic or ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume oblong, 3.1–3.8 mm long, herbaceous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 3.1–4.2 mm long, without keel, 5–7 -nerved. Lemma surface glabrous or indumented. Lemma apex mucronate. Lodicules present. Anthers 2.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. In northern Qld. Philippines, New Guinea and Australia. Usually in forest openings, near water, on the edge of creeks, rivers, swamps. Flowers May–July, Sept.–Oct.

Chamaeraphis hordeacea R. Br. *Prodr.* 193 (1810. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: T: *R. Brown 8059*, Australia ((fragm., US-865695)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (194), [1878] G.Bentham, *Flora Australiensis* 7 (499 as *Chamaerhaphis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 25–60 cm tall. Ligule a fringed membrane, a ciliolate membrane, 0.8–1.2 mm long. Leaf-blades 3–10 cm long, 2–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes numerous, 20–60 cm long. Central inflorescence axis 3–5.5 cm long. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear, dorsally compressed, 6–8.2 mm long.

Glumes. Upper glume linear, 6–8.2 mm long, coriaceous, keeled, 2-keeled, 7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 7–9(–11) -nerved.

Fertile lemma 3.3–6 mm long, without keel, 3 -nerved. Lemma surface glabrous. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland. **Queensland:** Burke.

Notes. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Feb.–July.

Chionachne cyathopoda (F.Muell.) F. Muell. ex Benth. *Fl. Austral.* 7: 516 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sclerachne cyathopoda* F. Muell., *Fragm.* 8: 116 (1873).

Type of Basionym or Protologue Information: LT: *F. von Mueller s.n.*, Dec 1855, Australia: Northern Territory: Victoria River, Sandy Island (MELB; ILT: K, L (fragm.)). LT designated by Henrard, Meded. Rijks-Herb. 67: 12, 17 (1931).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (516), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (356), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (355, Pl. 103), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (152).

Habit. Perennial. Rhizomes present, elongated. Culms erect, stature reed-like, 200–400 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane, 1–1.5 mm long, membranous. Leaf-blades 13–60 cm long, 10–30 mm wide.

Inflorescence. Inflorescence compound, composed of racemes. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Companion spikelets rudimentary, 1 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 15 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled, winged on keel. Upper glume ovate, cartilaginous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 3 -nerved. Fertile florets female.

Fertile lemma 8–12 mm long, without keel, 1 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Victoria River. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. New Guinea and tropical Australia to subtropical Qld. Found on stream banks or wetter sites on sandy or loamy soils. Eaten to some extent by stock, although coarse. Flowers all year but mainly Feb.--July.

Chionachne hubbardiana Henrard. *Blumea* 3: 162 (1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *F. von Mueller s.n.*, Australia: Queensland: Sturt's Creek (K; IT: L (fragm.), MELB).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (515 as *Chionachne barbata*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (357), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature robust to moderate, 30–100 cm tall. Mid-culm internodes hispid. Mid-culm nodes bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 20 mm long, membranous, ciliate from base of abaxial surface, lacerate. Leaf-blades 6–40 cm long, 5–15 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Male spikelets sessile and pedicelled, 2 in a cluster. Companion spikelets rudimentary, 1 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 6–11 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled, winged on keel, winged broadly. Upper glume ovate, cartilaginous, keeled, 2-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile florets female.

Fertile lemma without keel, 3 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy.

Notes. Endemic to tropical Australia. Grows in the wetter areas of black soil plains when it may become a weed in irrigation channels. Good fodder in -the early stages. Flowers Nov.--June.

Chionochloa frigida (Vickery) Conert. *Senckenbergiana biol.* 56:154 (1975). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia frigida* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 298 (1950).

Type of Basionym or Protologue Information: Australia, *Vickery s.n.* (HT: NSW-1097).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (182).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 3, I-K), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (182).

Habit. Perennial. Culms erect, 60–120 cm tall. Mid-culm nodes glabrous. Leaves mostly basal. Ligule a fringe of hairs, 0.5–1.5 mm long. Leaf-blades involute, 30–60 cm long, 4–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 8–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 4–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 9–17 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 1 -nerved. Upper glume lanceolate, 8–15 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 5.5–12 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 8–15 mm long overall, with a straight or slightly twisted column. Lateral lemma awns present. Lodicules present. Grain 3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Mt Kosciuszko endemic, altitude 1700–2000 m, alpine and subalpine meadows, bogs, rocky slopes and heathlands, forming distinctive communities, flowering only rarely. Flowers Dec. to Feb.

Chionochloa howensis

Australian Distribution: Lord Howe.

***Chloris ciliata** Sw. *Prodr. Veg. Ind. Occ.* 25 (1788). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *O.P. Swartz s.n.*, Jamaica (S; IT: BAA-661 (fragm.), US-80821 (fragm. ex S)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(2)).

Habit. Perennial. Culms erect, 25–60 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs or absent. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 1.8–2.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–2.8 mm long, keeled, 3 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.9–2.7 mm long overall. Lodicules present. Anthers 3. Grain 1.4 mm long.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: South Kennedy.

Chloris divaricata R. Br. *Prodr.* 186 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Brown 6244*, Sep 1802, Australia: Queensland: Port Curtis Dist: Broad Sound (BM; IST: E, K, MEL).

LT: *R. Brown*, Australia: "Port I., Keppel Bay, Whorlwater Bay" (BM). LT designated by Anderson, Brigham Young Univ. Sci. Bull., *Biol. Ser.*, 19(2): 85 (1974).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (186), [1878] G.Bentham, *Flora Australiensis* 7 (612), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (183).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(3)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41B& Fig. 43C as var. *divaricata*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (183).

Habit. Perennial. Stolons absent or present. Culms erect or decumbent, 25–60 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.4–0.6 mm long. Leaf-blades 3–15 cm long, 1–2 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1–2 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2.9–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous or scabrous.

Florets. Fertile lemma 2–4 mm long, keeled, 3 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 3–17 mm long overall. Lodicules present. Anthers 3. Grain 1.5–2.2 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Native to New Caledonia, New Hebrides, Fiji Islands, Hawaiian Islands, Australia. Australian distribution in coastal and central-western areas of Qld and N.S.W., extending from N of Cairns to S of Sydney. Occurs on a variety of soils, often in disturbed habitats. There are two varieties.

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Infra-specific taxa: var. **divaricata**, var. **cynodontoides** .

Spikelet-bearing axes 3–6, rigid

C. divaricata var. **cynodontoides**

Spikelet bearing axes 5–8, flaccid

C. divaricata var. **divaricata**
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Chloris divaricata var. **divaricata**

Australian Distribution: Queensland, New South Wales.

Notes. In coastal and central-western areas of Qld and N.S.W., extending from N of Cairns to S of Sydney. Occurs on a variety of soils, from black clay in the N to red-brown sandy loam in the S, often in disturbed habitats such as cleared brigalow country and railway enclosures, and also in mixed grasslands and *Eucalyptus* woodland. Recorded from some areas as becoming more common with grazing.

Chloris. divaricata var. **cynodontoides** (Balansa) Lazarides. *Austral. J. Bot., Suppl. Ser.* 5: 18 (1972).

Classification. Basionym and/or Replacement Name: *Chloris cynodontoides* Balansa, *Bull. Soc. Bot. France* 19: 318 (1872).

Type of Basionym or Protologue Information: HT: *Pancher s.n.*, 1870, New Caledonia: Noumea, bords des Chemins (P; IT: K, L).

Australian Distribution: Northern Territory, Queensland.

Notes. Only in NE Qld. New Caledonia, New Hebrides, Fiji Islands, Hawaiian Islands, Australia. Like *C. divaricata* var. *divaricata*, *C. divaricata* var. *cynodontoides* exhibits weedy behaviour in its tolerance of many different soil types, but also shows an affinity for near coastal areas.

Chloris gayana* Kunth. *Rev. Gram.* 1: 293 (1830). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Herb. Gay* 40, 4 Feb 1823, Senegal (K, P).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (220), [1969] E.E.Henty, *Manual Grasses New Guinea* (50), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (344), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (183).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (154 & 156(4)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 44E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (344, Fig. 275), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (183).

Habit. Perennial. Stolons absent or present. Culms erect or geniculately ascending, 45–220 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.4–0.6 mm long. Leaf-blades 14–50 cm long, (1.5–)3–9 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–4), comprising 1–4 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2.5–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 2.5–3.5 mm long, keeled, 3 -nerved. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn subapical, 2–10 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Norfolk I, Lord Howe.

Western Australia: Drummond, Menzies, Roe, Avon. **Northern Territory:** Darwin & Gulf. **South Australia:** Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Darling Downs, Gregory North, Leichhardt, Maranoa, Moreton, North Kennedy, South Kennedy, Warrego, Wide Bay, Cook, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, North-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** Gippsland Plain, Murray Mallee, Riverina, Volcanic Plain.

Notes. Has been used as a soil binder, being drought- and salt-tolerant and stoloniferous. Cultivated for fodder and shelter.

Introduced; cultivated or naturalized throughout the more settled areas of Australia such as the E coast (except Cape York Penin.), the Murraylands, southern Vic., around Darwin, N.T. and the SE of W.A.; particularly widespread in Qld; introduced from Africa into tropical Asia and the New World. Most often found on roadsides and other disturbed areas, *C. gayana* prefers heavy black or grey soils, but is also found on sandy and reddish-brown loamy soils. It may occur in dense stands or with other, usually introduced grasses, in grassland, shrubland or open forest.

Chloris inflata* Link. *Enum. Pl* 1: 105 (1821). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *L.A. von Chamisso s.n.*, no date, USA: California: cultivated in Berlin (B (destroyed); IT: US-2830897 (fragm.)).

Recent synonyms: *C. barbata* auct.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (613 as *Chloris barbata*), [1969] E.E.Henty, *Manual Grasses New Guinea* (as *C.inflata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (344).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41E & Fig. 43A as *C. barbata*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (344, fig. 276).

Habit. Annual or perennial. Culms geniculately ascending or decumbent, 20–100 cm tall. Lateral branches simple or sparsely branched. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.6 mm long, truncate. Leaf-blades 4–40 cm long, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2–2.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.7–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 2–2.5 mm long, keeled, 3 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 4.5–7 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.2–2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Dampier. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Gregory North.

Notes. Introduced or native; occurs generally as a weed of cultivation and disturbed sites in warmer near-coastal areas from the Kimberley area of W.A. around to Brisbane in Qld, but also collected from roadsides in central Australia; distributed throughout the tropics of the world.

Chloris lobata Lazarides. *Austral. J. Bot. Supp.* 5: 20 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Burke Dist: 4 mi E of Normanton, 6 Mar 1954, *Lazarides* 4289 (HT: CANB; IT: BRI, NT, NSW, MEL, AD, PERTH, K, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 42D, Fig. 44B).

Habit. Annual. Culms erect or geniculately ascending or decumbent or prostrate, 15–45 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.5 mm long. Leaf-blades 1–15 cm long, 0.2–2 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.6–5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 4–6 mm long, keeled, 3 -nerved. Lemma apex dentate or lobed, awned, 3 -awned. Median (principal) awn from a sinus, 3–11 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.5–2.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy, South Kennedy.

Notes. Distinguished from *C. pumilio* by the generally shorter spikes, subequal rather than unequal awns, and the more deeply lobed second lemma (almost to base rather than for half its length).

Endemic; across northern Australia, N of 20°S, from the Kimberley to eastern Cape York Penin. On a range of soil types but mostly heavy soils in seasonally wet areas such as claypans, river flood flats, creek beds and creek banks. Usually common where occurring or co-dominant with other grasses, often in *Eucalyptus* woodland, or associated with *Melaleuca* spp. Exhibits weedy behaviour in disturbed areas with lighter soils, such as railway enclosures.

Chloris pectinata Benth. *Fl. Austral.* 7: 612 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *Giles s.n.*, Australia: Northern Territory: Charlotte Waters (K; ILT: MEL). LT designated by ?.

ST: Armit 188, 20 Mar 1875, Australia: Queensland: Cook Distr: Cashmere (MEL).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (612), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (217), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (464), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (344), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (184).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (221, Pl. 65), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(5)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41A, Fig. 43C), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (345, Fig. 277), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (184).

Habit. Annual. Culms erect or decumbent, 10–75 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.8–1.2 mm long. Leaf-blades 5–15 cm long, 2–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 3–6.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–4.3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous.

Florets. Fertile lemma 3–6.2 mm long, keeled, 3 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 6–37 mm long overall. Lodicules present. Anthers 3. Grain 1.7–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Dampier. Canning, Fortescue, Ashburton. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Endemic; occurs in inland Australia S of 16°S (S and E Kimberleys and Pilbara region in W.A., eastern N. T., lower rainfall areas of Qld, NW N.S.W. and NE S.A.), reaching the coast in parts of Qld and W.A. Mostly in depressions, flood-outs and other better-watered sites on extensive cracking clay plains, but also known from lighter textured reddish-brown and sandy soils. Found in woodlands, shrublands and grasslands, sometimes dominant. Has probably spread along stock routes.

Chloris pilosa* Schum. & Thonn. *Beskr. Guin. Pl.* 55. (1827). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Thonning 371*, Africa: Guinea (C (photo, K, US)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 44D).

Habit. Annual or perennial. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 50–105 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.4–0.6 mm long. Leaf-blades flat or conduplicate, 11–35 cm long, 1.5–5 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2.5–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3.3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or papillose.

Florets. Fertile lemma 2.5–3.3 mm long, keeled, 3 -nerved. Lemma apex entire or lobed, muticous or mucronate or awned, 1 -awned. Median (principal) awn subapical, 2.5–5 mm long overall. Lodicules present. Anthers 3. Grain 1.3–1.7 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Awned variants are known from Africa but have not been recorded in Australia to date. Aside from the bristles normally taking the place of awns, features distinguishing *C. pilosa* from other species occurring in Australia are the 2 inflated, truncate, dissimilar, closely appressed imperfect florets; broad lower lemmas and the relatively short submarginal hairs.

Probably introduced; known only from northern part of the N.T., within 200 km of Darwin, though possibly also in Qld; tropical W Africa. Occurring in cultivation and disturbed areas.

Chloris pumilio R. Br. *Prodr.* 186 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *Brown 6245*, Australia: Northern Territory: North Coast (BM; IT: E, K). LT designated by Anderson, Brigham Young Univ. Sci. Bull., *Biol. Ser.* 19(2): 82 (1974).

Recent synonyms: *C. ruderalis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (196), [1878] G.Bentham, *Flora Australiensis* 7 (611), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (as *C. ruderalis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (221, Pl.65 as *C.ruderalis*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 42C, Fig. 44C).

Habit. Annual. Culms erect or decumbent, 22–90 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.5–1 mm long. Leaf-blades 7–12 cm long, 2–4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 3.7–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–5.4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 3.5–6 mm long, keeled, 3 -nerved. Lemma apex lobed, awned, 1 -awned or 3 -awned. Median (principal) awn from a sinus, 9–25 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.2–3.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. Canning, Fortescue, Ashburton, Carnarvon. Irwin. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy, South Kennedy.

Notes. Native; chiefly N of 21°S (c. Mackay) in Qld and the N.T., down to 25°S (c. Carnarvon) in W.A., with at least one recorded occurrence, possibly naturalized, further S; mostly near-coastal regions and offshore islands; Also in Indonesia. Known from sandy and silty soils in moist low-lying and near coastal areas, and also

growing on podsolic, reddish brown and grey brown soils, or dark grey loam, in disturbed areas such as cleared eucalypt forest and railway enclosures.

Chloris truncata R. Br. *Prodr.* 186 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *R. Brown 6243*, Australia: New South Wales: Port Jackson (BM; IT: E, K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (186), [1878] G.Bentham, *Flora Australiensis* 7 (612), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (219), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (464), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (346), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (184).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (221, Pl. 65), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(7)), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (89), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41F, Fig. 42B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (346, Fig. 278 & plate 13), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (184).

Habit. Perennial. Stolons absent or present. Culms erect, 10–45 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.4–0.6 mm long. Leaf-blades 3–17 cm long, 1.5–3 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 1.8–4.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.8–4.2 mm long, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous or scabrous.

Florets. Fertile lemma 1.8–4.5 mm long, keeled, 3 -nerved. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn subapical, 3–16 mm long overall. Lodicules present. Anthers 3. Grain 1.5–2.2 mm long.

Continental Distribution: Africa, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Lord Howe (*).

Western Australia: Austin, Irwin, Menzies, Roe, Avon, Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Leichhardt, Maranoa, Moreton, Port Curtis, Warrego. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Considered a good fodder grass in some areas of Australia, but weedy in others; useful for grassing waterways and as a coloniser.

Endemic; distributed across southern Australia, mostly S of 27°S excluding the Nullarbor Plain and Great Victoria Desert, from inland to near coastal areas, also on Lord Howe Island; introduced or occurs as an escape in the Fiji Islands, North America, and Europe. Prefers medium- to heavy-textured soils and often well-watered sites such as drainage lines, in grasslands, woodlands and forblands, often as a dominant understorey species; frost tender.

Chloris ventricosa R. Br. *Prodr.* 186 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Brown 6242*, Australia: New South Wales: Richmond (BM; IT: K, E).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (186), [1878] G.Bentham, *Flora Australiensis* 7 (613), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (184).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(8)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41D, Fig. 42A), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (184).

Habit. Perennial. Stolons absent or present. Culms erect, 50–100 cm tall. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane, 0.4–0.6 mm long. Leaf-blades 4–20 cm long, 2–3 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2–5.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, scarious, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 2.5–4.1 mm long, scarious, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or scabrous.

Florets. Fertile lemma 2–5.4 mm long, keeled, 3 -nerved. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn subapical, 1–11 mm long overall. Lodicules present. Anthers 3. Grain 1.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Lake Eyre. **Queensland:** Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Riverina.

Notes. Endemic; distributed through coastal and central-western areas of eastern Australia from Vic. to Townsville; occurs in North America and Europe as an introduction or casual weed. Recorded mostly from duplex soils of light to medium textured A horizon, including yellow podsolics, but also from clay loams in brigalow (*Acacia harpophylla*) country, in belah, box, sandalwood and wilga scrubs and woodlands with other grasses or monsoon or eucalypt forest.

Chloris virgata* Sw. *Fl. Ind. Occ.* 1: 203 (1797). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Antigua:, Swartz *s.n.* (HT: S; IT: BM).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (219), [1969] E.E.Henty, *Manual Grasses New Guinea* (50), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (464), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (346), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (185).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (221, Pl. 65), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(9)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 41C, Fig. 43B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (347, fig. 279), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (184).

Habit. Annual or ephemeral. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 15–100 cm tall. Ligule a fringed membrane, a ciliate membrane or a ciliate membrane, 0.8 mm long. Leaf-blades 10–30 cm long, 2–8 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1–2 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 2.5–4.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–4.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 2.5–4 mm long, keeled, 3 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn subapical, 5–15 mm long overall. Lodicules present. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Fortescue, Carnarvon, Austin, Avon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina.

Notes. Widespread weed and soil stabiliser.

There is considerable variation in habit and in dimensions of plant, spike and spikelet.

Probably introduced; all mainland states; throughout the tropics and subtropics of the world. Generally a weed of disturbed ground, especially roadsides, where it has sometimes been planted. Recorded in association with saltbush (*Atriplex*), other grasses and in mulga (*Acacia aneura*) woodlands, on a variety of soil types such as heavy black soil, grey and brown clays and loams, red sandy soil; flowers summer and autumn; fruits autumn to winter.

Chrysopogon aciculatus* (Retz.) Trin. *Fl. Ind. Occ.* 1: 203 (1797). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon aciculatus* Retz., *Observationes Botanicae* 5: 22 (1789).

Type of Basionym or Protologue Information: LT: *Koenig s.n. in herb. Retzius*, India (LD). LT designated by Veldkamp, *Austrobaileya* 5(3): 509 (1999). OM: Habitat in Indiae Orientalis sterilibus et ruderalis.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (538), [1969] E.E.Henty, *Manual Grasses New Guinea* (51), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (27), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Stolons present. Culms erect or geniculately ascending, 20–60 cm tall. Lateral branches simple or branched. Ligule an eciliate membrane. Leaf-blades 1–15 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle ovate, 4–10 cm long. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, male, 4–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or elliptic, laterally compressed, 6–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 2–3 -nerved. Upper glume lanceolate, keeled, 1-keeled, 1–3 -nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 2.5–3 mm long, without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 3.5–7 mm long overall. Palea present or absent. Grain 2–2.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, South Kennedy.

Notes. Occurs mainly in NE Qld often as a weed. A few other records in N.T. and SE Qld. Extends through Malesia to Taiwan and India. Flowers Jan.–Nov.

Chrysopogon elongatus (R.Br.) Benth. *Fl. Austral.* 7: 538 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus elongatus* R. Br., *Prodromus Florae Novae Hollandiae* 1: 200 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6193*, Australia (BM (photo, BRI, K); IT: K (photo, BRI), MEL (photo, BRI)).

Recent synonyms: *Vetiveria elongata*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (200 as *Holcus elongatus*), [1878] G.Bentham, *Flora Australiensis* 7 (538), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect, 150–250 cm tall, 7 -noded. Ligule a fringe of hairs. Leaf-blades conduplicate, 25–50 cm long, 4–8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 15–30 cm long, 2–3 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 5.5–6.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 5–8 -nerved. Lower glume apex muticous. Upper glume lanceolate, coriaceous, keeled, 1-keeled. Upper glume

apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 4–6 mm long, without keel, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 4–7 mm long overall, with a straight or slightly twisted column. Palea 0 -nerved, without keels. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Creek banks and flood flats of areas round the Gulf of Carpentaria and coastal regions north of Cairns. Flowers Apr.--Sept. & Dec.--Jan.

Chrysopogon fallax S. T. Blake, nom superfl. *Univ. Queensland Dept. Biol. Pap* 2(3): 9 (1944).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 8108*, 18 Mar 1935, Australia: Queensland: Leichhardt Dist. (BRI-8033; IT: K, NSW, US-1865513).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (199 as *Holcus gryllus*), [1878] G.Bentham, *Flora Australiensis* 7 (537 as *Chrysopogon gryllus* auct.), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (323), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (491), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (513), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (186).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (321, Pl. 94), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (160), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (512, Fig. 439), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (91).

Habit. Perennial. Culms erect or geniculately ascending, 30–120 cm tall, 3–5 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades 5–45 cm long, 2–7 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 7–21 cm long, 2.5–7 cm wide. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 9–14 mm long. Companion spikelet glumes muticous or awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 9–14 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 5–7 -nerved. Upper glume oblong, keeled, 1-keeled, 3–5 -nerved. Upper glume surface scabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2–3 -nerved.

Fertile lemma 5.5–7 mm long, without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 20–45 mm long overall, with a twisted column. Palea 0–2 -nerved. Grain 3.5–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** Northern Tablelands, North-Western Slopes, North-Western Plains, North Far Western Plains.

Notes. Found in all mainland states except Vic. in subtropical and tropical areas on a variety of soils; mainly in open forests. It has some forage value but not very productive and is resistant to drought and heavy grazing. Flowers Oct.--July.

Chrysopogon filipes (Benth.) Reeder. *Journ. Arn. Arb.* 29: 360 (1948). **Classification.** (GPWG 2001) :

Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Chrysopogon elongatus* var. *filipes* Benth., *Fl. Austral.* 7: 539 (1878).

Type of Basionym or Protologue Information: LT: *Mitchell s.n.*, Australia (K (photo, BRI); ILT: MEL). LT designated by Veldkamp, *Austrobaileya* 5(3): 513 (1999).

Recent synonyms: *Vetiveria filipes*, *V. intermedia*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (186).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *Vetiveria filipes*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (186).

Habit. Perennial. Rhizomes present, short. Culms erect, 70–100 cm tall, 3–6 -noded. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades 15–45 cm long, 3–6 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 15–30 cm long, 3–12 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas, 3–8.3 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 8–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 5 -nerved. Upper glume lanceolate, coriaceous, keeled, 1-keeled. Upper glume surface scabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 7–10 mm long, without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 13–26 mm long overall. Palea 0 -nerved, without keels. Anthers 3. Grain 4 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands, North-Western Plains.

Notes. Found on stream banks and flood flats of the open forest subcoastal country of tropical and sub-tropical Qld and N.S.W. and a few records from northern N.T. Extends to New Guinea. Readily eaten by stock. Flowers Nov.--Sept.

Chrysopogon latifolius S. T. Blake. *Univ. Qld Dept. Biol. Pap.* 2 (3): 7 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Northern Territory. without definite locality, July–August, 1911 ..., *Gilruth & Spencer s.n* (HT: MEL).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (322), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms stature robust to moderate, 100–150 cm tall. Lateral branches branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 30–60 cm long, 10–20 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle linear, 20–25 cm long, 4 cm wide. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, male, 7.5–9 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 7.7–8.3 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, much thinner above, much thinner on margins, without keels, 4–5 -nerved. Upper glume lanceolate, keeled, 1-keeled. Upper glume surface scabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 4.5–5 mm long, without keel. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 37–43 mm long overall, with a twisted column. Palea 0–2 -nerved. Anthers 3. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf.

Notes. From tropical W.A. and N.T. growing in wet areas or *Eucalyptus* woodlands on sandy soils. Flowers Sept.--June.

Chrysopogon oliganthus Veldkamp. *Austrobaileya* 5: 526 (1999). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Vetiveria pauciflora* S.T. Blake, *Pap. Dept. Bot. Univ. Queensland* 2(3): 20 (1944).

Type of Basionym or Protologue Information: HT: *S.T. Blake* 8639, 19 Apr 1935, Australia: Queensland: Burke Dist. (BRI; IT: US-1865534).

Recent synonyms: *Vetiveria pauciflora*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (324 as *Vetiveria pauciflora*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (321, Pl.104 as *Vetiveria pauciflora*).

Habit. Perennial. Rhizomes present, short. Culms erect, 60–120 cm tall, 4–6 -noded. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades 25–55 cm long, 2.5–5 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 11–17 cm long, 1.2–5.5 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 4.5–7.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 4.5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, cartilaginous, without keels, 4–5 -nerved. Upper glume lanceolate, cartilaginous, keeled, 1-keeled. Upper glume apex muticous or mucronate.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50–70 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3–4 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 1.5–15 mm long overall. Palea 0 -nerved, without keels. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy.

Notes. Creek banks and flood-flats in tropical Australia. Flowers Apr.--Jun. & Sept.--Oct.

Chrysopogon pallidus (R.Br.) Trin. ex Steud. *Nom. Bot.* ed 2, 1: 360 (1840). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus pallidus* R. Br., *Prodr.* 199 (1810).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (199 as *Holcus pallidus*), [1878] G.Bentham, *Flora Australiensis* 7 (537 as *Chrysopogon gryllus* var. *pallidus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (322), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 100–150 cm tall, 3–5 -noded. Lateral branches sparsely branched. Leaf-sheaths smooth or scaberrulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.5–0.7 mm long. Leaf-blades conduplicate or convolute, 20–40 cm long, 3–6 mm wide. Leaf-blade surface papillose, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate or ovate, 18–30 cm long, 3–6 cm wide. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, male, 11–14 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblanceolate, laterally compressed, 10–13 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 5–9 -nerved. Lower glume apex muticous or awned. Upper glume lanceolate, keeled, 1-keeled. Upper glume surface smooth or asperulous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 5.5–6.3 mm long, without keel, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 42–70 mm long overall, with a twisted column. Column 16–21 mm long. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. Canning, Carnarvon. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, North Kennedy.

Notes. Fairly widespread in tropical and subtropical Australia on sandy soils. Although drought resistant and able to withstand grazing it is only of moderate fodder value. Flowers Nov.--Jan.

Chrysopogon rigidus (B.K. Simon) Veldkamp. *Austrobaileya* 5: 527 (1999). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Vetiveria rigida* B.K. Simon, *Austrobaileya* 3(1): 95, f. 10 (1989).

Type of Basionym or Protologue Information: Australia: Queensland: Watson River Crossing on Merluna-Arukun road, Cape York Peninsula, 29 May 1982, *J.R. Clarkson 4419* (HT: BRI; IT: CANB, K, MBA, NSW, QRS).

Recent synonyms: *Vetiveria rigida*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 130–150 cm tall, 3–4 -noded. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades 30–50 cm long, 3–5 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 20–27 cm long, 8–10 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas, 4–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, laterally compressed, 6–9 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, cartilaginous, without keels, 3 -nerved. Upper glume lanceolate, cartilaginous, keeled, 1-keeled, 3 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 2 mm long, without keel. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–10 mm long overall. Palea 0 -nerved, without keels. Anthers 3. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Found in the same habitats as *C. filipes* but only in northern Qld. Flowers Apr.--May.

Chrysopogon setifolius Stapf. *Bull. Misc. Inform.* 29 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: North Australia: Port Darwin, *Schultz 661* (HT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect, 40–50 cm tall. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades filiform, involute, 8–20 cm long, 0.75–1 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 7–12 cm long. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, male, 5–8 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, terete, 6–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 9 -nerved. Upper glume lanceolate, coriaceous, keeled, 1-keeled, 6–7 -nerved. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 4–5 mm long, without keel, 3 -nerved. Lemma apex entire, muticous. Palea present or absent.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. A rare species from only a few localities in northern tropical Australia. Flowers Oct.-Dec.

Chrysopogon sylvaticus C. E. Hubbard. *Hooker's Icon. Pl.*, 34: t.3365 (1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *C.E. Hubbard 8587*, 3 Apr 1931, Australia: Queensland (L, US-2907468). CS.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (186).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (186).

Habit. Perennial. Culms erect or geniculately ascending, 30–120 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple or branched. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades conduplicate, 25–50 cm long, 2.5–6 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle ovate, effuse, 8–18 cm long, 7–13 cm wide. Rhachis evident or obsolete, fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1–2 in the cluster. Companion spikelets rudimentary or developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, 3–7.3 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 7.3–9.7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 7 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 5 mm long, without keel, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 17–25 mm long overall, with a twisted column. Palea 2 -nerved. Grain 3.5–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Moreton, Port Curtis, Wide Bay, Cook, North Kennedy, South Kennedy. **New South Wales:** North Coast.

Notes. Growing in *Eucalyptus* forests of SE Qld and adjacent N.S.W. particularly on somewhat stony hillsides. Flowers Dec.–July.

Chrysopogon zizanioides* (L.)Roberty. *Bull.Inst.Franc.Afr.Noire* 22:106(1960). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Phalaris zizanioides* L., *Mant. Pl.* 2: 183 (1771).

Type of Basionym or Protologue Information: India:, *Koenig s.n.* (LT: LINN-78.12)

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Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms 150–300 cm tall. Ligule a fringe of hairs. Leaf-blades 30–100 cm long, 4–10 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, 15–40 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, symmetrical. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear, laterally compressed, 7.5–9.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels, 5 -nerved. Upper glume lanceolate, chartaceous, keeled. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 2–3 mm long, without keel, 0 -nerved. Lemma apex entire, muticous. Palea 0 -nerved, without keels. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Pacific, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook.

Clausospicula extensa M. Lazarides. *Austral. Syst. Bot.* 4: 399 (1991). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf Distr.: South Alligator River, c. 26 km WSW of Mt. Evelyn, 13.40S 132.40E, 26 Feb 1973, *Adams & Lazarides 3113* (HT: CANB; IT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 30–45 cm tall, 5–7 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades flat or conduplicate, 30 cm long, 1.4–2.6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle 20 cm long, 8 cm wide. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets absent or rudimentary, comprising 2 subequal glumes without lemmas, 5–12 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume obovate, coriaceous, much thinner above, without keels. Lower glume apex muticous or mucronate or awned. Upper glume lanceolate or oblong, coriaceous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 3 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn apical, 85–105 mm long overall, with a twisted column. Column 40–55 mm long. Palea absent. Lodicules present. Anthers 3. Grain 5.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Endemic to the western Arnhemland region of N.T. Flowers Feb.–May.

Cleistochloa rigida (S.T. Blake) W.D. Clayton. *Austral. Paniceae* 30 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Dimorphochloa rigida* S.T. Blake, *Pap. Dept. Bot. Univ. Queensland* 1(19): 2 (1941).

Type of Basionym or Protologue Information: IT: *S.T. Blake 7711*, 19 Feb 1935, Australia: Queensland: Darling Downs Dist., 335 m (K, L, US-2962846, US-1819218).

Recent synonyms: *Dimorphochloa rigida*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (187).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (187).

Habit. Perennial. Rhizomes present, short. Culms erect, 30–80 cm tall, wiry, 8–20 -noded. Mid-culm nodes pubescent. Lateral branches branched. Leaves cauline. Leaf-sheaths smooth, hairy. Ligule a fringe of hairs, 0.4–0.8 mm long. Leaf-blades flat or involute, 2–10 cm long, 1.5–5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 4–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4.3–5.6 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 3.3–4.9 mm long, scarious, without keels, 5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 4.3–5.6 mm long, without keel. Lemma surface indumented. Lemma apex mucronate. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, Warrego, Wide Bay, Port Curtis. **New South Wales:** Central Coast, Central Tablelands, Central-Western Slopes.

Notes. In *C. rigida*, copiously branched axillary branches develop in the latter part of the year and these are terminated by cleistogamous spikelets. This development pattern is similar to that of *Panicum* subgenus *Dichanthelium*. In *C. subjuncea*, the axillary branches are frequently undeveloped or absent and the solitary cleistogamous spikelets occur in the culm axils.

In Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers Feb.–June (–Nov.).

Cleistochloa sclerachne (F. M. Bailey) C. E. Hubbard. *Hooker's Icon. Pl.* 33: t. 3209, 3 (1933).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Chionachne sclerachne* F.M. Bailey, *Queensland Dept. Agric. Bull.* 7(Bot. Bull. 2): 21 (1891).

Type of Basionym or Protologue Information: HT: *Gulliver s.n.*, Apr 1886, Australia: Queensland: Cape York Peninsula, Lloyd Bay (BRI; IT: K (fragm. ex BRI)).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (51), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect, 40–90 cm tall, wiry, 8–14 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaves cauline. Leaf-sheaths smooth, glabrous on surface or hairy. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades 4.5–12 cm long, 3–6 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 1–2.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4.3–4.6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume if present ovate, hyaline, without keels, 0 -nerved. Upper glume elliptic or oblong, 4.2–4.5 mm long, scarious, without keels, 5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 4.1–4.5 mm long, without keel. Lemma surface glabrous. Lemma apex mucronate. Palea without keels. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Resembles *C. subjuncea* but has wider and longer leaf blades, and a hairy or long ciliate lower lemma. The cleistogamous spikelets of these two species are similar.

This species has only been collected in the far N of Cape York Penin. Qld. Geobotanical distribution: Cape York. In tropical heaths and tropical and subtropical sub-humid woodlands. Flowers May.-Aug.

Cleistochloa subjuncea C. E. Hubbard. *Hooker's Icon. Pl.* 33: t. 3209, 2 (1933). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum subjunceum* Domin, *Bibliotheca Botanica* 85: 314, f. 70 (1915).

Type of Basionym or Protologue Information: Australia: Queensland: Sandhügel der Dividing Range östlich von Pentland, Feb 1910, *Domin s.n.*.

Key references (books and floras): [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (188).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (164), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (188).

Habit. Perennial. Rhizomes present (probably, but not collected). Culms geniculately ascending, 30–60 cm tall, wiry. Mid-culm internodes glabrous or pilose. Lateral branches sparsely branched or suffrutescent. Leaves cauline. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.4–1 mm long. Leaf-blades flat or convolute, 1–6 cm long, 0.5–3 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 0.7–3.5 cm long, bearing 2–6 fertile spikelets on each.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume oblong, 3.1–4.2 mm long, chartaceous, without keels, 5–7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 3.5–4.5 mm long, without keel, 5–7 -nerved. Lemma surface glabrous. Lemma apex muticous or mucronate. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 2.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North-Western Slopes.

Notes. Variable in leaf pubescence and spikelet form. Further collections of specimens with chasmogamous spikelets would be helpful. Diagnostic features include the solitary pedicellate cleistogamous spikelets that occur in the leaf axils and the glabrous or nearly glabrous chasmogamous spikelets.

In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers sporadically throughout the year.

Coelachne pulchella R. Br. *Prodr.* 187 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Key references (books and floras): [1810]. R. Brown, *Prodromus* (187), [1878] G. Bentham, *Flora Australiensis* 7 (626).

Habit. Annual. Culms geniculate ascending or decumbent, stature slender to delicate, 5–20 cm tall. Mid-culm nodes pubescent. Ligule a fringe of hairs or absent. Leaf-blades lanceolate, 0.8–3 cm long, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 4–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong or ovate, terete or dorsally compressed, 1.3–1.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or orbicular, membranous, without keels, 3–5 -nerved. Upper glume oblong or orbicular, 1–1.3 mm long, membranous, without keels, 3–7 -nerved. **Florets.** Fertile florets female (upper).

Fertile lemma 0.7–1 mm long, without keel, 0 -nerved. Anthers 2. Grain 0.6–0.8 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Inflorescence shape and spikelet shape distinguish it from other members of the genus.

Rare in tropical Australia. In tropical and subtropical sub-humid woodlands. Flowers July–Aug.

Coix gasteenii B.K. Simon. *Austrobaileya* 3: 1 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *J.R. Clarkson & B.K. Simon 7215*, 13 May 1987, Australia: Queensland: Cook Dist.: Lakefield National Park, 15°18'S, 144°36'E, Cabbage Tree Creek, 19 km E of Old Laura on road to Cooktown 70 m. (BRI; IT: DNA, K, L, MBA, MEL, MO, NSW, PERTH, PRE, QRS, SP, US-3189885, US-3189886).

Key references (books and floras): [2002] D. Sharp & B.K. Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms 100–180 cm tall. Leaves cauline. Ligule an eciliate membrane, 0.3 mm long. Leaf-blades 9–150 cm long, 10–23 mm wide. Leaf-blade surface papillose.

Inflorescence. Inflorescence compound, a panicle of racemes. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Male spikelets sessile and pedicelled, 3 in a cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 7–9 mm long.

Glumes. Glumes dissimilar, similar to fertile lemma in texture. Lower glume ovate, membranous, firmer above, without keels. Upper glume ovate, membranous, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, firmer above. Fertile florets female.

Fertile lemma 6–7 mm long, keeled. Palea 2 -nerved, without keels. Anthers 3. Grain 4–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Known from only two collections from Lakefield National Park, Cape York Peninsula. This species differs considerably from *C. lacryma-jobi* in the method in which the male and female racemes are arranged. Flowers May.

Coix lacryma-jobi* Linn. *Sp. Pl.* 972 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: LT: India (LINN-1098.1). LT designated by Clayton & Renvoize, Fl. Trop. E. Afr. *Gramineae* (3): 857 (1982). ST: *van Royen s.n.*, (L).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (358), [1969] E.E.Henty, *Manual Grasses New Guinea* (53 as *C. lachryma-jobi*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (188).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (168), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (188).

Habit. Annual. Culms stature robust to moderate, 90–250 cm tall. Leaves cauline. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 10–50 cm long, 25–50 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Male spikelets 2 in a cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 7–9 mm long.

Glumes. Glumes dissimilar, similar to fertile lemma in texture. Lower glume orbicular, membranous, firmer above, without keels. Upper glume ovate, membranous, keeled, 1-keeled, 11 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, firmer above, 7 -nerved. Fertile florets female.

Fertile lemma 6–7.6 mm long, keeled, 3–5 -nerved. Palea 2 -nerved, without keels. Lodicules absent or vestigial (female) or present (male). Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Drummond. **Queensland:** Cook. **New South Wales:** North Coast, Central Coast.

Notes. Native from India to Polynesia including some Torres Strait Is.; introduced to mainland Australia as an ornamental and has the potential to become naturalised.

Coix lingulata Hack. *Oesterr. Bot. Z.* 41: 5(1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Myanmar: Shan Hills, Fort Stedmens, *H. Collett. s.n.*.

Recent synonyms: *C. gigantea*.

Key references (books and floras): [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (53 as *C. gigantea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature robust to moderate, 200–400 cm tall. Mid-culm nodes glabrous. Leaves cauline. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 25–50 cm long, 6–20 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of rames. Rhachis obsolete.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Male spikelets 3 in a cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 7–9 mm long.

Glumes. Glumes dissimilar, similar to fertile lemma in texture. Lower glume orbicular, membranous, firmer above, without keels. Upper glume ovate, membranous, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, firmer above. Fertile florets female.

Fertile lemma 6–7.6 mm long, keeled, 5 -nerved. Palea 2 -nerved, without keels. Lodicules absent or vestigial (female) or present (male). Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Throughout tropical and SE Asia to Cape York Peninsula.

Cortaderia jubata* (Lem.) Stapf. *Bot. Mag.* t.7607 (1898). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoniaceae.

Basionym and/or Replacement Name: *Gynerium jubatum* Lemoine, *Rev. Hort.* 50: 449 (1878).

Type of Basionym or Protologue Information: LT: *Roezl s.n.*, Ecuador: Chimborazo, "sent by Lemoine of Nancy and collected at Chimborazo by the botanical collector Roezl" ex Herb. Munro (K (ex hb. Munro)). LT designated by Connor & Edgar, *Taxon* 23: 598 (1974).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (189).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (189).

Habit. Perennial. Culms 200–450 cm tall, 3–6 mm diam. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 40–150 cm long, 4–20 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense, 30–60 cm long, 10–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 3–5 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 12–15 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume lanceolate, hyaline, without keels, 1 -nerved. Upper glume lanceolate, 8.5–10 mm long, hyaline, without keels, 1 -nerved. Upper glume surface asperulous. Upper glume apex entire or dentate. **Florets.** Fertile florets female.

Fertile lemma 9–15 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Lodicules present.

Continental Distribution: Africa, Australasia, Pacific, and South America.

Australian Distribution: Victoria, Tasmania.

Victoria: Gippsland Plain, Otway Plain. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. Close to *C. selloana*, but is distinguished in the field by the drooping leaves and consequently well exerted inflorescences. In addition, the lemma veins are purple, no males have been recorded, and the glumes are more or less equal in length.

Tasmania and southern Victoria, from the vicinity of Melbourne, weedy, introduced from South America. Flowers Feb. to May.

Cortaderia selloana* (Schult.) Aschers. & Graebn. *Gard. Chron.* ser. 3, 22: 387 (1897). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Arundo selloana* Schult. & Schult. f. *Mantissa* 3(Add. 1): 605 (1827).

Type of Basionym or Protologue Information: Brazil: Brasilia, *F. Sellow* 316 (HT: B).

Recent synonyms: *C. argentea*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (131 as *C. argentea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (408), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (299), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (189).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (298, fig. 235), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (93), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (189).

Habit. Perennial. Culms 100–400 cm tall. Mid-culm internodes hollow. Ligule a fringe of hairs, 3–5 mm long. Leaf-blades 60–200 cm long, 3–15 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense, 25–100 cm long.

Spikelets. Spikelets pedicelled. Male spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 3–7 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 10–18 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume lanceolate, hyaline, without keels, 1 -nerved. Upper glume lanceolate, 8–14 mm long, hyaline, without keels, 1 -nerved. **Florets.** Fertile florets female.

Fertile lemma 9–18 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Lodicules present.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Darling Downs, Moreton. **New South Wales:** Central Coast. **Victoria:** Gippsland Plain, Midlands. **Tasmania:** No region given.

Notes. Dried specimens are very similar to *C. jubata*, but it can be distinguished by the presence of male plants, by the unequal glumes and the lemmas with grey veins with only the central vein reaching the apex of the lemma.

Widespread in Australia, mostly in disturbed sites, introduced from South America, a world-wide escape from horticulture. Flowers March to Sep.

Corynephorus fasciculatus* Boiss. Reut. *Pugill. Pl. Afr. Bor. Hispan.* 123 (1852).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (259).

Australian Distribution: Western Australia.

Crypsis schoenoides* Hochst. ex Steud., in syn. *Tabl. Encycl.* 1: 166 (1792). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Phleum schoenoides* L.

Type of Basionym or Protologue Information: T: *Loefling s.n.*, Spain (LINN).

Recent synonyms: *C. niliaca*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (408).

Habit. Annual. Culms decumbent, 1–30 cm tall. Lateral branches branched. Ligule a fringe of hairs, 1 mm long. Leaf-blades flat, 0.5–12 cm long, 1–5 mm wide.

Inflorescence. Inflorescence compound, a panicle of spikes. Panicle elliptic or oblong, 0.5–3 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, laterally compressed, 2.5–4 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic, 2.5–4 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–4 mm long, keeled, 1 -nerved. Lemma surface glabrous. Palea 2 -nerved. Lodicules absent or vestigial. Anthers 3. Grain 1–1.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. From the coastal plain of SW W.A. from Coolup to Capel; In the Mediterranean and east Africa eastwards to China. Flowers Mar.-May.

Cymbopogon ambiguus (Hack.) A. Camus. *Rev. Int. Bot. App. Agric. Trop.* 1: 290 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon ambiguus* Steud., *Syn. Pl. Glumac.* 1: 385 (1854).

Type of Basionym or Protologue Information: HT: *Baudin's Expedition s.n.*, Australia: Western Australia: Islands in Sharks Bay (P (photo, BRI); IT: BM, S).

Recent synonyms: *C. exaltatus* auct.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (532 as *Andropogon exaltatus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (338 as *C. exaltatus*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (489), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (513), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (190).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (514, Fig. 440), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (190).

Habit. Perennial. Culms erect, 30–100 cm tall. Mid-culm internodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1.9–9 mm long, membranous. Leaf-blades filiform or linear, flat, 15–50 cm long, 1–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 15–40 cm long. Rachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent. Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong or ovate, dorsally compressed, 4–6.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate or ovate, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly. Upper glume lanceolate, keeled, 1-keeled, 3–5 -nerved.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 12–20 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier. Canning, Fortescue, Ashburton, Carnarvon, Austin. Irwin, Drummond, Dale, Menzies, Avon, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Cook, Gregory North, Leichhardt, North Kennedy, South Kennedy, Mitchell. **New South Wales:** South-Western Plains, North Far Western Plains.

Notes. There is considerable variation in the width and colour of the leaf lamina and the density of the inflorescence within the species. In same habitats (eg. Standley Chasm, N.T., pers. obs.) it is possible for a number of forms to grow together.

The most widely distributed species of *Cymbopogon* in Australia extending from the arid interior to tropical coastal areas. There is a single extra Australian record from the north coast of Timor. Flowers all year.

Cymbopogon bombycinus (R.Br.) Domin. *Biblioth. Bot.* 85: 274 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon bombycinus* R. Br., *Prodr.* 202 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6175*, Australia: East Coast [Upper Head, Broad Sound = Charon Point] (BM; IT: BRI, K, MEL, P).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (202 as *Andropogon lanatus*, *Andropogon bombycinus*), [1878] G.Bentham, *Flora Australiensis* 7 (533 as *Andropogon lanatus*, *Andropogon bombycinus*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (340), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (489), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–120 cm tall. Mid-culm internodes glabrous. Mid-culm nodes bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–6 mm long, membranous. Leaf-blades 15–40 cm long, 1–4.5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, composed of racemes. Central inflorescence axis 6–40 cm long. Rachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets rudimentary, 2 in number (lower raceme). Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate or obovate, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, 1–2 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3(–5) -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 6–21 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Fortescue, Carnarvon. Irwin, Drummond, Menzies, Roe, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego.

Notes. Occurs in *Eucalyptus* forests and savannas of tropical and subtropical Australia. Flowers all year.

Cymbopogon citratus* (DC) Stapf. *Kew.Bull.Misc.Inf.* 322 (1906). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon citratus* DC. *Cat. Pl. Horti Monsp.* 78 (1813).

Type of Basionym or Protologue Information: T: Cult. at Montpellier, France, from seed collected in Asia.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (56), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms 100–200 cm tall. Ligule an eciliate membrane, 1 mm long. Leaf-blades 45–90 cm long, 5–20 mm wide.

Inflorescence. Inflorescence compound, composed of racemes. Central inflorescence axis 30–40 cm long. Rachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 4–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, dorsally compressed, 5–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, keeled, 2-keeled, wingless or winged on keel, winged broadly, 3–4 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex entire or dentate, muticous or mucronate, 1 -awned. Palea absent. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Cultivated as a culinary herb and for lemon grass oil; recorded once as naturalised in Qld (sterile), but no longer persisting. Flowers Aug in cultivation.

Cymbopogon dependens B.K. Simon. *Austrobaileya* 3:80 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Katherine Gorge, 8 Mar 1964, *Lazarides* 7036 (HT: BRI-139135, BRI-139136; IT: CANB, DNA, K (photo, BRI), MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms geniculately ascending or decumbent or arching, stature slender to delicate, 90–120 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades filiform or linear, flat, 15–30 cm long, 0.5–2.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 17–25 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent. Companion spikelets rudimentary or developed, comprising 2 subequal glumes without lemmas, 2 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 4.5–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, keeled, 2-keeled, 0–4 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 17–20 mm long overall, with a twisted column. Column 6–8 mm long. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Hall. **Northern Territory:** Darwin & Gulf, Central Australia South.

Notes. In rocky gorges in isolated regions of W.A. and N.T. Flowers Feb.–Mar.

Cymbopogon globosus Henrard. *Repert. Spec. Nov. Regni Veg* 22: 106 (1925). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *Atjeh* 61, Moluccas: Taliabu Island (Soela) (L-920.160–280; IT: BO).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 100–200 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades flat, 30–60 cm long, 3–8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 6–13 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, comprising 2 subequal glumes without lemmas, 2–4 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 4–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, wingless or winged on keel, winged narrowly, 3–4 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 11–19 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Known from savanna regions of northern Qld (uncommon) through New Guinea to the Moluccas. Flowers May.

Cymbopogon gratus Domin. *Biblioth. Bot.* 85: 274 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *Domin II.1910*, Australia: northern Queensland (PR).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, stature robust to moderate, 35 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat, 10–20 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 7–20 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent. Companion spikelets developed, comprising 2 subequal glumes without lemmas, 3–3.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, 3 -nerved. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex entire or lobed, muticous. Palea absent. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Burke, Port Curtis.

Notes. Regarded by Blake (*Proc. Roy. Soc Qld* 80: 70 (1969)) as a hybrid between *C. refractus* and *C. bombycinus* but Soenarko in Reinwardtia 9: 295 (1977) regards there is insufficient evidence for this claim.

Known only from three areas of Qld. Flowers Feb.–Mar.

Cymbopogon martinii* (Roxb.) W. Watson. *Atkins, Gaz. N.W. Prov. India* 10: 392 (1882).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon martini* Roxb., *Fl. Ind.* 1: 280–281 (1820).

Type of Basionym or Protologue Information: India: Lucknow: Ballaghat, high lands, *Gen. (seeds) Martin s.n.* (HT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, stature robust to moderate, 150–300 cm tall. Ligule an eciliate membrane, 1.5–4 mm long. Leaf-blades linear or lanceolate, flat, 25–50 cm long, 10–30 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 21–50 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 3–4 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, winged on keel, winged broadly or narrowly, 2 -nerved. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 1 mm long, without keel. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 12–18 mm long overall, with a twisted column. Column 7 mm long. Palea absent. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland.

Queensland: Port Curtis.

Notes. India. In Australia persisting in the abandoned introduction plots at Fitzroy Vale, Qld, where it was originally cultivated. Flowers Apr.--July.

Cymbopogon obtectus S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 2(3): 55 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 6517*, 29 Jun 1934, Australia: Queensland: Gregory North District: Woodstock, west of Winton (BRI-010799; IT: K, US-1865510).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (489), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (514), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (191).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (515, Fig. 441), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (191).

Habit. Perennial. Culms 50–100 cm tall, 1–2 -noded. Mid-culm nodes glabrous or pubescent. Ligule an eciliate membrane, 3–5 mm long. Leaf-blades flat or conduplicate or revolute, 15–35 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 7–25 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, comprising 2 unequal glumes without lemmas or containing empty lemmas, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong or obovate, dorsally compressed, 5–6.4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, wingless, 0–5 -nerved. Upper glume lanceolate, keeled, 1-keeled, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2–3 -nerved.

Fertile lemma 3.6–4.5 mm long, without keel, 1–3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 6–8 mm long overall, without a column or with a straight or slightly twisted column. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Canning, Giles, Fortescue, Carnarvon. Irwin, Drummond, Coolgardie. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Darling Downs, Gregory North, Maranoa, Mitchell, Moreton, Port Curtis, South Kennedy, Warrego, Cook, North Kennedy, Leichhardt, Gregory South. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee, Riverina.

Notes. A species occurring in drier regions of Australia. Flowers all year.

Cymbopogon procerus (R.Br.) Domin. *Biblioth. Bot.* 85:273 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon procerus* R. Br., *Prodr.* 1: 202 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6172*, Australia: Northern Territory: Groote Eylandt (BM; IT: E, K).

Recent synonyms: *C. exaltatus*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (202 as *Andropogon exaltatus*, *Andropogon procerus*), [1878] G.Bentham, *Flora Australiensis* 7 (532 as *Andropogon procerus*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (338), [1969] E.E.Henty, *Manual Grasses New Guinea* (56), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (339, Pl. 99).

Habit. Perennial. Culms erect, 100–200 cm tall. Mid-culm internodes glabrous. Mid-culm nodes bearded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 3–7 mm long, scarious, obtuse. Leaf-blades flat, 25–50 cm long, 5–15 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 40–90 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 3–4 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 4–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, 0–4 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–22 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Hall. Giles. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke.

Notes. Known from savanna regions of northern tropical Australia, New Guinea and SE Timor. Flowers Mar.–Aug.

Cymbopogon queenslandicus S. T. Blake. *Contr. Queensland Herb.* 17: 53 (1974). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: Townsville, upper slopes of Castle Hill, 210–230 m, Mar 1935, *S.T. Blake* 8353 (HT: BRI-045247, BRI-045246; IT: K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (534 as *Andropogon schoenanthus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 70–150 cm tall. Mid-culm internodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 15–50 cm long, 3–10 mm wide. Leaf-blade surface scaberrulous, glabrous.

Inflorescence. Inflorescence compound, composed of racemes. Central inflorescence axis 25–45 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent. Companion spikelets developed, containing empty lemmas or male, 4–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong or obovate, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or oblong, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly, 2–4 -nerved. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–12 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Burnett, Cook, Leichhardt, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Burke.

Notes. A species confined to Qld where it is found in *Eucalyptus* forests, often on stony hillsides. Flowers Jan.–Sept.

Cymbopogon refractus (R.Br.) A. Camus. *Rev. Int. Bot. App. Agric.Trop.* 1: 279 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon refractus* R. Br., *Prodr.* 1: 202 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown* 6177, Australia: New South Wales: Port Jackson (BM; IT: E, K, P).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (202 as *Andropogon refractus*), [1878] G.Bentham, *Flora Australiensis* 7 (534 as *Andropogon refractus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (191).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (170), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (95), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (191).

Habit. Perennial. Culms erect, 30–150 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat or revolute, 10–40 cm long, 1–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, composed of racemes. Central inflorescence axis 10–45 cm long. Rachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets represented by a single scale, 2 in number (lower raceme). Companion spikelets developed, comprising 2 unequal glumes without lemmas, 4–6 mm long. Companion spikelet glumes pungent. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile floret, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 4.5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, wingless, 3–5 -nerved. Upper glume lanceolate, chartaceous, keeled, 1-keeled, 3–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 1 -nerved.

Fertile lemma 3.5 mm long, without keel. Lemma apex entire or dentate, mucronate or awned, 1 -awned. Median (principal) awn from a sinus, 0–12 mm long overall, without a column. Palea absent. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales, Victoria, A.C.T., Norfolk I.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory North. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Volcanic Plain.

Notes. Widespread in the *Eucalyptus* forests and woodlands of eastern Australia, especially on lighter soils of low fertility; rare in northern N.T. It has become naturalised over a fairly wide area in the Pacific (Norfolk I., New Caledonia, Vanuatu, Fiji, Samoa, Tonga, Cook Is, Hawaii, Society Is, Tahiti and Tuamotu Archipelago). Cultivated for forage in Niihau (Hawaii). Flowers all year.

x Cynochloris macivori Clifford & Everist. *Proc. Roy. Soc. Queensland* 75: 46 (1964). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *S.L. Everist* 11, 11 Apr 1962, Australia: Queensland: Moreton Distr., Limestone Hill, Ipswich, on bank around bowling green (BRI-050891; IT: K, US-3464963 ("18 Apr 1962")).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present (slender, with internodes 2.5–5 cm long). Culms erect (sub) or decumbent, stature slender to delicate, 20–50 cm tall, 4–9 -noded. Ligule a fringe of hairs. Leaf-blades conduplicate, 2–12 cm long.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, laterally compressed.

Glumes. Upper glume 2.3–2.7 mm long.

Florets. Fertile lemma 2.3–2.7 mm long. Lemma surface glabrous or indumented. Lemma apex mucronate. Median (principal) awn 1–2 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. Cultivated at Botanic Gardens, Brisbane, Qld, from rhizomes collected at Ipswich, 8 May 1935, *Mr. McIvor* (CANB).

Used experimentally for bowling greens.

The hybrid is intermediate between the putative parents in leaf anatomy. Its pollen grains are slightly smaller than those of either parent, and lack viable pollen. Ovaries show no development following anthesis, and hence no caryopses are formed, but the hybrid is more vigorous in rooting behaviour than the parents, allowing rapid vegetative propagation.

In 1964, the known natural distribution of hybrid couch was limited to the grounds of the Ipswich Bowling Club, the adjoining Queen's Park, and from the grass verge on the opposite side of Brisbane Street, Ipswich, where grass clippings and rubbish from Queen's Park had been dumped in past years. Since then it has been distributed to both greenkeepers and botanic gardens in Australia, and used in soil conservation trials, and may be naturalized elsewhere.

x *Cynochloris reynoldensis* B.K. Simon. *Austrobaileya* 1: 460 (1982). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Reynolds Creek near Mt. Greville, Simon & Sharpe 2526 (HT;BRI-227424; IT: CANB, K, MO).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 52G-N).

Habit. Perennial. Stolons present. Culms geniculately ascending or decumbent, stature slender to delicate, 10–40 cm tall, 3–6 -noded. Mid-culm internodes pruinose. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades linear, flat, 2–7 cm long, 0.5–1.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s) (anthers only), with diminished florets at the apex, laterally compressed, 2.75 mm long (to).

Glumes. Glumes similar. Lower glume lanceolate, without keels, 1 -nerved. Upper glume lanceolate, 2.1–2.3 mm long, keeled, 1-keeled. Upper glume surface smooth.

Florets. Fertile lemma 2.5–3 mm long. Lemma surface glabrous or indumented. Lemma apex mucronate, 1 -awned. Median (principal) awn apical, 0.5–2 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. The spikelet of *Cynochloris xreynoldensis* appears closer to *Chloris ventricosa* than to *Cynodon dactylon* possibly because of introgression between the two parents, with the characters of *Chloris ventricosa* having greater influence.

Recorded habitat is shade of *Melaleuca bracteata* on creek bank, with weeds encroaching.

Cynodon aethiopicus* W. D. Clayt. & Harlan. *Kew Bull.* 24: 187 (1970). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Ethiopia, *de Wet OKLA9224* (HT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons present. Culms erect or geniculately ascending, 40–140 cm tall, 1.5–6 mm diam., woody. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.3–0.5 mm long. Leaf-blades conduplicate, 3–26 cm long, 3–7 mm wide. Leaf-blade surface scaberrulous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes spreading, straight.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2.5–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.4–2.6 mm long, herbaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–3 mm long, keeled, wingless, 3 -nerved. Palea 2 -nerved.

Continental Distribution: Africa, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, Darling Downs, Moreton, Wide Bay, Burke, North Kennedy.

Notes. Weed.

In Australia, *C. aethiopicus* may be distinguished from *C. nlemfuensis* by the stiffer outspread spikes or racemes, slightly longer spikelets with stiffer hairs on the lemma keels, and the more frequent occurrence of 2 or more distinct whorls in the inflorescence, though one is known. *C. nlemfuensis* usually has one, or two close together, and var. *nlemfuensis* also differs from *C. aethiopicus* in the herbaceous rather than woody culms. The diploid race of *C. aethiopicus* crosses with *C. nlemfuensis* var. *nlemfuensis*, and the tetraploid race crosses with *C. dactylon* var. *dactylon*.

Introduced; scattered occurrences in near coastal Qld; endemic to eastern Africa - Ethiopia to South Africa (Transvaal), mainly in the rift valleys. Introduced elsewhere. Grows in disturbed areas such as drains and old experimental plots.

Cynodon dactylon* (L.) Pers. *Syn. Pl.* 1: 85 (1805). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Panicum dactylon* L., *Sp. Pl.* 1: 58 (1753).

Type of Basionym or Protologue Information: In europa australi,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (187), [1878] G.Bentham, *Flora Australiensis* 7 (609), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (216), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (57), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (466), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (409), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (348), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (192).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (215, Pl. 64), [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (174), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (97), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 53A-D as var. *dactylon*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (349, Fig. 280 as var. *dactylon* & 350, Fig. 281 as var. *pulchellus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (192).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms geniculately ascending, 8–40 cm tall, 0.5–1 mm diam. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane or a ciliate membrane, 0.2–0.3 mm long. Leaf-blades flat or conduplicate, 1–12 cm long, 0.5–4 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1.8–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, herbaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–3 mm long, keeled, wingless, 3 -nerved. Palea 2 -nerved.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Dampier. Fortescue, Carnarvon, Austin. Drummond, Warren. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, Midlands, East Coast.

Notes. There are seven varieties, two occur in Australia, of which the rarer is endemic.

Cynodon dactylon (L.) Pers. var. **dactylon**

Extensively cultivated as a lawn grass, especially in the tropics, and as a pasture grass in some areas; becomes dominant after heavy grazing of native pasture on soils of moderate fertility; a very persistent weed of roadsides, gardens and pastures.

Cynodon dactylon var. **pulchellus**

Cynodon dactylon var. *pulchellus* appears to be endemic, differing from the cosmopolitan *C. var. dactylon* in the hirsute rather than glabrous or sparsely hairy leaves, greyish colouration, larger lemma with keel cilia three times as long and hairy sub-margins, and longer rachilla extension. *C. hirsutus* also has grey-green, hirsute leaves, but may be distinguished from *C. dactylon* var. *pulchellus* by its frequently three-nerved upper glume, lemma keels with wings and shorter cilia, and the lack of a rachilla prolongation.

Infra -specific taxa: var. **dactylon**, var. **pulchellus**.

Spikes more than 3 cm long with spikelets to 2.5 mm long **C. dactylon** var. **dactylon**

Spikes less than 3 cm long with spikelets 2.5–3 mm long

C. dactylon var. **pulchellus**

Cynodon dactylon var. dactylon

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T.

Notes. Extensively cultivated as a lawn grass, especially in the tropics, and as a pasture grass in some areas; becomes dominant after heavy grazing of native pasture on soils of moderate fertility; a very persistent weed of roadsides, gardens and pastures.

Throughout Australia including Lord Howe Is. Virtually cosmopolitan; apparently native in warm regions, usually cultivated or naturalized in temperate regions.

Cynodon dactylon var. pulchellus F. Muell. ex Benth. *Fl. Austral.* 7: 609 (1878).

Classification. Type of Basionym or Protologue Information: Australia: Murray River, *Dallachy s.n.*

Australian Distribution: South Australia, Victoria.

Notes. *Cynodon dactylon* var. *pulchellus* appears to be endemic, differing from the cosmopolitan *C. var. dactylon* in the hirsute rather than glabrous or sparsely hairy leaves, greyish colouration, larger lemma with keel cilia three times as long and hairy sub-margins, and longer rachilla extension. *C. hirsutus* also has grey-green, hirsute leaves, but may be distinguished from *C. dactylon* var. *pulchellus* by its frequently three-nerved upper glume, lemma keels with wings and shorter cilia, and the lack of a rachilla prolongation.

Endemic. In the Murray Valley in Vic. and S.A., and the SE of S.A.

Cynodon hirsutus* Stent. *Bothalia* 11: 227, 286 (1927). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Transvaal, *Burt-Davy* several syntypes cited.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Rhizomes absent. Stolons present. Culms erect or geniculate ascending or decumbent, 8–17 cm tall. Ligule an eciliate membrane, 0.7–1.3 mm long. Leaf-blades 2–8 cm long, 1–4 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), 1.8–2.5 mm long.

Glumes. Lower glume ovate. Upper glume ovate, 1–3 -nerved.

Florets. Fertile lemma 1.8–2.5 mm long, keeled, winged on keel.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast, South Coast.

Notes. Close to *C. incompletus* but distinguished by the longer glumes of *C. hirsutus* (half to 3/4 spikelet length, compared to half or less in *C. incompletus*), the occurrence of 3-nerved upper glumes in *C. hirsutus*, and the presence of a wing on the lemma keel only in the upper half, compared with a full-length wing in *C. incompletus*. Natural hybrids of *C. incompletus* and *C. hirsutus* are known from their native South Africa, and the 2 species cross readily with each other and with *C. dactylon* var. *dactylon* under experimental conditions.

Introduced; isolated occurrence in sub-alpine areas of northern and southern N.S.W.; Africa, Pacific and North America, endemic to southern Africa.

Cynodon incompletus* Nees. *Linnaea* 7: 301 (1832). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: IT: *Drége s.n.*, South Africa: Cape: Gaaup, in district Beaufort (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (192).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (192).

Habit. Perennial. Rhizomes absent or present. Stolons present. Culms erect or geniculate ascending, 5–40 cm tall, 1 mm diam. Ligule an eciliate membrane, 0.4–1 mm long, truncate. Leaf-blades 2–6 cm long, 1–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2.1–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic or oblong or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.1–3 mm long, keeled, winged on keel, 3 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Africa, Australasia, and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Reported to be a good, quick-growing feed relished by cattle, and also has been used for controlling erosion.

Cynodon incompletus differs from *C. dactylon* by its larger membranous ligule, shorter glumes relative to the floret, and the rachilla not being prolonged beyond the floret. Also the lemma is firmer in texture, with longer hairs and narrow wings on the keel. Generally, plants can be distinguished by their glaucous foliage and stouter, pallid or greenish (not purplish) spikes. Natural hybrids of *C. incompletus* and *C. hirsutus* are known from their native South Africa, and the 2 species cross readily with each other and with *C. dactylon* var. *dactylon* under experimental conditions.

Introduced; Eastern N.S.W. N from Sydney, and SE Qld; endemic to southern Africa; introduced elsewhere. Persistent in pastures and heavy traffic areas around buildings; seems to prefer basaltic or alluvial soils; also known from less disturbed areas, in Myall-Brigalow country and on poorer soils.

Cynodon nlemfuensis* Vandyerst. *Bull. Agric. Congo Belge* 13: 342 (1922). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: Vandyerst 6095, Zaire (BR).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (350).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (350, fig. 282).

Habit. Perennial. Rhizomes absent. Stolons present. Culms erect or geniculately ascending, 20–83 cm tall, 1–3 mm diam., firm. Ligule a fringed membrane, a ciliolate membrane, 0.1–0.3 mm long. Leaf-blades flat, 5–16 cm long, 2–6 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes straight or flexuous.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1.8–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic or oblong or ovate, 1.2–2 mm long, herbaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, wingless, 3 -nerved. Palea 2 -nerved.

Continental Distribution: Africa, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Gardner. **Northern Territory:** Central Australia South. **South Australia:** Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Burnett, Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, Wide Bay, Burke, Maranoa.

Notes. Endemic to eastern and central Africa introduced as a fodder grass elsewhere.

Cynodon nlemfuensis Vandyerst var. **nlemfuensis**

Introduced as a pasture grass; has become a vigorous weed in some areas.

The common name, Bermuda Grass, is applied to *C. dactylon* in other countries. The name of another East African species, *C. plectostachyus* (Schum.) Pilg. has been wrongly applied to specimens of *C. nlemfuensis* var. *nlemfuensis* in Australia. True *C. plectostachyus* is easily distinguished by the small glumes, which are less than 1/3, and often less than 1/5, as long as the spikelet. *C. nlemfuensis* var. *nlemfuensis* crosses with the diploid form of *C. aethiopicus*, and also the tetraploid *C. dactylon* var. *dactylon*. *C. nlemfuensis* differs from *C. dactylon* in the presence of woody stolons, absence of underground rhizomes, and in having flaccid rather than stiff spikes, and often longer leaves. The respective habits are very similar, and the species are often difficult to separate if the basal parts are missing from the specimen. var **Cynodon nlemfuensis** var. **robustus**

Distinguished from var. *nlemfuensis* by the stouter woodier culms, more slender spikes/racemes, and generally wider leaf blades. *C. nlemfuensis* var. *robustus* has been experimentally crossed with var. *nlemfuensis* and also with *C. dactylon* var. *dactylon*.

Infra-specific taxa: var. *nlemfuensis*, var. *robustus* .

Culms 1–1.5 mm in diameter; leaf blades 2–5 mm wide

C. nlemfuensis var. *nlemfuensis*

Culms 2–3 mm in diameter; leaf blades 5–6 mm wide

C. nlemfuensis var. *robustus* .

***Cynodon nlemfuensis* var. *nlemfuensis* ***

Australian Distribution: Northern Territory, Queensland.

Notes. Introduced. SE Qld as far W as the Charleville area, near-coastal N Qld between Mackay and Cairns; isolated records from better-watered areas of central Australia, and from N of Adelaide. Endemic to wetter parts of eastern and central Africa - Ethiopia to Zimbabwe and Angola; introduced as a fodder grass elsewhere. Found on sandy to black alluvial soils in disturbed area; vigorous, forming dense swards.

Introduced. SE Qld as far W as the Charleville area, near-coastal N Qld between Mackay and Cairns; isolated records from better-watered areas of central Australia, and from N of Adelaide. Endemic to wetter parts of eastern and central Africa - Ethiopia to Zimbabwe and Angola; introduced as a fodder grass elsewhere. Found on sandy to black alluvial soils in disturbed area; vigorous, forming dense swards.

***Cynodon nlemfuensis* var. *robustus* * Clayton & J.R. Harlan. *Kew Bull.* 24: 189 (1970).**

Classification. Type of Basionym or Protologue Information: Kenya, *Trapnell 2110* (HT: K).

Australian Distribution: Queensland.

Notes. Distinguished from var. *nlemfuensis* by the stouter woodier culms, more slender spikes/racemes, and generally wider leaf blades. *C. nlemfuensis* var. *robustus* has been experimentally crossed with var. *nlemfuensis* and also with *C. dactylon* var. *dactylon*.

Introduced. SE Qld. Eastern Africa - Ethiopia to Zimbabwe; introduced elsewhere as a fodder grass. Only one collection known from a naturalized population growing on embankments in solodic soil of low fertility.

***Cynodon radiatus** Roth ex Roem. & Schult. *Syst. Veg.* 2: 411 (1817). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.**

Type of Basionym or Protologue Information: India: 1814, *B. Heyne s.n.* (HT: L).

Recent synonyms: *C. arcuatus*.

Key references (books and floras): [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (as *C. dactylon* ssp. *arcuatus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 53I-L).

Habit. Annual. Rhizomes absent. Stolons present. Culms erect or geniculately ascending, stature slender to delicate, 15–80 cm tall, 1–2 mm diam., wiry. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades linear or lanceolate, 4–17 cm long, 3–6(–10) mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes drooping, flexuous.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1.6–2.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–1.4(–1.9) mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.6–2(–2.2) mm long, keeled, wingless, 3 -nerved. Lemma surface indumented. Palea 2 -nerved. Anthers 3.

Continental Distribution: Africa, or Temperate Asia, or Tropical Asia, or Australasia.

Australian Distribution: Northern Territory, Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Northern Territory: Darwin & Gulf. **Queensland:** North Kennedy.

Notes. Vigorously spreading colonizer of disturbed sites.

Cynodon radiatus can be distinguished from *C. dactylon* by its coarser habit, broader blades, and relatively slender inflorescence of longer, flaccid, pallid spikes. In indumentum the auricles and orifice are glabrous or sparsely bearded (always bearded in *C. dactylon*), the lateral nerves of the lemma are shortly hairy (not glabrous), and the keels of the palea are smooth (not scabrous). Furthermore, the ligule is somewhat longer, the

anthers are distinctly smaller, and the grain is unequally trigonous and laterally compressed (turgid or scarcely compressed in *C. dactylon*). Rhizomes are absent (present in *C. dactylon*).

Occurs within a 200 km radius of Darwin; Madagascar, SE Asia, India, Burma, Malesia, New Guinea and North America. Most frequently found in woodlands of *Eucalyptus*, *Callitris* or *Melaleuca*, on disturbed sites, often in or near creeks, sometimes at rainforest margins, in a variety of soil types from sand to dark brown loam. Reported to spread profusely by stolons up to 1.5 m in length.

Cynodon transvaalensis* Burt D. Burt. *Kew Bull.* 1921: 281 (1921). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: T: *J.B. Davy 18156*, Dec 1919, South Africa (US-1295750 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (193).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (193).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms erect or decumbent or prostrate, 4–15 cm tall, 0.2–0.5 mm diam. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.1–0.3 mm long. Leaf-blades filiform, involute, 1.2–4.7 cm long, 0.5–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2–2.7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 1.1–1.2 mm long, herbaceous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 2–2.7 mm long, keeled, wingless, 3-nerved. Palea 2-nerved.

Continental Distribution: Africa, Australasia, and North America.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Coast, Central Tablelands. **Victoria:** Gippsland Plain.

Notes. Used for bowling greens and golf courses, as it forms a close turf.

Established on, and possibly escaped from, bowling greens and golf courses in NW Vic., and SE Qld; naturalised at least in N.S.W.; indigenous to Transvaal; introduced as a lawn grass to other parts of South Africa, western U.S.A. (where it has escaped in places). Found on creek frontages and alluvial soil in isolated patches.

Cynosurus cristatus* Linn. *Sp. Pl.* 72 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Anon.*, (LINN-91.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 41 (1993). ST: *van Royen s.n.*, (L (2 sheets)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (44), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (118), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (193), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (344).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (99), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (119, Fig. 77), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (193).

Habit. Perennial. Culms erect or geniculately ascending, 5–133 cm tall, 1–3-noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–1.5 mm long, truncate. Leaf-blades aciculate, 2–36.5 cm long, 1–4.3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–14 cm long, 0.4–1 cm wide.

Spikelets. Spikelets sessile or pedicelled, 1 in the cluster. Companion spikelets sessile, 1 in the cluster. Companion spikelets developed, containing empty lemmas, 3.4–6 mm long. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with a barren rachilla extension, elliptic or oblong or cuneate, laterally compressed, 3–6 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1(–2) -nerved. Upper glume lanceolate or ovate, 3–5.1 mm long, membranous, keeled, 1-keeled, 2 -nerved.

Florets. Fertile lemma 3–4.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–1 mm long overall. Anthers 3. Grain 2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Eyre. **South Australia:** Southern Lofty, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Murray Mallee, Otway Plain, Otway Range, Snowfields, Wannon. **Tasmania:** Furneaux Group, North West, West Coast, Central Highlands, Midlands, East Coast, South West, Mt Field, Mt Wellington.

Notes. Often included as a component of lawns.

Introduced. Tas., N.S.W., A.C.T., Vic., W.A. and S.A. Native to the Mediterranean, widely naturalized in cooler temperate regions. Weed of roadsides, waste areas, grasslands, occasionally in pastures. Flowers Oct.–Feb. Fruits Jan.–?.

Cynosurus echinatus* Linn. *Sp. Pl.* 72 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Habitat in europa pratis,.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (44), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (409), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (119), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (193), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (346).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (43, Pl. 11), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (99), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (120, Fig. 78), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (193), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (345, Fig. 46).

Habit. Annual or perennial. Culms erect or geniculately ascending, stature robust to moderate or slender to delicate, 9–100 cm tall, 2–6 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 5–10 mm long, obtuse. Leaf-blades linear, 5–23 cm long, 3–14 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate or globose, 0.5–8 cm long, 1–2 cm wide.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets sessile, 1–2 in the cluster. Companion spikelets developed, containing empty lemmas, 7–13 mm long. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 1–5 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 8–14 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 6.4–12 mm long, membranous, keeled, 1-keeled, 2 -nerved.

Florets. Fertile lemma 5–7 mm long, without keel, 5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn apical or from a sinus, 6–16 mm long overall. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies, Warren, Eyre. **South Australia:** Lake Eyre, Flinders Ranges, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** Murray Mallee, Wilsons Promontory, Snowfields, Wimmera. **Tasmania:** North East, Central Highlands, Midlands, East Coast.

Notes. Introduced. Native to the Mediterranean, now naturalised in N.Z. and the Americas. In disturbed areas and open grasslands, often locally moist. Flowers Oct.–Feb. Fruits Jan.–Apr.

Cyperochloa hirsuta M. Lazarides & L. Watson. *Brunonia* 9: 216 (1986). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe 'Cyperochloae'. Cyperochloae.

Type of Basionym or Protologue Information: Australia: Western Australia: Esperance Botanical Region (Barlow 1986): 8 km W of Bluff Knoll, Stirling Range, 20 Oct 1983, *Keighery 7011* (HT: PERTH; IT: CANB, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms 7–50 cm tall, wiry. Mid-culm internodes solid. Lateral branches simple. Ligule a fringe of hairs, 0.6–0.8 mm long. Leaf-blades filiform, involute or convolute, 3–7 cm long, 0.8–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence digitate, of only a few spikelets. Peduncle brief, the inflorescence subsessile. Panicle 1–1.5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (4–9), comprising 4–9 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 7–9 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous or cartilaginous, without keels or keeled, 1-keeled, 3–5 -nerved. Lower glume surface indumented. Upper glume ovate, 2.6–3.6 mm long, membranous or cartilaginous, keeled, 1-keeled, 3–5 -nerved. Upper glume surface smooth or asperulous, indumented.

Florets. Fertile lemma 3.5–5 mm long, keeled, 5–7 -nerved. Lemma surface indumented. Lodicules present. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Eyre.

Notes. W.A. endemic, known from the Fitzgerald River and Stirling Ranges National Parks, sandy depressions, often seasonally waterlogged, in mallee country. Flowers Oct. to Nov.

Cyrtococcum accrescens (Trin.) Stapf. *Hook. Ic. Pl. sub t.* 3096 (1922).

Classification. Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (57).

Australian Distribution: Queensland.

Queensland: North Kennedy.

Cyrtococcum capitis-york B.K. Simon. *Austrobaileya* 3: 592 (1992). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook Dist.: 10.8 mi S of Batavia Downs on Peninsula Development Road, 21 Apr 1990, *J. R. Clarkson & V. J. Nelder* 8477 (HT: BRI-AQ463916; IT: B, BRI, DNA, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 15–30 cm tall, 7–9 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Ligule an eciliate membrane, 0.4 mm long. Leaf-blades lanceolate, 2.5–7 cm long, 3–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 1.5–1.7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume obovate, 1.5 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 1.4 mm long, without keel. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Cyrtococcum oxyphyllum (Steud.) Stapf. *Hooker's Icon. Pl.* 31: t3096 (1922). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Basionym and/or Replacement Name: *Panicum oxyphyllum* Hochst. ex Steud., *Syn. Pl. Glumac.* 1: 65 (1854).

Type of Basionym or Protologue Information: India, *Hrbr. Hohenack Ind. or.* 627.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (57), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms prostrate, 15–60 cm tall. Mid-culm nodes glabrous or pubescent. Ligule a fringed membrane, a ciliolate membrane, 0.7–1.7 mm long. Leaf-blades lanceolate or elliptic, 2–20 cm long, 5–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 1.25–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume surface glabrous. Upper glume oblong, 1.3–2 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1–1.7 mm long, without keel, 5 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Relatively short pedicels, long leaves and glabrous spikelets characterise this species.

Widespread in the tropics of Asia, extending to Queensland. In damp, shady, forest habitats. In tropical and subtropical rain forests, or tropical and subtropical sub-humid woodlands. Flowers Apr.-Sept.

Cyrtococcum patens

Australian Distribution: Queensland.

Dactylis glomerata* Linn. *Sp. Pl.* 71 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Habitat in Virginia, Canada, Lusitania. LT: *Anon.*, (LINN-90.3). LT designated by Clayton, Fl. Trop. E. Africa Gramineae (1): 43 (1970).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (640), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (104), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (409), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (121), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (194), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (343).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (105, Pl. 30), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (122, Fig. 79), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (101), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (194), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (341, Fig. 45).

Habit. Perennial. Culms erect or geniculate ascending, 15–140 cm tall. Leaves cauline. Ligule an eciliate membrane, 4–17 mm long, abaxially hairy. Leaf-blades conduplicate, (45–)150–680 cm long, 2–14 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–30 cm long, gathered into fascicles.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 5–9.4 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1(–3) -nerved. Upper glume ovate, 3.2–7.2 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 4–7.2 mm long, keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–1.5 mm long overall.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Menzies, Warren, Eyre. **South Australia:** Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Moreton, Wide Bay. **New South Wales:** Central Coast, South Coast, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. A very variable species including, at least in Europe, diploids and tetraploids, some of which have been given specific or subspecific rank. Australian material is apparently referable to subsp. *glomerata*.

Also on Lord Howe Is. Native to the Mediterranean region, now naturalized throughout the temperate regions of the world. Common weed along roadsides and disturbed areas, growing best on moist, fertile soils. Flowers Sept.-May.

Dactyloctenium aegyptium* (L.) Willd. *Enum. Hort. Berol.* 1029 (1809). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynosurus aegyptius* L., *Sp. Pl.* 1: 72 (1753).

Type of Basionym or Protologue Information: Habitat in Africa, Asia, America. LT: *van Royen s.n.*, (L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (615 as *Eleusine aegyptiaca*), [1969] E.E.Henty, *Manual Grasses New Guinea* (60), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (195).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 55F-G), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (195).

Habit. Annual or perennial. Rhizomes absent. Stolons present. Culms geniculately ascending or decumbent or prostrate, 5–100 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 1 mm long. Leaf-blades 3–25 cm long, 2.5–7.5 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 2.5–4.5 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume elliptic or oblong, 1.5–2.2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 2.5–4 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Barkly Tableland. **South Australia:** Northern Lofty. **Queensland:** Cook, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast.

Notes. As well as its value as a sand stabiliser, *D. aegyptium* is considered useful as pasture in some areas, and persists under grazing, but is reported (from overseas) to be rich in cyanogenetic glycosides and therefore a danger to stock at certain times.

Previously described as an annual, *D. aegyptium* frequently assumes a perennial, stoloniferous habit in Australia, and has been confused with the perennial *D. australe*. However, *D. aegyptium* is distinguished by the much shorter anthers and shorter rachis prolongation, with usually a greater number of spikes and abaxial side of leaf blades usually hairy from the base. It differs from the Australian endemic *D. radulans* in having a globoid rather than plano-convex or ellipsoid caryopsis, spikes usually longer and free from each other except at the base, and a taller habit.

Introduced; occurs mostly within 200 km of the eastern coast of Qld, from Brisbane to northern Cape York, in the northern part of the N.T. and within 100 km of the coast in the Kimberley region of W.A., but also reported from settled inland areas of the N.T. and Qld. Planted as a sand stabilizer in N.T. and coastal N.S.W. and persistent in some of these areas; A pan-tropical weed, distributed throughout the Old World Tropics, probably originating in Africa, and introduced into America. Most common in disturbed areas but also present in open *Eucalyptus* forest on a variety of soils, and on coastal dunes; flowers Jan.-Apr.

Dactyloctenium australe* Steud. *Syn. Pl. Glum.* 1:212 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: T: South Africa, *Drege*; holo: P.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (351), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (195).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 55H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (351, Fig. 283), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (195).

Habit. Perennial. Rhizomes absent. Stolons present. Culms erect or geniculately ascending or decumbent, 30–80 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 5 mm long. Leaf-blades 5–27 cm long, 2.5–4.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with spicate branches. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 4–5.5 mm long.

Glumes. Glumes dissimilar. Lower glume oblong, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate (0.5–0.75mm). Upper glume obovate, 1.7–1.9 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 2.5–4 mm long, keeled, 3 -nerved. Lemma apex mucronate (0.5–0.7mm), 1 -awned. Palea 2 -nerved. Anthers 3.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Carnarvon. Drummond. **Queensland:** Burnett, Cook, Leichhardt, Moreton, Port Curtis, Wide Bay, Warrego. **New South Wales:** North Coast, Central Coast.

Notes. Introduced in Australia and elsewhere as a lawn grass and sand-binder, particularly for shady areas. Has been reported suitable for, and tolerant of, grazing.

Sometimes confused with the annual weed, *D. aegyptium* because of the appearance of pseudo-stolons in the latter, but may be distinguished by the much longer anther, and usually longer rachis prolongation.

Introduced; naturalised on the N coast of N.S.W. and in SE Qld, and from Perth and Cararvon, W.A.; native to coastal and near-coastal areas of southern and eastern Africa.

Dactyloctenium buchananensis B.K.Simon. *Flora of Australia* 44B: 459, 319–320, 420, f. 75A-I. 2005.

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: western edge of Lake Buchanan, Yarromere Station, *J. Kemp & A. Knutt 3365H* (HT: BRI; IT: K, MEL, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *D. sp. A*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 75A-I).

Habit. Annual or ephemeral. Stolons absent. Culms erect or geniculately ascending, 8–40 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 1.5–3 cm long, 1–1.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence subdigitate, with spicate branches.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 2.5–3.5 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 2.5–3 mm long, coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 3–3.2 mm long, keeled, 1 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: South Kennedy.

Dactyloctenium giganteum* B. S. Fisher & Schweickerdt. *Ann. Natal Mus.* 10: 53 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: NAMIBIA: Grootfontein, *Schoenfelder 1018* (HT: NH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Stolons absent or present. Culms erect or geniculately ascending or decumbent, (37–)70–160 cm tall. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 1 mm long. Leaf-blades 11–45 cm long, 5–12 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes 3.5–11 cm long. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate or orbicular, laterally compressed, 4–7 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate or elliptic, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume elliptic or oblong, 1.5–2.2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 2.5–4 mm long, keeled, 3 -nerved. Lemma apex mucronate or awned, 1 -awned. Median (principal) awn 0.7–2 mm long overall. Palea 2 -nerved. Anthers 3. Grain 0.7–1.1 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Maranoa.

Notes. Considered useful for providing ground cover and grazing on land going out of cultivation and as a mulch to assist establishment of desirable perennial species in drier areas.

Dactyloctenium giganteum is similar to the very variable *D. aegyptium*. The easiest criterion for separating them is anther length, but in addition *D. giganteum* usually has a much more robust habit, longer less widely spreading spikes, narrower spikelets with longer awned upper glumes and narrower lemmas tipped with a definite scabrid awn-point, in contrast to the stouter cusp or mucro of *D. aegyptium*.

Introduced; collected from the wild at several localities in south central Qld; native to Africa. Collected from duplex soil in *Bothriochloa* grassland, brown clay in poplar box country, and sandy soils; prefers disturbed soil.

Dactyloctenium radulans (R.Br.) Beauv. *Ess. Agrost.* 72, 160 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Eleusine radulans* R. Br., *Prodr.* 186 (1812).

Type of Basionym or Protologue Information: (T.) Littora Novae Hollandiae intra tropicum.,

Key references (books and floras): [1810]. R.Brown, *Prodromus* (186 as *Eleusine radulans*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (210), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (462), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (353), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (195).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (209, Pl. 62), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 54D-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (352, fig. 284), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (194).

Habit. Annual or ephemeral. Stolons absent. Culms erect or geniculately ascending or decumbent or prostrate, 7–40 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.5 mm long. Leaf-blades 4–8 cm long, 3–4 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches. Racemes erect or ascending. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, ovate or obovate, laterally compressed, 3–5 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic or oblong, 1.5–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 2.5–3.5 mm long, keeled, 1 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0.5 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Giles, Helms, Fortescue, Carnarvon, Austin. Irwin, Avon, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South, Mitchell. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina.

Notes. A valuable pasture grass of the drier inland areas, both vegetative and floral parts being readily eaten by stock, but commonly increasing under heavy stocking. Sometimes indicates overgrazing or disturbance. Exhibits weedy behaviour in towns and on roadsides in less arid areas.

Endemic; distributed through inland areas of all mainland states, and occurring near to the coast and on off-shore islands above 24°S. Recorded growing on many soil types but most often on sand and in seasonally wet areas such as creek-banks and flood-plains; tolerates saline and swampy conditions and appears after flooding; in

grassland (sometimes with *Astrebla*) or shrubland, mulga, open forest, cleared land; erect when with other grasses, prostrate on bare ground; flowers normally Dec.-June, Oct.

Dallwatsonia felliana B.K. Simon. *Austrobaileya* 3: 678 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook Dist.: Rokeby National Park, Langi Lagoon, 25 km N of Ranger Station, 13.27S 142.41E, 30 Apr 1991, fringe and bank of a permanent freshwater lagoon, an occasional grass to 1 m growing in 10 cm of water, *D.G. Fell* 2295 (HT: BRI-AQ540192; IT: CANB, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 70–130 cm tall, 7 -noded. Lateral branches sparsely branched. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades 15–30 cm long, 3.5–7 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 15–22 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 3.5–4 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 5 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 3.5 mm long, membranous, without keels, 6–7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 3.5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Restricted to two localities on Cape York Peninsula.

Danthonia decumbens* (L.) DC. *Fl. Fr.* ed 3,3: 33 (1805). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Festuca decumbens* L., *Sp. Pl.* 75 (1753).

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-92.16). LT designated by Baeza P. in Cafferty et al., *Taxon* 49(2): 250 (2000).

Recent synonyms: *Sieglingia decumbens*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 4, H-J).

Habit. Perennial. Culms erect or geniculately ascending, 10–45(–70) cm tall, 1–3 -noded. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades flat or involute, 5–25 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or oblong, 2–7 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, (6.5–)8–11(–13) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume lanceolate or ovate, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 4–7 mm long, without keel, 7–9 -nerved. Lemma apex dentate, mucous or mucronate. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2–2.1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Victoria, Tasmania.

Victoria: Gippsland Plain, Wilsons Promontory. **Tasmania:** West Coast, South West.

Notes. Rare in Tasmania, introduced from Europe as a fodder grass. This species was widely introduced into temperate regions, but is rarely an aggressive invader.

Deschampsia cespitosa (L.) Beauv. *Ess. Agrost.* 91, 149, 160 (1812). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Aira cespitosa* L., *Sp. Pl.* 1: 64–65 (1753).

Type of Basionym or Protologue Information: Hab. in Europae partis cultis & fertilibus.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (587 as *Deschampsia caespitosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (211), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (196), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (257).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (210, fig. 157), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *D. caespitosa*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (196), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (260, Fig.35).

Habit. Perennial. Rhizomes present, short. Culms erect, 20–200 cm tall, 1–3 -noded. Leaves mostly basal. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 10–15 mm long, acute. Leaf-blades flat or involute, 80–270(–600) cm long, 1.5–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 6.5–50 cm long, 3–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, lanceolate or oblong, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, 4–6.8 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 3–4.5 mm long, without keel, 5–7 -nerved. Lemma apex erose or dentate, awned, 1 -awned. Median (principal) awn dorsal, 3–5 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania, Macquarie, Heard.

South Australia: Southern Lofty. **New South Wales:** Southern Tablelands, Central-Western Slopes, North-Western Plains. **Victoria:** Midlands, Snowfields. **Tasmania:** North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. Complex species with a number of subspecific taxa recognised in Europe.

Widely distributed, Europe, eastern Asia Africa and North America. From sea-level to high altitudes, usually in fresh or brackish water, margins of salt marshes, peaty sites. Flowers Sept.-Mar. Fruits Mar.

Deschampsia chapmanii

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Deschampsia gracillima T. Kirk. *Journ. Bot.* 24: 237(1891). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *T. Kirk s.n.*, 12 Jan 1890, New Zealand: above Carnley Harbour, Lord Auckland's Group (WELT-69440). LT designated by Edgar & Connor, *Fl. New Zealand* 5: 312 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (258).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 5–20 cm tall. Leaves mostly basal. Ligule an eciliate membrane. Leaf-blades filiform, convolute, 1–4 cm long, 0.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate or pyramidal, 1–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2 mm long, without keel, 5 -nerved. Lemma apex dentate, mucicous or mucronate. Median (principal) awn (mucro) subapical. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia and Antarctica.

Australian Distribution: Tasmania.

Tasmania: Central Highlands.

Notes. One of a group of species unusual in *Deschampsia* with a very small, subapical awn or with the awn absent.

Native. Maxwell Ridge and Moonlight Ridge near Mt La Perouse, Tas. Also New Zealand.

Desmostachya bipennata*

Australian Distribution: Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Deyeuxia acuminata Vickery. *Contr. New South Wales Natl. Herb.* 1: 73 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Guyra: McKie 658 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (199), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (207).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (199).

Habit. Perennial. Culms erect, stature robust to moderate, 100 cm tall, firm, 5 -noded. Mid-culm nodes glabrous. Leaves cauline. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 4–8 mm long, membranous, abaxially hairy, lacerate, truncate. Leaf-blades linear, 15–30 cm long, 2–5 mm wide. Leaf-blade surface scaberulous or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 20–40 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 5–5.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 5–5.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 1–1.5 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands.

Notes. Endemic. Northern tablelands of N.S.W. Grows in woodland in hilly country. Flowers spring.

Deyeuxia affinis M. Gray. *Contrib. Herb. Austral.* 26: 9 (1976). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Mt. Kosciusko: Gray 6759 & Totterdell (CANB holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (199), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (210).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (199), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms geniculately ascending, stature slender to delicate, 30 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, membranous, truncate or obtuse. Leaf-blades conduplicate or involute, 1–6 cm long, 3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle elliptic or oblong, 2–5 cm long.

Spikelets. Fertile spikelets with a barren rachilla extension, 2.8–3.5 mm long.

Glumes. Lower glume lanceolate, 1 -nerved. Upper glume lanceolate, 2.5–3.5 mm long, 1 -nerved.

Florets. Fertile lemma 2.3–2.8 mm long, without keel. Lemma apex dentate, awned. Median (principal) awn dorsal, with a straight or slightly twisted column or with a twisted column. Palea apex entire or dentate.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Endemic. In the Kosciusko region of N.S.W. and near Mt Cope, Vic. In rocky areas of short alpine herbfields, and in moist areas. Flowers Jan.-Feb.

Deyeuxia angustifolia Vickery. *Contr. New South Wales Natl. Herb.* 1: 67 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Blue Mts., Wentworth Falls: *Vickery K32* (K holotype, CANB, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (199), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (207).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (199).

Habit. Perennial. Culms erect, stature slender to delicate, 30–70 cm tall, 4-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–2 mm long, membranous, abaxially scaberulous, truncate. Leaf-blades involute or convolute, 15–30 cm long, 1–4 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, loose, 1–9 cm long, 0.4–0.7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 4–5 mm long, chartaceous, keeled, 1-keeled, 1-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 4–5 mm long, without keel, 5–7-nerved. Lemma apex entire or dentate, awned, 1-awned. Median (principal) awn subapical, 1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands, Southern Tablelands.

Notes. Endemic. N.S.W. and A.C.T. Usually in sclerophyll forest, in gullies and crevices, also in swamps. Flowers spring-summer.

Deyeuxia appressa Vickery. *Contr. New South Wales Natl. Herb.* 1: 54 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: IT: *J. Vickery 102A*, 9 Nov 1930, Australia: New South Wales, George's River, Herne Bay (K, SYD, US-1816916 (culm ex SYD)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (200), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (201).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (200).

Habit. Perennial. Culms erect, 90 cm tall, 5-noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–2 mm long, membranous, abaxially hairy, lacerate, truncate. Leaf-blades linear, flat or involute, 10–30 cm long, 2–4 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong or ovate, 20–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 3.5–4.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 4.5 mm long, without keel, 5-nerved. Lemma apex dentate, awned, 1-awned. Median (principal) awn dorsal, 5 mm long overall, without a column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast.

Notes. Endemic. In the Hornsby area of N.S.W. On wet ground. Flowers spring-summer.

Deyeuxia apsleyensis D.I. Morris. *Muelleria* 7:160 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Apsley River area, north of Apsley Gorge, 3 Feb 1988, *F. Duncan s.n.* (HT: HO-111147; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (198).

Habit. Perennial. Culms erect, stature slender to delicate, 50–90 cm tall. Mid-culm internodes glabrous or pilose. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or retrorsely scabrous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 1 mm long, membranous, abaxially hairy, obtuse. Leaf-blades conduplicate or involute, 15–35 cm long, 1–1.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, 7–14 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 5.5–6.75 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 5–6.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 5–6.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 7.5–8 mm long overall, with a twisted column. Lodicules present. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: East Coast.

Notes. Endemic. E of Apsley R. above Apsley Gorge, Tas. Eucalypt forest in undulating low hills.

Deyeuxia boormanii (Vickery) N.G.Walsh. *Fl. Australia* 44A: 386 (2009).

Classification. Basionym and/or Replacement Name: *D. parviseta* var. *boormanii* Vick., *Contrib. NSW Nat. Herb.* 1:72 (1940).

Type of Basionym or Protologue Information: Australia, Braidwood: *Boorman K55* (K holo, NSW).

Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (209).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (205, as *D. parviseta* var. *boormanii*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Australian Distribution: New South Wales, Victoria, A.C.T.

Deyeuxia brachyathera (Stapf) Vickery. *Contr. New South Wales Natl. Herb.* 1:68 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Dichelachne brachyanthera* Stapf, *Bull. Misc. Inform. Kew* 1906: 203 (1906).

Type of Basionym or Protologue Information: HT: *Gregson s.n. (Gryson)*, (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (200), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (201).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (200), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect, 60–120 cm tall, 4 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3 mm long, membranous, abaxially scaberulous, truncate or obtuse. Leaf-blades linear, flat, 10–35 cm long, 3–7(–11) mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong or ovate, 8–28 cm long, 0.8–2 cm wide, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 3.5–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 5.7 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3.5–6 mm long, without keel, 5(–7) -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 4–5 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Snowfields. **Tasmania:** Central Highlands, Ben Lomond.

Notes. Endemic. Central Highlands and Ben Lomond region, Tas., S from New England, A.C.T. and Vic. Usually in cool, damp forest and mountain gullies, in or near peaty bogs or swamps, also wet alpine grasslands and heathlands. In Tas. from 400–1435 m altitude. Flowers Nov.-Apr.

Deyeuxia breviglumis Benth. *Fl. Austral.* 7: 584 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: New England, *C. Stuart s.n.*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (584 as ? *Deyeuxia breviglumis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (212).

Habit. Annual. Culms erect, stature slender to delicate, 5–54 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, membranous, truncate or obtuse. Leaf-blades linear, involute or convolute, 2–9.5 cm long, 0.4–1 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 1.5–13 cm long.

Spikelets. Fertile spikelets 1-flowered, with a barren rachilla extension, laterally compressed, 1.9–2.3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, 1 -nerved. Upper glume lanceolate, 1–1.3 mm long, 1 -nerved.

Florets. Fertile lemma 1.9–2.1 mm long, keeled, 5 -nerved. Lemma surface glabrous. Lemma apex entire, awned. Median (principal) awn subapical. Palea apex entire or dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands.

Notes. Close to *D. gunniana* but the callus glabrous, the rachilla prolongation long and glabrous, the spikelet larger, and the inflorescence and leaf blades appearing 'stiffer'.

Endemic. Collected from wet, marshy and boggy grass flats and herbfields. Flowers Jan.-Feb. Fruits Feb.-Mar.

Deyeuxia carinata Vickery. *Contr. New South Wales Natl. Herb.* 1: 58 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Mt. Kosciusko: *Mueller* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (200), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (200).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (200), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (196, Fig.27).

Habit. Perennial. Culms erect or decumbent, 20–55 cm tall, 3 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule a fringed membrane, a ciliolate membrane, 5–6 mm long, membranous, abaxially hairy, erose, truncate. Leaf-blades linear, flat or conduplicate, 5–12(–17) cm long, 1–4 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, dense, 2.5–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 4.5–6 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3.5–5.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 4 mm long overall, with a straight or slightly twisted column or with a twisted column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** West Coast, Central Highlands, Mt Field, Mt Wellington.

Notes. Endemic. S from the Walcha district. In damp, rocky areas and swamps in montane areas. Flowers Dec.-Mar.

Deyeuxia contracta (F. Muell. ex Hook. f.) Vickery. *Contr. New South Wales Natl. Herb.* 1: 65 (1940).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (201), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (206).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (201), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect or geniculately ascending, 30–110 cm tall, 4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long, membranous, obtuse. Leaf-blades linear, flat or conduplicate, 4–17(–23) cm long, 2–4 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong or ovate, 7–20(–40) cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 2.5–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2.5–3 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5–1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland. **Tasmania:** North West, West Coast, East Coast, South West.

Notes. Very close to *D. scaberula*.

Endemic. S from the Budawang Ra. Under light eucalypt cover and on the margins of wet sclerophyll. Flowers Dec.-Mar.

Deyeuxia crassiuscula Vickery. *Contr. New South Wales Natl. Herb.* 1: 59 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis nivalis* F. Muell., *Trans. Vict. Inst.* 43 (1855).

Type of Basionym or Protologue Information: Australia, Mt. Buller: *Mueller* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (201), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (202).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (201), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect or geniculately ascending, stature robust to moderate, 15–30 cm tall, 3–7 -noded. Leaves mostly basal. Leaf-sheaths smooth. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long, membranous, abaxially scaberulous or abaxially hairy, lacerate, truncate. Leaf-blades linear, flat or involute, 3–10 cm long, 2–6 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong or ovate, 2.5–10 cm long, 0.7–1.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucicous or mucronate. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 4 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn dorsal, 0.5–6 mm long overall, without a column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Endemic. S from the Brindabella Ra. In rocky, damp areas at high altitude above tree-line. Flowers Dec.-Mar.

Deyeuxia decipiens (R. Br.) Vickery. *Contr. New South Wales Natl. Herb.* 1: 70 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis decipiens* R. Br., *Prodr.* 172 (1810).

Type of Basionym or Protologue Information: Australia.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (172 as *Agrostis decipiens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (201), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (206).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (201), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect, 45–100 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–4 mm long, membranous, abaxially scaberulous, lacerate, truncate or obtuse. Leaf-blades aciculate or filiform or linear, involute or convolute, 10–30 cm long, 3–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 12–34 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, (1.5–)2–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5–1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Darling Downs. **New South Wales:** Central Coast, South Coast, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland. **Tasmania:** East Coast.

Notes. Endemic. Usually on sandy soils, under light forest, often in hilly country or wet places. Flowers spring.

Deyeuxia densa Benth. *Fl. Austral.* 7: 582 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: ST: *F. Mueller s.n.*, Australia: Victoria: Wilson's Promontory, Maroka Valley and the Yarra River ST: *F. Mueller s.n.*, Australia: South Australia: Lofty Ranges and Onkaparinga.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (582), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (211), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (200).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (196, Fig. 27212, fig. 158).

Habit. Perennial. Culms stature slender to delicate, 30–90 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, 3–4 mm long,

membranous, abaxially scaberulous, entire or erose, obtuse. Leaf-blades linear, flat or involute, 2–15 cm long, 1–3 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong or ovate, dense, 2–15 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, (3–)3.5–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 5–5.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 5–5.5 mm long, without keel, 5 -nerved. Lemma apex entire or erose or dentate, awned, 1 -awned. Median (principal) awn dorsal, 5 mm long overall, with a straight or slightly twisted column or with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** Furneaux Group, West Coast, Central Highlands, East Coast, South West.

Notes. Endemic. Commonly in heaths, sedgelands and on stream banks in damp, open to lightly shaded sites, but in rocky sites at high altitudes in the Grampians, Vic. Flowers Oct.-Jan.

Deyeuxia drummondii (Steud.) Vickery. *Contr. New South Wales Natl Herb.* 1: 49 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Dichelachne drummondiana* Steud., *Syn. Pl. Glumac.* 1: 120 (1854).

Type of Basionym or Protologue Information: HT: *J. Drummond IV, 371*, Australia: Western Australia: fl. Cygnorum (P; IT: K (photo, SI), L, LE). L lists their specimen as HT.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (580), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (156), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (197).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (157, Pl. 47).

Habit. Annual or perennial. Culms decumbent, stature slender to delicate, 5–25 cm tall, 2–3 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–3.5 mm long, membranous, lacerate. Leaf-blades linear, flat, 1–8 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 1.5–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 6–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 4–5 mm long overall, with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Eyre.

Notes. Endemic.

Deyeuxia frigida F. Muell. ex Benth. *Fl. Austral.* 7: 583 (1878), p.p. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: ST: *F. Mueller s.n.*, Australia: Victoria: Mount Buller ST: *Gunn s.n.*, Australia: Tasmania: New Norfolk ST: *Oldfield s.n.*, Australia: Tasmania.

Recent synonyms: *D. accedens* .

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (583), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (202), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (198).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (202), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (196, Fig.27).

Habit. Perennial. Culms erect or geniculately ascending, stature robust to moderate, 90–150 cm tall, 5–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–3 mm long, membranous, abaxially scaberulous, erose or lacerate, truncate or obtuse. Leaf-blades linear, flat, 10–20 cm long, 1.5–6 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 8–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 4–5.5(–7) mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–5.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–5 mm long, without keel, 5 -nerved. Lemma apex entire or erose, awned, 1 -awned. Median (principal) awn dorsal, 4–5 mm long overall, with a straight or slightly twisted column or with a twisted column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Snowfields. **Tasmania:** Central Highlands, Ben Lomond, East Coast, Mt Wellington.

Notes. Very similar to *D. rodwayi*.

Endemic. S from Sydney, N.S.W., A.C.T., Vic. and Tas. In montane forest, alpine woodland and grassland, often in rocky sites. Flowers Dec.-Apr.

Deyeuxia gunniana (Nees) Benth. *Fl. Austral.* 7: 584 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Echinopogon gunnianus* Nees, *London J. Bot.* 2: 413 (1843).

Type of Basionym or Protologue Information: Hampstead Hills, insulae Van Diemen Feb 1837, *Gunn* 1011.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (584), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (202), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (211).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (202), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 7–40 cm tall, 2–3 -noded. Lateral branches simple or branched. Leaves mostly basal. Ligule an eciliate membrane, 1 mm long, membranous, truncate or obtuse. Leaf-blades filiform, conduplicate or convolute, 2–15 cm long, 0.5–0.8 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong or ovate or pyramidal, dense, 1.5–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, elliptic, laterally compressed, 1.6–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 0.8–1.3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, without keel or keeled, 3–5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5 mm long overall. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Darling Downs. **New South Wales:** North Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Snowfields. **Tasmania:** North West, West Coast, Central Highlands, Ben Lomond, South West.

Notes. Endemic. Grows in shady or wet situations by creek and river banks, and by the margins of swamps.

Deyeuxia imbricata Vickery. *Contr. New South Wales Natl. Herb.* 1: 55 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Glen Innes: Vickery K36 (K holo, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (202), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (202).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (202).

Habit. Perennial. Culms erect, 80–120 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, membranous, erose, truncate. Leaf-blades linear, 15–30 cm long, 2–4.5 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or elliptic or oblong, dense, 2.5–15 cm long, 0.6–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, elliptic, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–3 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 0.5–1 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Darling Downs. **New South Wales:** Northern Tablelands, Central Tablelands. **Victoria:** Midlands.

Notes. Endemic. Recorded from a single collection in Vic., N from the Jenolan Caves, N.S.W. and into Qld. Usually on granite soils. Flowers spring.

Deyeuxia inaequalis Vickery. *Contr. New South Wales Natl. Herb.* 1: 49 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Arnolds: *Carne* (K holo).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (158), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (410), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (197).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (157, Pl. 47).

Habit. Annual or perennial. Culms erect, stature slender to delicate, 75 cm tall, 3–4 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–5 mm long, membranous, lacerate, truncate. Leaf-blades linear, 5–12 cm long, 1–5 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, dense, 1–6 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–2.5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 3.5–4.5 mm long overall, with a straight or slightly twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Warren, Eyre.

Notes. Endemic.

Deyeuxia innominata D.I. Morris. *Muelleria* 7: 164 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Wurragurra Creek, 29 Jan 1983, A. Moscal 1569 (HT: HO-62754; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (203), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (210).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (203), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms stature slender to delicate, 15–25(–60) cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, 2–2.5 mm long, membranous, truncate. Leaf-blades straight or curved, linear, conduplicate or involute, 4–8(–15) cm long, 0.5–3 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic or oblong, 2–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 2–3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.2–3 mm long, without keel, 5 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn subapical, 0.5–1 mm long overall. Lodicules present. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** Central Highlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Endemic. In alpine moorlands, boulder fields, sedge-grasslands and heaths, often in damp sites; in Tas. from 550 m to 1300 m. Flowers Jan.-Mar.

Deyeuxia lawrencei Vickery. *Contr. New South Wales Natl. Herb.* 1: 48 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Tasmania: Lawrence 12 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (197).

Habit. Perennial. Culms erect, stature robust to moderate, 50–60 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Ligule an eciliate membrane, 2–5 mm long, membranous, lacerate, obtuse. Leaf-blades linear, flat or involute, 4–15 cm long, 1.5–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, dense, 9 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 7–8 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 4–5 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 8–10 mm long overall, with a twisted column. Palea apex erose. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Midlands.

Notes. Endemic.

Deyeuxia mckiei Vickery. *Contr. New South Wales Natl. Herb.* 1: 72(1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Guyra: McKie 657 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (203), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (203).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (203).

Habit. Perennial. Culms erect, stature robust to moderate, 60–120 cm tall, firm, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves cauline. Leaf-sheaths scaberulous. Ligule an eciliate membrane,

2–4 mm long, membranous, abaxially scaberulous, truncate or obtuse. Leaf-blades linear, flat or involute, 5–30 cm long, 2–6 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 7–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 2.5–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast, South Coast, Northern Tablelands, Central Tablelands.

Notes. Endemic. In mountain forests. Flowers spring-summer.

Deyeuxia mesathera Stapf ex Vickery. *Contr. New South Wales Natl. Herb.* 1: 53 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Sydney: *Cheel* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (203), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (202).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (203).

Habit. Perennial. Culms erect or geniculately ascending, 80–120 cm tall, 4–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–4 mm long, membranous, abaxially scaberulous, entire or erose, truncate. Leaf-blades linear, flat or convolute, 8–45 cm long, 2–3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, dense, 5.5–25 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 3.5–4 mm long overall, without a column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast, Central Tablelands, Southern Tablelands.

Notes. Endemic. S from Sydney. In swamps and on river banks. Flowers spring.

Deyeuxia microseta Vickery. *Contr. New South Wales Natl. Herb.* 1: 66 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Blue Mts., Wentworth Falls: *Vickery* K33 (K holo, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (203), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (204).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (204).

Habit. Perennial. Culms erect, stature slender to delicate, 40–120 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–4 mm long, membranous, abaxially hairy, lacerate, obtuse. Leaf-blades linear, flat, 5–20 cm long, 1.5–5 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic or oblong, loose, 2.5–16 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3.5–5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.5–4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–3.5 mm long, without keel, 3–5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5–1 mm long overall. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands.

Notes. Endemic. In wetter areas of montane sclerophyll forest. Flowers spring.

Deyeuxia minor Benth. *Fl. Austral.* 7: 582 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Tasmania, Southport: *Stuart* (K lecto).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (582), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (212), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (199).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (196, Fig. 27; 212, fig. 159).

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 8–45(–62) cm tall, 3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–2 mm long, membranous, erose, truncate or obtuse. Leaf-blades linear, flat or involute, 2–20 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, dense, 1–5 cm long, 0.5–0.9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 4–5 mm long overall, with a twisted column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** East Coast, South West.

Notes. Endemic. Under light eucalypt cover or margins of wet sclerophyll forest. Flowers Nov.-Dec.

Deyeuxia monticola (Roem. & Schult.) Vickery. *Contr. New South Wales Natl. Herb.* 1: 56 (1940).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis monticola* Roem. & Schult., *Syst.* 2: 359 (1817), based on *Vilfa montan* R.Br.

Type of Basionym or Protologue Information: Australia, Tasmania, Table Mt.: Brown 6215 (BM holo, K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis montana*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (204), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (195).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (204), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (196, Fig.27).

Habit. Perennial. Culms erect or decumbent, 10–135 cm tall, 2–3 -noded. Mid-culm internodes glabrous or pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long, membranous, abaxially scaberulous, truncate or obtuse. Leaf-blades aciculate, involute, 5–20 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong or ovate, dense, (20–)50–150(–220) cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1(–2) fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3.5–6 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–6 mm long, without keel, 5–7-nerved. Lemma apex erose or dentate, awned, 1-awned. Median (principal) awn dorsal, 6–8 mm long overall, with a twisted column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Midlands, Snowfields. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Endemic. Grows in woodland or grassland, usually in open well-drained sites at high altitudes, occasionally in wet sclerophyll and rocky places. Flowers spring–summer.

Deyeuxia nudiflora Vickery. *Contr. New South Wales Natl. Herb.* 1: 67 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Nowra district: *Rodway* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (204), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (207).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (204).

Habit. Perennial. Culms geniculately ascending, stature slender to delicate, 40–70 cm tall, 6-noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long, membranous, abaxially glabrous, truncate. Leaf-blades linear, flat or involute, 4–10 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 3–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 3–3.5 mm long, membranous, keeled, 1-keeled, 1-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–3.5 mm long, without keel, 5-nerved. Lemma apex entire or erose or dentate, muticous or awned. Median (principal) awn subapical. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast, South Coast, Central Tablelands, Southern Tablelands.

Notes. Endemic. Usually in shaded sites or near creeks. Flowers summer.

Deyeuxia parviseta Vickery. *Contr. New South Wales Natl Herb.* 1: 71 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Blue Mts., Blackheath: *Vickery K29* (K holo, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (204), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (209).

Habit. Perennial. Mid-culm nodes glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 1–4 mm long, abaxially scaberulous, erose, truncate. Leaf-blades 10–25 cm long, 2–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 12–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, with a barren rachilla extension, lanceolate, laterally compressed, 2.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn subapical, 0.5–1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Port Curtis, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland.

Notes. Key to varieties

Glumes shorter than florets; lemmas c. obscurely nerved;
leaf blades adaxially scabrous

a. var. **parviseta**

Glumes about equalling the florets; lemma prominently nerved;
leaf blades adaxially sacbrous to pubescent

b. var. **boormanii**

Endemic. In damp and shady sclerophyll forest or rainforest. Flowers spring.

Infra -specific taxa: var. **parviseta**, var. **boormanii**.

Glumes shorter than the florets; lemma c. obscurely nerved; leaf blades adaxially scabrous

D. parviseta var. **parviseta**

Glumes about equalling the florets; lemma prominently nerved; leaf blades adaxially scabrous to pubescent

D. parviseta var. **boormanii**

Deyeuxia pungens N.G. Walsh. *Muelleria* 7: 452–453 (1992). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, East Gippsland: *Wakefield* 2762 (MEL holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (208).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect, 50–100 cm tall. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane, 4–11 mm long, scarious, lacerate, acute. Leaf-blades erect, aciculate, involute, 20–45 cm long, 1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 10–30 cm long, 0.5–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 4–5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 4–5 mm long, without keel, 5 -nerved. Lemma apex erose, muticous or mucronate or awned, 1 -awned. Median (principal) awn subapical, 0.5 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: East Gippsland.

Notes. Endemic. Known only from near Suggan Buggan, Vic. From sandstone crags in rain shadow country. Flowers Dec.-Jan.

Deyeuxia quadriseta (Labill.) Benth. *Fl. Austral.* 7: 581 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena quadriseta* Labill., *Nov. Holl. Pl.* 1: 25, t. 32 (1805).

Type of Basionym or Protologue Information: HT: *Labillardière s.n.*, Australia: Tasmania (FI; IT: P).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis quadriseta*, *Agrostis cylindrica*, *Agrostis lobata*), [1878] G.Bentham, *Flora Australiensis* 7 (581as *Deyeuxia quadriseta*, 582 as *Deyeuxia cylindrica*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (158), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (411), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (214), [2008]

S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (205), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (194).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (157, Pl. 47), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (213, fig. 160), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (107), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (205), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (196, Fig. 27; 213, Fig.29).

Habit. Perennial. Culms 15–120 cm tall, 3–4 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 4–7 mm long, membranous, lacerate, obtuse. Leaf-blades linear, flat or involute, 10–30 cm long, 2.5–7 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, dense, 3–21 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 3–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–4 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 5–6 mm long overall, with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **South Australia:** Flinders Ranges, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. A variable species within which Vickery recognised several forms.

Also New Zealand. Commonly in damp situations by creeks and in swamps. Flowers Oct.-May.

Deyeuxia ramosa C.M.Weiller & N.G.Walsh. *Fl. Australia* 44A: 385 (2009). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *D. sp. B*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (208).

Habit. Annual. Stolons present. Culms erect or decumbent (at base), stature slender to delicate, 55–130 cm tall, 5–10 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, membranous, truncate. Leaf-blades linear, flat, 7–16 cm long, 1–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong or ovate, 20–95 cm long, evenly furnished.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, laterally compressed, 2.5–2.8 mm long.

Glumes. Lower glume lanceolate, 1 -nerved. Upper glume lanceolate, 2.4–2.9 mm long, 1 -nerved.

Florets. Fertile lemma 2.3–2.4 mm long, keeled, 5 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn subapical. Palea apex entire. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: South Coast. **Victoria:** East Gippsland.

Notes. Endemic. Apparently restricted to the Endrick R. area in N.S.W. and far E Vic. Recorded growing amongst sandstone rocks near Nerriga. Flowers Dec.-June.

Deyeuxia reflexa Vickery. *Contr. New South Wales Natl. Herb.* 1: 69 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Dorrig Mt.: Vickery K31 (K holo, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (205), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (203).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (205).

Habit. Perennial. Culms erect, stature robust to moderate, 120 cm tall, 6 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaves cauline. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Ligule an eciliate membrane, 2–3 mm long, membranous, abaxially hairy, lacerate, obtuse. Leaf-blades linear, flat or involute, 15–30 cm long, 2–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, effuse, 10–20 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 2–2.5 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast.

Notes. Endemic. Restricted to the Dorrig area of N.S.W. In montane woodland. Flowers summer.

Deyeuxia rodwayi Vickery. *Contr. New South Wales Natl. Herb.* 1: 60 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Mt. Wellington: *Rodway* 20 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (206), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (199).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (206), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (196, Fig.27).

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 15–70 cm tall, 3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, membranous, abaxially scaberulous, lacerate, truncate. Leaf-blades linear, flat, 4–23 cm long, 0.7–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 3–13 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3.5–4.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–4.2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3.5–4.2 mm long, without keel, 5 -nerved. Lemma apex erose or dentate, awned, 1 -awned. Median (principal) awn dorsal, 2 mm long overall, with a straight or slightly twisted column or with a twisted column. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Moreton. **New South Wales:** Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Otway Range, Wilsons Promontory, Snowfields. **Tasmania:** West Coast, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Endemic. In wet sclerophyll forests, dry sclerophyll exposed to sea mists and montane woodlands. Flowers Nov.-Mar.

Deyeuxia scaberula Vickery. *Contr. New South Wales Natl. Herb.* 1: 64 (1940). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: IT: *R.C. Gunn s.n.*, Australia: Tasmania (L).

Recent synonyms: *D. benthamiana*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (200 as *D. benthamiana* & 206), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (204).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (206 and 200 as *D. benthamiana*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Culms erect, stature slender to delicate, 60–90 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 2–3 mm long, membranous, abaxially hairy, lacerate, truncate. Leaf-blades linear, flat, 5–20 cm long, 1.5–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 5–28(–35) cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 0.5–1 mm long overall, without a column. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, Central Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Otway Range, Snowfields. **Tasmania:** West Coast, Central Highlands, South West.

Notes. Resembles *D. frigida*, differing in the smaller spikelets, the lemma distinctly shorter than the upper glume, and the shorter awn.

Endemic. In wet sclerophyll or montane forest, in rocky habitats in montane forest. Flowers Nov.-Mar.

Deyeuxia talariata N.G. Walsh. *Muelleria* 7: 386 (1991). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, East Gippsland: *Walsh* 801 (MEL holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (211).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (205, Fig.28).

Habit. Perennial. Rhizomes present, short. Culms erect, 25–110 cm tall. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 1.5–3 mm long, membranous, truncate. Leaf-blades linear, conduplicate, 6–40 cm long, 1.5–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 4–17 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, cuneate, laterally compressed, 3.6–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.6–5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3.6–5 mm long, without keel, 5 -nerved. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn apical or subapical, 0.3–0.8 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Endemic. N.S.W. and Vic. where it is rare on and near the Cobberas and Nunniong Plateau. Grows in sodden, *Sphagnum*-rich heath at altitudes above 1000 m. Flowers Feb.

Deyeuxia valida (Vickery) C.M.Weiller. *Fl. Australia* 44a: 385 (2009). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Recent synonyms: *D. monticola* var. *valida*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *D. sp. A*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (195).

Habit. Perennial. Culms stature robust to moderate, 25–140 cm tall, 2–5 -noded. Lateral branches simple or branched. Leaves mostly basal. Ligule an eciliate membrane, membranous, truncate or obtuse. Leaf-blades linear, flat or involute, 5–22 cm long, 1–4 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 4.5–27.5 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, laterally compressed, 5.2–8.5 mm long.

Glumes. Lower glume lanceolate, 1 -nerved. Upper glume lanceolate, 5–8.5 mm long, 1 -nerved.

Florets. Fertile lemma 4.2–6.6 mm long, without keel, 4 -nerved. Lemma apex dentate, awned. Median (principal) awn dorsal, with a twisted column. Palea apex dentate.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Endemic. Southern Tablelands of N.S.W. and A.C.T. Usually on mountain slopes, often on rocky substrate. Flowers Dec.-Feb. Fruits Mar.

Dichanthium annulatum* (Forssk.) Stapf. *Fl. Trop. Afr.* 9: 178 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon annulatus* Forssk., *Fl. Aegypt.-Arab.* 173 (1775).

Type of Basionym or Protologue Information: Egypt: Rashid, banks of Nile River, June 1762, *Forsskal* 127 (HT: C; IT: LD).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (531 as *Andropogon annulatus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (328), [1969] E.E.Henty, *Manual Grasses New Guinea* (69), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (327 & 329, Pl. 95 & 96).

Habit. Perennial. Culms decumbent, 25–100 cm tall. Mid-culm nodes bearded. Lateral branches simple or branched. Ligule an eciliate membrane, 1 mm long. Leaf-blades 3–30 cm long, 2–7 mm wide.

Inflorescence. Inflorescence subdigitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent or well-developed, 0–12 in number (lower raceme). Companion spikelets developed, containing empty lemmas or male, 2–6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 7 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma 1.6 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 8–25 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North, Central Australia South. **Queensland:** Burke, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. *D. annulatum* var. *papillosum* (A. Rich.) de Wet & Harlan from tropical to South Africa has been cultivated.

Malesia and India to the Middle East and West Africa. Naturalised mainly in Queensland coastal areas; sometimes cultivated. Flowers whole year.

Dichanthium aristatum* (Poir.) C. E. Hubbard. *Bull. Misc. Inform.* 654 (1939). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon aristatus* Poir., *Encycl., Suppl.* 1: 585 (1811).

Type of Basionym or Protologue Information: Mauritius: 'ce'tte plante a été observée a l'Ile-de-France, Commerson s.n. (Herb. Desfontaines).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (69), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms decumbent, 20–100 cm tall. Mid-culm nodes glabrous or pubescent. Ligule an eciliate membrane, 0.6 mm long. Leaf-blades 3–25 cm long, 2–5 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2–12 in number (lower raceme). Companion spikelets developed, containing empty lemmas or male, 5–5.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or obovate, dorsally compressed, 2–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic or ovate or obovate, chartaceous, of similar consistency above or much thinner above, without keels, 8–10 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 3.2 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 10–20 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.8 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Burnett.

Notes. Native to India and SE Asia but now widely introduced in tropical areas. Widely but sporadically naturalised in coastal, subcoastal and rarely inland areas of Qld. Cultivated in W.A., N.T. and N.S.W. It is regarded as a useful fodder as well as a weed where not intentionally sown. Flowers Feb.- Nov.

Dichanthium caricosum* (L.) A. Camus. *Bull. Mus. Hist. Nat. (Paris)* 27: 549 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon caricosus* L., *Sp. Pl. (ed. 2)* 2: 1480 (1763).

Type of Basionym or Protologue Information: India:, *Burmam?* s.n. (HT: G).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (69), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms decumbent, 25–100 cm tall. Mid-culm nodes glabrous or pubescent. Ligule an eciliate membrane, 1 mm long. Leaf-blades 3–30 cm long, 2–7 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2–6 in number (lower raceme). Companion spikelets developed, containing empty lemmas or male, 5–5.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or obovate, dorsally compressed, 3–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic or ovate or obovate, chartaceous, of similar consistency above or much thinner above, without keels, 9–11 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 1.8 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 10–20 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.8 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland.

Queensland: Moreton, North Kennedy.

Notes. Native to tropical Asia and Malesia but now fairly widely introduced to tropical areas. Locally persisting in northern and SE Qld, the areas where it was first introduced from Fiji. Flowers Apr.--May.

Dichanthium fecundum S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 2(3): 51 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *S.T. Blake* 8337, 28 Mar 1935, Australia: Queensland: North Kennedy Dist. (US-1865523).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (326), [1969] E.E.Henty, *Manual Grasses New Guinea* (69), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (488), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (327, Pl. 95).

Habit. Perennial. Culms erect or geniculately ascending, 60–150 cm tall, 3–4 -noded. Mid-culm nodes bearded. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–1.5 mm long, abaxially hairy, truncate. Leaf-blades flat or revolute, 10–25 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid or subdigitate, a rame, with ramose branches. Central inflorescence axis 0–1.5 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male or male with a few bisexual, 5–6.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or oblanceolate, dorsally compressed, 4–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 15–28 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1.9–2.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall. Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Burnett, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. Widespread along stream banks, and riverflats and on black clay soils of tropical Australia. Extends to New Guinea. Considered an excellent fodder grass. Flowers Dec.-Oct.

Dichanthium queenslandicum B.K. Simon. *Austrobaileya* 1: 457 (1982). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: 10 km E of Capella, *Simon & Bisset* 2882 (HT: BRI-228113; IT: CANB, K, MO).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 40–80 cm tall, 4–5 -noded. Mid-culm nodes bearded. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1–1.5 mm long. Leaf-blades 9–18 cm long, 3–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid or subdigitate, a rame, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or oblong, dorsally compressed, 7.5–8.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels, winged on margins, 11 -nerved. Upper glume lanceolate, coriaceous, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 3 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 20 mm long overall, with a twisted column. Palea absent. Anthers 2. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Port Curtis, Darling Downs.

Notes. A valuable fodder species.

Endemic to Queensland where it occurs on black clay soils around Emerald and more rarely on the Darling Downs. Flowers Nov.-Jan.

Dichanthium sericeum (R. Br.) A. Camus. *Bull. Mus. Hist. Nat. (Paris)* 27: 549 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon sericeus* R. Br., *Prodr.* 201 (1810).

Type of Basionym or Protologue Information: LT: *R. Brown 6178 [excluding part A]*, Australia: New South Wales: Paterson River (BM (photo, BRI, K); ILT: BRI (fragm. ex K), E (photo, BRI, K), K (photo, BRI)). LT designated by Blake, *Proc. Roy. Soc. Queensland* 80: 67 (1969).

Recent synonyms: *D. affine*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (201 as *Andropogon affinis*), [1878] G.Bentham, *Flora Australiensis* 7 (529 as *Andropogon sericeus*, 530 as *Andropogon affinis*, *Andropogon sericeus*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (330 as *D. superciliatum*, 332, 332 as *D. humilii*), [1969] E.E.Henty, *Manual Grasses New Guinea* (69 & as *D. superciliatum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (488 as *D. sericeum*, *D. affine*, *D. humilii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (516), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (207).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (109), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (517, fig. 442 & plate 20 as subsp. *sericeum* & 518, fig. 443 as subsp. *humilii*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (207).

Habit. Annual or perennial. Culms erect, stature robust to moderate, 10–120 cm tall, 4 -noded. Mid-culm nodes bearded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 8–15 cm long, 2–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2–6 in number. Companion spikelets developed, containing empty lemmas, 3–5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 4–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, membranous or chartaceous or indurate, much thinner above, without keels, 5–8 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. Upper glume apex erose. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 25–32 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 1–2 mm long.

Continental Distribution: Tropical Asia, Australasia, Pacific, and North America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner, Fitzgerald, Hall. Mueller, Giles. **Northern Territory:** Darwin & Gulf, Victoria River. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Midlands, Riverina, Volcanic Plain, Wimmera. **Tasmania:** East Coast.

Notes. Infra-specific taxa: subsp. *sericeum*, subsp. *humilii*, subsp. *polystachyum*.

Lower glume of pedicelled spikelet obovate with sub-apical arch conspicuous, cilia erect from surface; robust annuals **D. sericeum** subsp. **polystachyum**

Lower glume of pedicelled spikelet linear to narrowly ovate, cilia not erect from surface; annuals or perennials 2

Spikelets 4.5 x 1–1.4 mm; lower glume 9–10-nerved; raceme usually more than 4 cm long; perennials

D. sericeum subsp. **sericeum**

Spikelets 4 x 1 mm; lower glume 5–7-nerved; racemes less than 4 cm long; annuals

D. sericeum subsp. **humilii**

Dichanthium sericeum subsp. sericeum

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria, Tasmania (doubtfully*), A.C.T.

Notes. Found in all states, but mainly in the eastern States, in open grassland on clay soils. A highly esteemed native pasture species. Extends to New Guinea and naturalised in New Caledonia, the Philippines and SE Asia. Flowers Nov.--Sept.

Dichanthium sericeum subsp. humilium (J.M. Black) B.K. Simon. *Austrobaileya* 3(1): 83 (1989).

Classification. Basionym and/or Replacement Name: *Dichanthium humilium* (Benth.) J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 60: 165 (1936)

Type of Basionym or Protologue Information: Australia, *Giles s.n.* (HT: MEL).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Notes. Found in all mainland states except Vic., north of 29 degrees S in open grassland and open *Eucalyptus* woodland on clay to sandy soils. Naturalised in Texas and India. Flowers whole year.

Dichanthium sericeum subsp. polystachyum (Benth.) B.K. Simon. *Austrobaileya* 3(1): 84 (1989).

Classification. Basionym and/or Replacement Name: *Andropogon sericeus* var. *polystachyus* Benth., *Fl. Austral.* 7: 530 (1878).

Type of Basionym or Protologue Information: LT: *E. Bowman s.n.*, Australia: Queensland: Burdekin River (K (photo, BRI); ILT: MEL (photo, BRI)). LT designated by Simon, *Austrobaileya* 3: 84 (1989).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (329, Pl.96).

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Found mainly in open wet grassland on wet soil, usually with *Eulalia aurea*, in tropical W.A., N.T. and Qld. Valued as a pasture species. Extends to southern New Guinea. Flowers Jan.--Aug., Oct.--Nov.

Dichanthium setosum S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 2(3): 50 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: New South Wales: ... Moray ... 16 miles E. of Guyra, *Mckie 310* (T: BRI,NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (207).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (207).

Habit. Perennial. Culms erect, 30–70 cm tall, 2–4 -noded. Mid-culm nodes bearded. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–0.75 mm long, truncate. Leaf-blades 7–15 cm long, 2–3.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid or digitate, a rame, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2–4 in number. Companion spikelets developed, male, 5–5.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 5–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, chartaceous, much thinner above, without keels, 8–9 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 25 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Tasmania.

Queensland: Cook, North Kennedy, Port Curtis, Leichhardt, Moreton. **New South Wales:** Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Tasmania:** East Coast.

Notes. From the tablelands of northern N.S.W. extending to two isolated records from southern Qld (Mount Mistake and Gt Dividing Range near Rolleston). Also Tasmania. Flowers Nov.-Jun.

Dichanthium tenue (R.Br.) A. Camus. *Bull. Mus. Hist. Nat. (Paris)* 27: 549 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon tenuis* R. Br., *Prodr.* 201 (1810).

Type of Basionym or Protologue Information: (T.) Littora Novae Hollandiae intra tropicum.,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (201 as *Andropogon tenuis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (208).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (208).

Habit. Perennial. Culms erect, 30–70 cm tall, 2–4 -noded. Mid-culm nodes bearded. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–0.75 mm long, truncate. Leaf-blades 7–15 cm long, 2–3.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid or subdigitate, a rame, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2–4 in number. Companion spikelets developed, male, 4–6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, chartaceous or indurate, of similar consistency above, without keels, 8–9 -nerved. Upper glume lanceolate, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 22–28 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands.

Notes. From coastal subtropical N.S.W. to tropical Qld on both sandy and clay soils. Extends to New Guinea. Flowers whole year.

Dichelachne crinita (L.f.) Hook. f. *Fl. Nov. Zeland* 1: 293 (1853). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Anthoxanthum crinitum* L. f., *Suppl. Pl.* 90 (1781 [1782]).

Type of Basionym or Protologue Information: HT: *Forster s.n.*, New Zealand (S-herb. Bäck).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170 as *Agrostis crinita*), [1878] G.Bentham, *Flora Australiensis* 7 (574), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (151), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (411), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (215), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (209), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (215).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (153, Pl. 46), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (216, fig. 161), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (209), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (213, Fig. 29; 219, Fig.30).

Habit. Perennial. Culms erect, 50–125 cm tall. Ligule an eciliate membrane, 1 mm long, entire. Leaf-blades 5.5–20 cm long, 2–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 8–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, linear, laterally compressed, 5–9.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 5.5–9.4 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 4–7.2 mm long, keeled, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 23–33(–40) mm long overall, with a straight or slightly twisted column. Palea 2 -nerved. Anthers 1–3. Grain 2.8–3.5 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Dale, Warren, Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Moreton, Port Curtis. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** Gippsland Highlands, Snowfields. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Midlands, East Coast, South West.

Notes. Endemic. Also New Zealand. Usually in well watered sites; often in eucalypt woodland. Flowers Nov.-Feb.

Dichelachne hirtella N.G. Walsh. *Muelleria* 7: 455 (1991). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Mt. Arapiles: *Beauglehole* 29609 (MEL holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (209), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (217).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (209), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (219, Fig.30).

Habit. Annual or perennial. Culms 20–80(–150) cm tall. Ligule an eciliate membrane, entire or bilobed. Leaf-blades 50–260 cm long, 0.9–7 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle dense, 4–26.5 cm long, evenly furnished.

Spikelets. Fertile spikelets 1-flowered, comprising 1(–2) fertile floret(s), with a barren rachilla extension, 7–9 mm long.

Glumes. Lower glume subulate. Upper glume subulate, 6.8–9 mm long.

Florets. Fertile lemma 6–7.5(–8) mm long, keeled. Lemma apex entire, awned. Median (principal) awn dorsal, 17–26 mm long overall, with a twisted column. Anthers (2–)3. Grain 3.2–3.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Tablelands, South-Western Slopes, South-Western Plains. **Victoria:** Eastern Highlands, Grampians, Midlands.

Notes. Endemic. In dry sclerophyll montane woodland. Flowers Nov.-Dec. Fruits Dec.-Jan.

Dichelachne inaequiglumis (Hack. ex Cheesem.) E. Edgar & H.E. Connor. *New Zealand J. Bot.* 20: 307 (1982). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Dichelachne sciurea* var. *inaequiglumis* Hack. ex Cheeseman, *Man. New Zealand Fl.* 874 (1906).

Type of Basionym or Protologue Information: HT: *D. Petrie s.n. [1068 to Hackel]*, Dec 1895, New Zealand: vicinity of Auckland, Western Park (W-26408; IT: CHR).

Recent synonyms: *D. rara* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (215), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (209), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (220).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (217, fig. 162), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (209), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (219, Fig.30).

Habit. Perennial. Culms 25–135 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.1–0.5 mm long, abaxially scaberulous, entire or erose. Leaf-blades 2–28.5 cm long, 1–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle ovate, 6–30 cm long, 4–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, laterally compressed, 4–6.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Lower glume apex muticous. Upper glume lanceolate, (3.5–)4.5–6.2 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma (4–)5.3–6.2(–7) mm long, keeled, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 13.5–20 mm long overall, without a column or with a straight or slightly twisted column. Lodicules present. Anthers 3. Grain 2–3.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Southern Lofty. **Queensland:** Darling Downs. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Snowfields. **Tasmania:** West Coast, Central Highlands, East Coast.

Notes. Native. Also New Zealand. Usually in eucalypt woodland, on granite or basaltic soils, also recorded from wet sclerophyll forest and swamp areas. Flowers Nov.-Jan. Fruits Jan.-Mar.

Dichelachne micrantha (Cav.) Domin. *Biblioth. Bot.* 85: 353 (1915). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Stipa micrantha* Cav., *Icon.* 5: 42, 467, f.2 (1799).

Type of Basionym or Protologue Information: HT: *L. Née s.n.*, Apr 1793, Australia: [Botany Bay] (MA; IT: L).

Recent synonyms: *D. sciurea*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis sciurea*, 175 as *Stipa micrantha*), [1878] G.Bentham, *Flora Australiensis* 7 (566 as *Stipa micrantha*, 574 as *Dichelachne sciurea*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (151 as *D. sciurea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (411), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (217), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (210), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (216).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (111), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (217, fig.163), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (210), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (219, Fig.30).

Habit. Perennial. Culms erect, 30–95(–120) cm tall, wiry. Mid-culm internodes glabrous. Lateral branches simple. Ligule an eciliate membrane, 0.3–1(–1.5) mm long, entire. Leaf-blades 7–23 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 3–19 cm long, 2–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, linear, laterally compressed, 3–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 3–6 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma (2.5–)3.4–4.7 mm long, keeled, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 10–22 mm long overall, with a straight or slightly twisted column. Palea 2 -nerved. Lodicules present. Anthers 1 or 3. Grain 2–4.45 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Warren. **South Australia:** Flinders Ranges, Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Port Curtis, Wide Bay, Cook. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Riverina. **Tasmania:** North West, North East, West Coast, Central Highlands, Ben Lomond, East Coast.

Notes. Endemic. All states and territories except N.T., also on Lord Howe Is. New Guinea, New Zealand and the Pacific. Common in dry or wet sclerophyll forest. Flowers Oct.-Dec. Fruits ?-Jan.

Dichelachne montana Endl. *Fl. Norfolk.* 20 (1833). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *D. sp. A & B*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (210), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (217).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (210).

Habit. Perennial. Culms 50–110 cm tall. Ligule an eciliate membrane, entire or bilobed. Leaf-blades 6.5–31 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 3.5–17 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, laterally compressed, 3.6–5.3 mm long.

Glumes. Lower glume lanceolate. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3.6–5.3(–6) mm long.

Florets. Fertile lemma (2.6–)3–4(–5) mm long, without keel. Lemma apex dentate, awned. Median (principal) awn dorsal, 10–20 mm long overall, with a twisted column. Anthers (1–)3. Grain 1.6–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes.

Notes. Endemic. New Zealand. Usually on stony ground in dry eucalypt woodland. Flowers Nov.–June. Fruits Jan.–Apr.–?.

Dichelachne parva B.K. Simon. *Austrobaileya* 1:462(1982). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Blake 4600*, Australia: Queensland: near Wyberba (BRI-61721 left-hand specimen). LT designated by Jacobs et al., *Telopea* 5: 325–326 (1993).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (210), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (216).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (210).

Habit. Perennial. Culms erect or geniculately ascending, 15–80 cm tall, 2-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, bilobed. Leaf-blades 4–20 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 3–28 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 3.5–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1-nerved. Lower glume apex muticous. Upper glume lanceolate, 2.8–5.5 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 2.8–4.5 mm long, keeled, 5-nerved. Lemma apex dentate, awned, 1-awned. Median (principal) awn subapical, 6.5–15 mm long overall, with a twisted column. Lodicules present. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, South-Western Slopes.

Notes. Most closely related to *D. inaequiglumis*.

Endemic. Northern Vic., central coast, central and southern tablelands and SW slopes, N.S.W. and the Darling Downs district, Qld. Mostly on better soils or in damp sites on sandstone or granite, usually in woodland.

Dichelachne rara (R. Br.) Vickery. *Contr. New South Wales Natl. Herb.* 1: 337 (1951). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis rara* R. Br., *Prodr.* 171 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6212*, Australia: (BM; IT: K).

Recent synonyms: *D. novoguineensis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis rara*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South*

Australia (218), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (210), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (218).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (218, fig. 164), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (210), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (213, Fig. 29; 219, Fig.30).

Habit. Annual or perennial. Culms erect, 18–130 cm tall, wiry. Mid-culm internodes glabrous or pubescent. Lateral branches simple. Ligule an eciliate membrane, 1–3 mm long, entire. Leaf-blades 4–17(–25) cm long, 1–4.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 3.5–23 cm long, 4–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1(–2) fertile floret(s), without rachilla extension or with a barren rachilla extension, linear, laterally compressed, 4–8.25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate, 3.25–8.25 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 4–8 mm long, without keel or keeled, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical or dorsal, 10–25 mm long overall, with a twisted column. Palea 2–4 -nerved. Lodicules present. Anthers 1 (rarely) or 3. Grain 1.9–3.25 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Northern Lofty, Southern Lofty. **Queensland:** Leichhardt, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Plains. **Victoria:** Lowan Mallee, Murray Mallee. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, East Coast, South West, Mt Field.

Notes. A number of specimens from the Southern Tablelands (Mt Franklin, Mt Gingera, Mt Ginini) and Tas. in general conform to *D. rara* as described above, however the spikelets are larger, more than 6.5 mm long.

Endemic. Roadside; open eucalypt forest; sandy loam over Devonian red mudstone; rocky; altitude to 880 m; sandy river bank; wet sclerophyll forest. Flowers Dec.-Mar.(-May). Fruits Jan.-May.

Dichelachne robusta B.K.Simon. *Fl. Australia* 44A; 386 (2009). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (211), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (221).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (210).

Australian Distribution: Victoria.

Dichelachne sieberiana Trin. & Rupr. *Sp. Gram. Stipac.* 2 (1843). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: HT: *F.W. Sieber 63*, no date, Australia: New South Wales (LE; IT: BM, K, L, P, US-993643).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (211), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (218).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (211).

Habit. Annual or perennial. Culms stature slender to delicate, 20–90 cm tall. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1–1.5 mm long, abaxially scaberulous or abaxially hairy, entire, truncate. Leaf-blades 3–29 cm long, 1–2.2 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 4.5–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 4–9.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic, hyaline, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate or elliptic, 4–7.7 mm long, hyaline, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 4–9 mm long, keeled, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, (9–)17–23 mm long overall, with a twisted column. Lodicules present. Anthers 3. Grain 2.5–3.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Range.

Notes. Endemic. Also New Zealand. Widespread in woodland. Flowers Dec.-Apr. Fruits Jan.-May.

Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf. *Bull. Misc. Inform.* 213 (1907). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum abyssinicum* Hochst. ex A. Rich., *Tent. Fl. Abyss.* 2: 360–361 (1850).

Type of Basionym or Protologue Information: HT: *W. Schimper U. i. 1840 Sect. primo*, 82, 22 Sep 1837, Ethiopia: in fruticetis opacis ad radices septrionales montis scholoda (P; IT: BR, K, L, US-1645178S, US-3298785, US-1063861 (ex B), US-945058 (ex BM), WAG).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms decumbent or sprawling, stature slender to delicate, 5–60 cm tall, 2–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, flat, 2–15 cm long, 3–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 2–25, 2–11 cm long. Central inflorescence axis 1–9 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 1.5–2 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate or oblate, membranous, without keels, 0–1 -nerved. Upper glume ovate, 1.4–1.8 mm long, membranous, without keels, 3–7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.5–2.5 mm long, without keel. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. Introduced. Flowers Feb.-May.

Digitaria aequiglumis* (Hack. & Arech.) Parodi. *Revista Fac. Agron. Veterin.* 4: 47 (1922).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum aequiglume* Hack. & Arechav., *Anales Mus. Nac. Montevideo* 1: 113 (1894).

Type of Basionym or Protologue Information: HT: *J. Arechavaleta s.n. (Herb. Hackel 22880)*, Uruguay: Campos del Uruguay (W; IT: BAA (fragm. ex W), MVFA (fragm. ex W), SI (fragm. ex W & photo)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (213).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (213).

Habit. Annual. Rhizomes absent. Stolons present. Culms erect or geniculately ascending or decumbent, 20–50 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades flat, 2.5–11.5 cm long, 2–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 3–5, erect or ascending, flexuous, 5–8 cm long. Central inflorescence axis 0–2.5 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3–3.7 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 3–3.7 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.5–3.5 mm long, without keel. Lodicules present.

Continental Distribution: Australasia and South America.

Australian Distribution: South Australia, New South Wales.

South Australia: Southern Lofty. **New South Wales:** North Coast, Central Coast.

Notes. A species of sandy disturbed sites and swampy areas in and about the Sydney area; introduced on the Royal Adelaide Golf Club. Flowers Jan.-Apr.

Digitaria ammophila (Benth.) D. K. Hughes. *Bull. Misc. Inform.* 313 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ammophilum* F. Muell., *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1: 46 (1855), non Steud. (1854).

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Dec 1858, Australia: on sandhills along the Murray River (MEL; IT: K).

Recent synonyms: *D. ammophila* var. *macrolepis*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (230), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (473), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (438), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (214).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (438, Fig. 368), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (214).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 15–60 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–3 mm long, erose, obtuse. Leaf-blades flat, 4–20 cm long, 3–7.5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 5–15, spreading, flexuous, 10–20 cm long. Central inflorescence axis 0.1–0.3 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.8–2.9 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0 -nerved. Upper glume elliptic, 1.8–2.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.8–2.8 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Helms. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Flinders Ranges, Eastern, Murray, Southern Lofty. **Queensland:** Burke, Darling Downs, Gregory North, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Midlands, Murray Mallee, Riverina, Wimmera.

Notes. In semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, eucalypt shrublands, and arid tussock grasslands. A widespread variable species. Important as a forage grass in drier areas. Flowers mostly Feb.-Apr.

Digitaria basaltica

Australian Distribution: Queensland.

Queensland: North Kennedy.

Digitaria baileyi (Benth.) D. K. Hughes. *Bull. Misc. Inform.* 311 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum baileyi* Benth. *Fl. Austral.*, 7: 471 (1878).

Type of Basionym or Protologue Information: LT: *Bailey s.n.*, Australia: Queensland: Brisbane River (K; IT: MEL). LT designated by Henrard, Monogr. Digitaria 58 (1950). ST: *McGillivray s.n.*, Australia: Queensland: Port Curtis.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (471 as *Panicum baileyi*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms erect or decumbent, 45–90 cm tall, 5–12 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or bearded. Lateral branches simple or branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades flat, 3–14 cm long, 2–5 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 6–9, ascending or spreading, 7–10 cm long. Central inflorescence axis 1–6 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, dorsally compressed, 2.2–2.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0 -nerved. Upper glume elliptic, 2.2–2.5 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5(–7) -nerved.

Fertile lemma 2.1–2.5 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Leichhardt, Moreton, Port Curtis.

Notes. Flowers Feb.-Apr.

Digitaria benthamiana Henrard. *Blumea* 1: 99 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Henne s.n.*, Australia: Sweers Island (W; IT: MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Inflorescence. Inflorescence subdigitate, with racemose branches.

Spikelets. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s).

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Central Australia South. **Queensland:** Burke.

Notes. Native; Qld.

Digitaria bicornis* (Lam.) Roem. & Schult. *Syst.Veg.* 2: 470 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Paspalum bicornis* Lam., *Tabl. Encycl.* 1: 176 (1791).

Type of Basionym or Protologue Information: India.; *P. Sonnerat s.n.* (HT: P-LAM; IT: US-2854145n (fragm.))

TYPE COLLECTION: *F.W. Sieber* 42, Mauritius? (US-1064446).

Recent synonyms: *D. queenslandica*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–80 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 2 mm long, truncate. Leaf-blades elliptic, flat, 1–19.5 cm long, 2–10 mm wide. Leaf-blade surface scaberulous or scabrous, indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 2–4, straight, 5–10 cm long. Central inflorescence axis 0–1.3 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.9–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Lower glume ovate. Upper glume lanceolate, 2.1–2.8 mm long, membranous, 3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.8–3.4 mm long, without keel, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Gregory North, Gregory South.

Notes. Closely related to *D. ciliaris*.

In tropical and subtropical sub-humid woodlands, shrub steppe shrublands, and coastal grasslands. A species preferring coarse-textured soils in tropical or subtropical areas. Flowers mostly Feb.-Apr.

Digitaria blakei Henrard. *Monogr. Digitaria* 78 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Blake 8476*, 10 Apr 1935, Australia: Queensland: Burke: Poison Creek, 838 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Inflorescence. Inflorescence subdigitate, with racemose branches.

Spikelets. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s).

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, North Kennedy.

Notes. Native; Qld.

Digitaria breviglumis (Domin) Henrard. *Monogr. Digitaria* 92 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum breviglume* Domin, *Biblioth. Bot.* 85: 298 (1915).

Type of Basionym or Protologue Information: IT: *Domin II. 1910*, Australia: Queensland: Dividing Range west of Pentland (K).

Recent synonyms: *D. diminuta*, *D. fumida*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *D. sp. A*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (214).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (214 as *D.breviglumis*, 219 as *D. orbata*).

Habit. Perennial. Culms erect, 8–70 cm tall, 1–1.5 mm diam., 2–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 2–4 mm long, erose, truncate or obtuse. Leaf-blades flat, 3–15 cm long, 1–4 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, with racemose branches. Racemes 2–10, flexuous, 2–10 cm long. Central inflorescence axis (0.5–)1–5.5(–8) cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 1.25–1.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume orbicular, membranous. Upper glume elliptic, 0.4–0.8 mm long, membranous, without keels, 2–3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90–100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 1.25–1.6 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, Warrego, Wide Bay, South Kennedy.

Notes. Usually in rocky, stony sites, in crevices, on shallow, often sandy soil. Flowers Jan.-May, Aug., Nov.

Digitaria brownii (Roem. & Schult.) D. K. Hughes. *Bull. Misc. Inform.* 313 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum villosum* R. Br. *Prodr.* 192 (1810), non Lam. (1791).

Recent synonyms: *D. brownii* var. *monostachya*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum villosum*), [1878] G.Bentham, *Flora Australiensis* 7 (472 as *Panicum leucophoeum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (227), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (473), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (438), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (214).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (439, Fig. 369), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (214).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect or geniculately ascending, 30–100 cm tall, 5–15 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades flat, 3–12 cm long, 0.5–7 mm wide. Leaf-blade surface scabrous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound or subdigitate, a panicle of racemes, with racemose branches. Racemes 1–7, 5–18 cm long. Central inflorescence axis 1–3(–6) cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 2.6–3.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Lower glume ovate, 1 -nerved. Upper glume elliptic, 2.2–3.5 mm long, membranous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.2–3.1 mm long, without keel, 3 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner. Giles, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Midlands, Riverina, Wimmera.

Notes. In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, arid hummock grasslands, and temperate sub-humid grasslands. A variable species with wide distribution. Flowers sporadically throughout the year.

Digitaria ciliaris* (Retz.) Koeler. *Descr. Gram.* 27 (1802). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ciliare* Retz., *Observ. Bot.* 4: 16 (1786).

Type of Basionym or Protologue Information: China: Guangdong: Guangzhou, Wennerberg s.n. (LT: LD).

Recent synonyms: *D. adscendens*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum ciliare*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (227 as *D. adscendens*), [1969] E.E.Henty, *Manual Grasses New Guinea* (76 as *D. adscendens*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (474), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (412), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (440), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (215).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (440, Fig. 370), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (215).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 10–100 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles present. Ligule an eciliate membrane. Leaf-blades flat, 2–25 cm long, 3–10 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 2–12, 6–22 cm long. Central inflorescence axis (0–)1.4–2(–9.3) cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, (2–)2.5–3.3(–3.7) mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate. Upper glume lanceolate, 1.2–2.7 mm long, membranous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2–3.8 mm long, without keel, 3 -nerved. Lemma apex muticous. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **South Australia:** Gairdner-Torrens Basin, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Riverina. **Tasmania:** East Coast.

Notes. *Digitaria ciliaris* (2n = 54) is closely related to the tropical *D. bicornis* (2n = 72) and the temperate *D. sanguinalis* (2n = 36).

Kimberley to Tasmania (the aggressive weed has the potential of occurring in any of Australia). In temperate heaths, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and temperate sub-humid grasslands. An aggressive invader of disturbed soil sites, with the potential of occurring in all vegetation types. Flowers sporadically throughout the year.

Digitaria coenicola (Muell.) D. K. Hughes. *Bull. Misc. Inform.* 313 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum coenicola* F. Muell., *Trans. & Proc. Roy. Soc. Victoria* 1: 45 (1855).

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Australia: South Australia: Cudnaka (MEL; IT: K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (467 as *Panicum coeniculum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (230), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (473), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (441), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (215).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (441, Fig. 371), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (215).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 2–70 cm tall, 3–7 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, obtuse. Leaf-blades flat, 2–15 cm long, 2–6 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 5–10, spreading, straight, 10–25 cm long. Central inflorescence axis 7–20 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, dorsally compressed, 3.2–5.1 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 3 -nerved. Upper glume elliptic, 3–5 mm long, membranous, without keels, (3–)5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 3–5 mm long, without keel. Lodicules absent or vestigial.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Gregory North, Leichhardt, Maranoa, Mitchell, Port Curtis, Warrego, North Kennedy, South Kennedy, Darling Downs. **New South Wales:** North Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Grampians, Murray Mallee, Riverina, Wimmera.

Notes. Closely related to *D. divaricatissima*. Specimens with equidistant nervation on the lower lemma and pubescence present in the first interspace were classified as *D. coenicola*. In *D. divaricatissima* the lateral nerves of the lower lemma are crowded to the margins and the first interspace is glabrous. It is recognized that presence and type of lower lemma pubescence can affect the pattern of nervation.

In semi-arid shrub woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Feb.-May.

Digitaria cowiei

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Digitaria ctenantha (Muell.) D. K. Hughes. *Bull. Misc. Inform.* 310 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ctenanthum* F. Muell., *Fragm.* 8: 153 (1874).

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Australia (K).

Recent synonyms: *D. robusta*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (469 as *Panicum ctenanthum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (226), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (474), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (441).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (442, fig. 372).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–60 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.6–2 mm long. Leaf-blades linear or lanceolate, flat or conduplicate, 1.9–11 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 2–3, spreading, 2.5–8.5 cm long, bearing 18–30 fertile spikelets on each.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.6–5.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0 -nerved. Upper glume lanceolate, 2.7–3.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 3.3–5.4 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Fitzgerald. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Eyre Peninsula. **Queensland:** Burke, Cook, Gregory North, Mitchell, South Kennedy, North Kennedy.

Notes. A transitional species between *D. heterantha* of the section *Heteranthae* and *D. bicornis* of the section *Digitaria*. Spikelet pubescence and nervation of the lower lemma is highly variable.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, arid tussock grasslands, coastal grasslands, and tropical sub-humid grasslands. Flowers mostly Feb.-May.

Digitaria didactyla* Willd. *Enum. Hort. Berol.* 91 (1809). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Bory de St. Vincent s.n.*, Mauritius (B-W-1646; IT: BM).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (76), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (216).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (216).

Habit. Perennial. Rhizomes absent or present, elongated. Culms decumbent or prostrate, 10–60 cm tall, 1–5-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.8 mm long. Leaf-blades flat or conduplicate, 1.9–6(–10) cm long, 1–6 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 2–3(–4), 3–10 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, dorsally compressed, (2–)2.2–2.7 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0-nerved. Upper glume ovate, 1.3–1.6 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7-nerved.

Fertile lemma 2–2.7 mm long, without keel. Lemma apex muticous or mucronate. Lodicules present.

Continental Distribution: Africa, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Drummond, Dale, Menzies, Warren. **Queensland:** Moreton, North Kennedy, Port Curtis, Wide Bay, Cook, South Kennedy. **New South Wales:** North Coast, Central Coast, Central-Western Slopes.

Notes. In tropical and subtropical wet sclerophyll forests, Brigalow forests, and tropical and subtropical sub-humid woodlands. Introduced in the early 1900's as a lawn grass, now occurs sporadically in disturbed sites and is most competitive in moist sandy soils. Flowers mostly Jan.–May.

Digitaria diffusa Vickery. *Contr. New South Wales Natl. Herb.* 3: 84 (1961). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Upper Colo, Mar 1950, Vickery s.n. (HT: NSW-11017).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (216).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (216).

Habit. Perennial. Rhizomes present, short. Stolons absent. Culms decumbent, stature slender to delicate, 10–40 cm tall, 3–6-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–2 mm long, truncate. Leaf-blades flat or involute, (1–)2.5–5(–8) cm long, 0.75–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 2–7, spreading, 3–7 cm long. Central inflorescence axis 1–5 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.25–2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0-nerved. Upper glume elliptic, 1.2–1.9 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7-nerved.

Fertile lemma 1.1–1.8 mm long, without keel. Lemma apex muticous or mucronate. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria (extinct APC).

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, Warrego, Burke, North Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Central

Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains.
Victoria: Midlands.

Notes. At maturity, the upper lemma of this species is relatively smooth and shiny, whereas this structure on closely related species is distinctly muricate.

In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Mar.-June.

Digitaria diminuta Hughes. *Bull. Misc. Inform. Kew* 1923: 312 (1923).

Classification. Type of Basionym or Protologue Information: McIntyre R., N.S.W., *J.E.Ker s.n.*; holo: K (photo BRI); iso: BRI.

Australian Distribution: Queensland, New South Wales.

Digitaria dolleryi

Australian Distribution: Queensland.

Queensland: Warrego.

Digitaria divaricatissima (R.Br.) D. K. Hughes. *Bull. Misc. Inform.* 314 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum divaricatissimum* R. Br., *Prodr.* 192 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6118*, Australia: Port Jackson (BM; IT: K).

Recent synonyms: *D. macractinia*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum divaricatissimum*), [1878] G.Bentham, *Flora Australiensis* 7 (467 as *Panicum divaricatissimum*, 468 as *Panicum macractinium*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (474), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (216).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (216).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 15–60 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades flat, 4–22 cm long, 2.5–7 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 4–10, radiating, 8–35 cm long. Central inflorescence axis 0–14 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.2–5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume lanceolate, 1.7–4 mm long, membranous, without keels, 3(–5) -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.9–4.5 mm long, without keel. Lemma apex mucronate. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. A morphologically diverse species.

In dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Nov.-Apr.

Digitaria eriantha* Steud. *Allg. Bot. Z. Syst.* 12: 468 (1829). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: T: *von Ludwig s.n.*, South Africa: Cape: Cape of Good Hope.

Recent synonyms: *D. decumbens*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent or present. Culms erect or geniculate ascending or decumbent, 40–120 cm tall, 5–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Leaf-sheaths scaberulous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 2–4 mm long. Leaf-blades flat or involute, 5–20 cm long, 2–4(–7) mm wide. Leaf-blade surface scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 3–10, erect, 5–20 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2.2–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0 -nerved. Upper glume oblong, 0.9–2 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2–3 mm long, without keel. Lodicules present.

Continental Distribution: Africa, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Queensland, Lord Howe.

Western Australia: Gardner. **Queensland:** Moreton, Port Curtis, Wide Bay.

Notes. Introduced; Qld. Flowers Dec.

Digitaria gibbosa (R. Br.) Beauv. *Ess. Agrost.* 160, 169 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum gibbosum* R. Br., *Prodr.* 193 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6124*, Australia (BM; IT: L, US-80670 (fragm.)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (193 as *Panicum gibbosum*), [1878] G.Bentham, *Flora Australiensis* 7 (471 as *Panicum gibbosum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, 25–40 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliolate membrane, 0.3–1 mm long. Leaf-blades linear or lanceolate, flat, 2.5–15 cm long, 1–4 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 4–18 cm long.

Spikelets. Spikelets pedicelled, 2–10(–25) in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.5–2.8 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 1.2–2.2 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.5–2.8 mm long, keeled. Lemma apex mucronate. Lodicules absent or vestigial.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, Mitchell, North Kennedy, South Kennedy.

Notes. A spicate inflorescence, relatively long setaceous hairs overtopping the spikelet, a keeled upper lemma, and a hair-fringed ligule makes *D. gibbosa* a distinctive, easily recognizable Australian endemic. It is closely related to *D. leucostachya* and certain African members of the section *Monodactylae*.

In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers sporadically, Jan.-Sept.

Digitaria hubbardii Henrard. *Monogr. Digitaria* 334 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Whittet 2*, Australia (K; IT: NSW).

Recent synonyms: *D. neurachnoides*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (217).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (217).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 20–60 cm tall, 3–10-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched or branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1 mm long, truncate or obtuse. Leaf-blades flat or involute, 1.8–10 cm long, 1–3 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 3–4, spreading, 2.5–8 cm long. Central inflorescence axis 1.5–4 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.6–3.4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate or orbicular, membranous. Upper glume lanceolate, 2.2–2.8 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7-nerved.

Fertile lemma 1.9–2.5 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Maranoa, Warrego. **New South Wales:** South-Western Slopes, North-Western Plains.

Notes. The transverse line of lower lemma pubescence which characterizes *D. hubbardii* can be found to a limited extent in *D. ammophila* and *D. hystrichoides*.

In semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, arid hummock grasslands, and tropical sub-humid grasslands. Flowers mostly Feb.-Apr.

Digitaria hystrichoides Vickery. *Contr. New South Wales Natl. Herb.* 1: 324 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Gerelah, Nyngan, 20 Feb 1936, *J.C. Butcher s.n.* (HT: NSW-8017).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (217).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (217).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 15–60 cm tall, 4–5-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–2 mm long, obtuse. Leaf-blades flat, 3–18 cm long, 3–8 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 5–15, spreading, 15–30 cm long. Central inflorescence axis 6–13 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.2–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0–1-nerved. Upper glume elliptic, 1.9–2.5 mm long, membranous, without keels, 3-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7-nerved.

Fertile lemma 1.7–2.5 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Central Australia North, Central Australia South. **Queensland:** Gregory North, Leichhardt, Maranoa, South Kennedy, Warrego, Port Curtis, Burnett, Darling Downs, Mitchell. **New South Wales:** North Coast, North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Closely related to *D. ammophila*.

In tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. An important forage grass in drier areas. Flowers Nov.-June.

Digitaria imbricata R.D. Webster. *Brunonia* 6: 184 (1983). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: North Kennedy District: 2 Feb 1931, Hubbard & Winders 7103 (HT: BRI; IT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 30–60 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes bearded. Lateral branches sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–1.1 mm long, erose, obtuse. Leaf-blades flat or conduplicate, 2–7.5 cm long, 2.4–3.1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 3–4, spreading, 3–6.5 cm long, bearing 20–34 fertile spikelets on each. Central inflorescence axis 1.5–4 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.4–2.8 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous. Upper glume lanceolate, 2.3–2.7 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.3–2.6 mm long, without keel. Lemma apex muticous or mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Mitchell, North Kennedy.

Notes. Similar to *D. hubbardii* but lacking the transverse line of pubescence on the lower lemma.

Native. Presently known from several collections in the North Kennedy and Mitchell Districts of Qld. Qld. In tropical and subtropical sub-humid woodlands and semi-arid shrub woodlands. Flowers Jan.-Feb.

Digitaria insularis*

Australian Distribution: Queensland.

Digitaria ischaemum* (Schreb.) Muhl. *Descr. Gramin.* 131 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ischaemum* Schreb., *Spec. Fl. Erlang.* 16 (1804).

Type of Basionym or Protologue Information: T: Europe.

Recent synonyms: *Panicum glabrum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (442), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (218).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (442, Fig. 373), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (218).

Habit. Annual. Stolons absent. Culms geniculately ascending or decumbent, 10–40 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat, 1.5–12 cm long, 2–7 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 2–8, 1.5–7 cm long. Central inflorescence axis 0.5–3 cm long.

Spikelets. Spikelets pedicelled, 3 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.75–2.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 1.7–2 mm long, membranous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.7–2.5 mm long, without keel. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Murray, Southern Lofty. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Wannon.

Notes. Closely related to and easily confused with *D. violascens*.

Introduced. In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, and temperate sub-humid grasslands. Commonly occurs in disturbed open habitats, and woodland margins, often invading yards and gardens. Flowers Feb.-Apr.

Digitaria lanceolata R.D. Webster. *Brunonia* 6: 187 (1983). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Leichardt District: 20 Feb 1979, *Anderson 749* (HT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 30–40 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1.8–2.4 mm long. Leaf-blades flat, 9–20 cm long, 2.2–3.4 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 12–20 cm long. Central inflorescence axis 4–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.4–2.8 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate. Upper glume elliptic, 2.2–2.4 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.1–2.4 mm long, without keel. Lemma apex muticous or mucronate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt.

Notes. This species is known only from one collection, however spikelet shape and relative sizes of the spikelet parts make it readily distinguishable from closely related taxa.

In Brigalow forests. Flowers Feb.

Digitaria leucostachya (Domin) Henrard. *Monogr. Digitaria* 399 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum leucostachyum* Domin, *Biblioth. Bot.* 85: 299 (1915).

Type of Basionym or Protologue Information: ST: *Domin s.n.*, Jan 1910, Australia: Queensland: auf den Sandflächen bei der Mündung des Russell River ST: *Domin s.n.*, Feb 1910, Australia: Queensland: die Sandhügel der Dividing Range, östlich von Pentland" ST: *Domin s.n.*, Apr 1910, Australia: Queensland: Stradbroke Island in der Moreton Bay.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (218).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (218).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 40–100 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, obtuse. Leaf-blades flat, 5–25 cm long, 2–8 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 1–2, 12–25 cm long. Central inflorescence axis 0–3 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2–2.9 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 1.8–2.4 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.9–2.75 mm long, without keel. Lodicules absent or vestigial.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Darling Downs, Mitchell. **New South Wales:** North Coast.

Notes. A distinctive species with setaceous hairs overtopping the spikelet and verrucose hairs on the upper glume and lower lemma.

In tropical and subtropical wet sclerophyll forests and tropical and subtropical sub-humid woodlands. Flowers Nov.-May.

Digitaria longiflora (Retz.) Pers. *Syn. Pl.* 1: 85. 1805. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Paspalum longiflorum* Retz., *Observ. Bot.* 4: 15 (1786).

Type of Basionym or Protologue Information: India: Malabar, ad margines agrorum, *König s.n.* (LT: LD; ILT: BM, K).

Recent synonyms: *D. curvipes*, *D. eriolepis*, *D. propinqua*, *D. speciosa*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (193 as *Panicum tenuiflorum*, *Panicum propinquum*), [1878] G.Bentham, *Flora Australiensis* 7 (461as *Paspalum brevifolium*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (226), [1969] E.E.Henty, *Manual Grasses New Guinea* (77), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (474), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (218).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (218).

Habit. Annual or perennial. Rhizomes absent or present. Stolons absent or present. Culms erect or decumbent or sprawling, 10–60 cm tall, 4–20 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades flat, 2.5–13 cm long, 1–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 2–4, 1–10 cm long.

Spikelets. Spikelets pedicelled, 3 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.2–2.3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 1.2–2.3 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.2–2.1 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast.

Notes. Widely distributed in Australia. In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, eucalypt shrublands, arid tussock grasslands, and tropical sub-humid grasslands. A variable widespread species. Flowers probably year-long.

Digitaria mariannensis

Australian Distribution: Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Digitaria milanijana* (Rendle) Stapf. *Fl. Trop. Afr.* 9: 430 (1919). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum milanjanum* Rendle, *Trans. Linn. Soc. London, Bot.* 4: 56 (1894).

Type of Basionym or Protologue Information: HT: A. Whyte s.n., Oct, Malawi: Mount Milanje (BM).

Habit. Perennial. Rhizomes absent or present, elongated. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 20–250 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane. Leaf-blades flat, 6–30 cm long, 3–13 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate. Racemes 2–18, straight, 5–25 cm long. Central inflorescence axis 0–6 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, (1.7–)2.5–3.2(–3.5) mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume lanceolate, 1.5–2.1 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.7–3.5 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland.

Notes. Introduced. One of several members of the section *Erianthae* introduced into Australia for improved pastures, and the only member of this group which is naturalized. Flowers Feb.-Apr.

Digitaria minima R.D. Webster. *Brunonia* 6(2): 192–193. 1983 [1984]. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: South Kennedy Dist., *Simon* 3270 (HT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 30–60 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.45–0.75 mm long, erose, obtuse. Leaf-blades spreading or recurved, flat, 0.5–5.7 cm long, 1–2 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2, ascending, 0.7–3.5 cm long, bearing 8–20 fertile spikelets on each. Central inflorescence axis 1.5–3 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.2–1.55 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong or ovate, membranous, 0 -nerved. Upper glume elliptic, 1–1.3 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 1.2–1.55 mm long, without keel. Lemma apex mucronate. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy, South Kennedy, Port Curtis, Burnett, Moreton.

Notes. This species is closely related to both *D. ramularis* and *D. diffusa*. It differs from *D. ramularis* in having smaller spikelets, while a relatively short upper glume, erect culm and muricate upper lemma separate it from *D. diffusa*.

In tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, and arid and semi-arid low woodlands. Flowers Mar.-Apr.

Digitaria nematostachya (F. M. Bailey) Henrard. *Monogr. Digitaria* 487 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum nematostachyum* F.M. Bailey, *Queensland Bot. Bull.* 16: 2 (1903).

Type of Basionym or Protologue Information: NT: *Hubbard & Winders* 7668, Australia (CANB; INT: BRI). NT selected by Webster, *Brunonia* 6: 193 (1983).

Recent synonyms: *Digitaria tonsa*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum radiatum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 35–55 cm tall, 7–12 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–2.8 mm long, erose, acute. Leaf-blades flat, 6–25 cm long, 3.5–7 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 10–20, ascending or spreading, 13–30 cm long, bearing 16–30 fertile spikelets on each. Central inflorescence axis 2.5–11 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 1.7–2.1 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong or ovate, membranous, 0 -nerved. Upper glume ovate, 1.5–1.7 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80–90 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.8–2 mm long, without keel. Lemma apex mucronate. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy, Burnett, Darling Downs.

Notes. A completely glabrous spikelet with the upper lemma protruding past the lower lemma makes *D. nematostachya* a distinctive member of the *Pennatae*. Spikelet characteristics of this species are similar to those of the section *Parviflorae*.

Native; N.T. and Qld. In tropical and subtropical sub-humid woodlands and tropical sub-humid grasslands. Flowers Jan.-Feb.; June-July.

Digitaria oraria R.D. Webster. *Brunonia* 6: 195 (1983). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *R.L. Specht* 201, 8 Apr 1948, Australia: Northern Territory: Arnhem Land, Little Lagoon (CANB; IT: BRI, L, MEL, NSW, PERTH, US-2116210).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, 40–70 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–0.8 mm long. Leaf-blades flat, 2–8 cm long, 2–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence solid or compound, a raceme, with racemose branches. Racemes 8.5–14 cm long. Central inflorescence axis 0–0.2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.2–2.4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 2.2–2.4 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2–2.4 mm long, without keel. Lemma apex mucronate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland. **Queensland:** Wide Bay.

Notes. A poorly collected species, closely related to *D. gibbosa* and *D. leucostachya*.

Native; N.T. and Qld. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Apr.-June.

Digitaria orbata D. K. Hughes. *Bull. Misc. Inform. Kew* 1923: 312 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *E.M. Bowman s.n.*, Australia: Queensland: Herbert's Creek (K; IT: BM, MEL, US-928129). Veldkamp, *Blumea* 21: 73 (1973) gives BM as HT.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (219).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (219).

Habit. Perennial. Rhizomes absent. Culms erect, 40–120 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1.6–4 mm long. Leaf-blades flat, 6–30 cm long, 1.8–7.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 2–10, 7–16 cm long. Central inflorescence axis 2–16 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 1.3–1.9 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 0.3–0.6 mm long, hyaline, without keels, 0–1 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 1.3–1.9 mm long, without keel. Lemma apex mucous. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, North-Western Slopes.

Notes. Flowers Mar.-Aug.

Digitaria papposa (R.Br.) Beauv. *Ess. Agrost.* 51, 160, 170 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum papposum* R. Br., *Prodr.* 192 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6120*, Australia (K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum papposum*), [1878] G.Bentham, *Flora Australiensis* 7 (468 as *Panicum papposum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 40–70 cm tall, 6–11 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–4.8 mm long, erose, acute. Leaf-blades flat, 9–27 cm long, 3–8 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound or subdigitate, a panicle of racemes. Racemes 10–20, spreading, 12–22 cm long, bearing 16–24 fertile spikelets on each. Central inflorescence axis 6–12 cm long.

Spikelets. Spikelets pedicelled, 1–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.9–2.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong or ovate, membranous, 0 -nerved. Lower glume surface indumented. Upper glume elliptic, 1.4–2.5 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.7–2.3 mm long, without keel. Lemma apex mucronate. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, North Kennedy, Leichhardt.

Notes. Branching pattern of the primary branches of this species illustrates the transition between the typical form and the paniculate form of the subgenus *Leptoloma*. The hairy lower glume of *D. papposa* is a unique characteristic.

In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Feb.-May-July.

Digitaria parviflora (R.Br.) D. K. Hughes. *Bull. Misc. Inform.* 311 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum parviflorum* R. Br., *Prodr.* 192 (1810).

Type of Basionym or Protologue Information: LT: *Brown 6117*, Australia: New South Wales: Port Jackson (K (left-hand and right-hand specimens); ILT: BM). LT designated by Henrard, Monogr. *Digitaria* 523 (1950). (J.) "apud Portum Jackson, inclusis ripis aestuarii Hunter's River vel Coal River.", Note in IGS: "N.S. Wales, Port Jackson, Brown 6116, fide Hughes."

Key references (books and floras): [1810]. R.Brown, *Prodromus* (192 as *Panicum parviflorum*, *Panicum striatum*), [1878] G.Bentham, *Flora Australiensis* 7 (470 as *Panicum parviflorum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (219).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (219).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 40–90 cm tall, 4–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1.5–4 mm long, erose, obtuse or acute. Leaf-blades flat, 3–35 cm long, 3–8 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–15, ascending, 6–20 cm long, bearing 50–80 fertile spikelets on each. Central inflorescence axis 2–7 cm long.

Spikelets. Spikelets pedicelled, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 1.6–2.1 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 0 -nerved. Upper glume elliptic, 1.6–2 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface glabrous or indumented.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.6–2 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Leichhardt, Mitchell, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast.

Notes. Closely related to *D. diffusa* and *D. ramularis*.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. A robust perennial which is common in the shaded forested areas of eastern Australia. Flowers mostly Feb.-July.

Digitaria porrecta S. T. Blake. *Proc. Roy. Soc. Queensland* 84 :63 (1973). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Blake* 23590, 12 Apr 1970, Australia: Queensland: Darling Downs, Cambooya, -27.5 S Lat, 151.45 E Long., 430 m (BRI; IT: CANB, L).

Recent synonyms: *D. coenicola* var. *ramosa*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (220).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (220).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, 40–70 cm tall, 4–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth or antrorsely scabrous, glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 2.2–3 mm long, erose, obtuse. Leaf-blades flat, 6–15 cm long, 2.8–4 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–3, spreading, 12–27 cm long, bearing 10–20 fertile spikelets on each. Central inflorescence axis 8–12 cm long.

Spikelets. Spikelets pedicelled, 1–2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 5.2–6.9 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong, membranous, 0 -nerved. Upper glume lanceolate or elliptic, 4.6–6.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 4.5–5.5 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Leichhardt, Darling Downs. **New South Wales:** North-Western Slopes.

Notes. Closely related to *D. coenicia* and *D. divaricatissima*. The rebranching inflorescence illustrates the transition between *Digitaria* and *Leptoloma*.

In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Flowers Feb.-July.

Digitaria radicata (Miq.) Miq. *Fl. Ind. Bat.* 3: 437 (1855). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum radicosum* J. Presl, *Reliq. Haenk.* 1(4–5): 297 (1830).

Type of Basionym or Protologue Information: Philippine Islands: Luzon: Sorsogon Prov., *T. Haenke s.n.* (HT: P; IT: US-80950 (fragm.)).

Recent synonyms: *D. timorensis*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent or sprawling, stature slender to delicate, 20–60 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane. Leaf-blades lanceolate, flat, 2–10 cm long, 2–5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 2–4, 3–9 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.5–3.3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 0 -nerved. Upper glume lanceolate, 1.1–1.6 mm long, membranous, without keels, 1–3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.6–3.2 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, Christmas Is.

Queensland: Cook.

Notes. Intermediate between *D. ciliaris* and *D. setigera*, characterized by the absence of pronounced spicules on the margins of primary branches and a relatively narrow spikelet.

Aso Malesia. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Common throughout Malesia but is known only from two collections in Australia. Flowers July.

Digitaria ramularis (Trin.) Henrard. *Blumea* 1: 101 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ramulare* Trin., *Gram. Panic.* 244 (1826).

Type of Basionym or Protologue Information: HT: *Lindley s.n.*, Nov.Holl[andia]: ad portum GacksJon (LE-TRIN-0919.01).

Recent synonyms: *D. tenuissima*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (470 as *Panicum tenuissimum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (220).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (220).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 30–90 cm tall, 3–7(–11) -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–4 mm long, truncate or obtuse. Leaf-blades flat, 5–25 cm long, 1.1–5.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–10, spreading, flexuous, 3–13 cm long. Central inflorescence axis 1.5–10 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 1.5–2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous. Upper glume elliptic, 1.1–1.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90–100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.4–2 mm long, without keel. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Burke, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes, Central-Western Slopes.

Notes. Closely related to *D. parviflora* and *D. breviglumis*.

In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers mostly Feb.-June.

Digitaria sanguinalis* (L.) Scop. *Fl. Carn.* ed. 2, 1: 52 (1772). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum sanguinale* L., *Sp. Pl.* 1: 57 (1753).

Type of Basionym or Protologue Information: ST: *Van Royen s.n. [Panicum 6]*, Cultivated at Leiden (L). see Hitchcock, 1908, *Cotnrb. U.S. Natl. Herb.* 12: 117; Henrard, 1950, *Digitaria Monograph* pp. 647–650, (Ill. of spikelet p. 649). ST: *H. U. "8 sanguinale"*, (LINN-80.31). H.U. is Hortus Upsalensis; this specimen was accepted as the type by Munro 1862, *Proc. Linn. Soc. Bot.* 6: 37, and by A.S. Hitchcock. *Contr. U.S. Natl. Herb.* 12: 117 (1908). ST: *[Clayton 451]*, (LINN-80.32). Clayton 451 or "457" are not in the Clayton Herbarium at BM.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (469 as *Panicum sanguinale*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (227), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (412), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (443), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (220).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (228, Pl. 67), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (113), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (443, Fig. 374), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (220).

Habit. Annual. Stolons absent. Culms decumbent or prostrate, 10–60 cm tall, 2–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or bearded. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat, 3–17 cm long, 2–14 mm wide. Leaf-blade surface smooth or scabrous, indumented.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 4–10, 4–18 cm long. Central inflorescence axis 0.5–3 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3.3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 1.2–1.6 mm long, membranous, 3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.4–3.3 mm long, without keel. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond. **South Australia:** Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Warrego, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North East, Midlands, East Coast.

Notes. Closely related to *D. ciliaris*.

Introduced. In dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, sub-alpine sub-humid woodlands, semi-arid shrub woodlands, and eucalypt shrublands. A common weed of temperate areas, preferring loamy disturbed habitats. Flowers mostly Jan.-Apr.

Digitaria sharpeana

Australian Distribution: Queensland.

Queensland: Wide Bay.

Digitaria setigera Roth ex Roem. & Schult. *Syst. Veg.* 2: 474 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: India:, *Heyne s.n.* (HT: B; IT: K).

Recent synonyms: *D. pruriens*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms decumbent, 20–80 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, flat, 3–25 cm long, 3–13 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–15, 4–15 cm long. Central inflorescence axis 1–6 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2–3.2 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume oblong or ovate, 0.3–1.1 mm long, membranous, without keels, 0–3 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2–3.1 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Northern Territory, Queensland, Norfolk I, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Australian collections of this species are meagre. Relative sizes of the glumes and spikelet distinguish it from other members of the section *Digitaria*.

In tropical and subtropical sub-humid woodlands. Flowers Feb.-Apr.

Digitaria stenostachya D. K. Hughes. *Bull. Misc. Inform. Kew* 1923: 311 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum stenostachyum* Benth., *Fl. Austral.* 7: 470 (1878), non Thwaites (1864).

Type of Basionym or Protologue Information: HT: *F.J.H. von Mueller s.n.*, May 1856, Australia: Northern Australia: upper Victoria River (K; IT: L, US-733552, W).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (470 as *Panicum stenostachyum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending or decumbent, 30–50 cm tall, 3–10 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.6–1 mm long, truncate or acute. Leaf-blades flat or conduplicate, 5–12 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 2–3, 3–9 cm long, bearing 20–30 fertile spikelets on each. Central inflorescence axis 0–1.5 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2.5–2.75 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 1.7–1.9 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.5–2.75 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Northern Territory: Darwin & Gulf, Victoria River.

Notes. A morphologically unusual species showing affinities to the sections *Pennatae*, *Heteranthae* and *Monodactylae*.

In tropical and subtropical sub-humid woodlands. Known from four collections in the N.T., on sandstone ridges and moist sandy areas in sub-humid woodlands. Flowers Feb.-Mar.

Digitaria ternata* (A.Rich.) Stapf. *Fl. Cap.* 7: 376 (1898). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Cynodon ternatus* Hochst. ex A. Rich., *Tent. Fl. Abyss.* 2: 405 (1851).

Type of Basionym or Protologue Information: LT: *Schimper* 76, 23 Sept 1837, Ethiopia: Tigray: prope Adoua, herba mala in campis poae Abyssinicae culti prope Adoam (P; IST: B, K, L, US-3298788, WAG). LT designated (as type) by Henrard, *Monogr. Digitaria* 738 (1950).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (221).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (221).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 20–100 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades flat, 5–25(–40) cm long, 3–8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes 2–11, 3–23 cm long. Central inflorescence axis 0.5–20 cm long.

Spikelets. Spikelets pedicelled, 3 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.8–2.7 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 1.6–1.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5(–9) -nerved.

Fertile lemma 1.8–2.7 mm long, without keel. Lemma apex mucronate. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales, Tasmania.

New South Wales: Northern Tablelands, Southern Tablelands. **Tasmania:** East Coast.

Notes. Introduced. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, temperate sub-humid woodlands, and semi-arid shrub woodlands. A naturalized species found on disturbed habitats in eastern N.S.W. Flowers Jan.-Apr.

Digitaria veldkampii B.K.Simon ms.

Australian Distribution: Queensland.

Queensland: Maranoa.

Digitaria velutina* (Forssk.) P. Beauv. *Ess. Agrostogr.* 51, 173 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Phalaris velutina* Forssk., *Fl. Aegypt.-Arab.* 17 (1775).

Type of Basionym or Protologue Information: HT: *Forsskal* 115, Mar 1763, Yemen: Bolghose (C; IT: C).

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (221).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (221).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–80 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, flat, 2–15 cm long, 3–17 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes (3–)7–20, 3–13 cm long. Central inflorescence axis 1–7 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.5–2.1 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate. Upper glume lanceolate, 1.2–1.6 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.5–2.1 mm long, without keel, 3 -nerved. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: New South Wales.

New South Wales: Central Coast.

Notes. Introduced. Known from collections at the Sydney Botanical Gardens, where seeds were introduced from Uganda in the early part of this century. This species could potentially spread to the more tropical regions of Australia, preferring coarse-textured soils in open areas. Flowers Jan.-May.

Digitaria violascens* Link. *Hort. Berol.* 1: 229. 1827. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Brazil; *Herb. Link* 93 (HT: B; IT: BAA-549 (fragm. ex B)).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (461 as *Paspalum minutiflorum*), [1969] E.E.Henty, *Manual Grasses New Guinea* (80), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (444), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (221).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (443, Fig. 375), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (221).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 20–60 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane. Leaf-blades flat, 3–25 cm long, 2–7 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate or subdigitate, with racemose branches. Racemes (2–)3–6(–9), 3–14 cm long. Central inflorescence axis 0–2 cm long.

Spikelets. Spikelets pedicelled, 3 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.2–2 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 1.2–1.7 mm long, membranous, without keels, 3(–5) -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.2–2 mm long, without keel. Lemma apex muticous. Lodicules present.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Lord Howe.

Western Australia: Drummond. **Northern Territory:** Darwin & Gulf. **South Australia:** Southern Lofty. **Queensland:** Burnett, Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Leichhardt. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central-Western Slopes.

Notes. Introduced. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. A weedy species naturalized in coastal areas of eastern Australia, and recently introduced into S.A. and W.A. It prefers coarse-textured soils in disturbed habitats and woodland margins. Flowers mostly Jan.-May.

Dimeria acinaciformis R. Br. *Prodr.* 204 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Littora Novae Hollandiae intra tropicum,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (204), [1878] G.Bentham, *Flora Australiensis* 7 (523), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 10–40 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.5–0.8 mm long. Leaf-blades lanceolate, 1–4 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets pedicelled. Companion spikelets absent. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic, laterally compressed, 4.5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or elliptic, coriaceous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, membranous or coriaceous, keeled, 1-keeled, winged on keel, 1–3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline or membranous, 0 -nerved.

Fertile lemma 3–3.5 mm long, without keel, 1 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–12 mm long overall, with a twisted column. Palea absent. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Found on creek banks in open forest country from northern N.T. and Qld. Extends to New Guinea. Flowers May--Aug.

Dimeria chloridiformis (Gaud.) K. Schum. & Lauterb. *Fl. Deutsch. Schutzgeb. Sudsee* 165 (1901).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon chloridiformis* Gaudich., *Voy. Uranie* 412 (1826).

Type of Basionym or Protologue Information: HT: *M.C. Gaudichaud s.n.*, Guam.

Recent synonyms: *D. ciliata*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 50–100 cm tall. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.6–0.8 mm long. Leaf-blades 8–25 cm long, 2–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with spicate branches. Central inflorescence axis 2–10 cm long.

Spikelets. Spikelets sessile. Companion spikelets absent. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic or oblong, laterally compressed, 4–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate, membranous or chartaceous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or oblong, membranous or chartaceous or coriaceous, keeled, 1-keeled, wingless, 1 -nerved. Upper glume surface smooth.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline or membranous.

Fertile lemma 2.5–3 mm long, without keel, 1 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–12 mm long overall, with a twisted column. Palea absent. Anthers 2.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Burke.

Notes. Growing in wet areas in a few localities in northern N.T. and northern Qld. Extends through New Guinea to SE Asia and Pacific Ocean islands. Flowers Nov.--Apr.

Dimeria ornithopoda Trin. *Fund. Agrost.* 167 (1820). **Classification.** (GPWG 2001) : Subfamily

Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: India.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (523 as *Dimeria tenera*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (298), [1969] E.E.Henty, *Manual Grasses New Guinea* (81), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (299, Pl.87).

Habit. Annual. Culms erect, 5–50 cm tall. Mid-culm nodes pubescent or bearded. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.5–0.7 mm long. Leaf-blades linear or lanceolate, 0.5–7 cm long, 0.5–3 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets pedicelled. Companion spikelets absent. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or oblong, laterally compressed, (1–)2–3(–4.5) mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate, membranous or chartaceous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Upper glume lanceolate or elliptic, membranous or chartaceous or coriaceous, without keels, wingless, 1 -nerved. Upper glume surface smooth or scabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 0.8–2.5 mm long, without keel, 1 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 4–9 mm long overall, with a twisted column. Column 1.5 mm long. Palea absent. Anthers 2.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, Port Curtis.

Notes. Occurs in seepage areas and wet sites generally from tropical Australia. Extends to India and Japan. Flowers Apr.--Sept.

Dimeria sp. A (Mosquito Point, Clarkson 8994 & Neldner) Classification. (GPWG 2001) :

Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 9–18 cm tall. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.3–0.5 mm long. Leaf-blades lanceolate, 1–3 cm long, 1–2 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 3.5–4 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, coriaceous, firmer on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 0.8 mm long, without keel, 1 -nerved. Lemma apex dentate or lobed, awned. Median (principal) awn from a sinus, 8–10 mm long overall, with a twisted column. Column 3.5–4 mm long. Palea absent. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Dimeria sp. B (Salvator Rosa, R.J.Fensham 3643) Classification. (GPWG 2001) : Subfamily

Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms prostrate, 10–16 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.7 mm long. Leaf-blades 1–5 cm long, 1.5–2.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), without rachilla extension, linear or elliptic, laterally compressed, 4–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear, coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, coriaceous, keeled, 1 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 2.5 mm long, without keel, 1 -nerved. Lemma apex lobed, awned. Median (principal) awn 3 mm long overall, without a column. Palea absent. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt.

Dinebra retroflexa* (Vahl.) Panz. *Denkschr. Konigl. Akad. Wiss. München* 1813: 270 (1814).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynosurus retroflexus* Vahl, *Symb. Bot.* 2: 20 (1791).

Type of Basionym or Protologue Information: HT: *La Mark s.n.*, India (C).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 56).

Habit. Annual. Culms erect or prostrate, 15–112 cm tall. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 1–1.6 mm long, lacerate. Leaf-blades flat, 4.5–28 cm long, 4–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of spikes. Racemes numerous, deflexed or spreading, linear or oblong or cuneate, 0.6–6 cm long, bearing 2–20 fertile spikelets on each. Central inflorescence axis 8–34 cm long. Rhachis deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–9 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume elliptic, coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 5–8.2 mm long, coriaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–2.9 mm long, without keel or keeled, 3 -nerved. Lemma surface glabrous. Lemma apex mucous or mucronate. Palea 2 -nerved. Grain 1 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Moreton, Port Curtis, Leichhardt, Warrego.

Notes. A weed of cultivation and disturbed areas.

SE Qld, N to Yeppoon; throughout tropical and southern Africa, through Egypt, Iraq and India. Mostly on heavy clay soils, but also collected from black loamy soils and sandy soils.

Distichlis distichophylla (Labill.)Fassett. *Rhodora* 27: 71 (1925). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Uniola distichophylla* Labill., *Nov. Holl. Pl.* 1: 21, t. 24 (1804).

Type of Basionym or Protologue Information: Habitat in capite Van-Diemen.,

Recent synonyms: *D. spicata* auct.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (637as *Distichlis maritima*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (431), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (353), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (224).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (117), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.76D-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (354, fig. 285), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (224).

Habit. Perennial. Rhizomes present, elongated. Culms decumbent, 7–60 cm tall. Mid-culm nodes glabrous. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane, 0.1–0.5 mm long. Leaf-blades involute or convolute, 1–8(–20) cm long, 1–4 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–10, 0.5–4 cm long. Central inflorescence axis 2.5–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–15), comprising 5–15 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 6–18(–28) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, scarious, keeled, 1-keeled, 3–9 -nerved. Upper glume ovate, 4–5 mm long, scarious, keeled, 1-keeled, 3–9 -nerved. **Florets.** Fertile florets female.

Fertile lemma 3–6.4 mm long, keeled, 5–11 -nerved. Lemma surface glabrous. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Victoria, Tasmania.

Western Australia: Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands.

Notes. Useful as a sand-binder in coastal areas, but of little pasture value.

Collections rarely if ever have both male and female plants.

Most of Vic., except the NE, islands of Bass Strait, coastal and near coastal Tas., and southern S.A., with isolated far inland records from the northern Flinders Ra., and L. Cargellico in N.S.W. Also sw W.A. Flowers summer.

Dryopoa dives (F. Muell.) Vickery. *Contr. New South Wales Natl Herb.* 3: 196 (1963). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca dives* F. Muell., *Fragm.* 3: 147 (1863).

Type of Basionym or Protologue Information: Australia: In colibus silvaticis inter flumina Tarwan et Bunyip Creek, *Mueller s.n.* (IT: K).

Recent synonyms: *Festuca dives*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (659 as *Glyceria dives*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (224), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (299 & 300 as spp. *dives* A and B).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (224), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (298, Fig. 40).

Habit. Perennial. Culms erect, 23–500 cm tall, 3–10 mm diam., 5 -noded. Mid-culm nodes glabrous. Leaves cauline. Ligule an eciliate membrane, 6–20 mm long, lacerate. Leaf-blades 10–55 cm long, 5–24 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 12–56 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 5–9(–12) mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 4.3–8.1 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 4–7.2 mm long, keeled, 5(–7) -nerved. Lemma apex erose, awned. Median (principal) awn 0.5–2 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, South Coast, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Grampians, Wilsons Promontory, Snowfields. **Tasmania:** East Coast.

Notes. 1(0). Culms 1–3 noded; leaf blades stiff; peduncles scabrous; sheaths, culms and spikelets typically strongly pigmented purple **c.** subsp. **purpurescens**

Culms 3–8 noded; leaf blades not stiff; peduncles glabrous; sheaths, culms and spikelets not as strongly pigmented 2

2(1). Lower glume 3–4.7 mm long; upper glume 4.3–5.5 mm long, scabrous; lemma 5.1–5.9 mm long; ligule prominently nerved **a.** subsp. **dives**

Lower glume 5–6.8 mm long; upper glume 6–8.1 mm long, glabrous; lemma 6–7.2 mm long; ligule faintly nerved **b.** subsp. **Grampians**.

In Tas. known only from the Snug Plains, E Coast, in the Grampians and E, Vic., and S from Robertson, N.S.W. Tall wet sclerophyll forest. Flowers Nov.-Mar.

subsp. **“purpurescens”**

Flowers Dec.-Jan. Fruits Dec.-Jan. ??.

subsp. **(Grampians)**

Flowers Dec.-Feb.

Dryopoa dives subsp. dives

Australian Distribution: New South Wales, Victoria.

Dryopoa. dives subsp. A

Australian Distribution: Tasmania.

Dryopoa dives subsp. B.

Australian Distribution: Victoria.

Echinochloa colona* (L.) Link. *Hort. Reg. Bot. Berol.* 2: 209 (1833). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum colonum* L., *Syst. Nat.* (ed. 10) 2: 870 (1759).

Type of Basionym or Protologue Information: LT: P. Browne *s.n.*, Jamaica (LINN-80.23). LT designated by Clayton & Renvoize, *Fl. Trop. East Afr., Gramineae* (part 3): ? (1982); the typification by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 119 (1908) was not effective.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (478 as *Panicum colonum*), [1969] E.E.Henty, *Manual Grasses New Guinea* (81 as *E. colonum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (476 as *E. colonum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006]

J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (445), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (226).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (255, Pl. 75 as *E. colonum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (445, Fig. 376), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (226).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 10–100 cm tall, 3–8 -noded. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 3–30 cm long, 2–8 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes ascending (rarely) or appressed, 0.5–3 cm long. Central inflorescence axis 1–15 cm long.

Spikelets. Spikelets sessile, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate or orbicular, dorsally compressed, 1.5–3 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex muticous or mucronate. Upper glume ovate, 2.2–2.8 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.9–3 mm long, without keel, 5 -nerved. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Christmas Is.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Gippsland Plain, Murray Mallee, Riverina, Volcanic Plain.

Notes. Morphologically variable and tends to intergrade with other species. Diagnostic features of *E. colona* include spikelet length, length of the upper floret, awnless spikelets and the arrangement of the spikelets in 4 uniform rows on the primary branches.

Introduced. In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, acacia shrublands, arid tussock grasslands, and coastal grasslands. Occurs throughout the tropics. Flowers sporadically throughout the year.

Echinochloa crusgalli* (L.) Beauv. *Ess. Agrost.* 53, 161, 169 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum crus-galli* L.,

Type of Basionym or Protologue Information: LT: *Burser herb.* 1: 303, (UPS). LT designated by Michael, Proc. Conf. Weed Control in Rice, 291–306 (1983).

Recent synonyms: *E. crus-galli* subsp. *hispidula*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191 as *Panicum Crus galli*), [1878] G.Bentham, *Flora Australiensis* 7 (479 as *Panicum crus-galli*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (253 as *E. crus-galli*), [1969] E.E.Henty, *Manual Grasses New Guinea* (81), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (477 as *E. crus-galli*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (413), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (446), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (226).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (119), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (446, Fig. 377), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (226).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 25–150 cm tall, 4–7 -noded. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 0.5–35 cm long, 6–20 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–15, ascending, 2–10 cm long. Central inflorescence axis 6–22 cm long.

Spikelets. Spikelets sessile and pedicelled, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3–4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate. Upper glume ovate, 3–4 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved, muticous or awned.

Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Dale, Warren. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, Midlands, East Coast.

Notes. Intergrades with other species of *Echinochloa* but can usually be distinguished on spikelet length, presence of setae on the primary branches, absence of a ligule and shape of the lemma apex.

Introduced. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. Widespread in eastern Australia where it is a weed in waste areas and agricultural land. Its native distribution is uncertain. Flowers mostly Nov.–Apr.

Echinochloa crusgavonis* (Kunth) Schult. *Mant.* 2: 269 (1824). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Oplismenus crus-pavonis* Kunth,.

Type of Basionym or Protologue Information: HT: *Humboldt & Bonpland s.n.*, Sep, Venezuela: Sucre: Cumaná, vicinity of Bordones (P (photo, US); IT: US (fragm.)). Crescit im apricis caldissimis Provinciae Cumanensis prope Bordones, floret Septembri, *Humboldt & Bonpland s.n.*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (81), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (447), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (226).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (446, Fig. 378), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (226).

Habit. Annual or perennial. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, stature robust to moderate, 50–200 cm tall, 4–7 -noded. Leaf-sheaths smooth. Ligule absent. Leaf-blades 12–60 cm long, 5–25 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 3–15 cm long. Central inflorescence axis 10–30 cm long.

Spikelets. Spikelets sessile, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–3(–3.5) mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline or membranous, without keels, 3–5 -nerved. Lower glume surface indumented. Lower glume apex mucronate. Upper glume ovate, 2–3.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, awned.

Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Western Australia: Drummond. **South Australia:** Murray, Southern Lofty. **Queensland:** Wide Bay. **New South Wales:** North Coast, Central Coast, Central Tablelands.

Notes. Diagnostic features include the length of the upper floret and distinct secondary branching of the primary branches.

Introduced; W.A., S.A., Qld, and N.S.W. Geobotanical distribution: Dawson, Sturt, Merredin, and Eyre. Native to the tropics of Africa and the Americas. In tropical heaths, tropical and subtropical rain forests, dry sclerophyll forests, and temperate sub-humid woodlands. Rare in Australia and its status is uncertain. Flowers Feb.-Mar.

Echinochloa dietrichiana P.W.Michael. *Telopea* 8: 403 (1999). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook District: South Johnstone, 17°33'S, 146°00'E, *R.H. Edmonson s.n.* (HT: BRI-079502).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or decumbent, 150 cm tall (-200), 5–8 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs or absent, 1 mm long. Leaf-blades 20–30 cm long, -10 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3.5–5 cm long. Central inflorescence axis 10–27 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, without keels, 5 -nerved. Lower glume surface indumented. Upper glume ovate, 3 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male (rarely) or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, awned.

Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Grain 1.6–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. The epithet commemorates Amalie Dietrich (18221–1891), a remarkably skilful collector in the 1860s for the Hamburg merchants J.C. Godeffry and Son.

The current extent and conservation status of this species are unknown but it would appear to be quite vulnerable to competition for exotic perennial grasses. It is likely to have been overlooked by recent plant collectors due to its superficial resemblance to other species of *Echinochloa*, both native and exotic.

E. dietrichiana has been confused with two other annual taxa, namely, the native *E. telmatophila* and *E. crus-galli* ssp. *hispidula*, an important weed of rice especially in the Indian subcontinent, south-east Asia, China and Japan.

A non-weedy native species occurring in seasonally flooded areas in coastal Queensland and N.T., sometimes close to areas subject to tidal influence.

Echinochloa elliptica P.W. Michael & J.W. Vickery. *Telopea* 2: 28 (1980). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Coastal Plains Research Station, 30 mi SE of Darwin, common on heavy soil banks of rice bays, tufted erect perennial 3–4 ft high, 13 Mar 1963, M. Lazarides 6805 (HT: CANB-135762; IT: K, NT-22337).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 50–150 cm tall, compressible, 4–7 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.3–1 mm long. Leaf-blades 7–50 cm long, 5–15 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, erect or ascending, 2–4 cm long. Central inflorescence axis 6–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4–4.9 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface indumented. Lower glume apex mucronate or awned. Upper glume elliptic, 4.1–4.9 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface scabrous, indumented. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5(–7) -nerved, awned.

Fertile lemma 3–4.5 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.9–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Cook, Burke.

Notes. Similar taxa include *E. stagnina* and *E. turneriana*. Diagnostic features include the presence of a ligule, awned spikelets, and spikelet shape.

Native. Restricted to the Kimberley region of W.A. and in the N.T. In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, arid tussock grasslands, and coastal grasslands. Commonly a weed in rice fields. Flowers probably throughout the year.

Echinochloa esculenta (A. Braun) H. Scholz. *Taxon* 41: 523 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum esculentum* A. Braun, Index Sem. (Berlin) 1861(App.): 3 (1861).

Type of Basionym or Protologue Information: NT: *Koernicke s.n.*, Cult. Hort. Bonn-Poppelsdorf, 28 Oct 1875 (B). NT designated by Scholz, *Taxon* 41: 523 (1992). "E.seminibus a Th. Schottmüller, expeditionis navalis Borussiae hortulano, a Japonia, ubi prope Jeddo et Jokuhamia colitur, missis provenit.".

Recent synonyms: *E. utilis*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (447), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (227).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (447, Fig. 379), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (227).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, stature robust to moderate, 30–150 cm tall, 4–7 -noded. Ligule absent. Leaf-blades 8–35 cm long, 7–25 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 12–15, arcuate to flexuous, 0.5–3 cm long. Central inflorescence axis 7–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 3–4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate. Upper glume obovate, 3.1–4 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 7 -nerved, muticous or awned.

Fertile lemma 2.5–3.5 mm long, without keel, 5 -nerved. Lemma apex muticous. Anthers 3.

Continental Distribution: Temperate Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner. Menzies. **South Australia:** Eastern, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Maranoa, Moreton, Port Curtis, South Kennedy, Cook, Warrego. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Murray Mallee, Wannon. **Tasmania:** East Coast.

Notes. Generally similar to *E. crus-galli* but has a denser inflorescence with compacted primary branches.

Native; W.A., S.A., Qld, N.S.W., A.C.T., and Vic. In tropical heaths, tropical and subtropical rain forests, temperate wet sclerophyll forests, dry sclerophyll forests, temperate sub-humid woodlands, semi-arid shrub woodlands, and eucalypt shrublands. Grown for forage and bird seed and frequently escapes cultivation. Flowers Sept.-Apr.

Echinochloa frumentacea* Link. *Hort. Reg. Bot. Berol.* 1: 204 (1827). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: India.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (227).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (227).

Habit. Annual. Rhizomes absent. Culms erect, stature robust to moderate, 30–150 cm tall, 5–8 -noded. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 8–35 cm long, 5–22 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 1–3 cm long. Central inflorescence axis 6–20 cm long.

Spikelets. Spikelets sessile, 2–4 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate or orbicular, dorsally compressed, 2.5–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2.4–3 mm long, membranous, without keels, 3–7 -nerved. Upper glume surface indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 5–7 -nerved. Fertile florets bisexual. Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner, Dampier. **Queensland:** Burnett, Darling Downs, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Plains. **Victoria:** Gippsland Plain, Midlands, Wimmera. **Tasmania:** East Coast.

Notes. The relationship between *E. frumentacea* and *E. utilis* is not clear, and they intergrade morphologically. The colour of the caryopsis is probably the most reliable character for distinguishing between these species. *Echinochloa frumentacea* has a pearly white caryopsis whereas at maturity the caryopsis of *E. utilis* is dull, pale yellow to light brown. In general, *E. utilis* has larger spikelets and longer primary branches. They can be distinguished from the wild forms by the compacted primary branches and the tightly clustered spikelets on these branches.

Introduced. In tropical and subtropical rain forests, temperate rain forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers Oct.-May.

Echinochloa inundata Michael & Vickery. *Telopea* 1: 46 (1975). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Western Plains, Boorooma Creek, between Walgett and Brewarrina, 27 Feb 1968, P. Michael A 80 (HT: NSW-113971).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (477), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (449), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (227).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (448, Fig. 380), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (227).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 30–150 cm tall, 4–8 mm diam., compressible, 4–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 10–40 cm long, 6–15 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, erect or ascending, 2–6 cm long. Central inflorescence axis 15–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.4–5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate or awned. Upper glume ovate, 3.3–4.8 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface scabrous, indumented. Upper glume apex muticous or mucronate or awned. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved, muticous or awned.

Fertile lemma 3.1–3.8 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.8–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales.

South Australia: Lake Eyre, Gairdner-Torrens Basin. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Port Curtis, Wide Bay, South Kennedy, Mitchell. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Morphologically similar to *E. turneriana*. It differs in lacking a ligule, the spikelets are typically larger and the lower lemma typically has a pronounced awn.

Native. The distribution of *E. inundata* is S of *E. turneriana*. In Brigalow forests, semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers Feb.-July.

Echinochloa kimberleyensis P.W. Michael & J.W. Vickery. *Telopea* 2: 25 (1980). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Western Australia: grown at Kimberley Research Station, dispatched Nov 1950, *E. C. B. Langfield 211* (HT: CANB-24931; IT: CANB-24391a).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, stature robust to moderate, 70–200 cm tall, 3–5 mm diam., compressible, 5–6 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.25–1 mm long. Leaf-blades 15–42 cm long, 4–15 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 7–15, erect or ascending, 2–7 cm long. Central inflorescence axis 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 5–7.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 4.7–6.7 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface scabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, awned.

Fertile lemma 4.6–6.5 mm long, without keel, 5 -nerved. Lemma apex mucronate or awned. Anthers 3. Grain 2.75–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Queensland.

Western Australia: Gardner. **Queensland:** Cook, Burke.

Notes. Diagnostic characteristics of *E. kimberleyensis* include spikelet length, the appressed primary branches of the inflorescence, the absence of stamens in the lower floret, and the attenuate spikelet base.

In tropical and subtropical sub-humid woodlands. *Echinochloa kimberleyensis*, *E. macrandra* and *E. elliptica* are known from tropical regions of Australia and form a native complex of robust annual species. Flowers Feb.-July.

Echinochloa lacunaria (F. Muell.) Michael & Vickery. *Telopea* 1: 44 (1975). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum lacunarium* F. Muell., *Trans. & Proc. Philos. Inst. Victoria* 1854–1855: 47 (1855).

Type of Basionym or Protologue Information: "Around the Murray lagoons.", no collector cited.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (227).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (227).

Habit. Annual. Culms erect, stature slender to delicate, 45–90 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule absent. Leaf-blades 9–40 cm long, 4–14 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes few, erect, 2–6 cm long. Central inflorescence axis 8–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 4.3–6 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate. Upper glume elliptic, 4.1–4.9 mm long, membranous, without keels, 5 -nerved. Upper glume surface asperulous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved. Fertile florets bisexual.

Fertile lemma 3.4–4 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 2.2–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales.

South Australia: Murray. **New South Wales:** South-Western Plains, South Far Western Plains.

Notes. The lack of hairs or distinct scabrosities on the spikelet and inflorescence branches is diagnostic. It is morphologically most similar to *E. turneriana* and may be nothing more than an ecotypic variant.

Native. Collected from the Menindee area; uncommon. In temperate sub-humid woodlands, arid and semi-arid low woodlands, and eucalypt shrublands. Flowers Apr.-Sept.

Echinochloa macrandra P.W. Michael & J.W. Vickery. *Telopea* 2: 27 (1980). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Western Australia: The razorbacks, near 65 mi peg on Wyndham-Darwin road, Kimberly, swamp on heavy grey clay, annual in damp mud, seed voucher(CSIRO Acces. no. W662), 17 Apr 1956, *Burbidge* 5185 (HT: CANB-35478; IT: CANB-35480).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, 70–200 cm tall, 3–6 mm diam., 6–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades 12–40 cm long, 4–14 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, erect or ascending, 3–7 cm long. Central inflorescence axis 11–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4.8–6 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline or membranous, without keels, 5–7 -nerved. Lower glume apex muticous or mucronate. Upper glume elliptic, 4.6–5.7 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface scabrous. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved, awned.

Fertile lemma 4.5–5.3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 3–3.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. More collections are needed to elucidate the range in morphological variation. It is morphologically similar to *E. elliptica* and *E. kimberleyensis*. Diagnostic features of *E. macrandra* include the slightly spreading primary branches, the well-developed palea of the lower floret and the truncate spikelet base.

Native. Restricted to the swamps near the Ord R., W.A. In tropical and subtropical sub-humid woodlands. Flowers Mar.-Apr.

Echinochloa microstachya* (Wieg.) Rydb. *Brittonia* 1: 82 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Echinochloa muricata* var. *microstachya* Wiegand, *Rhodora* 23(267): 58–60 (1921).

Type of Basionym or Protologue Information: HT: *Palmer 97*, USA: New York: Tompkins Co.: Ithaca (GH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E. muricata*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (228).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 50–150 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 7–20 cm long, 4–11 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 8–15, spreading, 2–8 cm long. Central inflorescence axis 6–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 3–4 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate or awned. Upper glume ovate, 3–3.7 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, mucous or awned.

Fertile lemma 2.5–3.8 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.2–1.9 mm long.

Continental Distribution: Australasia and North America.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Riverina, Volcanic Plain.

Notes. Diagnostic features include spikelet length and gradual differentiation of the upper floret apex.

Introduced. A North American species most common in the western part of the United States. In temperate sub-humid woodlands and semi-arid shrub woodlands. Introduced into the Riverina where it is spreading as a common weed of rice paddocks. Flowers Jan.-Feb.

Echinochloa oryzoides* (Ard.) Fritsch. *Verh. Zool.-Bot. Ges. Wien* 41: 742 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum oryzoides* Ard., *Animadv. Bot. Spec. Alt.* 2: 16, pl. 5 (1764).

Type of Basionym or Protologue Information: Semina hujus Panici inventa a me fuere inter Oryzam,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (228).

Habit. Annual. Culms erect, 25–150 cm tall, 4–6 -noded. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 7–35 cm long, 4–12 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–5 cm long. Central inflorescence axis 6–25 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 3.8–6.5 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface indumented. Lower glume apex mucronate. Upper glume ovate, 4.1–5.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 5 -nerved, mucous or awned.

Fertile lemma 3.5–5 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 2.5–3.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales, Tasmania.

Western Australia: Gardner. **Dale.** **New South Wales:** Central-Western Slopes, South-Western Slopes, South-Western Plains.

Notes. *Echinochloa oryzoides* is probably a selected variant of *E. crus-galli*, from which it is differentiated on the size of the spikelet and grain. The distinction between *E. oryzoides* and *E. phyllopogon* is not clear.

Introduced. *Echinochloa oryzoides* vegetatively mimics rice and occurs in most of the rice-growing areas of the world. In dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers Jan.-Apr.

Echinochloa picta (Koen.) P.W. Michael. *Philip. J. Weed Sci.* 5: 18 (1978). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pictum* J. König, *Der Naturforscher* 23: 204. 1788.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms geniculately ascending or decumbent or sprawling, 30–150 cm tall, 5–9 -noded. Ligule a fringe of hairs or absent, 1–3.5 mm long. Leaf-blades 10–45 cm long, 3–20 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 1–4 cm long. Central inflorescence axis 6.5–19 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 3–5.2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–7 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 4–4.5 mm long, membranous, without keels, 5(–9) -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 5 -nerved, awned.

Fertile lemma 3–4 mm long, without keel, 5 -nerved. Anthers 3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook.

Echinochloa polystachya* (H.B.K.) Hitchc. *Contr. U.S. Natl. Herb.* 22: 135 (1920). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Oplismenus polystachyus* Kunth, *Nov. Gen. Sp.* (quarto ed.) 1: 107 (1815 [1816]).

Type of Basionym or Protologue Information: HT: *Humboldt & Bonpland* s.n., Apr, Venezuela: Amazonas: prope Maypure (P; IT: US-s.n. (fragm. ex P)).

Recent synonyms: *Echinochloa praestans*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (228).

Habit. Perennial. Culms decumbent, 100–300 cm tall, 7–15 mm diam., spongy. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 2–4 mm long. Leaf-blades 25–50 cm long, 20–35 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 2–11 cm long. Central inflorescence axis 15–30 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4.5–6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, without keels, 5–7 -nerved. Upper glume ovate, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, muticous or awned.

Fertile lemma 2.5–5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis.

Echinochloa praestans = E. polystachya P.W. Michael. *Telopea* 2: 31 (1980). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Echinochloa praestans* P.W. Michael,.

Type of Basionym or Protologue Information: Papua New Guinea: Central Province: ca. 3 mi N of Hisin village, Kairuku sub-province on edge of permanently inundated swamp in open grassland, 16 Aug 1962, alt. 10 ft, up to 2 m tall, *Darbyshire 815* (HT: CANB-113411; IT: A, BH, BO, BRI, GH, K, L, PNH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms geniculately ascending or decumbent, 100–360 cm tall, 6–12 mm diam., 8–15 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 2–5 mm long. Leaf-blades 20–50 cm long, 10–30 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, erect, 7–15 cm long. Central inflorescence axis 18–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or ovate, dorsally compressed, 3.5–4.9 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume ovate, 3.3–4.7 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface spinose, glabrous or indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 7 -nerved, muticous or awned.

Fertile lemma 3.5–4.2 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Tropical Asia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Introduced (?). This species was described from New Guinea, where it is common. In tropical and subtropical sub-humid woodlands and coastal grasslands. In Australia there are two collections. Flowers Apr.

Echinochloa pyramidalis* (Lam.) Hitchcock & Chase. *Contr. U.S. Natl Herb.* 18: 345 (1917).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pyramidale* Lam., *Tabl. Encycl.* 1: 171 (1791).

Type of Basionym or Protologue Information: HT: D. Roussillon s.n., 1789, Senegal: E. Senegal (P-LAM; IT: US-80942 (fragm. ex P-LAM)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (254), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (449), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (449, Fig. 381), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (229).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect, stature reed-like, 100–400 cm tall, 5–8 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 1–4 mm long. Leaf-blades 1.8–70 cm long, 2–25 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes ascending, 3–20 cm long. Central inflorescence axis 8–40 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 2.5–4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2.9–3.9 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved, muticous or awned (rarely).

Fertile lemma 2–3.7 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Western Australia: Drummond, Warren.

Notes. Diagnostic features include the ciliate ligule, awnless spikelets, and its perennial habit with well-developed rhizomes.

Introduced. A tropical African species. In tropical and subtropical rain forests and dry sclerophyll forests. Known from only a few collections in Australia. Flowers Mar.-Oct.

Echinochloa telmatophila Michael & Vickery. *Telopea* 1: 44 (1975). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Central Coast, Lane Cove National Park, 3 Mar 1962, *M. Gray 5201* (HT: CANB-120623, CANB-120625).

Recent synonyms: *E. walteri* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (229).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, stature robust to moderate, 50–180 cm tall, 5–9 mm diam., 4–6 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule absent. Leaf-blades 10–35 cm long, 7–18 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, erect or ascending, 2–10 cm long. Central inflorescence axis 10–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or elliptic, dorsally compressed, 3–4.2 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex mucronate. Upper glume elliptic, 3–4.2 mm long, membranous, without keels, 5 -nerved. Upper glume surface spinose, indumented. Upper glume apex mucicous or mucronate or awned. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved, awned. Fertile florets bisexual.

Fertile lemma 2.9–4.1 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.8–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Drummond. **Queensland:** Maranoa, Mitchell, Moreton, Wide Bay, Cook, North Kennedy. **New South Wales:** North Coast, Central Coast.

Notes. Diagnostic characteristics include the narrow elliptic spikelets, the uniformly long awned spikelets, an absent ligule and a relatively small lower glume. *Echinochloa telmatophila* belongs to an annual complex of native species that include *E. lacunaria*, *E. turneriana* and *E. inundata*.

In tropical heaths, tropical and subtropical rain forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Dec.-Apr.

Echinochloa turneriana (Domin) Black. *Fl. South Australia*. ed.2, 1: 72 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum turnerianum* Domin, *Biblioth. Bot.* 85: 307 (1915).

Type of Basionym or Protologue Information: "West-Queensland: ...", Domin, II. 1910 "Original der Art".

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (478 as *E. turnerana*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (450), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (228).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (450, Fig. 382), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (229).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 15–130 cm tall, 3–6 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs or absent. Leaf-blades 5–30 cm long, 4–15 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, appressed, 1–4 cm long, bearing 10–30 fertile spikelets on each. Central inflorescence axis 2.5–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 4–5.7 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous or chartaceous, without keels, 3–7 -nerved. Lower glume apex mucronate. Upper glume elliptic or ovate, 4–5.7 mm long, membranous, without keels, 9 -nerved. Upper glume surface scabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous, 5–7 -nerved.

Fertile lemma 3.8–5.5 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Barkly Tableland, Central Australia North. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Gregory North, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego, Gregory South. **New South Wales:** North Far Western Plains.

Notes. In temperate sub-humid woodlands, acacia shrublands, and arid tussock grasslands. Flowers sporadically throughout the year but mostly Mar.-July.

Echinopogon caespitosus C. E. Hubbard. *Hook. Ic. Pl.* ser 5, 3, subt. 3261: 6 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Northumberland County, near Katoomba, in railway enclosure, common, Apr 1931, *Hubbard 8453*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (219), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (230), [1878] G.Bentham, *Flora Australiensis* 7 (223).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (121), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (219, Fig.165 as var. *caespitosus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (230), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31 as var. *caespitosus*).

Inflorescence. Inflorescence solid, a panicle.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s).

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Flinders Ranges. **Queensland:** Port Curtis, Leichhardt, Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes. **Victoria:** Gippsland Plain, East Gippsland.

Notes. Var. *caespitosus*

N.S.W. and Qld. In forest or grassland, often in disturbed areas. Flowers Dec.-May. Fruits Dec.-Apr.(-July). var. *cunninghamii* C.E.Hubb.

Restricted to the Wellington to Parkes area of N.S.W. In forest or grassland, often in disturbed areas. Flowers Dec.-May. Fruits Dec.-Apr.(-July).

Infra-specific taxa: var. *caespitosus*, var. *cunninghamii* .

Glumes glabrous except for ciliate upper part of keel

Glumes shortly pubescent with a conspicuously ciliate keel

E. caespitosus var. *caespitosus*

E. caespitosus var. *cunninghamii* .

Echinopogon caespitosus var. *caespitosus*

Australian Distribution: Queensland, New South Wales, Victoria.

Echinopogon caespitosus var. *cunninghamii* C.E. Hubb. *Hooker's Icon. Pl.* 33: (t. 3261) 7 (1935).

Classification. **Type of Basionym or Protologue Information:** Australia: New South Wales: Wellington Valley, Nov 1825, *Cunningham 10*.

Australian Distribution: New South Wales.

Echinopogon cheelii C. E. Hubbard. *Hook. Ic. Pl.* ser 5, 3, subt. 3261: 3 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Gough County: Glen Innes, *Cheel s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (231), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (226).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (231), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31).

Habit. Perennial. Culms erect or geniculately ascending, 20–170 cm tall, 2–5 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths retrorsely scabrous, glabrous on surface or hairy. Ligule an eciliate membrane, 1.5 mm long, truncate. Leaf-blades linear or lanceolate, 3–14 cm long, 4–10 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 1–6 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, linear or lanceolate, laterally compressed, (6–)6.8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic, 5.7–10 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 6–10 mm long, keeled, 5–9 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 3 -awned. Median (principal) awn from a sinus or dorsal, 8–22 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes.

Victoria: East Gippsland, Eastern Highlands, Snowfields.

Notes. Several specimens unusually with a glabrous rachilla, but otherwise conforming to the above description: 4 miles [6.4 km] W of Uralla, granite soil with lateritic remnants, 25 Mar. 1952, *R.W.Jessup & M.Gray 150* (CANB). A.C.T.: E side Fishing Gap, Mt Tidbinbilla, 27 Jan. 1948, *N.T.Burbidge 2782* (CANB). Vic.: Tawonga Gap, 29 Mar. 1936, *R.A.Black 1226.002* (CANB).

Endemic. Often in forest and grasslands in damp situations or shallow rocky soils. Flowers Nov.–Mar. Fruits Feb.–Mar.

Echinopogon intermedius C. E. Hubbard. *Hook. Ic. Pl.* ser 5, 3, subt. 3261: 1 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Inglis County: Walcha Road, Dec 1912, *Boorman s.n.*

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (231), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (227).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (231), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending or decumbent, 20–95 cm tall, 2–5 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths retrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 1 mm long, truncate. Leaf-blades linear or lanceolate, 2.5–13 cm long, 3–7(–10) mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1–6 cm long, 2–4 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, (4.5–)6–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 5–7 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma (4–)4.6–6.4(–7) mm long, keeled, 5–7 -nerved. Lemma apex dentate, awned, 3 -awned. Median (principal) awn subapical or from a sinus, 10–25 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Anthers 3. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes.

Notes. Endemic. Often on creek banks and damp sites in forest. Flowers Nov.–June. Fruits Jan.–?.

Echinopogon mckiei C. E. Hubbard. *Hook. Ic. Pl.* ser 5, 3, subt. 3261: 9 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Clarke County: Yellow Gap, Oban Road, N.E. of Guyra, soil of granite formation, Dec 1931, *McKie* 729.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (231), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (223, 224 as var. *caespitosus*, var. *cunninghamii*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (231), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 5–50 cm tall, 2–5 -noded. Lateral branches simple. Leaf-sheaths retrorsely scabrous, glabrous on surface or hairy. Ligule an eciliate membrane, 1.5 mm long, truncate. Leaf-blades 2–12 cm long, 1–3 mm wide. Leaf-blade surface smooth or scaberulous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 0.5–2 cm long, 0.6–1.2 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong or cuneate, laterally compressed, 2–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic or ovate, membranous or chartaceous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume lanceolate or elliptic or oblong, 2.2–3.5 mm long, membranous or chartaceous, keeled, 1-keeled, 1 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.2–3.5 mm long, keeled, 5–7 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn apical or subapical or from a sinus, 1–3 mm long overall. Lateral lemma awns absent. Palea 2 -nerved. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands, Southern Tablelands.

Notes. Endemic. In sclerophyll forest or grassland in the northern and southern Tablelands, N.S.W. Flowers Jan.-Feb.

Echinopogon nutans C. E. Hubbard. *Hook. Ic. Pl.* ser 5, 3, subt. 3261: 4 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Queensland: Moreton District, banks of Brisbane River in partial shade, Nov 1930, *Hubbard* 4810.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (232), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (227, 228 as var. *nutans*, var. *major*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (232), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31 as var. *nutans*).

Inflorescence. Inflorescence solid, a panicle.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: South Kennedy, Port Curtis, Burnett, Wide Bay, Darling Downs, Moreton. **New South Wales:** Northern Tablelands, Central Tablelands.

Notes. Infra -specific taxa: var. *nutans*, var. *major*.

Inflorescence up to 3.5 cm long **E. nutans** var. *nutans*

Inflorescence more than 4.5 cm long **E. nutans** var. *major*

Echinopogon. nutans var. nutans

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (232).

Notes. N from Walcha in the north central and northern tableland districts of N.S.W., extending into Qld. In sclerophyll forest or grassland. Flowers Mar.-May.

Echinopogon nutans var. major C.E. Hubb. *Hooker's Icon. Pl.* 33: (t. 3261) 5. 1935.

Classification. Type of Basionym or Protologue Information: Australia: New South Wales: Hardinge County: Wandsworth, 15 mi N.W. of Guyra, 1080 m., Dec 1931, *McKie* 719.

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (232).

Notes. Restricted to the Guyra area of N.S.W.

Echinopogon ovatus (Forst.) Beauv. *Ess. Agrost.* 42, 148, 161 (1812). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis ovata* G. Forst., *Fl. Ins. Austr.* 40 (1786).

Type of Basionym or Protologue Information: HT: *Forster s.n.*, New Zealand (GOET).

Recent synonyms: *E. ovatus* var. *pubiglumis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis ovata*), [1878] G.Bentham, *Flora Australiensis* 7 (599), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (147), [1969] E.E.Henty, *Manual Grasses New Guinea* (84), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (413), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (219), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (232), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (224).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (149, Pl. 45), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (220, Fig. 166), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (232), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31).

Habit. Perennial. Rhizomes present, elongated. Culms geniculately ascending, 10–50(–120) cm tall, 3–7 -noded. Lateral branches simple. Leaves cauline. Leaf-sheaths smooth or retrorsely scabrous, glabrous on surface or hairy. Ligule an eciliate membrane, 2 mm long, truncate. Leaf-blades spreading or recurved, linear or lanceolate, 1.5–16 cm long, 2–8.5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 0.5–5 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong or obovate, laterally compressed, (3–)3.6–5.1 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic or ovate, 3–5 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 3.4–5 mm long, keeled, 5–7 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn apical or subapical, 3–15 mm long overall. Lateral lemma awns absent. Palea 2 -nerved. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Menzies. **South Australia:** Flinders Ranges, Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Burnett. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Snowfields, Wannon. **Tasmania:** Furneaux Group, North West, North East, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field.

Notes. Young plants of *E. ovatus* cause 'staggers' in stock.

Native. Also on Lord Howe Is. New Guinea and New Zealand. Widespread in wet sclerophyll woodland and by creeks. Flowers Aug.-Jan. Fruits Jan.-May.

Echinopogon ovatus var. ovatus

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I (as var. *ovatus*).

Echinopogon ovatus var. pubiglumis C.E. Hubb. *Hooker's Icon. Pl.* 33: (t. 3261) 8 (1935).

Classification. Type of Basionym or Protologue Information: Western Australia, *Drummond* 342.
Australian Distribution: Western Australia.

Echinopogon phleoides C. E. Hubbard. *Hook. Icon. Pl.* tab. 3261, 10 (1935). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Hardinge County: Wandsworth, 15 mi N.W. of Guyra, in white soil from quartz orphyry, 1080 m., Dec 1931, *McKie* 732.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (232), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (223).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (233), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (225, Fig.31).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 25–70 cm tall, 2–4 -noded. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule an eciliate membrane, 3 mm long, truncate. Leaf-blades 4–18 cm long, 2–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 1.5–3 cm long, 0.6–0.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 3.5–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong or ovate, scarious, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume lanceolate or oblong or ovate, 3.5–4 mm long, scarious, keeled, 1-keeled, 1 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.8–3 mm long, keeled, 5–7 -nerved. Lemma apex entire or dentate, mucronate. Median (principal) awn apical or from a sinus, 0.2–1.5 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands.

Notes. Most closely related to *E. mckiei*.

Endemic. Restricted to an area NW of Guyra, N.S.W. Grows on limestone. Flowers spring-summer.

Ectrosia agrostoides Benth. *Fl. Austral.* 7: 634 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Armstrong s.n.*, Australia: N. Australia, Port Essington ST: *Drummond s.n.*, Australia: W. Australia (K).

Key references (books and floras): [1878] G.Benth, *Flora Australiensis* 7 (634), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 77C).

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 9–40 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades erect, filiform, convolute, 1–9 cm long, 0.2–2 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, loose, 2–12 cm long, 0.5–2.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 2–3 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–2 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex entire or dentate or lobed, mucronate or awned, 1 -awned. Median (principal) awn 0.2–1 mm long overall. Palea 2 -nerved. Anthers 3. Grain 0.6 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Endemic; occurs in the Kimberley, W.A., the northern part of the N.T. and on the E coasts and offshore islands of the N.T. and Qld. Also on Aru Is. in the Moluccas. Known from shallower sandy soils, with *Melaleuca*, *Casuarina* or *Eucalyptus*, and other grasses.

Ectrosia anomala C. E. Hubbard. *Hooker's Icon. Pl.* ser. 5, 4 t. 3312: 14 (1936). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Kay 1935*, Australia: Queensland: Burke Dist.: Normanton, in open sandy channels on ridge side, 3–9 m.

ST: *Blake 9024*, Australia: Queensland: Burke Dist.: Normanton, in open shallow sandy channels on ridge side, 3–9 m.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 10–60 cm tall, 2 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades convolute, 3–10 cm long, 0.7–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 2–10 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–4), comprising 1–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5.5–9 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2–3.3 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 2.8–5.5 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex entire, muticous. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook.

Notes. Conservation status 3K (J.D.Briggs & J.H.Leigh, *Rare or Threatened Australian Plants* 141 (1995)): ranging over more than 100 km but poorly known and suspected to be rare, vulnerable, endangered or extinct.

Endemic; restricted to a c. 200 km band across the S of Cape York Penin., Qld. Known from damper places in open forest on grey sandy or solonchic soil and in drying out sandy seepage slopes and channels.

Ectrosia appressa S.T.Blake. *Univ. Queensland Dept. Biol. Pap* 1(18): 1 (1941).

Ectrosia blakei C. E. Hubbard. *Hooker's Icon. Pl.* ser. 5, 4 t. 3312: 4–5 (1936). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 9104*, 22 May 1935, Australia: Queensland: Burke Dist. (US-3104999).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 10–45 cm tall, 1–4 -noded. Mid-culm internodes glabrous or pubescent. Lateral branches branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or involute or convolute, 5–10 cm long, 1–2.5 mm wide. Leaf-blade surface scaberrulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 5–10 cm long, 4–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 15–20 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 4.5–5.2 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 6–11 mm long, keeled, 3(–5) -nerved. Lemma surface glabrous. Lemma apex entire, muticous or awned, 1 -awned. Median (principal) awn 1–18 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke.

Notes. Conservation status 2V (J.D.Briggs & J.H.Leigh, Rare or Threatened Australian Plants 141 (1995)): having a distribution ranging less than 100 kilometres, and vulnerable to disappearing from the wild through continued depletion and habitat disturbance.

Endemic; restricted to a small area about 200 km inland (ESE) from the SE corner of the Gulf of Carpentaria, Qld and Elcho Island, N.T. Recorded habitats include the sandy bank of a small creek, with *Ectrosia leporina* and *Eragrostis speciosa*, and open depressions on whitish sand.

Ectrosia confusa C. E. Hubbard. *Hooker's Icon. Pl.* ser. 5, 4 t. 3312: 14–15 (1936). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland, between Norman and Gilbert rivers, *Gulliver s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 15–31 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or convolute, 4–8 cm long, 0.6–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose or effuse, 3–10 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, oblong or obovate, laterally compressed, 4–5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3.5 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3–6 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 1–3 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Endemic; inland and near-coastal parts of the northern N.T., S of Pine Ck, and northern part of Qld, S of Cape Flattery, within 300 km of the coast. In heathlands or open forest, mainly on sand in hilly areas and along creek lines.

Ectrosia danesii Domin. *Biblioth. Bot.* 85: 406 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: North Queensland: Normanto, *Dr. J. Danes*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (88), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 6–40 cm tall, 2–5 -noded. Mid-culm internodes glabrous or pilose. Lateral branches branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 4–8.5 cm long, 1.5–4 mm wide. Leaf-blade surface scaberrulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 3–5 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((4–6)-13), comprising (4–)6–13 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 14–30 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5–4.5 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 4.5–8 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–5 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. Fortescue. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Endemic; known from the Kimberley region of W.A. and offshore islands, on the western side of Arnhem Land, and around the southern edge of the Gulf of Carpentaria. Occurs on ridges in shallow channels, or on river flood flats, in sand or clay loam, in low open shrubland or woodlands of *Eucalyptus*, *Melaleuca*, *Petalostigma*.

Ectrosia gulliveri F. Muell. *Fragm.* 8: 201 (1874). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: inter fluvios Norman's et Gilbert's river, *T. Gulliver* s.n..

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (634), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 10–55 cm tall, 2–4 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or convolute, 5–12 cm long, 0.7–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 3–15 cm long, 1–4 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–4), comprising 1–4 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–5 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 3–6 mm long, keeled, 5–9 -nerved. Lemma surface indumented. Lemma apex mucronate or awned. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook.

Notes. There are 2 varieties.

Spikelets usually 4–5.5 mm long; upper glume 2–3 mm long; second female-fertile lemma 2.8–3.4 mm long, awn 0.1–0.9 mm long **13a. var. gulliveri**

Spikelets 6–9 mm long; upper glume 3.4–5 mm long; second female-fertile lemma 4.3–6.1 mm long, awn 1.2–2.5 mm long **13b. var. squarrulosa.**

Endemic.

var. **gulliveri**

Northern Qld, between 16°S and 20°S. Occurs on gravelly, sandy, skeletal or solodized-solonchetic soils in damp places, sometimes with *Ectrosia leporina* or *Triodia pungens*.

var. **squarrulosa**

Restricted to an inland area of about 300 km at the base of Cape York Penin., Qld. Known from sandy and skeletal soils, from hilly country to salt flats, with shrubs and other grasses.

Ectrosia lasioclada (Merr.) S.T. Blake. *Proc. Roy. Soc. Queensland* 84: 65 (1973). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Eragrostis lasioclada* Merr., *Philipp. J. Sci.* 1(Suppl.): 382 (1906).

Type of Basionym or Protologue Information: IT: *E.D. Merrill* 461, 13 Dec 1902, Philippines: Palawan I., Palawan Prov. (L, US-435431). *CS\Collection no. publ.* as 416.

Recent synonyms: *E. eragrostoides*, *E. subaristata*, *Ectrosiopsis lasioclada*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms 30–90 cm tall. Ligule a fringe of hairs. Leaf-blades 10–30 cm long, 1–3.1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((3–)5–25), comprising (3–)5–25 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 5–18 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–3 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 0–1.5 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Victoria River, Central Australia North. **Queensland:** Burke, Cook, North Kennedy, Port Curtis.

Notes. Native; distributed through the northern half of Qld, away from the Gulf, with scattered occurrences in the Kimberley, W.A. and N.T. Also in the Philippines, Aru Is. (in the Moluccas) and southern New Guinea. Mainly on sandy soils on the edge of clay pans, with other grasses in savanna woodland or forest.

Ectrosia laxa S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 1(18): 1 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: IT: S.T. Blake 13688, 6 Apr 1938, Australia: Queensland: Cook Dist. on Wrotham Park, ca. 50 miles north-west of Mungana, on grey sand (US-1819382, US-3105000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 30–60 cm tall, 1–5 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades 7–15 cm long, 0.8–2.8 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 7–15 cm long, 6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with diminished florets at the apex, linear or obovate, laterally compressed, 7–11 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 2.8–4.4 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 3.2–10.7 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 2–4.7 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1.1–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Endemic; recorded from the eastern half of Cape York Penin. and the northern part of the N.T. (within 150 km of the coast). Occurs in sandy depressions and on river banks, in forests and woodlands mainly dominated by *Eucalyptus* spp.

Ectrosia leporina R. Br. *Prodr.* 186 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Littora Novae Hollandiae intra Tropicum.

Recent synonyms: *E. leporina* var. *longiglumis*, *E. leporina* var. *micrantha*, *E. leporina* var. *pauciflora*, *E. leporina* var. *spadicea*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (186 & as *Ectrosia spadicea*), [1878] G.Bentham, *Flora Australiensis* 7 (633), [1969] E.E.Henty, *Manual Grasses New Guinea* (84), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (123).

Habit. Annual or perennial. Culms 10–90 cm tall. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades 5–12 cm long, 1–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–4(-4)), comprising 1–3(-4) fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 1.5–6.7 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–3 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 2 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Mitchell, North Kennedy, South Kennedy, Port Curtis.

Notes. .

Ectrosia nervilemma (B.K.Simon)Nightingale. *Flora of Australia* 44B:461 (2005). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Planichloa nervilemma* B.K. Simon, *Austrobaileya* 2(3): 212 (1986).

Type of Basionym or Protologue Information: Australia: Queensland: Cook Distr.: ca. 20 km SE of Laura on the Peninsular Development Road, 15°39'S, 144°33'E, 25 Apr 1983, *J.R. Clarkson* 4679 (HT: BRI; IT: CANB, DNA, K, NSW, PERTH, QRS).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Planichloa nervilemma*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 66B-C).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, stature slender to delicate, 12–40 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades flat or conduplicate, 2–10 cm long, 1–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 6–12 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–8), comprising 2–8 fertile floret(s), with diminished florets at the apex, oblong or ovate or obovate, laterally compressed, 5–11 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous or coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–4.5 mm long, membranous or coriaceous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3–6.5 mm long, keeled, winged on keel, 5–7 -nerved. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 0–2 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1.3–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Restricted to the eastern half of Cape York Penin. in northern Qld. Found on sandy soils with a high species diversity of annual grasses, and an overstorey of *Melaleuca*, *Casuarina* or *Eucalyptus*.

Ectrosia ovata Nightingale. *Flora of Australia* 43(1): 376. 2002. **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: 1 km from the Musgrave to Lakefield road on the track to Low Lake, Lakefield National Park, Cook District, 8 Jul 1987, *J.R.Clarkson & B.K.Simon* 7070 (HT: NSW; IT: BRI, K, L, MBA, QRS).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 78).

Habit. Annual. Culms erect, stature slender to delicate, 20–50 cm tall, 3–7 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades flat, 6–15 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 10–25 cm long, 3–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1–5 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 6–15 mm long (excluding awns).

Glumes. Glumes similar. Lower glume lanceolate, membranous or coriaceous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 5–5.5 mm long, membranous or coriaceous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 5–10 mm long, keeled, 5–7 -nerved. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 1–16 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Ectrosia scabrida C. E. Hubbard. *Hooker's Icon. Pl.* ser. 5, 4 t. 3312: 6–7 (1936). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: between Fitzaurice and Victoria Rivers, Oct 1955, *Mueller*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (88), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 6–40 cm tall, 2–3 -noded. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 6–12 cm long, 0.7–3 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 2.5–9 cm long, 2.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5(–6)), comprising 2–5(–6) fertile floret(s), with diminished florets at the apex, linear or oblong or ovate, laterally compressed, 5–11.7 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.4–3.6 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 2.1–4.3(–5.6) mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–5 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall, Dampier. *Mueller*. **Northern Territory:** Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook.

Notes. Endemic; Drier areas across northern Australia between 15°S and 22°S. Usually on heavier textured soils than other *Ectrosia* species, in or beside watercourses and gilgais, often with *Melaleuca* sp., but also in sand.

Ectrosia schultzii Benth. *Fl. Austral.* 7: 633 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *F. Mueller s.n.*, Australia: between Maurice and Victoria rivers

ST: *Schultz* 287, Australia: Fort Darwin.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (633), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (89), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (90, Pl. 25), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 77A-B).

Habit. Annual or perennial. Culms erect, 25–60 cm tall, 2–3 -noded. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades erect, flat or involute or convolute, 10–23 cm long, 2–4.5 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 5–17 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 6–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3.1 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 3–4 mm long, keeled, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 3–6 mm long overall. Palea 2 -nerved. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **Queensland:** Burke, South Kennedy, Mitchell.

Notes. .

Endemic.

Infra-specific taxa: var. *schultzii*, var. *annua*.

Perennial; culms 1.5–2.2 mm wide; leaf blades 13–23 cm long

Annual; culms 0.7–1.5 mm wide; leaf blades 3–13 cm long

E. schultzii var. *schultzii*

E. schultzii var. *annua* .

Ectrosia schultzii var. schultzii

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Northern Australia (except Cape York Penin.), especially in the Kimberley region, within 400 km of the coast. Dominant in depressions and creek lines on deep sandy soil; less common in heavier soils near creeks.

Ectrosia. schultzii var. annua C.E. Hubb. *Hooker's Icon. Pl.* 34(t. 3312): 8 (1936).

Classification. Type of Basionym or Protologue Information: Australia: Queensland: Burke Dist.: Settlement Creek, May 1923, *Brass* 372.

Australian Distribution: Northern Territory, Queensland.

Notes. Northern Australia (except Cape York Penin.), within 250 km of the coast. Occurs on drying out sand seepage slopes, channels, depressions and levee soils, rarely on heavier soils, often with tree and shrub overstorey species from the genera *Eucalyptus*, *Pandanus*, *Callitris*.

Ehrharta brevifolia* Schrad. *Gött. Gel. Anz.* 2: 2077 (1821). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Cape of Good Hope, *P. Hesse s.n.*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (551), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (19), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (371, 373 as var. *brevifolia*, & var. *cuspidata*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (20, Pl. 3), [2009]. A.Wilson (ed.), *Flora of Australia 44A: Poaceae* 2 (372, Fig. 50 as var. *brevifolia*).

Habit. Annual. Culms erect or geniculately ascending, 18–90 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.5–2.5 mm long, membranous. Leaf-blades flat or conduplicate, 2.5–10 cm long, 3–8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 6–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.7–4.5 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels or keeled, 3–7 -nerved. Upper glume ovate, 1.4–2.4 mm long, hyaline, without keels, 3–7 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, cartilaginous, 1-keeled, 5 -nerved, mucous. Lemma of upper sterile floret 2.2–4.2 mm long, mucronate.

Fertile lemma 2.5–4 mm long, keeled, 5 -nerved. Lemma surface indumented. Palea 0–2 -nerved, without keels. Lodicules present. Anthers 2–3.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia.

Western Australia: Carnarvon. Irwin, Drummond, Avon.

Notes. Introduced; flowers Aug.-Sept.

Infra-specific taxa: var. *brevifolia*, var. *cuspidata*.

Spikelets 3–3.5 mm long

E. brevifolia var. *brevifolia*

Spikelets 4–4.5 mm

E. brevifolia var. *cuspidata*

Ehrharta brevifolia var. brevifolia*

Australian Distribution: Western Australia.

Ehrharta brevifolia var. cuspidata* Nees. *Fl. Afr. Austral. Ill.* 205 (1841).

Classification. Type of Basionym or Protologue Information: ST: *Karro*, in collibus aridis ad Garip fluvium solo, Klein Namaqualand ST: *Drege s.n.*, in arenosis ad Ebenezar.

Australian Distribution: Western Australia.

Ehrharta calycina* Sm. *Pl. Icon. Hactenus Ined.* 2, t. 33 (1790). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: E. Promontoria Bonne Spei, *Sparrman s.n.* (HT: LINN).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (19), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (54), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (414), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (233), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (373).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (17 & 20, Pl.2 & 3), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (125), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (55, fig.19), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (233), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (372, Fig. 50; 378, Fig. 51).

Habit. Perennial. Rhizomes absent or present, elongated. Stolons absent or present. Culms geniculately ascending, 30–100 cm tall. Mid-culm internodes glabrous or pubescent. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 2 mm long, membranous. Leaf-blades flat or involute or convolute, 2–250 cm long, 1–10 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 5–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 4–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, keeled, 7–9 -nerved. Upper glume oblong, 4–7 mm long, membranous, without keels, 9 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 80–90 % of length of spikelet, coriaceous, 1-keeled, 5–7 -nerved, mucronate. Lemma of upper sterile floret 4–8 mm long, mucronate.

Fertile lemma 3.5–7.5 mm long, keeled, 5–7 -nerved. Lemma surface indumented. Palea 1–2 -nerved, 1-keeled. Lodicules present. Anthers 6.

Continental Distribution: Africa, Australasia, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Carnarvon. Drummond, Dale. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, East Coast.

Notes. Introduced; W.A., S.A., Vic., N.S.W., Tas. Often in coastal areas on sandy soils.

Ehrharta erecta* Lam. *Encycl.* 2: 347 (1786). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Africa or India, *M. Sonnerat s.n.* "La collection de Graminees que M. Sonnerat nous a communiquee; mais nous ne savons pas positivement si ell est du Cap,...ou si elle est de l'Inde.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (18), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (414), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (56), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (234), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (374 as var. *erecta*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (20, Pl. 3), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (56, fig. 20), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (234), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (372, Fig. 50 as var. *erecta*).

Habit. Perennial. Culms geniculately ascending or decumbent, 20–100 cm tall, 4–6 -noded. Mid-culm internodes glabrous or pubescent. Leaf-sheath auricles present. Ligule an eciliate membrane, 2–7 mm long, membranous, entire or lacerate, truncate or obtuse. Leaf-blades flat, 4–20 cm long, 2–10(–15) mm wide.

Inflorescence. Inflorescence solid or compound, a raceme, a panicle. Panicle linear or elliptic, 6–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, (3–)4–5.75(–6.8) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3(–5) -nerved. Upper glume ovate, 2.5–3 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret coriaceous, 1-keeled, 5 -nerved, muticous. Lemma of upper sterile floret 3.5–6.5 mm long, muticous.

Fertile lemma 2.5–3.5 mm long, keeled, 5–7 -nerved. Palea 2 -nerved. Lodicules present. Anthers 6.

Continental Distribution: Africa, Temperate Asia, Australasia, Pacific, and North America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Menzies, Warren. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands, South West.

Notes. A minor weed of cultivation, especially in nurseries and gardens, extending to roadsides and waste land.

Introduced.

Ehrharta longiflora* Sm. *Pl.Icon. Tab. 32* (1789). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Ad Prom. Bonae Spei, *Masson* (HT: BM [hb. Banks]).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (551), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (18), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (414), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (56), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (234), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (374).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (20, Pl. 3), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (57, Fig. 21), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (234), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (372, Fig. 50).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 30–120 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliolate membrane, 1.5–3 mm long, membranous. Leaf-blades flat, 7–20 cm long, 5–15 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 10(–40) cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 10–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 5 -nerved. Upper glume ovate, 3.5–6 mm long, membranous, keeled, 1-keeled, 7–9 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 1-keeled, mucronate or awned. Lemma of upper sterile floret 9–12 mm long, mucronate or awned.

Fertile lemma 8–10 mm long, keeled, 7 -nerved. Lemma surface glabrous. Palea 1–2 -nerved. Lodicules present. Anthers 4–6.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Drummond, Warren, Eyre, Avon. **South Australia:** Nullabor, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast.

Notes. An unimportant weed of orchards and nurseries.

Introduced. All states but N.T. In seasonally wet places and at edges of watercourses, often in disturbed places where water is available. Flowers July-Oct.

Ehrharta pusilla* Nees. *Fl. Afr. Illus. Monogr.* 223 (1841). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: IST: *Drège Hb. Seidlitz*, [Africa]: C. b. spei (LE).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (21), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (415), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (374).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (20, Pl. 3), [2009]. A.Wilson (ed.), *Flora of Australia 44A: Poaceae 2* (372, Fig. 50).

Habit. Annual. Culms prostrate, 5–90 cm tall. Mid-culm internodes pubescent. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 1–2 mm long, membranous. Leaf-blades flat or conduplicate, 1.5–11 cm long, 2–7 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of spikes. Panicle linear, 3–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, without keels, 5–7 -nerved. Upper glume lanceolate, 4.1–4.9 mm long, herbaceous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 1-keeled, 5 -nerved, awned. Lemma of upper sterile floret 4.5–5.3 mm long, awned.

Fertile lemma 4.3–4.5 mm long, keeled, 5–7 -nerved. Lemma surface indumented. Palea 2 -nerved. Lodicules present. Anthers 6.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia.

Western Australia: Warren.

Notes. Introduced (but doubtfully naturalised). Restricted to W.A. Flowers Feb.

Ehrharta villosa* Schult. f. J.A.Schultes & J.H.Schultes, *Syst. Veg.* 7: 1374 (1829). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: ?HT: *Ecklon*, (P).

Recent synonyms: *E. villosa* var. *maxima*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (19), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (415), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (57), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (234), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae 2* (375).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (20, Pl. 3), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (57, fig. 22 as var. *maxima*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (234), [2009]. A.Wilson (ed.), *Flora of Australia 44A: Poaceae 2* (372, Fig. 50).

Habit. Perennial. Rhizomes present, short or elongated. Culms erect, 100–150 cm tall, 2–5 mm diam., woody. Mid-culm internodes solid, glabrous. Lateral branches suffrutescent. Leaves cauline. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.5–2 mm long, membranous. Leaf-blades involute, 1.5–20 cm long, 4–8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 4–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 11–18 mm long. Rachilla internodes elongated between basal sterile florets.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, keeled, 1-keeled, 5–9 -nerved. Upper glume elliptic, 9–18 mm long, membranous, without keels, 5–9 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 1-keeled, mucicous or mucronate or awned. Lemma of upper sterile floret 6–13.5 mm long, mucronate or awned.

Fertile lemma 6–11 mm long, keeled, 7–9 -nerved. Lemma surface indumented. Palea 2 -nerved. Lodicules present. Anthers 6. Grain 5.5 mm long.

Continental Distribution: Africa, Australasia, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Drummond, Menzies. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** Central Coast. **Victoria:** Murray Mallee, Otway Plain, Wannon.

Notes. Used as a sand stabilizer.

Introduced, N.S.W., Vic., S.A. and W.A. Native of S Africa. On beach fore dunes. Flowers Oct.-Nov.

Infra-specific taxa: var. *villosa*, var. *maxima*.

Eleusine coracana* (L.) Gaertn. *Fruct. Sem. Pl.* 1: 8 (1788). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynosurus coracanus* L., *Syst. Nat.* (ed. 10) 2: 875 (1759).

Type of Basionym or Protologue Information: LT: *Plukenet*, *Phytographia* pl. 91, f. 5 (1691), LT designated by ?, cited by de Wet et al., *Amer. J. Bot.* 71 (4): 551 (1984).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (208), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (415 as *E. corocan*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 74G-H).

Habit. Annual. Culms erect, 50–200 cm tall, 5–20 mm diam. Leaves mostly basal. Ligule a fringed membrane. Leaf-blades conduplicate, 30–60 cm long, 4–12 mm wide.

Inflorescence. Inflorescence digitate or subdigitate, with spicate branches. Racemes 4–10, erect, linear or oblong, incurved, 3–8 cm long, 4–15 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–9), comprising 3–9 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 4–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, winged on keel, 1–3 -nerved. Upper glume elliptic, 2–5 mm long, membranous, keeled, 1-keeled, winged on keel, 5–7 -nerved.

Florets. Fertile lemma 3–5 mm long, 3 -nerved (excluding subsidiaries). Palea 2 -nerved. Lodicules present. Grain 1.5–2.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia.

Western Australia: Drummond, Menzies.

Notes. Cultivated for food and drink, domestic use, traditional medicine and chemicals (hydrocyanic acid). It is present in archeological records of early African agriculture that date back 5000 years.

Roadside escapes are often small and slender, but may be distinguished from *E. indica* by the broader spikes of closely packed, non-shattering spikelets.

Mainly cultivated, but occasionally occurs spontaneously. Collected from the wild in the SW of WA; distributed throughout warm and temperate regions from Africa to Japan; originating in Africa, and introduced into India about 3000 years ago. Escapes from cultivation to become a weed in cultivated lands and other disturbed places such as roadsides.

Eleusine indica* (L.) Gaertn. *Fruct.* 1: 8 (1788). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynosurus indicus* L., *Sp. Pl.* 72–73 (1753).

Type of Basionym or Protologue Information: LT: *Burman, Thes. Zeylan. pl.* 47, f. 1 (1737), LT designated by Phillips in Cafferty et al., *Taxon* 49(2): 249 (2000).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (615), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (207), [1969] E.E.Henty, *Manual Grasses New Guinea* (88), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (462), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (355), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (235).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (206, Pl. 61), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (127), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (356, fig. 286), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (235).

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent or prostrate, stature slender to delicate, 15–100 cm tall. Leaves mostly basal. Ligule an eciliate membrane, 0.6–1 mm long, truncate. Leaf-blades flat or conduplicate, 5–40 cm long, 2.5–8 mm wide.

Inflorescence. Inflorescence digitate or subdigitate, with spicate branches. Racemes 1–10(–18), 3.5–15.5 cm long, 3–7 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–5(–9)), comprising 3–5(–9) fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 4–7.8 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, winged on keel, 1 -nerved. Upper glume elliptic, 1.8–24.3 mm long, membranous, keeled, 1-keeled, winged on keel, 3 -nerved (with subsidiaries in keel).

Florets. Fertile lemma 2.1–4 mm long, keeled, winged on keel, 3 -nerved (excluding subsidiaries). Lemma apex muticous. Palea 2 -nerved. Lodicules present. Grain 1–1.3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Norfolk I, Lord Howe, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Dampier, Drummond. **Northern Territory:** Darwin & Gulf, Central Australia South. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Gippsland Highlands, Gippsland Plain, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain.

Notes. Cosmopolitan weed, grown occasionally for grain in some parts of the world. Reported from Australia and elsewhere that young plants sometimes contain hydrogen cyanide and are responsible for deaths of calves and sheep. *Eleusine oligostachya* Link, as referred to in M.Holtze, *Trans. & Proc. Roy. Soc. South Australia* 15: 4 (1892) is probably *E. indica*, as Holtze is listing plants introduced to the Northern Territory in the 20 years prior to 1892.

Distinguished from the other common, weedy species, *E. tristachya*, by the taller, more erect habit, narrower, larger spikes, pilose leaf sheath margins and blades, and winged keels on the lemmas and paleas.

Mostly near the coast including off-shore islands, and around populated areas. More remote localities are recorded from northern Australia, where it may be native; distributed through the tropics and sub-tropics of the world, probably originating in E or NE tropical Africa. Usually a weed of roadsides, waste ground and cultivated land; flowers Feb.-June.

Eleusine tristachya* (Lam.) Lam. *Tabl. Encycl.* 1: 203 (1791). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynosurus tristachyos* Lam., *Encycl.* 2: 188 (1786).

Type of Basionym or Protologue Information: T: *Commerson s.n.*, Uruguay: Montevideo.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (357), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (235).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (107), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (357, fig. 287), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (235).

Habit. Perennial. Culms geniculately ascending or decumbent or prostrate, stature slender to delicate, 7–45 cm tall. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades conduplicate, 5–25 cm long, 1–4 mm wide.

Inflorescence. Inflorescence digitate or subdigitate, with spicate branches. Racemes 1–4, linear or oblong, 1–4 cm long, 4–16 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–13), comprising 5–13 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 2–9 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, 2.5–4 mm long, membranous, keeled, 1-keeled, 5–7 -nerved.

Florets. Fertile lemma 3–5 mm long, keeled, wingless, 3 -nerved (excluding subsidiaries). Lemma apex muticous. Palea 2 -nerved. Lodicules present. Grain 2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Volcanic Plain.

Notes. Invasive summer weed.

Recorded from eastern S.A., southern and NE Vic., eastern N.S.W., Canberra, and around Brisbane, Qld; tropical Africa, temperate Australia and the Americas, native to S America. Weed of disturbed ground and mown areas; flowers summer.

Elionurus citreus (R.Br.) Munro ex Benth. *Fl. Austral.* 7: 510 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Micraireae.

Basionym and/or Replacement Name: *Andropogon citreus* R. Br., *Prodr.* .

Type of Basionym or Protologue Information: "(T.) Littora novae Hollandiae intra tropicum.", *Brown* 6176 (HT: BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (203 as *Andropogon citreus*), [1878] G.Bentham, *Flora Australiensis* 7 (510), [1969] E.E.Henty, *Manual Grasses New Guinea* (88 as *Elyonurus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (236).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (236).

Habit. Perennial. Culms erect, 50–100 cm tall. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1 mm long. Leaf-blades flexuous, 20–40 cm long, 2–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 1–6, 3–12 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by two glumes, comprising 2 subequal glumes without lemmas, asymmetrical, 8–11 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, dorsally compressed, 10–14 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, chartaceous or coriaceous, keeled, 2-keeled, 9 -nerved. Upper glume ovate, 5–8 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma 3–5 mm long, without keel, 0 -nerved. Palea absent. Anthers 3. Grain 3 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. From subtropical N.S.W. to tropical W.A., extending to New Guinea. Locally abundant in sandy soil along rivers and in coastal areas and sand dunes. Gives a lemon scent when crushed. Flowers Dec.--Oct.

Elytrigia pungens* (Pers.) Tutin. *Watsonia* 2: 186 (1952). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Triticum pungens* Pers.,.

Type of Basionym or Protologue Information: HT: (L).

Recent synonyms: *Agropyron pungens* (Pers.) Roem. & Schult., *Elymus pungens* (Pers.) Melderis.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (101).

Habit. Perennial. Rhizomes present, elongated. Culms 30–100 cm tall. Leaf-sheaths hairy. Leaf-sheath auricles present. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5 mm long, hyaline. Leaf-blades involute, 11.5–16 cm long, 1–10 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 7–25 cm long, bearing 19 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, elliptic to oblong, laterally compressed, 10–18 mm long.

Glumes. Glumes similar. Lower glume lanceolate or oblong, cartilaginous or coriaceous, keeled, 1-keeled, 5–7 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, 6.5–9.6 mm long, coriaceous, keeled, 1-keeled, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 8.5–11 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lemma apex muticous or mucronate. Lodicules present. Anthers 3.

Continental Distribution: Europe, Australasia, and North America.

Australian Distribution: Victoria.

Victoria: Gippsland Plain, Midlands.

Notes. This grass does not appear to be of any economic importance, either as a pest or a beneficial species. Hybrids involving this species and *E. repens* and *Thinopyrum junceiforme* have been reported. Such hybrids are said to be morphologically intermediate between the putative parents, and can be recognised by their sterile

anthers. Tsvelev (1983) speculated that *E. pungens* was possibly derived from a cross between *Thinopyrum junceum* (L.) Löve and *E. repens* (L.) Nevski.

A very variable species in its native geographical range. Lemmas may be blunt or pointed, and may bear short mucros or slender awns to 10 mm long (var. *setigerum* Durmort). The collections from Australia are all assignable to subsp. *pungens*.

Forms dense patches on low sand dunes, marshes and lake margins. Flowers Aug.-Mar., but probably longer than indicated by available collections.

Elytrigia repens* (L.) Nevski. *Trudy Bot. Inst. Akad. Nauk Armjansk, SSR, ser. 1* 1: 14 (1933) in adnot., fide Löve. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Triticum repens* L., *Sp. Pl.* 86 (1753).

Type of Basionym or Protologue Information: LT: (LINN-104.7). LT designated by Bowden, *Canad. J. Bot.* 43: 1431 (1965); cited by Assadi, *Willdenowia* 26: 267 (1996).

Recent synonyms: *Agropyron repens* (L.) P.Beauv., *A. repens* var. *aristata* Baumg., *Elymus repens* (L.) Gould.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (267), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (238 as *Elymus*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (101).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (266, fig. 206), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (238 as *Elymus*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (100, Fig.14).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 30–120 cm tall, 1–2 mm diam., 3–5 -noded. Leaves cauline. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles present. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.3–1 mm long, hyaline or membranous, erose, truncate. Leaf-blades flat, 6–35 cm long, 3–10 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, erect, 5–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, elliptic to oblong, laterally compressed, 8–20 mm long.

Glumes. Glumes similar. Lower glume lanceolate or oblong or ovate, cartilaginous or coriaceous, without keels, 3–7 -nerved. Lower glume apex mucicous or mucronate or awned. Upper glume lanceolate, 7–12 mm long, coriaceous, without keels, 3–7 -nerved. Upper glume surface scabrous. Upper glume apex mucicous to mucronate.

Florets. Fertile lemma 8–13 mm long, without keel or keeled, 5 -nerved. Lemma apex mucicous or awned, 1 -awned. Median (principal) awn 0–10 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Menzies. **South Australia:** Flinders Ranges, Southern Lofty, South-eastern. **New South Wales:** South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Otway Plain, Wilsons Promontory, Riverina, Wannon. **Tasmania:** No region given.

Notes. A bad weed of cultivated land in Britain and Europe, but apparently only a minor weed in Australia. This grass is particularly difficult to eradicate due to its perennation by rhizomes. As well as the production of hay, Tzvelev (1983) recorded that this species is used as a diuretic and poultis substance.

Indigenous to Europe and temperate Asia. Introduced to N and S America, New Zealand and all states of Australia except Queensland and N.T. Flowers Oct.-Mar.

Elytrophorus spicatus (Willd.) A. Camus. *Fl. Gen. Indo-Chine* 7: 547 (1923). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Dactylis spicatus* Willd., *Ges. Naturf. Freunde Berlin Neue Schriften* 3: 416 (1801).

Type of Basionym or Protologue Information: India:, *Klein s.n.* (HT: B-W; IT: K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (638 as *Elytrophorus articulatus*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (86), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (444), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006]

J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (301), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (239).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (87, Pl. 24), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.3, F-G), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (300, Fig. 236), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (239).

Habit. Annual. Culms erect, 5–60 cm tall. Ligule an eciliate membrane. Leaf-blades 5–25 cm long, 2–6 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2–30 cm long, (0.3–)0.5–0.7 cm wide.

Spikelets. Spikelets sessile, 3–5 in the cluster. Companion spikelets sessile, 3–5 in the cluster. Involucre composed of imperfect spikelets. Companion spikelets represented by single glumes, 1–2 mm long. Companion spikelet glumes awned. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 2–5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 1–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 1–1.5 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1–2.2 mm long overall. Palea 2 -nerved. Palea keels with toothed wings. Lodicules present. Anthers 1–3. Grain 0.5–0.9 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **South Australia:** North-western, Lake Eyre, Murray. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Maranoa, North Kennedy, Port Curtis, South Kennedy, Warrego, Mitchell.

Notes. A group of collections (e.g. *Perry 2356*, *Latz 2248*, *1675*, *Swinbourne 732*) from the Northern Territory, near Alice Springs, differs from the typical form by shorter awns, almost undeveloped awns, and much wider palea wings. Distinct from *E. globularis* by the smaller anthers, much smaller sterile subtending bracts, and by the spikelet glomerules more frequently confluent. However, they may be forms of the same species.

Widespread in the semi-arid parts of southern Africa through Asia to Australia, damp soil along creeks, and damp hollows and seepages in tropical areas, sometimes common locally, forming extensive mats of bright-green plants, although Lazarides (1970) notes that it may be rare. Flowers April, May, June, and July.

Enneapogon asperatus

Enneapogon avenaceus (Lindl.) C. E. Hubbard. *Kew Bull.* 1934: 450 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum avenaceum* Lindl., *J. Exped. Trop. Australia* 320 (1848).

Type of Basionym or Protologue Information: HT: *Mitchell s.n.*, 22 Sep 1846, Australia: Queensland: Victoria River (Barcoo River), 24.01S 145.2E (CGE).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (601 as *Pappophorum avenaceum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (30), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (454), [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (331), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (240).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 31A-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (331, Fig. 263), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (240).

Habit. Annual or perennial. Culms 7–45 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 1–3 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear to ovate, 3–9 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3(–4)), comprising 2–3(–4) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–13.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 8–23-nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 4–13.6 mm long, membranous, without keels, 8–23-nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 1.8–3.5 mm long, without keel, 9–11-nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9-awned. Median (principal) awn (2.7–)7–11(–15.4) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner. Giles, Ashburton, Carnarvon, Austin. Coolgardie. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Burke, Gregory North, Maranoa, Mitchell, North Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee.

Notes. Distinctive due to its many fertile florets, long lemma hairs, often loose panicle, wider than long lemma and long, unequally wide lobes. A wing-like, hyaline margin on the basal lemma of some plants is also noteworthy.

Widespread in arid and semiarid parts of all mainland states except Vic. Usually in sandy soils or disturbed sites.

Enneapogon caerulescens (Gaudich.) N. T. Burbidge. *Proc. Linn. Soc. London* 153: 87 (1941).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum caerulescens* Gaudich., *Voy. Bonite, Bot.*

Type of Basionym or Protologue Information: T: *Gaudichaud s.n.*, Australia: Western Australia: Sharks Bay (BM, K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (33), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (455), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (332).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig31F-K), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (332, fig. 264).

Habit. Annual or perennial. Culms 10–40 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 1 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1–2(–4) cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–2), comprising 1–2 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.7–9.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7(–11)-nerved. Lower glume surface indumented. Upper glume ovate, 2.7–9.2 mm long, membranous, without keels, 5–7(–11)-nerved. Upper glume surface scabrous, indumented. Upper glume apex entire or erose.

Florets. Fertile lemma 1.6–2.8 mm long, without keel, 9–13-nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9-awned. Median (principal) awn 3–10 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.2–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Giles, Fortescue, Ashburton, Carnarvon, Austin. Eucla. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula.

Notes. Distinctive features include the presence of axillary panicles and cleistogenes, the unequal spikelets in upper and lower parts of the panicle, and the relatively long hairs on lobes and palea keels. Also the body of the basal lemma is strongly ribbed, short relative to its lobes, and usually covered by the long, dorsal hairs. The species is variable in relation to duration, axillary inflorescences, hermaphrodite florets and the other features which characterise var. *occidentalis*. Hence, the variety is not recognised.

Distributed in the arid regions of W.A., N.T. and S.A. In sand.

Enneapogon cylindricus N. T. Burbidge. *Proc. Linn. Soc. London* 153: 89 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Type of Basionym or Protologue Information: Australia: South Australia: Frome Downs, *Wade* 26 (HT: K).

Recent synonyms: *E. asperatus*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (33), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (455 & as *E. asperatus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (332), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (240).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 29A-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (333, Fig. 265 & plate 12), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (240).

Habit. Perennial. Culms stature slender to delicate, 10–51 cm tall, 3–4 -noded. Mid-culm internodes pubescent or pilose. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades involute, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–14 cm long, 0.5–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 4–8 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2.5–7 mm long, membranous, without keels, 4–8 -nerved. Upper glume surface indumented. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 1.8–2.3 mm long, without keel, 9–11(–13) -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 1.5–5.4 mm long overall. Lateral lemma awns present. Palea apex dentate, muticous or with excurrent keel nerves or awned. Lodicules present. Anthers 3. Grain 1–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Mueller, Giles, Austin. Eucla, Coolgardie. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Cook, Burke, North Kennedy, Gregory North, Gregory South, Mitchell. **New South Wales:** North Far Western Plains, South Far Western Plains.

Notes. Readily recognised by articulate culms, linear panicle and axillary spikelet. *E. asperatus*, treated here as a synonym, appears to be a localized variant with strongly branching habit and usually smaller dimensions in panicle and fertile floret.

Arid regions of all mainland states except Vic. Often occurs on skeletal desert soils, limestone, rocky, sandy or clayey soils, with Mulga (*Acacia aneura*), bluebush (*Maireana sedifolia*) or other shrubs and grasses; flowers Mar.-Aug.

Enneapogon decipiens E.K.Z. Kakudidi. *Aust. Syst. Bot.* 1: 336 (1988). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Type of Basionym or Protologue Information: Australia, Newcastle Waters: *Must* 409 (CANB holo, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 28–62 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat, 1–3 mm wide. Leaf-blade surface scaberrulous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, (1.5–)2.5–13 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1(–2)), comprising 1(–2) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5.9–9.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–14 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 5.9–9.4 mm long, membranous, without keels, 7–14 -nerved. Upper glume surface scabrous, glabrous or indumented. Upper glume apex entire or erose.

Florets. Fertile lemma 2.9–4.2 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 3.5–9 mm long overall. Lateral lemma awns present. Palea apex with excurrent keel nerves. Lodicules present. Anthers 3. Grain 1.3–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke.

Notes. Differs from all other species (except *E. eremophilus*) by the cartilaginous, glabrous palea of the basal floret. Also, the many-noded strongly branched culms mostly covered by leaf sheaths are helpful features. Main differences between the two species relate to dimensions, indumentum and/or nervation of panicle, glumes, lemma and palea.

Distribution is limited in the northern part of the N.T. and adjacent parts of Qld and W.A. In dry, generally rocky sites.

Enneapogon eremophilus E.K.Z. Kakudidi. *Aust. Syst. Bot.* 1: 338 (1988). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Type of Basionym or Protologue Information: Australia, Palm Valley: *Latz 4352* (CANB holo, AD, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 13–36 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat, 1–3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1.5–6.5 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.5–5.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 4–9 -nerved. Lower glume surface indumented. Upper glume ovate, 2.5–5.4 mm long, membranous, without keels, 4–9 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2–3.5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 2–4(–5.2) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke.

Notes. Distributed in arid parts of the N.T. and NW Qld.

Enneapogon gracilis (R.Br.) Beauv. *Ess. Agrost.* 82, 161, 171 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum gracile* R. Br., *Prodr.* 185 (1812).

Type of Basionym or Protologue Information: HT: *R. Brown 6252*, Australia: Queensland: Broad Sound (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (185 as *Pappophorum gracile*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (240).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (240).

Habit. Annual or perennial. Culms 12.5–70 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades filiform, convolute, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, (1.5–)3–4(–10) cm long, 0.8–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4.6–8.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–15 -nerved. Lower glume surface indumented. Upper glume ovate, 4.6–8.8 mm long, membranous, without keels, 7–11 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1.6–2.2 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn (2–)3–9 mm long overall. Lateral lemma awns present. Palea apex awned. Lodicules present. Anthers 3. Grain 1–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, South Kennedy, Cook. **New South Wales:** Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** East Gippsland.

Notes. The indurated sparsely hairy weakly nerved, wider than long, knuckled lemma with much longer lobes is the most distinguishing character. Also, the panicle is usually loose and relatively short. The basal palea varies considerably from partly or entirely glabrous or pubescent.

Distributed in eastern parts of Qld, N.S.W and Vic. Grows mostly on clays and clay loams, in scrub or *Eucalyptus* open forest, occasionally on lighter soils and in open places with other grasses.

Enneapogon intermedius N. T. Burbidge. *Proc. Linn. Soc. London* 153: 67 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Type of Basionym or Protologue Information: Australia, Alpha: *Hubbard 7881* (K holo, BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (333), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (241).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 29F-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (333, Fig. 266), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (240).

Habit. Perennial. Culms 30–70 cm tall. Mid-culm internodes glabrous or hirsute. Ligule a fringe of hairs. Leaf-blades involute, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, (3–)5–9(–13.5) cm long, 1.5–2.5(–4) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret ((1-)2), comprising (1–)2 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4.5–6.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–16 -nerved. Lower glume surface indumented. Upper glume ovate, 4.5–6.6(–8.5) mm long, membranous, without keels, 7–11 -nerved. Upper glume surface asperulous or scabrous, indumented. Upper glume apex entire or erose.

Florets. Fertile lemma 2–3.6 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 3.6–6(–9) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.3–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Giles. Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. A robust species distinguished by indurated, obscurely nerved, long-hairy lemma, two fertile florets, and long, compact panicle.

Arid and semiarid parts of all mainland states except Vic., rare in W.A. In dry, usually sandy areas.

Enneapogon lindleyanus (Domin) C. E. Hubbard. *Bull. Misc. Inform.* 450 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum lindleyanum* Domin, *Biblioth. Bot.* 20: 379 (1915).

Type of Basionym or Protologue Information: LT: *Walcot s.n.*, Australia: Western Australia: Dampier Archipelago (K). LT designated (as type) by Burbidge, *Proc. Linn. Soc. London* 153: 82–83 (1941).

Recent synonyms: *E. oblongus*, *E. pubescens*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (32 & as *E. oblongus*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (454 & 455 as *E. oblongus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (334), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (241).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 30F-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (334, Fig. 267), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (241).

Habit. Annual or perennial. Culms 13.5–66 cm tall. Mid-culm internodes hirsute. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute, 1–4.4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle elliptic or ovate or globose, 0.5–1.8(–4.6) cm long, 0.5–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1(–2)), comprising 1(–2) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–12 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2–5 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous or indumented. Upper glume apex erose, muticous or mucronate.

Florets. Fertile lemma 1.6–4.3 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 1–2.5(–6.2) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 0.8–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Hall. Canning, Fortescue, Carnarvon. Coolgardie. **Northern Territory:** Barkly Tableland, Central Australia South. **South Australia:** North-western, Flinders Ranges, Eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego.

Notes. A variable species, characterised in its typical condition by small, compactly capitate, prominently exerted panicles; short, entirely plumose awns and strongly branched culms. *E. oblongus* was distinguished by relatively long awns, partly glabrous palea, simple culms and flat, glaucous blades, but these features are extremely variable and rarely present in combination. *E. pubescens* differs only by its dense pubescence and larger dimensions, but intergrades with *E. lindleyanus*.

Common in W.A., N.T., and Qld, rare in S.A.

Enneapogon nigricans (R.Br.) Beauv. *Ess. Agrost.* 82, 161, 171 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum nigricans* R. Br., *Prodr.* 185 (1812).

Type of Basionym or Protologue Information: HT: *R. Brown* 6249 in part, Australia: New South Wales: Port Jackson (BM). LT designated (as type) by Burbidge, *Proc. Linn. Soc. London* 153: 76–77 (1941).

Recent synonyms: *E. arenicola*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (185 as *Pappophorum nigricans*), [1878] G.Bentham, *Flora Australiensis* 7 (600 as *Pappophorum nigricans*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (455), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (334), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales* (241).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (129), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 30A-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (335, fig. 268), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (241).

Habit. Perennial. Culms 5–55 cm tall. Mid-culm internodes pubescent. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 1–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or oblong or ovate, 0.8–9.5 cm long, 0.8–2.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–9 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 3.5–8 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface smooth or asperulous, glabrous or indumented.

Florets. Fertile lemma 2–3.6 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 3–7.8 mm long overall. Lateral lemma awns present. Palea apex with excurrent keel nerves or awned. Lodicules present. Anthers 3. Grain 1.2–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Darling Downs, Leichhardt, Maranoa, Port Curtis, Cook, North Kennedy, South Kennedy. **New South Wales:** North Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. A widespread species, variable especially in panicle shape and lemma nervation, which has been misidentified with *E. truncatus* and *E. gracilis*. Identification depends on a combination of many characters, rather than on any one diagnostic feature. *E. arenicolus*, originally a segregate, lacks any discontinuous characters and falls within the range of variation found in *E. nigricans*.

Distributed in Qld, N.S.W., Vic. and S.A.

Enneapogon pallidus (R.Br.) Beauv. *Ess. Agrost.* 82, 162, 171 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum pallidum* R. Br., *Prodr.* 185 (1812).

Type of Basionym or Protologue Information: HT: *R. Brown*, Australia.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (185 as *Pappophorum pallidum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (32), [1969] E.E.Henty, *Manual Grasses New Guinea* (88), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (454), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 30–88 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 1–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or pyramidal, (3–)5–8(–13) cm long, 1–2.5(–4) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1(–2)), comprising 1(–2) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–6.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, (5–)7–9(–11) -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 3–6.3 mm long, membranous, without keels, (5–)7–9(–11) -nerved. Upper glume surface scabrous, indumented. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 1.6–3.4 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 3–6(–9.5) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.1–2 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Burnett, Cook, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego.

Notes. A widely misapplied species, *E. pallidus* is monsoonal in distribution and resembles *E. purpurascens*, but differs by its larger lemma, entirely pubescent palea and blunt (not pointed) glumes.

N of lat. 20° in W.A., N.T. and Qld on mainland and coastal islands; also in Papua New Guinea.

Enneapogon polyphyllus (Domin) N. T. Burbidge. *Proc. Linn. Soc. London* 153: 69 (1941).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum nigricans* var. *polyphyllum* Domin, *Biblioth. Bot.* 20: 381 (1915).

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Dec 1855, Australia: Northern Territory: Victoria River (PR).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (30), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (453), [2002] D.Sharp & B.K.Simon, *AusGrass*,

Grasses of Australia, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (336), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (241).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (31, Pl. 7), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 30K-O), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (336, Fig. 269), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (241).

Habit. Annual or perennial. Culms 3–48 cm tall. Lateral branches sparsely branched. Ligule a fringe of hairs. Leaf-blades involute or convolute, 1–3 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear to elliptic, (1.5–)4–9(–11.7) cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–13 -nerved. Lower glume surface indumented. Lower glume apex mucous or mucronate. Upper glume ovate, 4–9 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, indumented. Upper glume apex entire or erose, mucous or mucronate.

Florets. Fertile lemma 2–3(–4.2) mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn (2–)4–7(–11.6) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Mueller, Canning, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Cook, Burke, North Kennedy, South Kennedy, Leichhardt, Gregory North, Gregory South, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, North Far Western Plains.

Notes. An extremely widespread and common species, variable in many features, but distinguished by the structure of its distally crowded sterile florets. *E. intermedius* is closely allied, but more robust and always perennial, with a differently shaped spikelet and 2 fertile florets.

Probably the most common Australian species, *E. polyphyllus* occurs in most parts of W.A., N.T., S.A. and Qld, and also in NW N.S.W.

Enneapogon purpurascens (R.Br.) Beauv. *Ess. Agrost.* 82, 162, 171 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum purpurascens* R. Br., *Prodr.* 185 (1812).

Type of Basionym or Protologue Information: HT: R. Brown 6250, Australia: Queensland: Carpenteria (BM).

Recent synonyms: *E. glaber*, *E. planifolius*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (as *Pappophorum purpurascens*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (30 as *E. planifolius*, *E. glaber*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (453 as *E. glaber* & *E. planifolius* & 454), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms 6–75 cm tall. Ligule a fringe of hairs. Leaf-blades curled, flat, 1–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear to oblong, 1.5–11 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.5–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, (5–)7–11(–13) -nerved. Lower glume surface indumented. Upper glume ovate, 3.5–5.5(–8.2) mm long, membranous, without keels, (5–)7–11(–13) -nerved. Upper glume surface asperulous, indumented. Upper glume apex erose.

Florets. Fertile lemma 1.6–2.6 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn (1.8–)4–6(–7.4) mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Cook, Port Curtis.

Notes. Distinguishing characters include the hardened, obscurely nerve lemma; pilose glumes, usually long, narrow panicle and many-noded culms covered by leaf sheaths. The blade gradually tapers to a fine apex and often it is flat, curly and glaucous.

Chiefly N of 20°S in W.A. and N.T.

Enneapogon robustissimus (Domin) N. T. Burbidge. *Proc. Linn. Soc. London* 153: 78 (1941).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum nigricans* var. *robustissimum* Domin, *Biblioth. Bot.* 20: 381(1915).

Type of Basionym or Protologue Information: Queensland: on the Flinders River at Hughenden, Jan 1910, *Domin s.n.* (HT: PR).

Recent synonyms: *E. clelandii*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (454 as *E. clelandii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (337).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (337, fig. 270).

Habit. Perennial. Culms 31–107 cm tall, 7 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or involute, 2–5 mm wide. Leaf-blade surface scaberrulous (tetrorsely).

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate or ovate or pyramidal, 1.5–4(–11) cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–5.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–9 -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucronate. Upper glume ovate, 3–5.6 mm long, membranous, without keels, 3–9 -nerved. Upper glume surface asperulous or scabrous, glabrous or indumented. Upper glume apex erose, muticous or mucronate.

Florets. Fertile lemma 2–2.6(–3.5) mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 2.3–6 mm long overall. Lateral lemma awns present. Palea apex muticous or awned. Lodicules present. Anthers 3. Grain 1.3–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Canning. **Northern Territory:** Barkly Tableland. **South Australia:** North-western. **Queensland:** Cook, Burke, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett, Gregory North, Mitchell.

Notes. *E. robustissimus* and *E. clelandii* differ only in dimensions, indumentum and in panicle shape, but intergradation is common in these features.

Pappophorum nigricans var. *compacta* Ewart & Davies, *Fl. N. Territory* (1917) probably belongs to *E. clelandii* (= *E. robustissimus*), but type material has not been seen.

Widespread in W.A., N.T. and Qld, rare in NW S.A. Fruits May.

Enneapogon truncatus E.K.Z. Kakudidi. *Aust. Syst. Bot.* 1: 350 (1988). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Type of Basionym or Protologue Information: Australia, Emerald: *Hubbard* 7930 (CANB holo, BRI, K).

Recent synonyms: *E. flavescens* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (242).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (242).

Habit. Perennial. Culms 30–50 cm tall. Lateral branches sparsely branched. Ligule a fringe of hairs. Leaf-blades involute or convolute, 6–24 cm long, 2–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or pyramidal, 4–7(–10) cm long, 0.8–1(–3) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.8–6.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 5–7 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume elliptic, 2.8–6.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1.8–2.8 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 2.3–6.4 mm long overall. Lateral lemma awns present. Palea apex with excurrent keel nerves or awned. Lodicules present. Anthers 3. Grain 1.1–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Close to *E. nigricans* but distinguished by its corrugated, strongly ribbed lemma.

SE Qld and NE N.S.W.

Enneapogon virens (Lindl.) E.K.Z. Kakudidi. *Aust. Syst. Bot.* 1: 350 (1988). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Pappophoreae.

Basionym and/or Replacement Name: *Pappophorum virens* Lindl., *J. Exped. Trop. Australia* 360 (1848).

Type of Basionym or Protologue Information: Australia, Maranoa District: *Mitchell 521* (CGE holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (242).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (242).

Habit. Perennial. Culms 10–60 cm tall, wiry, 6 -noded. Lateral branches sparsely branched. Ligule a fringe of hairs. Leaf-blades involute, 1–3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, (3–)4.5–10 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–8.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9–11 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3.9–8.2 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface asperulous, indumented.

Florets. Fertile lemma 2–3.8 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, awned, 9 -awned. Median (principal) awn 4.8–9 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–1.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Leichhardt, Mitchell, North Kennedy, South Kennedy. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. *Enneapogon virens* differs from all other Australian species of *Enneapogon* by its characteristic indumentum on the basal lemma, which is short, usually appressed and distributed over the entire lemma.

Distributed in eastern Qld and northern N.S.W. In well-drained country above 200 m altitude, in and to the W of the Great Dividing Ra., in sandy soils, in *Eucalyptus* spp. woodlands.

Enteropogon acicularis (Lindl.) Lazarides. *Austral. J. Bot. Supp.* 5: 31 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris acicularis* Lindl., *J. Exped. Trop. Australia* 33 (1848).

Type of Basionym or Protologue Information: HT: *Mitchell 115*, 1846, Australia: New South Wales: Bogan River (CGE; photo of holotype at BRI).

Recent synonyms: *Chloris acicularis*, *C. moorei*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (612 as *Chloris acicularis*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (218 as *Chloris*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (465), [2000] I.D.Cowie, P.S.Short, M. Osterkamp Madsen, *Floodplain Flora*, [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (358), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (243).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (221, Pl.65 as *Chloris*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 49I-L), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (358, fig. 288), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (243).

Habit. Perennial. Culms erect or geniculately ascending, stature robust to moderate, 25–100 cm tall, 3–6 -noded. Lateral branches simple or branched. Leaves mostly basal. Ligule an eciliate membrane, 1 mm long. Leaf-blades curled, flat, 5–20 cm long, 1.8–4 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 1 -nerved. Lower glume apex mucronate or awned. Upper glume linear, 4.5–11 mm long, membranous, without keels, 1 -nerved. Upper glume apex awned.

Florets. Fertile lemma 5.5–9.2 mm long, keeled, 3 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–22 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Fitzgerald, Hall, Canning, Carnegie, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin, Eucla, Irwin, Coolgardie. **Northern Territory:** Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina, Wimmera.

Notes. Specimens of *E. acicularis* are distinguished from the closely related *E. ramosus* by having generally more spikes, the foliage mostly at the base of the plant, less branching, and usually by the presence of a contra-ligule which may vary from a discontinuous pubescence across the collar region of only some of the leaves to an indurated membranous-ciliate protruberance present on all leaves. A few collections appear to lack a contra-ligule, but at least some of the leaf blades, sheaths and/or orifice are hairy, whereas *E. ramosus* is always completely glabrous.

Through the SE quarter of Qld, inland N.S.W., northern Vic., and north-central S.A. Occurs on heavier-textured red, brown, grey and black soils in summer rainfall areas, particularly where there is melon-hole development, in brigalow (*Acacia harpophylla*) country, *Eucalyptus* forest, or mulga (*Acacia aneura*). In winter rainfall areas, known from sandy, loam or clay soils, in grassland on floodplains, in savanna or mallee woodland, or in forest; overstorey species include ironbark (*Eucalyptus crebra*), *Eucalyptus coolabah*, *Callitris collumellaris* and poplar box (*Eucalyptus populnea*).

Enteropogon dolichostachyus (Lagas.) Keng. *Austral. J. Bot. Supp.* 5: 31 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris dolichostachya* Lag., *Gen. Sp. Pl.* 5 (1816).

Type of Basionym or Protologue Information: Philippine Islands: de Jambuanan, *Ludovicus Née s.n.* (HT: MA).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 48D-F, Fig. 49E-H).

Habit. Perennial. Culms geniculately ascending, stature robust to moderate, 60–100 cm tall. Lateral branches branched. Leaves cauline. Ligule a fringe of hairs. Leaf-blades flat or involute or convolute, 8–30 cm long, 2.5–8 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, dorsally compressed, 4.5–5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3–6.5 mm long, membranous, without keels, 1 -nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 3.5–5.2 mm long, keeled, 3 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 6.5–15 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. Though somewhat intermediate between *E. acicularis* and *E. minutus* in spikelet dimensions, the species bears a closer resemblance to the latter. However, the distinctly larger spikelet of *E. dolichostachyus* and absence of a contra-ligule are diagnostic characters. The beard on the rachilla at the base of the second floret is a prominent, but inconsistent feature, also occurring at times less markedly in the *E. acicularis* complex.

2 Sparsely recorded around the N coast, and on off-shore islands, from Cape Leveque in W.A. to Cooktown in Qld, and from Middle Percy Island, SE of Mackay; Philippine Islands, SE Asia, Papua, Timor. Usually found in shrubland on coastal sand dunes under *Ficus* or *Melaleuca*, or in vine thickets.

Enteropogon minutus Lazarides. *Austral. J. Bot. Suppl.* 5: 28 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Burke Dist: 4 mi E of Normanton, 6 Mar 1954, *Lazarides* 4288 (HT: CANB; IT: BRI, K, MEL, NSW, NT, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 48A, Fig. 49A-D).

Habit. Perennial. Culms erect, stature robust to moderate, 60–90 cm tall, 5–8 -noded. Lateral branches branched. Leaves cauline. Ligule a fringed membrane, a ciliate membrane, 0.5 mm long. Leaf-blades flat, 5–15 cm long, 2–3.5 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3–4.4 mm long, hyaline, without keels, 1 -nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 2.5–3.8 mm long, keeled, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–14 mm long overall. Palea 2 -nerved. Grain 1.8–2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, Leichhardt.

Notes. This species might be regarded as belonging to the *E. acicularis* complex, owing to its wiry branched culms and flat, relatively broad, often glaucous blades. However, the spikelets are the smallest for the genus. Furthermore, the capillary long awn relative to the length of the lemma, flaccid spikes, and presence of a contra-ligule are quite reliable diagnostic characters.

NW areas of Qld and adjacent parts of the N.T., mainly around the Gulf of Carpentaria but also inland. Occurs in sandy soils of watercourses, flood flats and lagoons and their banks, occasionally in heavier alluvial soils, with *Eucalyptus camaldulensis*, *Melaleuca viridiflora* or other riverine species.

Enteropogon paucispiceus (Lazarides) B.K. Simon. *Austrobaileya* 2: 1 (1984). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Enteropogon unispiceus* var. *paucispiceus* Lazarides, *Austral. J. Bot., Suppl. Ser* 5: 27, f. 10 (1972).

Type of Basionym or Protologue Information: Australia: Queensland: Moreton Dist: Glenore Grove, near Lawes, 16 Feb 1950, *Bisset* S671 (HT: CANB-22154).

Recent synonyms: *E. unispiceus* var. *paucispiceus*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms stature slender to delicate, 44–60 cm tall, 2–4 -noded. Lateral branches simple or sparsely branched or branched. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute, 3–10 cm long, 0.5–1.7 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 4.1–5.3 mm long, membranous, without keels, 1 -nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 4.8–7 mm long, keeled, 3 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 8–12.8 mm long overall. Palea 2 -nerved. Grain 2–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Leichhardt, Burnett, Port Curtis.

Notes. This species might well be regarded as an extreme form of *E. acicularis*. However, its slender compact habit, sparse inflorescence, and smooth floret indicate a closer relationship to *E. unispiceus*. *E. paucispiceus* differs from *E. unispiceus* in having fewer culm nodes, usually more spikes, and longer leaf blades, callus and awn on the fertile floret.

SE Qld, from the coast to c. 600 km inland. Occurs in brigalow (*Acacia harpophylla*) country, in heavy soils, or in *Eucalyptus* forest on sand and sandstone slopes and hilltops.

Enteropogon ramosus B.K. Simon. *Austrobaileya* 2: 1 (1984). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Mitchell Distr.: 1 km S of Tambo towards Augathella, May 1975, *Simon & Clarkson 2810* (HT: BRI-228353; IT: CANB, K, L, NSW).

Recent synonyms: *Chloris acicularis* var. *queenslandiae*, *E. acicularis* Form A.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (358), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (243).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (359, fig. 289), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (243).

Habit. Perennial. Culms stature robust to moderate, 30–100 cm tall, 4–6 -noded. Mid-culm internodes glabrous. Lateral branches branched. Leaves cauline. Leaf-sheaths smooth or papillose, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3 mm long. Leaf-blades tortuous, flat, 3–20 cm long, 1.5–5 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 6–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume linear, 3.5–7.3 mm long, membranous, without keels, 1 -nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 5.5–9 mm long, keeled, 3 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 9–14 mm long overall. Palea 2 -nerved. Anthers 3. Grain 2–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner. Canning, Giles, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Cook, Burke, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett, Darling Downs, Gregory North, Gregory South, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Dried specimens of *E. ramosus* are most reliably distinguished from those of *E. acicularis* by the combination of completely glabrous foliage (except for occasional hairs behind the ligule) and the absence of a contra-ligule. In addition, *E. ramosus* tends to be taller with fewer spikes and the branching at several nodes is distinctive in more mature specimens. The 2 species may be more readily distinguished in the field, as the spikes

of *E. ramosus* are reported to spread in a single plane while those of *E. acicularis* are arranged in several planes. The leaves of *E. ramosus* are borne along the whole culm length, but are mostly basal in *E. acicularis*, though this may be partly related to the height. Abruptly twisting mature leaves have been seen on specimens of *E. acicularis* but this condition is more common in *E. ramosus*.

The most common species of *Enteropogon* in Australia, with a distribution in all States except Vic. and Tas., chiefly inland in arid and lower-rainfall regions, but nearer the coast in south-central Qld, and in W.A. from the Kimberleys to the SE corner. In N.S.W., mostly confined to the NW corner, with *E. acicularis* and intermediate forms predominant in the remainder of the state, and in Vic. Usually on light-textured soils such as sandy loams, but also known from heavy-textured red earths and skeletal soils; often in seasonally wet areas such as creek beds, with *Eucalyptus camaldulensis* or *Melaleuca*, or in woodlands with box (*Eucalyptus populnea*), wilga (*Geijera parviflora*), gidgee (*Acacia cambagei*) or mulga (*Acacia aneura*), or in mallee or shrublands with *Atriplex*, *Maireana*, *Acacia* and *Triodia*; often common but never dominant in the understorey.

Enteropogon unispiceus (F. Muell.) W. D. Clayton. *Kew Bull.* 21: 108 (1967). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris unispicea* F. Muell., *Fragm.* 7: 118 (1870).

Type of Basionym or Protologue Information: Australia: Queensland: Port Curtis Distr., Herbert's Creek, Rockhampton, *Bowman s.n.* (HT: MEL; IT: E, K, L, BR).

Recent synonyms: *Chloris unispiceus*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (611 as *Chloris unispiceus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (243).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (156(15)), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 49M-O), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (243).

Habit. Perennial. Culms stature slender to delicate, 20–51 cm tall. Lateral branches branched. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute or convolute, 3–10 cm long, 0.5–1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid or digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 1-nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3.1–5.5 mm long, membranous, without keels, 1-nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 4–5.2 mm long, keeled, 3-nerved. Lemma apex entire, awned, 1-awned. Median (principal) awn 6–10 mm long overall. Palea 2-nerved.

Continental Distribution: Temperate Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Cook.

Notes. *Enteropogon unispiceus* differs from the similar *E. paucispiceus* in having more culm nodes, usually fewer spikes, and shorter leaf blades, callus and awn on the fertile floret. The slender compact habit, one or few relatively short spikes, and usually smooth floret distinguish these two from other *Enteropogon* species within the Australian group. Cheeseman's plant from the Cook Islands (type of *Chloris cheesemani*) has a somewhat turgid rather than concave grain, but otherwise agrees with Australian specimens.

The southern half of Qld, in near-coastal areas and on off-shore islands; Taiwan, Cook Islands. Occurs on a variety of soils including humic, texture-contrast and stony, often on slopes, in forests, woodlands and herblands.

Entolasia marginata (R.Br.) D. K. Hughes. *Bull. Misc. Inform.* 331 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum marginatum* R. Br., *Prodr* 190 (1810).

Type of Basionym or Protologue Information: "Apud Portum Jackson, inclusis ripis aestuarii Hunter's River vel Coal River.", *Robert Brown or Banks*, 1802–1805.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum marginatum*), [1878] G.Bentham, *Flora Australiensis* 7 (485 as *Panicum marginatum*), [1969] E.E.Henty, *Manual Grasses New Guinea* (89), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (244).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (131), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (244).

Habit. Perennial. Rhizomes present, short. Culms geniculately ascending or decumbent or sprawling, 20–60(–200) cm tall, wiry, 4–10 -noded. Mid-culm internodes glabrous or hirsute. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades linear or lanceolate, flat, 3–20 cm long, 2–15 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, erect, 1–12 cm long, bearing 2–12 fertile spikelets on each (secondary). Central inflorescence axis 3–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2.4–3.8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–1 -nerved. Upper glume elliptic or ovate, 2.4–3.8 mm long, herbaceous, without keels, 5 -nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, herbaceous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma surface indumented. Palea 2 -nerved.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain.

Notes. *Entolasia marginata* is similar to *E. stricta*, however, the relative length of the upper floret and the generally flat leaf blades distinguish them.

In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers throughout the year.

Entolasia minutifolia B.K.Simon ms. *Austrobaileya*. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E. sp. A*).

Habit. Perennial. Rhizomes present, elongated. Culms geniculately ascending or decumbent or sprawling, 10–35 cm tall, wiry, 2–6 -noded. Mid-culm internodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades lanceolate or elliptic, flat, 0.5–1.6 cm long, 1–1.5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–4, erect, 0.4–1 cm long, bearing 2–4 fertile spikelets on each. Central inflorescence axis 1.4–2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, 0 -nerved. Upper glume lanceolate, 2.5 mm long, herbaceous, without keels, 5 -nerved. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 95 % of length of spikelet, herbaceous, 5 -nerved.

Fertile lemma 2.2 mm long, without keel, 5 -nerved. Lemma surface indumented. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Moreton.

Entolasia stricta (R.Br.) D. K.Hughes. *Bull. Misc. Inform.* 331 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum strictum* R. Br., *Prodr.* 190 (1812).

Type of Basionym or Protologue Information: "Apud Portum Jackson, inclusis ripis aestuarii Hunter's River vel Coal River.", *Robert Brown 1802–05, Banks?*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (89), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (244).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (131), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (244).

Habit. Perennial. Rhizomes present, short. Culms geniculately ascending or decumbent or sprawling, 20–80(–120) cm tall, wiry, 4–10 -noded. Mid-culm internodes glabrous or hirsute. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.2–0.6 mm long. Leaf-blades involute, 0.5–10 cm long, 1–7 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–9, erect, 2–7 cm long, bearing 2–10 fertile spikelets on each (secondary). Central inflorescence axis 2–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblanceolate, dorsally compressed, 2.25–3.7 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–1 -nerved. Upper glume elliptic, 2.25–3.6 mm long, herbaceous, without keels, 5 -nerved. Upper glume surface smooth or asperulous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, herbaceous, 5 -nerved.

Fertile lemma 2.25–3.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Palea 2 -nerved.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain.

Notes. Diagnostic features include spikelet length and the relative length of the upper floret.

New Guinea. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Occurs in forested areas of eastern Australia and extends into New Guinea. Flowers throughout the year.

Entolasia whiteana C. E. Hubbard. *Hooker's Icon. Pl.* t. 3338 (1937). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Queensland: Bulimba: Brisbane, abundant on dry barren rocky slopes, cleared Eucalyptus forest country, Sep 1930, *Hubbard 4079*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (245).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (245).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 20–80 cm tall, wiry, 4–9 -noded. Mid-culm internodes hollow, glabrous or hirsute. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.6–1.2 mm long. Leaf-blades involute, 1–10 cm long, 1–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–9, erect, 1–3 cm long, bearing 2–14 fertile spikelets on each. Central inflorescence axis 2–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–3 -nerved. Upper glume lanceolate or elliptic, 3.8–6 mm long, herbaceous, without keels, 5 -nerved. Upper glume surface smooth or asperulous. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, herbaceous, 5 -nerved.

Fertile lemma 3.5–5.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Palea 2 -nerved. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Leichhardt, Moreton, Wide Bay, South Kennedy. **New South Wales:** North Coast, Central Coast.

Notes. Few collections of this taxon have been made. It resembles *E. stricta* but can be distinguished on spikelet length, and, at first sight, can be confused with *Cleistochloa rigida*.

In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Inhabits sandstone ridges in open *Eucalyptus* forests. Flowers sporadically throughout the year.

Eragrostiella bifaria (Vahl) Bor, in obs. *Indian Forester* 66: 270 (1940). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa bifaria* Vahl, *Symb. Bot.* 2: 19 (1791).

Type of Basionym or Protologue Information: HT: without collector, India (C).

Recent synonyms: *Eragrostis bifaria*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 74A-Bas var. *bifaria*).

Habit. Perennial. Culms erect, 23–60 cm tall, 1–2 -noded. Lateral branches simple. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.6 mm long. Leaf-blades filiform, flat or conduplicate or convolute, 4–16(–25) cm long, 0.6–2.1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, erect, 8–22 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (8–50), comprising 8–50 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 6–20 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, cartilaginous, keeled, 1-keeled, 1 -nerved. Upper glume oblong or ovate, 1.8–4 mm long, cartilaginous, without keels, 1 -nerved.

Florets. Fertile lemma 1.9–2.6 mm long, keeled, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Grain 0.4–0.6 mm long.

Continental Distribution: Africa, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. A 'resurrection plant'; airdry plants may be rehydrated and will re-establish active growth given the right conditions.

Sparsely distributed in a few localities in a relatively small area in NE Qld; distributed over virtually the entire range of the genus in India, Ceylon, Burma, eastern Africa and NE Australia, and probably in Thailand and Indonesia. In Australia plants are known from low altitudes, growing in sandy soils developed over granite or laterite or in inhospitable sites on granite outcrops, with associated species including *Eucalyptus alba*, *Chrysopogon fallax* and *Eriachne* spp.

Eragrostiella bifaria var. bifaria

Eragrostis alveiformis M. Lazarides. *Austral. Syst. Bot.* 10: 96 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Darling Downs Distr., Milmerran, 15 Mar 1931, C.E. Hubbard 5854 (CANB; IT: BRI, K).

Recent synonyms: *E. molybdea*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (248).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70G-H), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (248).

Habit. Perennial. Culms erect, 34–115 cm tall, 2–3 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or involute or convolute, 12–25 cm long, 1–2.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 11–47 cm long, 7–17 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (12–33), comprising 12–33 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 6.5–15.5 mm long.

Glumes. Glumes similar. Lower glume linear or ovate, cartilaginous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 1.3–2.2 mm long, cartilaginous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–2.6 mm long, keeled, 3 -nerved. Lemma apex mucous. Palea 2 -nerved. Anthers 3. Grain 0.8–1.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Distinguished from *E. leptostachya* by its concave (not furrowed) caryopsis, eglandular pedicels, thickened panicle branches, acute spikelets, and larger dimensions of the plant, panicle and spikelets.

Endemic; occurs throughout central southern Qld. and into E N.S.W. Chiefly on brown clays and loams under eucalypt forest; also on sandy soils, stony ridges, grassland plains and in railway enclosures.; flowers all seasons; fruits all seasons.

Eragrostis atrovirens* (Desf.) Steud. *Nom. Bot.*, ed. 2: 562 (1840). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa atrovirens* Desf., *Fl. Atlant.* 1: 73, pl. 14 (1798).

Type of Basionym or Protologue Information: HT: *Desfontaines 160*, Algeria: e Barbaria (FI; IT: BAA-1006, LE, P).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70S-T).

Habit. Perennial. Rhizomes absent or present. Culms geniculately ascending, 30–130 cm tall, 1.5–3 mm diam. Leaves basal and cauline. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, flat or involute or convolute, 15–45 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 4–40 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–50), comprising 6–50 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 3–20 mm long.

Glumes. Glumes similar. Lower glume ovate, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 0.8–1.7 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.4–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.7 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook, Moreton.

Notes. Distinguishing characters include rachilla persistent, stout, with winged ribbed internodes; florets falling entire upwards; paleas with relatively short entirely scaberulous keels; caryopsis with free pericarp on moistening, turgid or almost so.

Introduced; occurs in Qld. near Bamaga on the tip of Cape York Penin. and also Beerwah N of Brisbane.; native to Africa and distributed from Spain through India to Malesia. Roadside weed and on stream banks; flowers May and Aug.; fruits May and Aug.

Eragrostis australasica (Steud.) C. E. Hubbard. *Bull. Misc. Inform.* 26 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Glyceria australasica* Steud., *Syn. Pl. Glumac.* 1: 286 (1854).

Type of Basionym or Protologue Information: HT: *Drummond 387*, N. Holland (P; IT: US (fragm. ex P)).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (659 as *Glyceria australasica*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (116), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (363), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (249).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (117, Pl. 33), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (363, fig. 290), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (249).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending, 100–300 cm tall, woody. Mid-culm internodes solid. Lateral branches branched. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, flat, 3–20 cm long, 2–6 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–15), comprising 4–15 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 5–13 mm long.

Glumes. Glumes similar. Lower glume lanceolate, hyaline, without keels or keeled, 1-keeled, 0 -nerved. Upper glume oblong, 2–4 mm long, hyaline, without keels or keeled, 1-keeled, 0 -nerved.

Florets. Fertile lemma 2–3.5 mm long, keeled, 1–3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Carnegie, Helms, Ashburton, Carnarvon, Austin, Irwin, Avon, Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray. **Queensland:** Gregory North, Maranoa, Warrego, Gregory South. **New South Wales:** Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee.

Notes. A moderately useful fodder species; also a useful saline tolerant species.

Distinguishing characters include shrubby habit; cane-like strongly branched culms with many knotty nodes; glabrous, smooth, glaucous culms and foliage; linear spikelet, with vestigial terminal floret, deciduous unequal distant florets and straight rachilla; unequal dorsally rounded persistent glumes; persistent lemmas with the lateral nerves one-half as long; body of palea splitting along the median, keel smooth, and flaps as wide as body; strongly compressed, stipitate caryopsis.

Endemic; distribution scattered through central and southern W.A., then more commonly S of Alice Springs in N.T., eastern S.A. around L. Eyre, SW Qld. and E to L. George in N.S.W. and S to Melbourne in Vic. On clayey, sometimes saline, beds and banks of seasonally flooded swamps, lakes claypans, floodouts and watercourses, often partly submerged.; flowers in all seasons; fruits in all seasons.

Eragrostis bahiensis* Roem. & Schult. *Mant.* 2: 318 (1824). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Maximilian Neowidensis*, Brazil: without precise locality (LE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending, 30–120 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.1–0.3 mm long. Leaf-blades involute, 5–25 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 5–30 cm long, 2.5–18 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (9–21), comprising 9–21 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 4–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.4–1.6 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.2 mm long, without keel or keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 2. Grain 0.8 mm long.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook, Port Curtis, Wide Bay, Moreton.

Notes. Distinguishing characters include two stamens; winged, often scaberulous rachilla; hardened glossy cataphylls. Resembling *E. brownii*, but differing by its persistent (not articulate) rachilla.

Introduced; collected in Qld. between Rockhampton and Brisbane.; native to S America; introduced in U.S.A. On sandy often low-lying soil in disturbed sites near forest tracks, weed of introduction plots and pasture trials, and in "wallum" flats.; flowers Oct.-Nov.; fruits Oct.-Nov.

Eragrostis barrelieri* Daveau. *J. Bot. (Morot)* 8: 289 (Sept. 1894); *Bull. Soc. Bot. France* 41: 556 (Nov. 1894). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Ascherson s.n.*, Egypt (P; IST: K).

ST: *Balansa 734*, Algeria (P; IST: K).

ST: herb. *Todaro s.n.*, Italy: Sicily (P; IST: K).

ST: *Barrelier s.n.*, South Europe.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (363), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (249).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64H-I), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (364, Fig. 291), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (249).

Habit. Annual. Culms erect or geniculately ascending, 5–50(–80) cm tall. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or involute, 2–10 cm long, 2–5.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 3–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–30), comprising 5–30 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 5–23 mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–2 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.7–2.6 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.65–1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, New South Wales.

Western Australia: Carnarvon. Eucla, Irwin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Murray, Southern Lofty. **New South Wales:** North Far Western Plains.

Notes. Distinguishing characters include terminal and axillary panicles; glandular panicles and foliage; chasmogamous and cleistogamous florets; scabrous lemmas, with submarginal often ribbed lateral nerves; long ciliate ligule; thickened caryopsis.

Introduced; occurs in W.A. on Dirk Hartog Is. on the W coast and near the S.A. border at Deakin, around Alice Springs in N.T., the Flinders Ra. and to the S in S.A. and Broken Hill in N.S.W.; native to the Mediterranean region; introduced in Africa, U.S.A. and India. Flowers Dec., Feb.-Mar., May, July-Aug., Nov.; fruits Dec., Feb.-Mar., May, July-Aug., Nov.

Eragrostis basedowii Jedwabnick. *Bot. Arch.* 4: 328 (1923). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Sud-Australien, Flinders Range, *Basedow s.n.*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (121), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (364), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (249).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64S-T), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (365, Fig. 292), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (249).

Habit. Annual. Culms erect or geniculately ascending or decumbent or prostrate, 2.5–55 cm tall. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.25–0.4 mm long. Leaf-blades straight, flat or involute or convolute, 3–10(–26) cm long, 2–3.5(–5) mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 1–8(–20) cm long, 0.5–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((8-)18–30(-54)), comprising (8-)18–30(-54) fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong or ovate, laterally compressed, (5-)11–27(-40) mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–4.5 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Dampier. Fortescue. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern. **Queensland:** Burke, Cook, Gregory North, Mitchell, Warrego, South Kennedy, Gregory South. **New South Wales:** North Far Western Plains.

Notes. Distinguishing characters include annual duration; terminal and axillary panicles of compact often globular clusters of spikelets; terminal panicles shorter than uppermost leaves; persistent glumes, lemmas and paleas; unequal glumes; straight, fragile rachilla exposed at maturity; lemmas and paleas firm to hardened, granular-scabrid, gibbous or curved, with distinctive inrolled margins.

Endemic; distribution is from central N.T. across the Simpson Desert to Tibooburra in W N.S.W.; also from Burketown to Normanton and E to near Croyden in the Gulf of Carpentaria, Qld. In or near watercourses, run-on flats, clay pans, swales lagoons, lakes and saline depressions, sandridges, in clayey or sandy or loamy soils, sometimes with laterite.; flowers in all months except for Oct. and Dec.; fruits in all months except for Oct. and Dec.

Eragrostis brownii (Kunth) Nees. *Nomen. Bot.* ed. 2, 1: 562 (1840). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa brownii* Kunth, *Revis. Gramin.* 1: 112 (1829), based on *Poa polymorpha* R.Br. (1812), non Wibel (1799).

Type of Basionym or Protologue Information: T): *R. Brown* 6284, 20 Oct 1803, Australia: "Inter australiense", Shoal water Bay (K-(H79/39 1x); IT: US-2191491 (fragm. ex K-(H79/39 1x) & Photo)). T (alpha) LT designated by Lazarides, *Austral. Syst. Bot.* 10: 101 (1997).

Recent synonyms: *E. benthamii*, *E. brownii* var. *patens*, *E. philippica*, *E. rara*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *Poa polymorpha*), [1878] G.Bentham, *Flora Australiensis* 7 (646), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (119), [1969] E.E.Henty, *Manual Grasses New Guinea* (92), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (416), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (365), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (249 as *E. benthamii*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (120, Pl. 34), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70A-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (365, Fig. 293), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (249 as *E. benthamiana* & 250).

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 11–60 cm tall. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane, 0.1–0.3 mm long. Leaf-blades straight, flat or involute or convolute, 10–25 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–30 cm long, contracted about primary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–24), comprising 8–24 fertile floret(s), with diminished florets at the apex, linear or elliptic or oblong or ovate, laterally compressed, 4–12.5 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–2.8 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.7–3 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 2–3. Grain 0.7 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I (*).

Western Australia: Dale, Menzies, Warren. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett, Wide Bay, Darling Downs, Moreton, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North East, Midlands, East Coast.

Notes. *Eragrostis brownii* is considered here to be a widely distributed Australian native. In the past, the species was widely misapplied to the Asiatic and S American species, *E. nutans*, *E. subsecunda*, *E. bahiensis* and *E. spartinoideis*, by prominent agrostologists such as Trinius, Nees and Steudel. Bentham's concept included ten species. *Eragrostis brownii* is a polymorphic highly variable species belonging to a closely related group of intergrading species including *E. elongata* and *E. sororia*.

Native; occurs in SW corner of W.A., around Adelaide and Mt. Gambier, S.A., and common in eastern Australia from about Cairns in Qld S to St. Marys in Tas.; also occurs in New Zealand, Polynesia and Easter Island. In sandy, red earth, loamy, solodic or podsolic soils; often on skeletal and stony or gravelly hillslopes, ridges and outcrops of sandstone, laterite, granite and shale; seasonal swamps, depressions, marshes, and low-lying sand plains; alluvial flats; coastal sandhills and flats; sandy clearings in woodland and forest, rail enclosures and other disturbed ground; roadside weed.; flowers in all months; fruits in all months.

Eragrostis capitula M. Lazarides. *Aust. Syst. Bot.* 10: 103 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland, Cook Distr., Iron Range, 20 Jun 1948, L.J. Brass 19270 (CANB; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 13–50 cm tall, 5-noded. Mid-culm internodes glabrous or pilose or hirsute. Leaf-sheaths scaberulous, hairy. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades curled, flat or involute or convolute, 12–25 cm long, 2–4 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or globose, 5–22 cm long, 5–10 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (9–11), comprising 9–11 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 5 mm long.

Glumes. Glumes similar. Lower glume linear or ovate, membranous or cartilaginous, keeled, 1-keeled, 1-nerved. Upper glume linear or ovate, 1.3–2 mm long, membranous or cartilaginous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 1.8 mm long, keeled, 3-nerved. Lemma apex muticous. Palea 2-nerved. Anthers 3. Grain 0.5–0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. A distinctive species apparently isolated in its relationships, with a compact, capitate panicle, ovate spikelets, and hirsute panicle and foliage.

Endemic; restricted occurrence in Qld on Cape York Penin.. On quartzite ridges.; flowers in June; fruits in June.

Eragrostis cassa M. Lazarides. *Aust. Syst. Bot.* 10: 104 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Queensland, Lockerbie: *Brass 18614* (CANB holo, BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70M-O).

Habit. Perennial. Culms erect, 60–80 cm tall, 5–6-noded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, flat or involute or convolute, 1.5 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 16–32 cm long, 4–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (14–18), comprising 2 basal sterile florets, comprising 14–18 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 5–7 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous or cartilaginous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1–1.4 mm long, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved. **Florets.** Basal sterile florets 2 or more, barren.

Fertile lemma 2 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 0.6–0.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Only known from the type.

Distinguishing characters include inflated spikelet with a basal homogamous pair of persistent, infertile reduced florets; tightly imbricate florets; persistent glumes; strongly curved lemmas as wide as long; ovate-orbicular, pouched paleas and thickened keels with ciliolate wings. The habit, panicle form and spikelet shape resemble those of *E. paniciformis*.

Endemic; only known from Lockerbie, on the tip of Cape York Penin., Qld. On moist sandy floodbanks.; flowers May; fruits May.

Eragrostis cilianensis* (Bellardi) Vign. ex Janch. *Mitt. Naturwiss. Vereins Univ. Wien, n.s.* 5: 110 (1907).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa cilianensis* Bellardi, *Fl. Pedem.* 2: 246 (1785).

Type of Basionym or Protologue Information: LT: Bellardi s.n., Italy: *Ciliani* (TO-8242 (photo, K)). LT designated by Vignolo, *Malpighia* 18: 380 (1904).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (118), [1969] E.E.Henty, *Manual Grasses New Guinea* (93), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (366), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (250).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (120, Pl. 34), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 71N-P), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (366, Fig. 294), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (250).

Habit. Annual. Culms erect or geniculately ascending, 10–90 cm tall. Ligule a fringe of hairs, 0.5–1.5 mm long. Leaf-blades flat, 5–20 cm long, 2–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense or loose, 4–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((8-)18–30(-54)), with diminished florets at the apex, lanceolate or oblong or ovate, laterally compressed, 3–30 mm long.

Glumes. Glumes similar. Lower glume ovate, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 1.5–2.2 mm long, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma (1.3–)2–2.8 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.5(–0.7) mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Gardner. Drummond, Dale, Menzies, Avon. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** North-western, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. A troublesome weed.

Distinguishing characters include glandular culms, foliage, panicle and spikelets; globose caryopsis; scabrous-papillose lemmas; straight or slightly flexuose rachilla; 1–3 nerved glumes; relatively wide palea flaps; loosely flowered, olive-green spikelets with a median depression.

Introduced; scattered occurrences in N and SW W.A. and central N.T., most common in eastern Australia. Weed of lawns, gardens, experimental plots, glasshouses, roadsides, railway tracks, irrigation channels, and cultivated crops; in red brown sandy and clayey loams, heavy black clays, alluvial and red basaltic soils; seasonally flooded plains; creek and lake banks.; flowers throughout the year.; fruits throughout the year.

Eragrostis concinna (R.Br.) Steud. *Syn. Pl. Gram.* 1: 279 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa concinna* R. Br., *Prodr.* 180 (1810).

Type of Basionym or Protologue Information: Australia: Port Jackson: Hunter's River vel Coal River: inclusis ripis aestuarii..

Recent synonyms: *E. bella*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *Poa concinna*), [1878] G.Bentham, *Flora Australiensis* 7 (647), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (125, Pl. 36), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 71L-M).

Habit. Perennial. Culms erect, 30–120 cm tall. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, flat or conduplicate or convolute, 6–20 cm long, 1–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 15–37 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (18–63), comprising 18–63 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 12–35 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.6–3.4 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Central Australia North, Central Australia South. **Queensland:** Burke, Cook, North Kennedy.

Notes. Distinguishing characters include glabrous, smooth, pruinose facies; short palea relative to lemma, with unevenly scaberrulous, thickened or winged keels; globose or scarcely compressed often reticulate caryopsis; tightly imbricate florets; thickened, semi-persistent rachilla; large sparse terminal panicles; axillary panicles sometimes present; flattened spikelets, sometimes cleistogamous.

Endemic; occurs in N.T. on Melville Island and E of Darwin, also from near Burketown in the Gulf of Carpentaria E to Laura in northern Qld. Seasonally wet habitats such as floodplains, the margins of swamps and lagoons, drainage lines and broad shallow depressions; in sandy yellow podsols, gilgaied clayey loams and sandy lateritic soils.; flowers Feb. and Apr.-Aug.; fruits Feb. and Apr.-Aug.

Eragrostis confertiflora J. M. Black. *Trans. & Proc. Roy. Soc. South Australia* 55: 136 (1931).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Eragrostis interrupta* var. *densiflora* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 48: 253 (1924).

Type of Basionym or Protologue Information: Toorawatchy Waterhole, between Cordillo Downs and Innamincka, *J.B. Cleland s.n.*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (367).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (367, fig. 295).

Habit. Annual or ephemeral. Culms erect or decumbent, 16–40 cm tall, 1–2 -noded. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane or a ciliate membrane, 0.3–0.5 mm long. Leaf-blades straight, flat, 6–12 cm long, 1–3.3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 5–25 cm long, 0.5–1 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–10), comprising 5–10 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 2–5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.75 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.8–1.1 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Hall. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, South Kennedy, Gregory North, Gregory South, Mitchell, Warrego.

Notes. Distinguishing characters include spiciform compact panicles long relative to plant; membranous ligule; shiny turgid caryopsis; two stamens; 3-lobed palea with almost smooth keels shorter than body and flaps; membranous-hyaline glumes, lemmas and paleas; fragile rachilla cupular at apex of internodes. There are many similarities with *E. tenellula*, its chief difference being its spiciform (not open, decompound) panicle.

Endemic; occurs on Gordon Downs Stn in W.A. just near the border, then throughout central N.T. from about Katherine E into SW Qld and the far NE corner of S.A. Black cracking clay grassland plains; seasonally wet swamps, and creek bed and banks; red-brown loamy swales of sandhills; lateritic soils.; flowers Apr.-Sept.; fruits Apr.-Sept.

Eragrostis crateriformis M. Lazarides. *Austral. Syst. Bot.* 10: 108 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Northern Territory, Gurner Station: *Latz 2106* (CANB holo, AD, BRI, DNA, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 71I-K).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 17–42 cm tall, 2–3 -noded. Lateral branches branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 1–3 mm long. Leaf-blades straight, flat or involute or convolute, 1–3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, 10–15 cm long, 2–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–14), comprising 8–14 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 2.7–4.3 mm long.

Glumes. Glumes similar. Lower glume linear or ovate, hyaline or membranous, without keels, 0 -nerved. Upper glume oblong or ovate, 0.7–1 mm long, hyaline or membranous, keeled, 1-keeled, 1(–3) -nerved.

Florets. Fertile lemma 0.8–1 mm long, keeled, (1–)3 -nerved. Lemma apex muticous. Palea 2 -nerved. Palea apex dentate. Anthers 3. Grain 0.3–0.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Mueller, Fortescue, Carnarvon. **Northern Territory:** Central Australia North, Central Australia South.

Notes. Distinguishing characters include dissimilar glumes with asymmetrical nervation; glandular culms and panicle divisions; deciduous florets; 3-lobed palea with smooth keels shorter than body flaps; turgid caryopsis; 1–3-nerved lemma; divergent lemma and palea, and vestigial terminal floret. A distinctive species with some similarities with *E. pilosa*.

Endemic; occurs in W.A. on Yanrey Stn near Onslow, Warralong Stn, and Balgo Hills near the border, also in N.T. NW of Alice Springs. Clayey-loam and brown clay run-on flats and depressions, creek banks.; flowers Jan.-Mar., May, July; fruits Jan.-Mar., May, July.

Eragrostis cumingii Steud. *Syn. Pl. Gram.* 1: 266 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Philippine Islands: Luzon: Laguna, 1841, *Cuming* 672 (HT: ?; ST: L, LE) and 1104.

Recent synonyms: *E. bleeseri*, *E. distans*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (93), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64M-N, Fig. 72BB-CC).

Habit. Annual or perennial. Culms erect or decumbent or sprawling, 3–100 cm tall, wiry. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, filiform, flat or involute or convolute, 5–10 cm long, 1–3.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 4.5–73 cm long, 2–4 cm wide, with spikelets clumped along branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (10–20(–88)), comprising 10–20(–88) fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong or ovate, laterally compressed, 4–15 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.3–3 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 1.5–2.6 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Lodicules present. Anthers 2–3. Grain 4 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Canning. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Cook, Gregory North, North Kennedy, Port Curtis, South Kennedy, Gregory South, Mitchell, Warrego, Maranoa, Burnett.

Notes. Distinguishing characters include annual habit; gibbous lemmas; thickened straight, semi-persistent rachilla; palea keels with thickened, unequal and relatively long (visible in situ) hairs; strongly compressed caryopsis; terminal and axillary panicles; short paleas relative to lemmas; incurved lemma margins.

A polymorphic, cleistogamous species, plants vary highly in dimensions, branching habit and panicle structure, which accounts for its extensive synonymy. Though strictly annual, it has been confused with the perennials, *E. spartinoides* and *E. zeylanica*. In Australia, the species extends into arid regions, where the common xerophytic form produces numerous axillary clusters of spikelets and intergrades with *E. basdowii*, an Australian arid endemic. In contrast, the typical Australian monsoonal plant, described as *E. bleeseri*, produces only large usually spreading terminal inflorescences.

Native; widespread across northern and central Australia.; *E. cumingii* is native from Taiwan, through Burma and Malesia to Australia. It occurs also as a weed in Florida, U.S.A. Widespread in seasonally wet, sometimes saline sites (viz. floodplains, swamps lakes, seepage slopes, depressions, and beds, banks and levees of watercourses); in deep often alluvial sands, clays loams and podsolics, or in shallow soils over limestone, granite laterite, sandstone and volcanics; sometimes on coastal sand dunes and shell ridges.; flowers all year round.; fruits all year round.

Eragrostis curvula* (Schrad.) Nees. *Fl. Afr. Austr.* 397 (1841). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa curvula* Schrad., *Gott. Gel. Anz.* 3: 2073 (1821).

Type of Basionym or Protologue Information: HT: *Hesse s.n.*, South Africa: Cape Province: Cape of Good Hope (LE (ex GOET)?; IT: GOET-2265, LE-TRIN-2327.01 (lower middle specimen)). ["*Poa curvula* Schrad. Anal. de Fl. Cap., det cl. Schrader, Gött. 1836. C. b. sp., m Hesse". Veldkamp, *Blumea* 47: 173 (2002) cites "Type: Hesse s.n. in Herb. *Trinius* 2327.1 (2327.3?) (holo PH?; LE, iso, microfiche IDC BT-16/1)." PH is doubtfully the depository of the HT as this refers to grass material exchanged with Muhlenberg, and Hitchcock and Chase certainly would have uncovered that. Most likely the HT is at LE and an IT in the Trinius herbarium there.] [rjs 2004]].

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (118), [1969] E.E.Henty, *Manual Grasses New Guinea* (96), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant

& M.Lewington, *Flora of the South West* (417), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (367), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (250).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (117, Pl. 33), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (368, Fig. 296), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (250).

Habit. Perennial. Culms erect or decumbent, 30–120 cm tall. Ligule a fringe of hairs, 0.3–1 mm long. Leaf-blades straight or curled, filiform or linear, flat or convolute, 10–30 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 6–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–13), comprising 4–13 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 4–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–3 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–2.8 mm long, without keel or keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.7 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Eyre. **Northern Territory:** Central Australia South. **South Australia:** Nullabor, Eyre Peninsula, Murray, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, Maranoa. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Plains. **Victoria:** Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera. **Tasmania:** South West.

Notes. Introduced as a fodder plant, and soil binder. A cultivar, "Consol", has been registered because of its useful features, that is drought tolerance, persistence, frost hardiness, herbage production and soil control in drier areas with infertile sands and similar light soils.

Distinguishing characters include sericeous cataphylls and basal sheaths; filiform-capillary blades; scaberulous, weakly flexuose rachilla; dividing palea; unequal glumes.

Introduced; scattered occurrence in W.A. from Carnarvon to Esperance and then more widespread in SE Australia. Also recorded from S of Alice Springs in N.T.; native to Africa, introduced into Papua New Guinea and Australia. Disturbed sites (roadsides, experimental plots, habitation); sandy, solodic, alluvial sometimes saline soils, river banks; behind beach dunes.; flowers all year round but not recorded for Sept.; fruits all year round but not recorded for Sept.

Eragrostis desertorum Domin. *Biblioth. Bot.* 85: 404 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: West Queensland: durre Hugel bei Cloncurry, Feb 1910, Domin s.n..

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (124), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (250 not NSW).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (127, Pl. 37), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (250).

Habit. Perennial. Stolons present. Culms erect, 30–60 cm tall. Leaves mostly basal. Ligule a fringe of hairs, 0.7–1 mm long. Leaf-blades straight, filiform, conduplicate or involute or convolute, 5–12 cm long, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 12–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–56), comprising 8–56 fertile floret(s), with diminished florets at the apex, linear or lanceolate, terete, 4–25 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 1.2–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.5 mm long, without keel or keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Canning, Kertland, Fortescue. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Gregory North.

Notes. Distinguishing characters include bulbous or rhizomatous, woolly or hirsute base; ciliate leaf sheaths; stiffly subulate blades; wiry culms; roughened indumentum on culms and leaves; ciliate ligule; deciduous florets; dorsally rounded lemmas; long paleas relative to lemmas, with 3-toothed apex; two stamens; subterete caryopsis.

Resembles *E. eriopoda*, but stamens two and differing also in morphology of spikelets, especially lemma and caryopsis, and indumentum of foliage.

Endemic; occurs in W.A. S of Exmouth on the W coast and in the Wolf Ck Crater and Ord R. areas to the N, then widespread across central N.T. to Cloncurry and Mt Isa in Qld. Commonly associated with limestone; in clayey swales of sandhills, deep red sands and loams, on skeletal hillslopes; in low-lying seasonally wet habitats such as creek fans and banks, gullies and valleys.; flowers Mar.-Aug. and Nov.-Jan.; fruits Mar.-Aug. and Nov.-Jan.

Eragrostis dielsii Pilg. ex Diels & Pritz. *Bot. Jahrb. Syst.* 35: 76 (1904). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Hab. in distr. Austin litorali pr. Carnarvon in solo arenoso-argilloso flor. m. Aug, *Diels* 3635.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (126), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (368), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (250).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (127, Pl. 37), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (369, Fig. 297 as var. *dielsii*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (250).

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent or prostrate, 3–55 cm tall. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, flat or conduplicate or involute, 4–8 cm long, 1–3.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or elliptic, 2–17 cm long, 1–1.5 cm wide, gathered into fascicles.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets ((9-)21–81), comprising (9–)21–81 fertile floret(s), with diminished florets at the apex, linear, terete, 4.5–50 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.5 mm long, keeled, 3 -nerved. Lemma apex mucous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Dampier. Mueller, Canning, Kertland, Helms, Fortescue, Ashburton, Carnarvon, Austin. Eucla, Irwin, Eyre, Roe, Avon, Coolgardie. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Gregory North, Maranoa, Mitchell, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Grampians, Lowan Mallee, Murray Mallee, Riverina, Wimmera.

Notes. A moderate fodder species; also a useful saline tolerant species.

Distinguishing characters include spikelets sessile or subsessile, clustered; panicle often reduced to raceme or spike and spiciform; spikelets biconvex or terete, linear; rachilla persistent or subpersistent, compressed; lemmas and paleas often granular-scabrous; keels and flaps of palea thickened; caryopsis flattened; florets closely imbricate. Related to *E. pergracilis* and *E. lanicaulis*.

Endemic; widespread across mainland central and southern Australia as far E as about Cunnamulla in Qld. Widespread and common on seasonally flooded, heavy grey and black clays, alluvial and saline soils (lake, flats, claypans, floodplains, sandhill and dune swales, swamps, drainage channels, river beds and banks); also in red

and brown sands and loams, limestone soils, along creeks in quartzite hills, and in disturbed roadside and bore areas.; flowers all year round.; fruits all year round.

Eragrostis ecarinata M. Lazarides. *Austral. Syst. Bot.* 10: 114 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Northern Territory, Mainoru homestead: Latz 2732 (CANB holo, BRI, DNA).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65N-O).

Habit. Perennial. Culms erect, 60–92 cm tall, 4–6 -noded. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.1–0.3 mm long. Leaf-blades curled, flat, 12–25 cm long, 2.5–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 9–22 cm long, 1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (15–22), comprising 15–22 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 6.5–9 mm long.

Glumes. Glumes similar. Lower glume linear or ovate, cartilaginous, keeled, 1-keeled, 1(–5) -nerved. Upper glume linear or ovate, 1.1–2.5 mm long, cartilaginous, keeled, 1-keeled, 1(–5) -nerved.

Florets. Fertile lemma 2 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 0.6–0.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguishing features include inflated tightly imbricate florets falling entire with rachilla internode; thickened rachilla; orbicular, pouched paleas with much-reduced keels and flaps; biconvex caryopsis and spiciform panicle. The reduced keels and their auricle-like flaps are unique features in Australian species and possibly within the genus.

Endemic; only occurs in N.T. N of Mainoru HS and on Mt. Bundy Stn, SE of Darwin. Heavy clays in seasonal swamps.; flowers June-July; fruits June-July.

Eragrostis elongata (Willd.) Jacq. *Eclog. Gram.* 3 (1813). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa elongata* Willd., *Enum. Pl.* 1: 108 (1809).

Type of Basionym or Protologue Information: T: India (L).

Recent synonyms: *E. contigua*, *E. diandra*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *P. interrupta*, *P. diandra*), [1878] G.Bentham, *Flora Australiensis* 7 (646 as *Eragrostis diandra*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (121), [1969] E.E.Henty, *Manual Grasses New Guinea* (93), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (417), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (369), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (251).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (125, Pl. 36), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 71E-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (369, Fig. 298 & plate 14), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (251).

Habit. Perennial. Culms erect, 21–90 cm tall, 2–4 -noded. Lateral branches simple. Ligule a fringe of hairs, 0.3–0.4 mm long. Leaf-blades straight, filiform, flat or involute or convolute, 10–21 cm long, 0.2(–0.4) mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, (3–)8–23(–34) cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (6–27), comprising 6–27 fertile floret(s), with diminished florets at the apex, lanceolate or oblong or ovate, laterally compressed, 3–12(–20) mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Anthers 2(–3).

Continental Distribution: Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Dampier. Fortescue, Ashburton. Drummond, Dale, Menzies, Warren, Eyre. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. Occurs as a weed in pineapple plantations in the U.S.A.

Distinguishing characters include granular lemmas and paleas; usually spiciform panicle of clustered spikelets with loosely imbricate florets, and median depression above rachilla; 2 stamens; fragile rachilla.

Plants with two or three stamens and an open panicle, resemble those of *E. spartinoides*, but can be distinguished by their fragile (not subsistent) rachilla, granular lemmas and differently shaped caryopsis. This misidentification of this species in Australia and elsewhere is probably due to its polymorphic variation and its intergradation with the *E. brownii* - *E. benthamii* complex on the one hand, and with the polymorphic *E. sororia* on the other. From the former complex, *E. elongata* and *E. sororia* in their typical condition differ by their consistently two stamens, the shape and size of their caryopses, and their compactly spiciform panicles. Unlike *E. elongata*, in typical *E. sororia* the spikelets are inflated and gibbous, the paleas orbicular, pouched and smooth, and the lemmas and anthers longer.

Occurs in W.A. in the SW corner and then scattered around Wiluna, and Broome to the N; common in central N.T. and then widespread in eastern Australia.; native to Australia, Papua New Guinea and the Moluccas, it is also introduced in Hawaii and Florida in U.S.A. and the West Indies. On a range of grey, black, red and brown, often gravelly clays, sands, loams and podsols associated with granite, sandstone, conglomerate, shale or laterite; often in or near alluvial, well-watered habitats (floodplains, watercourses, swales, swamps, claypans, gorge beds); also on beach dunes, hillslope rockholes and gullies, and on disturbed roadsides and railway enclosures.; flowers all year round.; fruits all year round.

Eragrostis eriopoda Benth. *Fl. Austral.* 7: 648 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *A. Cunningham s.n.*, Australia: N. Australia: Cygnet Bay, N. W. coast

ST: *Walcot s.n.*, Dampier's Archipelago.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (648), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (122), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (457), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (370), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (251).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (370, fig. 299), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (251).

Habit. Perennial. Culms erect, 22–60 cm tall, wiry. Lateral branches simple. Ligule a fringe of hairs, 0.6–0.7 mm long. Leaf-blades spreading, straight, involute or convolute, 1 cm long, 2–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or ovate, 9–20 cm long, 3–7.5 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–62), comprising 8–62 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 5–30 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume ovate, 1.75–2 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–3 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Lodicules present. Anthers 2–3. Grain 0.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Dampier. Mueller, Canning, Carnegie, Giles, Helms, Fortescue, Ashburton, Carnarvon. Eucla. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Burke, Gregory North, Maranoa, Mitchell, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. Distinguishing characters include 1–3-nerved glumes; stipiate caryopsis; bulbous woolly rootbase; closely imbricate florets usually falling entire; leaf sheaths short relative to internodes, tight on culms, abruptly wider than blades, with ciliate margins; pouched paleas.

Endemic; widespread across the centre of Australia from Port Hedland in W.A. to Charleville in Qld. Commonly in deep, red sands and sandy loams on sandplains, watercourse levees, dunes and swales; also in shallow often stony or gravelly sands or loams on sandstone, limestone and quartzite hills and ridges, in lateritic soils and in heavy-textured red earths and clay loams.; flowers all year round.; fruits all year round.

Eragrostis exigua M. Lazarides. *Aust. Syst. Bot.* 10: 118 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (370), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (251).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (371, Fig. 300), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (251).

Habit. Annual. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 3–124 cm tall, 1–3 -noded. Lateral branches fastigiate. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.3–0.5 mm long, entire or lacerate. Leaf-blades straight, acuminate or linear or lanceolate, flat or conduplicate or involute, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, loose, 18–36 cm long, 3–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 0.8–2 mm long.

Glumes. Glumes similar. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong or ovate, 0.4–0.6 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 0.5–0.7 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 2. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Hall, Dampier. Canning. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, North Kennedy, Port Curtis, South Kennedy. **New South Wales:** South-Western Plains, South Far Western Plains. **Victoria:** Riverina.

Notes. Distinguishing characters include panicle decompound, long relative to plant; slender annual habit; membranous ligule; small few-flowered spikelet with vestigial terminal floret; fragile straight rachilla; persistent glumes, lemmas and paleas; florets falling downwards entire with rachilla internodes; 3-lobed palea with smooth relatively short keels; two minute terminally exerted anthers; subulate shining caryopsis.

Endemic; scattered distribution from Port Hedland, W.A., to about Mackay in E Qld, also recorded from the the Murray R. area of N Vic. Almost always in seasonally flooded, alluvial habitats usually with heavy clay or rarely sandy soils (viz. riverine and estuarine floodplains, black soil plains, sandhill swales, gorge floors, in or near lagoons, billabongs, swamps, depressions and watercourses.); flowers Dec., Feb., Mar.-July; fruits Dec., Feb., Mar.-July.

Eragrostis falcata (Gaud.) Steud. *Nom. Bot.* ed. 2, 1: 563 (1840). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa falcata* Gaudich., *Voy. Uranie* 408, t. 25 (1830).

Type of Basionym or Protologue Information: Australia: "In Novae-Hollandiae ora occidentali (baie des Chiens-Marins), IT: *C. Gaudichaud-Beaupr s.n.*, Australia (L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (644 as *Eragrostis trichophylla*, 649 as *Eragrostis falcata*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (124), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (370), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (252).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (127, Pl. 37), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (371, Fig. 301), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (252).

Habit. Perennial. Culms erect or decumbent, 10–60 cm tall, wiry. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, conduplicate or convolute, 2–8 cm long, 1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 5–20 cm long, 2–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–70), comprising 6–70 fertile floret(s), with diminished florets at the apex, linear, terete, 3.6–43 mm long.

Glumes. Glumes similar. Lower glume lanceolate or oblong, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or oblong, 1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Hall, Dampier. Mueller, Canning, Kearthland, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Eucla. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Yorke Peninsula. **Queensland:** Burke, Gregory South, South Kennedy, Warrego, Leichhardt. **New South Wales:** North-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee.

Notes. A moderate fodder species; also a useful saline tolerant species.

Distinguishing characters include dorsally compressed or subterete caryopsis; hairy rootbase; terete or biconvex, linear spikelets; obtusely keeled lemmas; lateral nerves on lemma midway; setaceous blades, much narrower than sheaths.

Endemic; widespread throughout W.A., central N.T. and S.A.; in Qld., near L. Buchanan S of Charters Towers and from Cunnamulla S to Mildura in N Vic. Commonly in saline seasonally flooded habitats (in or near saline lakes, claypans, tidal and samphire flats, marshes, depressions) in calcareous or gypseous soils of medium to heavy texture.; flowers all year round but not recorded for Feb.; fruits all year round but not recorded for Feb.

Eragrostis fallax M. Lazarides. *Aust. Syst. Bot.* 10: 120 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Barkly Tableland: *Kanis 1817* (CANB holo, K, L, NT, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 69A-B).

Habit. Perennial. Culms erect, 40–90 cm tall, 3–6 -noded. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight, flat or convolute, 15–30 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle elliptic, dense or loose, 10–20 cm long, 4–6 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (11–56), comprising 11–56 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 10–33 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous or cartilaginous, without keels or keeled, 1-keeled, 0–1 -nerved. Upper glume lanceolate or ovate, 1.8–2.6 mm long, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.3–3.3 mm long, keeled, 3(–5) -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Anthers 3. Grain 0.4–0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy.

Notes. Distinguishing characters include robust tussocky habit; chasmogamous and cleistogamous spikelets; semi-persistent thickened zig-zag rachilla; unequal glumes, the lower often nerveless and rounded on the back; short paleas relative to lemmas; with closely scaberulous keels, and distinctly narrow flaps. Often, axillary clusters of spikelets are present especially near the base of the plant.

Endemic; widespread across tropical Australia from Broome in W.A. to coastal Qld. as far S as about Mackay. In or near seasonally flooded sites (lagoons, swamps, floodplains, streams, valley floors) in alluvial clay or sandy soils and associated with granite, sandstone, laterite or limestone.; flowers all year round.; fruits all year round.

Eragrostis fenshamii B.K. Simon. *Fl. Australia* 44B: 460, 407 (2005)

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Yowrah Creek, Bundoona, 40 km NW of Eulo, 21 Feb 1999, *R.J. Fensham 3705* (HT: BRI).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 72V-AA).

Habit. Perennial. Rhizomes present, short. Culms erect, 30–50 cm tall, 2–5 -noded. Ligule a fringe of hairs, 0.1 mm long. Leaf-blades straight, flat, 3–8 cm long, 3–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 5–14 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 4–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.8–2.2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.4–2.6 mm long, keeled, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Warrego.

Notes. Qld: Yowrah Ck, Bundoona, 40 km NW of Eulo, *R.J.Fensham 3705* (BRI, CANB).

Eragrostis filicaulis M. Lazarides. *Aust. Syst. Bot.* 10: 120 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Queensland, Esmeralda homestead: *Lazarides 4734* (CANB holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 68M-O).

Habit. Perennial. Culms erect, stature slender to delicate, 11–60 cm tall, 2–3 -noded. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight or curled or flexuous, filiform, conduplicate or involute or convolute, 1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 5–13 cm long, 1.5–4 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (14–38), comprising 14–38 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 6.5–18 mm long.

Glumes. Glumes similar. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume linear or lanceolate, 1–1.5 mm long, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 1.4–1.7 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 2. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Central Australia North. **Queensland:** Burke, North Kennedy.

Notes. Distinguishing characters include two minute purple-black anthers; setaceous often flexuose and hairy blades; filiform culms; leafy compact base; turgid almost globoid caryopsis; linear spikelets, thickened zig-zag, semi-persistent rachilla.

Endemic; occurs in the Drysdale R. area in the Kimberley, W.A., from Kakadu Natl Park and Daly R. area S to Katherine, and also near Alice Springs, N.T., and scattered from near Croyden in the Gulf to Warrigal Stn, SE of Charters Towers, Qld. Usually in deep, white or reddish-brown sands on seepage slopes, sandstone plateaux, sand ridges, margins of seasonal swamps and in broad shallow depressions.; flowers Feb., Apr.-Sept.; fruits Feb., Apr.-Sept.

Eragrostis hirticaulis M. Lazarides. *Aust. Syst. Bot.* 10: 122 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Northern Territory, Katherine: *Lazarides 6848* (CANB holo, DNA, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64C-E, Fig. 69C).

Habit. Perennial. Culms erect, 40–50 cm tall, 4–6 -noded. Mid-culm internodes glabrous or hirsute. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades curled, flat or involute, 2–3 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 13–16 cm long, 1 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (13–16), comprising 0–1 basal sterile florets, comprising 13–16 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 5.5–8 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 1.5–2 mm long, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved. **Florets.** Basal sterile florets absent or 1, barren, without significant palea. Lemma of lower sterile floret 1–3 -nerved.

Fertile lemma 2–2.3 mm long, keeled, 3 -nerved. Palea 2 -nerved. Anthers 3. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguishing characters include hirsute foliage and panicle divisions; spiciform panicle; overlapping leaf sheaths; setaceous blades; chasmogamous and cleistogamous florets; often reduced basal florets; semi-persistent thickened rachilla; palea with scaberulous thickened keels and much-narrowed flaps, and globoid caryopsis with free pericarp. Not obviously allied to other members.

Endemic; distribution is restricted to the Katherine area and Caranbirini Ck S of Borroloola in the Gulf of Carpentaria. On sandy soils near sandstone hills.; flowers Feb.-Mar. and June; fruits Feb.-Mar. and June.

Eragrostis infecunda J. M. Black. *Trans. & Proc. Roy. Soc. South Australia* 55: 137, fig. 4 (1931).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Along the Gilbert and Wakefield Rivers near Riverton, Worsley *Johnston s.n.*

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (372).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (372, fig. 302).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms erect, 35–70 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, flat or involute or convolute, 3–8 cm long, 1–2 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate or elliptic, dense, 6–10 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–11), comprising 5–11 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 5–11.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.5–4.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–3.3 mm long, keeled, 1–3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Victoria.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **Victoria:** Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Distinguishing characters include rhizomatous and stoloniferous habit; setaceous blades; loose florets, falling entire downwards; unequal glumes, long relative to lemmas; persistent, dorsally rounded lemmas with short or absent lateral nerves; palea with dividing body, smooth keels and relatively broad flaps; stipitate caryopsis.

Endemic; occurs N and NE of Adelaide in S.A., and in western Vic; introduced into N.T. near Alice Springs and further N on Elkedra Stn. On cracking clays, alluvial sandy loams, roadsides, in seasonally flooded floodplains, depressions in plains, marsh margins, and river beds and levees.; flowers Apr., June, Aug., Oct.-Feb.; fruits Apr., June, Aug., Oct.-Feb.

Eragrostis interrupta Beauv. *Ess. Agrost.* 71,162, 175 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa interrupta* R. Br. 180 (810). non Lam (1791).

Type of Basionym or Protologue Information: Australia: Littora Novae Hollandiae intra tropicum: 1802–1805, *R. Brown 6280* Type according to K. Domin 1915.

Key references (books and floras): [1810]. R.Brown, *Prodromus*, [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (121), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (252).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (125, Pl. 36), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (252).

Habit. Perennial. Culms erect or prostrate or sprawling, 30–150 cm tall. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades straight, flat or convolute, 35 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 24–60 cm long, contracted about primary branches.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (14–50), comprising 14–50 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 10–33 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.2–3.5 mm long, keeled, 3–5 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.6 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. Distinguishing characters include robust, spreading habit; high colouring; coriaceous overlapping loose sheaths and long flat blades; elongated, spiciform, interrupted panicle; cartilaginous to indurated glumes and lemmas; unequal 3–5-nerved lemmas; unequal spinous hairs on keels of palea; trigonous, white-striate, triangular-ovoid caryopsis with free pericarp.

Endemic; occurs in coastal Qld. from the tip of Cape York in the N, S to near Byron Bay in northern N.S.W. Also northern N.T. and W.A. Coastal, subcoastal and beach sands and dunes.; flowers Mar.-May, July, Sept.-Jan.; fruits Mar.-May, July, Sept.-Jan.

Eragrostis jacobsiana B.K. Simon. *Fl. Australia* 44B: 460, 388 (2005). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: 1km from Laura on Welcome Station Road, 25 Apr 2001, *D. Sharp & B.K. Simon* 387 (HT: BRI; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E. sp. E*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 72H-O).

Habit. Annual. Culms erect, 20–60 cm tall, 0 -noded. Lateral branches sparsely branched. Ligule a fringe of hairs, 2–2.5 mm long. Leaf-blades flexuous, flat, 5–9 cm long, 2–3 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 18–25 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 7–40 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 5–14 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–1.6 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2–2.5 mm long, without keel, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Qld: 1 Km from Laura on Welcome Station Rd, *D.Sharp 387 & B.K.Simon* (BRI, NSW); 12.4 km S of Morehead R on Laura-Musgrave Rd, *J.R.Clarkson 8055 & V.J.Neldner* (BRI, CANB, K).

Eragrostis jerichoensis B.K. Simon. *Fl. Australia* 44B: 460, 406 (2005). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: 1.5 km N of Jericho, 17 Mar 1993, *E.J.Thompson & R.J.Henderson* JER93 (HT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E. sp. B*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 72A-G).

Habit. Perennial. Culms erect, 32–36 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs, 2 mm long. Leaf-blades straight or flexuous, flat, 3–9 cm long, 2–2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose, 6–7 cm long, 3–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 3–9 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 1.5–3 mm long.

Glumes. Glumes similar. Lower glume lanceolate, coriaceous, keeled, 1-keeled, 3 -nerved (sub 5). Upper glume lanceolate, 1.6–2 mm long, coriaceous, keeled, 1-keeled, 3 -nerved (sub 5).

Florets. Fertile lemma 1.5–1.6 mm long, keeled, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Mitchell.

Notes. Qld: 1.5 km N of Jericho, *E.J.Thompson JER93 & R.J.Henderson* (BRI).

Eragrostis kennedyae F. Turner. *Proc. Linn. Soc. New South Wales. ser. 2*, 8: 535 (1894). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: New South Wales: Wonnaminta Station, near Broken Hill, *M.B. Kennedy s.n.* .

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (116), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (373), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (252).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 72P-U), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (373, Fig. 303), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (252).

Habit. Perennial. Culms erect, stature slender to delicate, 12–76 cm tall. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, flat or convolute, 3–6 cm long, 1–2.3 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate, 6.5–20 cm long, 2.5–3.5 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 1–2 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.7 mm long, keeled, 1–3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Dampier. Helms, Ashburton, Austin. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin. **Queensland:** Leichhardt, Gregory North, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Distinguishing characters include inflated small spikelets similar in length and width; trigonous caryopsis; persistent glumes; hairy culm internodes; fragile straight rachilla; minute terminally exerted anthers; relatively wide palea flaps; long panicles relative to plant; terminal floret in spikelet vestigial; ovate-orbicular lemmas; ciliate ligule.

Apparently isolated in its relationships, but resembling *E. exigua* in spikelet morphology.

Endemic; occurs in W.A. near Meekatharra across to S of Warburton in the Great Victoria Desert, throughout central N.T. and scattered S to L. Torrens in S.A. Also occurs from Charleville, Qld to S of Louth, N.S.W. Seasonally wet habitats (swamps, floodplains, dune swales, creek lines, claypans, seepage slopes, gilgais) in grey, red or brown loams, clay loams and silty clays.; flowers Jan.-May and July-Nov.; fruits Jan.-May and July-Nov.

Eragrostis lacunaria F. Muell. *Fl. Austral.* 7: 649 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Subtropical New Holland: *Mitchell* (K lecto).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (649), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (373), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (252).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64F-G), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (373, Fig. 304), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (252).

Habit. Annual or perennial. Culms erect, 12–60 cm tall, wiry, 3–5 -noded. Lateral branches simple. Leaf-sheaths smooth or papillose. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, involute or convolute, 2–7 cm long, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 4–24 cm long, 6–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–43), comprising 9–43 fertile floret(s), with diminished florets at the apex, linear, laterally compressed or terete, 5–22.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.75–1 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.5 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Helms, Ashburton, Austin. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Eastern, Murray. **Queensland:** Burke, Burnett, Darling Downs, Gregory South, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Cook, Wide Bay. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Wimmera.

Notes. A useful fodder species in native pastures.

Distinguishing characters include panicle long relative to plant; spikelets biconvex or terete, with closely imbricate florets; glumes sometimes dissimilar; lemmas cartilaginous, often purple and glossy; palea keels scabrous in upper half; palea flaps much narrower than body; caryopsis laterally compressed, 3–4 angled, often concave or grooved, shiny.

Endemic; occurs in W.A. near Wiluna and the Rawlinson and Warburton Ra., central N.T. around Alice Springs, Flinders Ra. and the Murray R. area of S.A., and from about Charters Towers, Qld, S to Dimboola in central Vic. In deep, red or brown, often alluvial loams of medium texture in tablelands and low hilly country; also in skeletal sands on rocky sandstone, quartzite, calcrete and granite breakaways, ridges and hills.; flowers all year round.; fruits all year round.

Eragrostis lanicaulis M. Lazarides. *Aust. Syst. Bot.* 10: 126 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Northern Territory, Tobermorey homestead: Lazarides 5247 (CANB holo, BRI, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (253).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70P-R), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (253).

Habit. Perennial. Rhizomes present, short. Culms erect or decumbent, 40–50 cm tall, wiry, 5–7 -noded. Mid-culm internodes pubescent or hispid or woolly. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, flat or involute or convolute, 2–7 cm long, 1–2 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, loose, 8–15 cm long, 1–2 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (17–94), comprising 17–94 fertile floret(s), with diminished florets at the apex, linear, terete, 8–46 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, much thinner on margins, without keels or keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.3–1.9 mm long, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume apex mucous or mucronate.

Florets. Fertile lemma 1.7–2 mm long, keeled, 3 -nerved. Lemma apex mucous. Palea 2 -nerved. Palea apex dentate. Anthers 3. Grain 0.6–0.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Fortescue. **Northern Territory:** Central Australia North, Central Australia South. **Queensland:** Burke, Cook, Gregory North, Gregory South, Mitchell, South Kennedy, Warrego. **New South Wales:** North-Western Plains.

Notes. Distinguishing characters include bulbous or knotty rootbase; biconvex or terete spikelets, with numerous tightly imbricate florets; straight persistent rachilla; obliquely attached glumes; 3-toothed palea with relatively short keels, and dorsally compressed caryopsis.

Endemic; occurs near Port Sampson in W.A., central N.T., and from about Cloncurry in the N to S of Charters Towers, Qld, also near Bourke in N N.S.W. Red or red-brown, sometimes lateritic, loams, clays and sands, in floodouts, drainage channels, broad shallow depressions, on sand dunes and limestone rises.; flowers Mar., May, and Aug.-Oct.; fruits Mar., May, and Aug.-Oct.

Eragrostis laniflora Benth. *Fl.Austral.* 7:648(1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Mrs. Forde s.n.*, Australia: New South Wales: Darling River

ST: *Andrews s.n.*, Australia: Central Australia: Lake Eyre

ST: *Giles s.n.*, Australia: Central Australia: Charlotte Waters and towards West Australia.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (648), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (457), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (374), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (253).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 71A-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (374, fig. 305), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (253).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 21–75 cm tall, wiry. Lateral branches simple. Ligule a fringe of hairs, 0.7 mm long. Leaf-blades straight, flat or involute or convolute, 5–10 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 8–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (9–62), comprising 9–62 fertile floret(s), with diminished florets at the apex, linear or elliptic or oblong, laterally compressed, 6–37 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume ovate, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Giles. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Burke, Gregory North, Gregory South, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Slopes, North-Western Plains, North Far Western Plains.

Notes. A useful fodder species in native pastures.

Distinguishing characters include hairy spikelets; woolly base; deciduous closely imbricate florets; granular or scaberulous lemmas; turgid 3–4-angled caryopsis; deciduous (lower caducous) usually scaberulous, 1–2-nerved glumes.

Endemic; distribution is scattered around Wiluna, W.A. and in the Great Victoria and Gibson Deserts, then is more widespread in central N.T., S.A. and from about Winton in Qld S to near Cobar, N.S.W. In deep, red and red-brown sandy loams; on plains, levees, low hills and ridges, sandhills, dunes and interdunes; in association with limestone and quartzite.; flowers all year round.; fruits all year round.

Eragrostis lanipes C. E. Hubbard. *Bull. Misc. Inform. Kew* 1934: 449 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Western Australia: Tenindewa, between Geraldton and Mullewa, *Palmer s.n.*.

Recent synonyms: *E. clelandii*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (126), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (375).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (127, Pl. 37), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64O-R), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (375, fig. 307).

Habit. Perennial. Culms erect or geniculately ascending, 15–90 cm tall. Leaves mostly basal. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades straight, flat or involute, 5–10 cm long, 1–3 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–20 cm long, contracted about primary branches or contracted about secondary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–10(–20)), comprising 5–10(–20) fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 2.5–10 mm long.

Glumes. Glumes similar. Lower glume elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 1.3–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.3 mm long, keeled, 3 -nerved. Lemma apex mucronate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Carnegie, Helms, Ashburton, Carnarvon, Austin. Irwin. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin.

Notes. Distinguishing characters include late-deciduous glumes; florets falling entire downwards; hyaline palea, notched and ciliate at apex, keels with tangled unequal hairs, flaps relatively wide; caryopsis turgid, trigonous, concave; lemmas mucronate, gibbous, hairy, often as wide as long; glumes ciliate on margins; rootbase woolly.

Endemic; distribution is from near Carnarvon on the W coast to E of Wiluna, and also near Derby to the N, W.A., and in S.A. from the Great Sandy Desert S to the N edge of the Nullarbor Plain. In deep, red sands and lateritic soils of dunefields and sandplains.; flowers July-Oct.; fruits July-Oct.

Eragrostis leptocarpa Benth. *Fl. Austral.* 7: 644 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Birch s.n.*, Australia: Queensland: Mitchell District
ST: *Giles s.n.*, Australia: Central Australia: Charlotte Waters.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (644), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (116), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (375), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (253).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (117, Pl. 33), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 68G-H), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (253).

Habit. Annual or perennial. Culms erect or geniculately ascending, stature slender to delicate, 9–85 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or involute or convolute, 10–15 cm long, 2–3.8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic, 9–30 cm long, 10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–10), comprising 4–10 fertile floret(s), with diminished florets at the apex, linear or lanceolate or elliptic, laterally compressed, 3–7.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, hyaline, without keels or keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.7–1.3 mm long, hyaline, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.4–2 mm long, keeled, 3 -nerved. Lemma apex mucous. Lodicules present. Anthers 3. Grain 0.75–1.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Dampier. Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Murray. **Queensland:** Burke, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South, Cook. **New South Wales:** North Coast, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Grampians.

Notes. Distinguishing characters include slender habit; drooping decomposed panicle long relative to plant, with basal branches whorled; ciliate ligule; hyaline, deciduous glumes, lemmas and paleas; unequal glumes; usually scabrous notched lemmas; relatively wide palea flaps; minute terminally exerted anthers; slender 3–4-angled caryopsis; linear loosely-flowered spikelet with vestigial apical floret.

Endemic; occurs from Carnarvon on the coast inland to Laverton, also Kunmunya in the N, W.A.; central N.T. and to the N near Katherine; northern S.A. and also Port Lincoln and Kangaroo Island to the S; around Cloncurry in the N E to c. Springsure, Qld then S to about Wilcannia, N.S.W; also an old record from the Grampians in Vic. In deep red and white sands, red-brown loams, and grey, black or brown clays; commonly in seasonally wet habitats (in and near watercourses, lakes, floodplains, swamps, depressions, sandhill swales); in association with laterite, quartzite or granite.; flowers all year round.; fruits all year round.

Eragrostis leptostachya (R.Br.) Steud. *Syn. Pl. Glum.* 1: 279 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa leptostachya* R. Br., *Prodr.* 180 (1812).

Type of Basionym or Protologue Information: T: 6276, 1802–1805, Australia: "Inter australiense".

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *Poa leptostachya*), [1878] G.Bentham, *Flora Australiensis* 7 (645), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (253).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (133), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70K-L), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (253).

Habit. Perennial. Culms erect or geniculately ascending, 20–100 cm tall. Lateral branches branched. Ligule a fringe of hairs, 0.1–0.3 mm long. Leaf-blades straight, flat or convolute, 15–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 9–40 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–20), comprising 4–20 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed, 4–14 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.4 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes, Central-Western Slopes. **Victoria:** Gippsland Plain.

Notes. Introduced into England and Belgium with wool shoddy.

Distinguishing characters include glandular culms, leaf sheaths and pedicels; open panicle, large relative to plant; spikelets with thickened straight rachilla, often olive-green; unequal glumes, the lower rounded on the back; lateral nerves on lemma submarginal; caryopsis rectangular, grooved, striate.

Endemic; occurs on the E coast and tablelands from near Mareeba in northern Qld. to Melbourne in southern Vic.; introduced into England, Belgium; Hawaii and Easter Island. In usually deep, black clays, yellow sandy podsols, brown loams, and grey or brown sands; often in forest and grassland clearings, waste ground, and plantations; in association with basalt, granite and laterite.; flowers all year round but not recorded in Sept.; fruits all year round but not recorded in Sept.

Eragrostis longipedicellata B.K. Simon. *Austrobaileya* 1: 465 (1982). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 14213*, 16 May 1940, Australia: Queensland: Burnett: Proston (CANB, K, L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Culms erect, stature slender to delicate, 30–80 cm tall, 2–4 -noded. Mid-culm internodes pubescent. Lateral branches simple. Leaves mostly basal. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades flexuous, filiform, involute, 5–10 cm long, 1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 9–23 cm long, 3–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–24), comprising 7–24 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 4–12.5 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burnett, Darling Downs, Leichhardt, Warrego, Maranoa.

Notes. Distinguishing characters include extremely slender habit; pilose or hispid culms and leaves; minute ligule; open panicle with long-pedicelled spikelets, and hispid or pilose peduncle and axis; rectangular, grooved or concave, curved caryopsis.

Endemic; occurs in Qld from near Moranbah S to around Chinchilla. On red, stony and grey, sandy soils.; flowers Dec.-Aug., but not recorded for Jan. or July; fruits Dec.-Aug., but not recorded for Jan. or July.

Eragrostis lugens*

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (254).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (254).

Australian Distribution: New South Wales.

New South Wales: Central Coast.

Eragrostis megalosperma F. Muell. ex Benth. *Fl. Austral.* 7: 644 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *O'Shanesys s.n.*, Australia: Queensland: Rockhampton ST: *Leichhardt s.n.*, Australia: Queensland: Owydir River.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (644), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (254).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 68K-L), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (254).

Habit. Perennial. Rhizomes present. Culms erect, 60–120 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.2–0.4 mm long. Leaf-blades straight, filiform or linear, flat or involute or convolute, 0.5–2.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 3–30 cm long, 0.7–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–27), comprising 5–27 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 4–17 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.1–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.5 mm long, keeled, 1–3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. Distinguishing characters include leaf sheaths longer than internodes; ligule ciliate; panicle spiciform continuous; spikelets serrated in outline, often olive-green; florets loosely imbricate, the lemma and palea divergent at maturity; rachilla, glumes, lemmas and paleas persistent; glumes unequal, separated by an internode at their points of attachment; lower and upper lemmas in spikelet unequal in length, with often obscure or absent lateral nerves; palea dividing into two equal parts, its keels almost smooth, and its flaps wider than its body; anthers green, terminally exserted; caryopsis strongly compressed, 3–4-angled, stipitate; pericarp free, mucilaginous, partly shedding the polished, striate, naked grain.

Endemic; distribution is in eastern Qld inland from Townsville S to near Inverell in northern N.S.W. In deep or skeletal, often rocky, red or brown loams; in association with sandstone gorges and ridges, basaltic outcrops, and limestone boulders; also in disturbed clearings and roadsides.; flowers Dec.-July; fruits Dec.-July.

Eragrostis mexicana* (Hornem.) Link. *Hort. Reg. Bot. Berol.* 1: 190 (1827). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa mexicana* Hornem., *Hort. Bot. Hafn.* 2: 953 (1815).

Type of Basionym or Protologue Information: ST: *Sessé s.n.*, Cultivated from seed collected in Mexico (MA).

ST: *Sessé & M. Lacasta*, Brazil (US-2891498 (fragm)).

Recent synonyms: *E. neomexicana*, *E. virescens*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (376), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (254).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 68U-V), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (376, fig. 308), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (254).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 12–120 cm tall. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, lanceolate, flat or involute, 5–30 cm long, 3–10 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense or loose, 10–40 cm long, 4–8 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–16), comprising 5–16 fertile floret(s), with diminished florets at the apex, linear or lanceolate or ovate, laterally compressed, 3.5–9.5 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.8–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.6–2.5 mm long, keeled, 3 -nerved. Anthers 3. Grain 0.2–0.6 mm long.

Continental Distribution: Africa, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Avon. **South Australia:** Southern Lofty. **Queensland:** Wide Bay, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** Gippsland Plain.

Notes. Escape, weed.

Distinguishing characters include erect or decumbent annual, with usually flat closely nerved blades and subterete lower culms; partly exserted, loose panicle large relative to plant length; stipitate, rectangular, concave or grooved, strongly reticulate caryopsis.

Introduced; recorded from the Northam area, W.A., around Adelaide, S.A., Indooroopilly, Qld, scattered in N.S.W. from Doonside to Nowra and inland near Nyngan, and Gippsland and Melbourne areas, southern Vic.; native to southern United States of America, Mexico, Central and S America, introduced in Australia and S Africa. Introduced in Australia, an escape from experimental plots or weed of habitation.; flowers Jan.-May, Aug.-Sept.; fruits Jan.-May, Aug.-Sept.

Eragrostis microcarpa Vickery. *Contr. New South Wales Natl. Herb.* 1: 339 (1950). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: New South Wales: Bourke, 22 Dec 1934, *J. Vickery* 9208 (HT: NSW).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (460), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (254).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (254).

Habit. Perennial. Culms erect, stature slender to delicate, 20–60 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.4–0.7 mm long. Leaf-blades straight or curved or flexuous, involute or convolute, 5–10 cm long, 1–2 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 12–23 cm long, 12–15 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–14), comprising 6–14 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 3–6 mm long.

Glumes. Glumes similar. Lower glume oblong, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 1–1.5 mm long, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume apex erose.

Florets. Fertile lemma 1–1.5 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Gregory North, Maranoa, Mitchell, South Kennedy, Warrego, North Kennedy, Gregory South.
New South Wales: North-Western Plains, North Far Western Plains.

Notes. Distinguishing characters include loose to open pyramidal panicle; hyaline glumes, lemmas and paleas; panicle branches covered with spikelets; palea keels almost smooth; anthers minute, reniform, exerted subterminally.

Endemic; occurs in central Qld from Blackall S to near Louth in NW N.S.W. In red-brown loams, red and grey sands, and grey clays; on seasonally flooded run-on areas, the fringes of lakes, claypans and billabongs, and on grassland plains.; flowers all year round but not recorded for June or Dec.; fruits all year round but not recorded for June or Dec.

Eragrostis minor Host. *Icon. Gram. Austr.* 4: 15 (1809). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa eragrostis* L., *Sp. Pl.* 68 (1753).

Type of Basionym or Protologue Information: Habitat in Italia supra muros, *D. Baeck s.n.*.

Recent synonyms: *E. pooides*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (377), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (255).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70E-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (377, fig. 309), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (255).

Habit. Annual. Culms erect or geniculately ascending or decumbent or prostrate, 6–60 cm tall. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, flat or involute or convolute, 3–12 cm long, 1–6 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, dense or loose, 4–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–16(–40)), comprising 6–16(–40) fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 3–9(–15) mm long.

Glumes. Glumes similar. Lower glume ovate, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 1–1.9 mm long, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Anthers 3. Grain 0.7–0.8 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Avon. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North, Central Australia South. **South Australia:** Flinders Ranges, Eastern, Northern Lofty, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, Warrego, Wide Bay. **New South Wales:** North-Western Plains. **Victoria:** Gippsland Plain, Volcanic Plain, Wimmera.

Notes. A troublesome weed.

Distinguishing characters include glands on culms, leaves, pedicels, glumes and lemmas; plant often odorous; spikelets with median depression, loosely imbricate florets and a vestigial terminal floret; glumes cymbiform, often unequal, 1–3-nerved; lemmas almost as wide as long; caryopsis rectangular, stipitate.

Introduced; occurs in Broome in the N and near Salmon Gums in the SW, W.A.; scattered in N.T. and southern S.A.; near Burketown across to Ingham and S to Brisbane, Qld; Broken Hill, N.S.W., and around Horsham and Melbourne, Vic.; also occurs in Papua New Guinea. Weed of railway tracks, cultivation and bores; also in clearings in black clay plains and coastal vine thicket, on banks and in seasonal watercourses, in valley of limestone ranges, and on white beach sands.; flowers all year round but not recorded in Sept.-Oct.; fruits all year round but not recorded in Sept.-Oct.

Eragrostis olida M. Lazarides. *Aust. Syst. Bot.* 10: 137 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Queensland, Mt. Isa: *Schmid 88* (CANB holo, BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 66A, Fig. 68R-T).

Habit. Perennial. Culms erect, 17–50 cm tall, wiry, 6–10(–20) -noded. Mid-culm internodes hirsute or hispid. Mid-culm nodes glabrous or bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight, flat or involute, 1–2(–8) cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 8–15 cm long, 4–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–66), comprising 9–66 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 4–30 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous or cartilaginous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume ovate, 0.8–1.8 mm long, membranous or cartilaginous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1.8–2 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Anthers 2–3. Grain 0.6–0.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Hall, Dampier. Mueller, Canning. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke.

Notes. Distinguishing characters include the presence of glands, prickly tubercles and curved or hooked spinules on many parts of the plant; thickened spinulose palea keels protruding beyond margins of lemma; turgid stipitate caryopsis; branched yellow stigmas; panicle divisions with exuding resinous bands and glandular tipped hairs; overlapping leaf sheaths; pungent blades; viscid odorous habit, and bulbous hirsute rootbase.

Endemic; occurs in the Great Sandy Desert and the NE Kimberley, W.A., common throughout central N.T., and only known from Mt Isa, Qld. In skeletal, stony or rocky soils on the slopes, crests, and crevices of hills, outcrops, mesas, gorges and ridges of sandstone, quartzite and laterite.; flowers all year round.; fruits all year round.

Eragrostis paniciformis* (A.Br.) Steud. *Syn. Pl. Glum.* 1: 268 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa paniciformis* A. Braun, *Flora* 24(1): 274 (1841).

Type of Basionym or Protologue Information: HT: *Anon.*, Cultivated in a garden in Carlsruhe, Germany, from seed collected in Ethiopia by Schimper (? (photo, US-2851251)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or decumbent, 65–90 cm tall. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.3–0.4 mm long. Leaf-blades straight, flat or involute or convolute, 3–15 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–22 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (10–26), comprising 10–26 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 4–9 mm long.

Glumes. Glumes similar. Lower glume ovate, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2–3 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–2.7 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.8–1.2 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. A weed.

Distinguishing characters include inflated spikelet, almost as wide as long, with straight thickened rachilla; paleas deciduous with their lemmas, subhyaline, with long-ciliate relatively short keels and short auricle-like flaps; caryopsis turgid, curved, with free pericarp; largely membranous ligule; closely imbricate florets, with granular curved lemmas; open, sparse panicle with long-pedicelled spikelets on secondary branches.

Introduced; scattered from Maryborough to Brisbane in SE Qld.; native to tropical East Africa. In sandy, solodic, podsolic and "wallum" soils, in seed production stands and disturbed sites.; flowers Apr.-May and Nov.; fruits Apr.-May and Nov.

Eragrostis parviflora (R.Br.) Trin. *Mem. Acad. Imp. Sci. St.-Petersbourg, ser. 6, Sci. Math.* 1: 411 (1831).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa parviflora* R. Br., *Prodr.* (1810).

Type of Basionym or Protologue Information: Australia: Portum Jackson, inclusis ripis aestuarii, Hunter's River vel Coal River.,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *Poa parviflora*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (118), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (377), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (255).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (117, Pl. 33), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 68I-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (378, fig. 310), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (255).

Habit. Annual or perennial. Culms erect or decumbent, 30–135 cm tall, 3–4 -noded. Lateral branches simple. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.3–0.6 mm long. Leaf-blades straight, flat or convolute, 6–30 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 15–60 cm long, 10–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((3-)6–20(-30)), comprising (3-)6–20(-30) fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 2.5–16 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.2–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Anthers 3. Grain 0.5 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Dampier. Fortescue, Austin. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory South, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain.

Notes. A moderate fodder species, but can become weedy in irrigated crops.

Distinguishing characters include short-lived habit; ciliate-membranous ligule; open often drooping panicle; chasmogamous and cleistogamous, loose florets with the apical one vestigial; hyaline, unequal glumes; unequal lemmas with often short lateral nerves; palea keels partly and sparsely scaberulous; minute subterminally exerted anthers; blades capillary towards the apex.

Native; scattered occurrence in W.A. near Port Hedland and Wiluna, then from Giles near the border into central N.T. and northern S.A., also scattered from Maningrida to Katherine in northern N.T. Most common throughout eastern Qld., N.S.W. and Vic.; also occurs in New Caledonia and Hawaii. In a wide range of deep, often alluvial soils in usually flat to gently sloping country, often in well-watered sites; sometimes on roadsides in saline soils, and in hilly, sandstone or quartzite habitats.; flowers all year round.; fruits all year round.

Eragrostis pergracilis S. T. Blake. *Proc. Roy. Soc. Queensland* 59: 154 (1948). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: S.T. Blake 14084, 22 May 1939, Australia: Queensland: Warrego Dist.: Dynever Downs, in mulga scrub on reddish very silty loam, about 500 ft (BRI; IT: L, US-2959129).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (378), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (255).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 63A-B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (378, fig. 311), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (255).

Habit. Annual or perennial. Culms erect or decumbent or prostrate, stature slender to delicate, 3–45 cm tall, 2–3 -noded. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2–0.6 mm long. Leaf-blades straight, filiform, involute, 1–5 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle ovate, dense or loose, 3–12 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (12–73), comprising 12–73 fertile floret(s), with diminished florets at the apex, linear, laterally compressed or terete, 8.5–45 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1–1.4 mm long, membranous, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex entire or erose, muticous. Lodicules present. Anthers 3. Grain 0.45–0.55 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Canning, Fortescue, Carnarvon, Austin. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Eastern. **Queensland:** Gregory North, Maranoa, Warrego, Gregory South. **New South Wales:** North-Western Plains. **Victoria:** Grampians.

Notes. Introduced to England by way of wool shoddy.

Distinguishing characters include filiform culms, leaves and spikelets; tight, short, leaf-sheaths abruptly wider than blades; ciliate ligule; terete often curved closely flowered spikelets, with straight flattened rachilla; smooth, often 2-lobed lemmas, with the lateral nerves midway or closer to midnerve; hyaline paleas with mostly smooth keels and flaps much narrower than body; dorsally flattened caryopsis.

Endemic; distribution is from near Meekatharra, W.A., across central Australia to about Charleville, Qld, then scattered S to Balranald, N.S.W., Avon Plains Swamps Wildlife Reserve, NW Vic.; introduced in England. On plains, stony tablelands, brackish lakes, and saline flats; in red, brown or grey sands, sandy loams and clays, often in run-on areas; also on river frontages, claypans, roadsides and in streamlines.; flowers all year round but not recorded in Nov.; fruits all year round but not recorded in Nov.

Eragrostis petraea M. Lazarides. *Austral. Syst. Bot.* 10: 141 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Darwin & Gulf district: *Lazarides* 8841 (CANB holo, B, DNA, G, L, MEL, NSW, PERTH, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 68P-Q).

Habit. Perennial. Culms erect, 70–150 cm tall, 4 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight, flat or involute or convolute, 15–30 cm long, 2–4.4 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 20–46 cm long, 8–16 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (38–55), comprising 1 basal sterile florets, comprising 38–55 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 16–27 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar. Lower glume linear or oblong, membranous, without keels, 0–1 -nerved. Upper glume lanceolate, 0.6–1.2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren. Lemma of lower sterile floret 1 -nerved.

Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Palea 2 -nerved. Anthers 3. Grain 0.5–0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. Distinguishing characters include open decompound scabrous panicle; first floret reduced to a nerveless lemma resembling upper glume; dissimilar glumes, separated by an internode; semi-persistent straight, thickened rachilla and distinctive caryopsis.

Endemic; Kakadu Natl Park, N.T. Rocky hills.; flowers May-June; fruits May-June.

Eragrostis pilosa* (L.) Beauv. *Ess. Agrost.* 71, 162, 175 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa pilosa* L., *Sp. Pl.* 1. 68 (1753).

Type of Basionym or Protologue Information: LT: *Scheuzer*, *Agrostographia* 193, pl. 4 4, f. 3 (1719), LT designated by Du Puy, Telford & Edgar, *Fl. Australia* 50: 472 (1993).

ET: A. Kneucker, *Gram. Exsicc. XII*, 344, 9–10 Aug 1902, Italy: an Wegen zwischen den Reisfeldern von Pldenico unweit Vercelli in Oberitalien (B; IET: L, US-557051). ET designated by Scholz in Cafferty et al., *Taxon* 49(2): 256 (2000).

LT: *Tiumfetti s.n.*, Italy LT designated by Clayton, *Fl. Trop. East Africa, Gramineae* 3: 214 (1974), but as this is not original material, the lectotypification is ineffective [fide Cafferty et al., *Taxon* 49(2): 256 (2000)].

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (645), [1969] E.E.Henty, *Manual Grasses New Guinea* (93), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (379), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (255).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (379, fig. 312), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (255).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 8–83 cm tall. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades straight, flat or convolute, 2–20 cm long, 1–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or ovate, 4–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–8(-19)), comprising 4–8(-19) fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 2.5–9.5 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, hyaline, without keels, 0 -nerved. Upper glume ovate, 0.4–1.4 mm long, hyaline, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.7 mm long, keeled, 3 -nerved. Anthers 3. Grain 0.6–1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Christmas Is.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, South-eastern. **Queensland:** Burnett, Cook, Gregory North, Leichhardt, Burnett, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy. **New South Wales:** Central Coast, Southern Tablelands, South-Western Plains. **Victoria:** Gippsland Plain, Midlands, Riverina.

Notes. A troublesome weed.

Distinguishing characters include plant sometimes glandular; basal panicle-branches usually whorled and stiffly bearded in the axil; spikelets loosely flowered, with zig-zag rachilla; glumes markedly dissimilar; paleas deciduous, hyaline, 3-lobed, with mostly smooth keels and relatively wide flaps; anthers subterminally exserted; caryopsis strongly compressed.

Introduced; occurs at Beverley Springs in the Kimberley, W.A., northern N.T. and around Alice Springs, and then most commonly on the E coast and tablelands from Mt Molloy near Cairns in Qld, S to Melbourne, Vic.; also occurs in the Old World Tropics. Weed of railway tracks, roadsides, gardens, nurseries and habitation; in sandy alluvium, loams, and lateritic soils.; flowers all year round but not recorded for Sept.; fruits all year round but not recorded for Sept.

Eragrostis potamophila M. Lazarides. *Austral. Syst. Bot.* 10: 143 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Western Australia, Kalumburu Mission: Lazarides 4941 (CANB holo, BRI, K, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 68E-F).

Habit. Perennial. Culms erect, 40–125 cm tall, 5 -noded. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades curled, flat or involute or convolute, 15–35 cm long, 4–9 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose or effuse, 20–36.5 cm long, 5–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–55), comprising 9–55 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 4.2–25 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–1.8 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.3–1.7 mm long, keeled, 3–5 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers (2–)3. Grain 0.5–0.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. Distinguishing characters include large, open decomposed panicle, flat and curly leaves; minute ligule; semi-persistent flexuose, stout rachilla; unequal glumes and thickened palea keels.

Endemic; distributed in the Kimberley in N.W.A. and the Keep R. Natl Park and Daly R. areas of N.T. A fringing species of watercourses, often in sandy alluvial soil; also on foreshore of saline estuary, basaltic rocks of waterhole, on lateritic podsols, and in swampy ground.; flowers all year round.; fruits all year round.

Eragrostis pubescens (R.Br.) Steud. *Syn. Pl. Glum.* 1:297(1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa pubescens* R. Br., *Prodr.* 181 (1812).

Type of Basionym or Protologue Information: T: R. Brown 6272, 1802–1805, Australia: "Iter australiense".

Recent synonyms: *Eragrostis stricta*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (256).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (256).

Habit. Perennial. Culms erect or sprawling, 40–80 cm tall, wiry. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades straight, flat or involute, 7–15 cm long, 2–5.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–85 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–89), comprising 6–89 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 8–50 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.8–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.9–4 mm long, keeled, 3–5 -nerved. Lemma surface indumented. Lemma apex muticous. Lodicules present. Anthers 3. Grain 5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Darling Downs, Mitchell. **New South Wales:** North Coast.

Notes. *E. brownii* var. *pubescens* Bailey was published without reference to *E. pubescens* (R.Br.) Steud. or *Poa pubescens* R.Br.

Distinguishing characters include trigonous caryopsis with free pericarp; lemmas 3–5-nerved, the lateral nerves sometimes very short; unequal glumes, the upper often long relative to lemma; spikelets with closely imbricate upwards maturing florets; panicle large, open, interrupted, often with hairy axis and divisions; leaves often hairy; habit sprawling.

Distribution is from the Prince Regent R. area, W.A., across northern N.T., and then the E coast from the tip of Cape York Penin., Qld, inland to Chillagoe and then S to Grafton in northern N.S.W. Also recorded from near Boulia and St George in W and S Qld.; also occurs in Papua New Guinea and the Moluccas. Chiefly in sandy loam, often alluvial soils; on river levees, margins of swamps, coastal flats and dunes, and in broad shallow depressions; sometimes associated with granite, sandstone or laterite.; flowers all year round but not recorded for Nov.; fruits all year round but not recorded for Nov.

Eragrostis rigidiuscula Domin. *Biblioth. Bot.* 85: 393 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Nord-Australien: Port Darwin, *F. Schultz* 802.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 55–100 cm tall. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades curled, flat or involute, 20–30 cm long, 1–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 6–36 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–23), comprising 5–23 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 4–10.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.3–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. Distinguishing characters include stiffly spreading, open scabrous panicle; leaf sheaths often longer than internodes, tight on culms, with long-bearded orifice and hairy margins and collar; blades long, often flat, gradually tapered to a capillary apex, curly at maturity; spikelets strongly compressed, with stout strongly flexuose rachilla cupular at apex of internodes; lemma partly scaberulous.

Endemic; occurs near Kalumburu and on Augustus Island in the Bonaparte Archipelago in N W.A.; between Darwin and Pine Ck and into Arnhem Land in N.T. and near Laura in N Qld. Sandy or podsolic soils with quartzite or laterite; on tablelands, clay soil flats, lagoon and creek banks, in depressions and on roadsides.; flowers Jan.-May.; fruits Jan.-May.

Eragrostis schultzii Benth. *Fl. Austral.* 7: 646 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Port Darwin, *Schultz* 81.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (646), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 50–150 cm tall. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades curled or flexuose, flat or involute, 10–30 cm long, 3–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–45 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (9–34), comprising 9–34 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 5–15 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.3 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, South Kennedy, Burnett.

Notes. Distinguishing characters include robust tussock-forming habit; long, flat, curly, coriaceous blades; minute ligule; hairy collar; clustered often glaucous spikelets with closely imbricate florets and subpersistent, stout, flexuose rachilla; cartilaginous to indurated glumes and lemmas; unequal glumes; palea with almost entirely scaberulous keels and narrow flaps.

Endemic; distributed from Ord R. Dam area, W.A., throughout northern N.T. from Darwin to Pine Ck and then across the Gulf of Carpentaria into Qld from Cape York Penin. S to Croyden. Often in low-lying alluvial habitats (in or near lagoons, small streams, swamps, lakes, drainage channels, waterfalls); in usually sandy or loam soils associated with sandstone, quartzite, granite or laterite.; flowers all year round but not recorded for Dec.; fruits all year round but not recorded for Dec.

Eragrostis setifolia Nees. *London J. Bot.* 2: 419 (1843). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: In Novae Hollandiae interioribus, *Major Mitchell's Exped.* 59.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (648 as *Eragrostis chaetophylla*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (122), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (457), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (379), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (256).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (123, Pl. 35), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65C-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (380, fig. 313), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (256).

Habit. Perennial. Rhizomes absent or present, short. Culms erect, 12–60 cm tall, wiry, 3–6 -noded. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades erect or ascending, straight, flat or involute or convolute, 4–13 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear or lanceolate or ovate, 6–10 cm long, 1.2–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–30(-70)), comprising 9–30(-70) fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 10–20 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume oblong, membranous, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.25–1.75 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Lodicules present. Anthers 2–3. Grain 0.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Dampier. Mueller, Canning, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Eucla, Coolgardie. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina.

Notes. A useful fodder species in native pastures, drought hardy and can withstand heavy grazing.

Eragrostis setifolia intergrades with *E. xerophila*, producing a wide range of plants with intermediate characters. In its typical condition, distinguishing characters include wiry perennial with hairy rootbase; leaf

sheaths tight on culms, wider than blades; glabrous at orifice, with ciliate ligule; blades tightly convolute-involute, scabrous; spikelets linear, with loose florets exposing the persistent, straight rachilla; glumes subequal; lemmas with hyaline margins, obtusely keeled; paleas long relative to their lemmas, hyaline, 3-lobed; caryopsis concave, strongly compressed dorsally; panicle contracted, loose to rather dense.

Endemic; distribution is widespread across inland Australia. Commonly in red, brown, grey or black clay and clayey loam plains and stony tablelands; often in alluvial seasonally flooded habitats (swamps, dune and sandhill swales, floodouts, gilgais, in or near small watercourses and drainage channels); sometimes in saline or calcareous and sandy soils, and disturbed sites.; flowers all year round.; fruits all year round.

Eragrostis sororia Domin. *Biblioth. Bot.* 85: 399 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Sandhügel der Dividing Range östlich von Jericho, Feb 1910, *Domin s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (256).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 71G-H), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (256).

Habit. Perennial. Culms erect or sprawling, 20–70 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades straight, flat or involute, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, (3.5–)7–24 cm long, 2–8 cm wide, contracted about primary branches.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–38(-64)), comprising 5–38(-64) fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong or ovate, laterally compressed, 4–15(-32) mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–2.3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, 3 -nerved. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. A polymorphic species which grades into *E. elongata*, producing plants with a wide range of intermediate characters. In its typical condition, distinguishing characters include rachilla fragile; florets falling entire; lemmas cartilaginous to indurated, inflated, gibbous, often scaberulous-granular; paleas pouched between keels; anthers two, linear, subterminally exserted; caryopsis usually turgid, subacute at base, silvery-white striate or reticulate; pericarp free on moistening; panicle usually spiciform with subsessile spikelets.

Endemic; extends from about Cooktown in Qld S to near Deniliquin in N.S.W. Also northern N.T. Flat to undulating country with usually deep sands, clays, sandy loams and podsols associated with sandstone, granite or laterite; also alluvial soils on river levees and banks, shallow tableland soils, and disturbed ground.; flowers all year round.; fruits all year round.

Eragrostis spartinoides Steud. *Syn. Pl. Glum.* 1: 265 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: T: *H. Cuming* 668, Philippines: Luzon: Laguna (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (256).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (256).

Habit. Perennial. Culms erect, 70–85 cm tall. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight, filiform or linear, flat or involute, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 5–64 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–56), comprising 8–57 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 5–28 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1-nerved. Upper glume ovate, 1.3–2.8 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 1.5–2.3 mm long, keeled, 3-nerved. Anthers 2–3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Tablelands.

Notes. Distinguishing characters include open panicle with distant branches; usually linear and many-flowered spikelets; rachilla disarticulating after lemmas; cartilaginous glumes and lemmas; laterally compressed caryopsis longer than wide.

Native; occurs on the Mitchell Plateau in N.W.A., then in N.T. from Darwin S to Katherine and the McArthur R. area, also from the tip of Cape York Penin. in Qld S to Grafton in N.N.S.W., and near Lithgow further S.; also occurs in Burma, SE Asia, New Caledonia, Easter Island. In a range of sandy and clayey, often shallow soils derived from granite, sandstone, laterite, basalt and quartzite; also in a range of habitats (rocky or stony hillslopes and ridges; near seasonal streams, lakes, lagoons, springs; coastal sandy ground; disturbed roadsides, fallow land and railway enclosures); flowers all year round.; fruits all year round.

Eragrostis speciosa (Roem. & Schult.) Steud. *Syn. Pl. Glum.* 1: 279 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa speciosa* Roem. & Schult., *Syst. Veg.* 2: 573 (1817).

Type of Basionym or Protologue Information: LT: R. Brown 6273, 1802–1805, Australia: "inter australiense".

Recent synonyms: *E. oldfieldii*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (648), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (119 & as *E. oldfieldii*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (381), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (257).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (120, Pl. 34), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 65J-K), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (381, fig. 314), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (257).

Habit. Perennial. Culms erect, stature slender to delicate, 15–140 cm tall. Ligule a fringe of hairs, 0.3–0.6 mm long. Leaf-blades straight, flat or involute or convolute, 15–25 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or oblong, 7–47 cm long, 1.2–2.5 cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (10–110(–145)), comprising 10–110(–145) fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 4.5–50 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 1.2–1.8 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3-nerved. Lemma apex muticous. Lodicules present. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier. Fortescue, Austin. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains.

Notes. Distinguishing characters include relatively short, blunt palea with emarginate apex, short keels and narrow flaps; anthers two; glumes partly scaberulous; leaden spikelets with numerous closely imbricate florets

and straight rachilla; slender flaccid panicle; plant mostly glabrous and smooth, highly coloured, with mealy scabrous filiform blades and ciliate ligule.

Endemic; distribution is from northern and central Australia from around the Dampier Penin. and Port Hedland in W.A. across to about Mackay on the E coast of Qld. S to Wee Waa in northern N.S.W. Commonly in seasonally wet habitats (beds, frontages and levees of watercourses, floodouts, seepage slopes, margins of swamps and springs) with sandy alluvial soils; also in lateritic, calcareous and saline soils and moist disturbed ground.; flowers all year round but not recorded for Nov.; fruits all year round but not recorded for Nov.

Eragrostis stagnalis M. Lazarides. *Aust. Syst. Bot.* 10: 152 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Katherine: *Beaglehole 58446* (CANB holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65H-I).

Habit. Perennial. Culms erect, stature slender to delicate, 35–95 cm tall, 3–5 -noded. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.1–0.3 mm long. Leaf-blades straight, lanceolate or elliptic, flat or involute or convolute, 1–2.8 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, (10–)25–33 cm long, 6–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (10–61), comprising 10–61 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 5.4–30 mm long.

Glumes. Glumes similar. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume linear or lanceolate, 1.2–1.8 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 0.5–0.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. Distinguishing characters include slender habit; open drooping panicle; biconvex caryopsis with free pericarp, and persistent zig-zag rachilla.

Endemic; distributed in N.T. from the E Alligator R. S to Mataranka, then in the Gulf of Carpentaria from Boorooloola to the Leichhart R. in Qld, also from Cooktown S to near Townsville. Fringing seasonally wet usually still-water habitats (lagoons, swamps, waterholes and similar depressions, also watercourses), on floodplains and damp flat ground; in alluvium, sand and black clays.; flowers all year round.; fruits all year round.

Eragrostis stenostachya (R.Br.) Steud. *Syn. Pl. Glum.* 1: 279 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa stenostachya* R. Br., *Prodr.* 181 (1812).

Type of Basionym or Protologue Information: Australia: "(T.) B. v.s."

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (650), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65A-B).

Habit. Perennial. Culms erect, 22–60 cm tall. Ligule a fringe of hairs, 0.1–0.3 mm long. Leaf-blades straight, flat or involute or convolute, 5–15 cm long, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–14 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (6–27), comprising 6–27 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 4–21 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.1–2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 1.3–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Distinguishing characters include erect or stoloniferous habit; sheaths relatively long and tight on culms; acute blades; panicle of stiffly spreading or reflexed branches and spikelets; spikelets strongly compressed, closely flowered, linear; rachilla subpersistent, flattened, thickened, with a prominent constriction at base of lemma; membranous to subindurated, dissimilar glumes; relatively short palea keels; strongly compressed caryopsis.

Endemic; occurs in N.T. from Darwin across to Arnhem Land and the Islands in the Gulf of Carpentaria, and then from N of Cooktown to Townsville in Qld. Saline meadows and sandy loam soils; low-lying undulating plain.; flowers Mar.-May, June, July, Oct.; fruits Mar.-May, June, July, Oct.

Eragrostis sterilis Domin. *Biblioth. Bot.* 85: 403 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Queensland: Sandhügel der Dividing Range östlich von Jericho, Mar 1909, *Domin s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (257).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (257).

Habit. Perennial. Culms erect, 60–90 cm tall. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades straight, involute or convolute, 10–16 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or pyramidal, 10–27 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (13–85), comprising 13–85 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 5.5–30 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.5–2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.2 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 2–3. Grain 0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Central Australia South. **Queensland:** Burke, Leichhardt, North Kennedy, Cook, Mitchell. **New South Wales:** North-Western Plains.

Notes. Distinguishing characters include palea short relative to lemma, the keels almost entirely scaberulous; turgid ellipsoid caryopsis; anthers usually two; unequal glumes; linear spikelets, with many closely imbricate florets, and stout persistent flexuose rachilla; interrupted panicle, with much-divided spreading or reflexed branches entirely spikelet-bearing; leaf sheaths wider than blades, tight on culms, with broad thin margins and long-bearded orifice.

Endemic; occurs in southern N.T. around Uluru Natl Park, the Hughenden area and Emerald to Rockhampton, Qld, and near Narrabri, N.S.W. Sands and sandy loams, often near watercourses and waterholes.; flowers Feb., Apr.-June, Sept., Nov.; fruits Feb., Apr.-June, Sept., Nov.

Eragrostis subsecunda* (Lam.) Fourn. *Mex. Pl.* 2: 118 (1886). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa subsecunda* Lam.

Type of Basionym or Protologue Information: China: *Sonnerat* (P holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or decumbent, 22–41 cm tall. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades straight, linear or lanceolate, flat or involute, 1–15 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle elliptic, 3–25 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–21), comprising 8–21 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 1.5–2.5 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–2.5 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.5–1 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Distinguishing characters include panicle almost as wide as long, ovate in outline, with thickened scabrous stiffly spreading branches, and usually bearded axils; spikelets linear, loosely flowered, with subsistent thickened rachilla; glumes and lemmas cartilaginous, deciduous; glumes subequal or the upper larger, the lower sometimes keelless; palea keels thickened, almost entirely scaberulous.

Introduced; occurs in Cairns, N Qld.; native to southern China and Indo-China to Malesia. Roadsides, town path.; flowers Jan., Mar.; fruits Jan., Mar.

Eragrostis subtilis M. Lazarides. *Austral. Syst. Bot.* 10: 155 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Northern Territory, Napperby Station: *Latz 2269* (CANB holo, BRI, DNA, K, NSW, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64K-L).

Habit. Perennial. Culms erect, stature slender to delicate, 50–60 cm tall, 4–5 -noded. Ligule a fringe of hairs, 0.8–1 mm long. Leaf-blades straight, filiform, involute or convolute, 1 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose or effuse, 20–30 cm long, 7–14 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–11), comprising 9–11 fertile floret(s), with diminished florets at the apex, linear, terete, 4–4.5 mm long.

Glumes. Glumes similar. Lower glume linear or lanceolate, hyaline or membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.8–1 mm long, hyaline or membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.9–1 mm long, keeled, 1–3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 0.4–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia North, Central Australia South.

Notes. Distinguishing characters include filiform culms, leaves and spikelets; hirsute rootbase; stiffly bearded orifice; hairy tightly involute blades with capillary apex; open panicle, with stiffly spreading spikelets; biconvex, linear paleas with smooth, short keels and narrow flaps; minute anthers, and dorsally compressed caryopsis.

Endemic; occurs in central N.T. around Napperby and Willowra Stns NW of Alice Springs. Red sands, earths and loams, calcareous soil near creek, and scalded, saline, alluvial valley floor near bore.; flowers Dec.-Jan., Apr., June; fruits Dec.-Jan., Apr., June.

Eragrostis superba* Peyr. *Sitzung. Akad. Wiss. Math. Nat. (Wien)* 38: 584 (1860). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Wawra 244*, Angola: Benguela (W).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (381).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65P-Q), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (381, fig. 315).

Habit. Perennial. Culms erect or decumbent, 20–120 cm tall. Ligule a fringe of hairs. Leaf-blades flat or involute, 10–40 cm long, 0.6 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle lanceolate or ovate, 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–28(–47)), comprising 6–28(–47) fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate or orbicular, laterally compressed, 6–16(–23) mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2–4 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3–5 mm long, keeled, 3 -nerved. Lemma apex muticous. Palea 2 -nerved. Anthers 3. Grain 1–1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Northern Territory, South Australia, Queensland, Victoria.

Northern Territory: Central Australia South. **South Australia:** Southern Lofty. **Queensland:** Leichhardt. **Victoria:** Riverina.

Notes. A weed.

Distinguishing characters include spikelet falling entire, broad relative to length; panicle spiciform, interrupted; rachilla persistent; lemma partly indurated and flattened; palea 2-lobed, with winged keels, the wings scaberulous, extending beyond basal margins of floret; trigonous subacute caryopsis; curved ciliate ligule.

Introduced; occurs at Reynella, S.A., and near Townsville, Emerald and Brisbane, Qld.; native to Africa and Asia and cultivated in United States of America. Roadside weed.; flowers Jan., Mar., May.

Eragrostis tef* (Zucc.) Trotter. *Boll. Soc. Bot. Ital.*, 1918, 62 (1918). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa tef* Zucc., *Diss. Ditef* (1775.).

Type of Basionym or Protologue Information: HT: Anon., Cult. at Florence from seed collected in Ethiopia by Bruce (FI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (382).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (382, fig. 316).

Habit. Annual. Culms erect, 17–90 cm tall. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades involute, 10–30 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 10–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–15), comprising 4–15 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed, 3–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 0–1 -nerved. Upper glume lanceolate, 1.4–3 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.8–2.7 mm long, keeled, 3 -nerved. Anthers 3. Grain 1–1.2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: South-eastern. **New South Wales:** North Coast, Central Coast, North-Western Plains. **Victoria:** Riverina.

Notes. Cultivated as a cereal and hay crop in parts of Africa; and is a potential fodder grass in Australia.

Distinguishing characters include subhyaline glumes, lemmas and paleas; unequal glumes; subpersistent florets; strongly compressed, elongated, white or reddish-brown caryopsis thicker than wide; stiffly bearded sheath orifice; basal panicle axil usually bearded; persistent flexuose sometimes scabrous rachilla.

Introduced; scattered in eastern Australia, Tintinara, S.A., near Roma and in the Brisbane area, Qld, Grafton and also Windsor near Sydney, N.S.W., Kerang, Vic., and no precise locality in Tas.; native to Africa and introduced or an escape in America, Europe, and tropical countries. Cultivated or an escape.; flowers Jan.; fruits Jan.

Eragrostis tenella* (L.) P. Beauv. ex Roem. & Schult.

. *Syst. Veg.* 2: 576 (1817). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa tenella* L., *Sp. Pl.* 1: 69 (1753).

Type of Basionym or Protologue Information: LT: *Anonymous*, (LINN-87.33). LT designated by Mitra & Jain in Manilal (ed.), Bot. Hist. Hort. Malab. : 151 (1980); also superfluously by Veldkamp, *Blumea* 47(1): 164 (2002).

Recent synonyms: *Eragrostis amabilis* (L.) Hook. & Arn.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (643), [1969] E.E.Henty, *Manual Grasses New Guinea* (96), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E. amabilis*).

Habit. Annual. Culms geniculately ascending or decumbent, 6–50 cm tall. Ligule a fringe of hairs. Leaf-blades 2–9 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear (var *insularis*) or elliptic or pyramidal, 2–14 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–8), comprising 4–8 fertile floret(s), with diminished florets at the apex, ovate or obovate, laterally compressed, 1.5–2.5 mm long.

Glumes. Glumes similar. Lower glume ovate, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 0.5–1 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.7–1 mm long, keeled, 3 -nerved. Anthers 3. Grain 0.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy.

Notes. A troublesome weed.

Distinguishing characters include open panicle, sometimes pilose in axils of axis; spikelet terminated by vestigial floret or naked rachilla internode, with jointed rachilla, and loose florets usually falling entire; glumes subhyaline; lemmas with ribbed submarginal lateral nerves; palea keels ciliate with relatively long hairs visible in situ; anthers minute, terminally exserted; caryopsis turgid, shiny, subacute at apex and base; often leaves pilose, and the orifice, collar and outer margin of sheaths stiffly hairy; blades thin in texture.

Australian plants belong to the typical variety. *Eragrostis tenella* var. *insularis* C.E.Hubb., from the shores of the Indian Ocean, is similar in spikelet morphology, but has a linear or contracted panicle.

Introduced; occurs near Kununurra and Wyndam, W.A., Darwin area and E, Melville Island and Ashmore Reef, N.T., the tip of Cape York Penin., Torres Strait Islands and from Cairns to Mackay, Qld.; native to Africa, SE Asia, world tropics. Weed of gardens, lawns and roadsides; usually in sandy soils; also in woodland clearings, beach sands, and in shallow soils over laterite.; flowers Jan.-July, Oct.; fruits Jan.-July, Oct.

Eragrostis tenellula (Kunth) Steud. *Syn. Pl. Glum.* 1: 279 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa tenellula* Kunth, *Revis. Gramin.* 1: 113 (1829).

Type of Basionym or Protologue Information: Australia: littora novae Hollandiae intra tropicum.,

Recent synonyms: *E. japonica* auct.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (623 as *Sporobolus lindleyi*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (115 as *E. japonica*), [1969] E.E.Henty, *Manual Grasses New Guinea* (93 as *E. japonica*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (459 as *E. japonica*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (383), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (257).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (117, Pl.33 as *E. japonica*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (383, fig. 317), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (257).

Habit. Annual. Culms erect or geniculately ascending or decumbent or prostrate, 6–96 cm tall, 2 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.2–0.6 mm long. Leaf-blades straight, flat or involute or convolute, 30 cm long, 2–6 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate to ovate, 4–50 cm long, 0.5–12 cm wide, contracted about secondary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–12), comprising 3–12 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 1.5–4.7 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate, 0.5–1.3 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 0.7–1.1 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Dampier, Canning, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Eastern, Murray. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North Far Western Plains. **Victoria:** Midlands, Murray Mallee, Riverina.

Notes. Distinguishing characters include ligule membranous; panicle decompound, occupying 1/2–3/4 of plant; florets loose, falling entire, the apical one in spikelet vestigial; rachilla fragile, straight, the internodes cupular at apex; glumes, lemmas and paleas hyaline; palea 3-lobed, the keels relatively short, mostly smooth and sometimes excurrent; anthers two, minute; caryopsis subulate, shiny.

Eragrostis tenellula was included in the Asiatic species, *E. japonica*, which differs by its ciliate (not fimbriate) membranous ligule, contracted smaller panicle with shorter branches mostly in interrupted clusters or whorls, and in the morphology of its spikelet and caryopsis.

Endemic; widespread in W.A. in the Pilbara and Kimberley regions, N.T., Qld and northern S.A. Also scattered occurrences on the Darling R. near Louth, N.S.W. and on the Murray R., Vic. Almost always in seasonally flooded sites (often in grassland plains) and in heavy clay loams, either alluvial or derived from basalt, laterite, limestone or sandstone.; flowers Jan.-Oct.; fruits Jan.-Oct.

Eragrostis tenuifolia* (A.Rich.) Steud. *Syn. Pl. Glum.* 1: 268 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa tenuifolia* A. Rich., *Tent. Fl. Abyss.*

Type of Basionym or Protologue Information: LT: *G.H.W. Schimper* 92, Jan 1841 [18 Sep 1837], Ethiopia: in locis incultis Vallium prope Adoam (P; ILT: GOET-5814, K, L, WAG, US-1127147 (fragm.)). LT designated by S. Phillips, *Fl. Ethiopia* 7: 122 (1995).

ST: *Quartin Dillon s.n.*, Oct, Ethiopia: crescit in montosis Chiré (P).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (96), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (257).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (257).

Habit. Perennial. Culms erect or geniculately ascending, 10–92 cm tall. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades straight, flat or involute, 4–30 cm long, 1–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–28 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–16), comprising 4–16 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 4–16 mm long.

Glumes. Glumes similar. Lower glume lanceolate, without keels or keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.8–1.7 mm long, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.6–2.5 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 1 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Tasmania.

Western Australia: Gardner. **Northern Territory:** Central Australia North. **Queensland:** Burke, Burnett, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Plains, South Far Western Plains. **Tasmania:** East Coast.

Notes. A troublesome weed.

Distinguishing characters include leaf sheaths broad, loose, complicate and keeled; panicle open, with purple-back; bearded pulvini; spikelet linear, olive-green, serrate, loosely flowered; floret with widely divergent lemma and palea; rachilla wavy; glumes unequal, lower or both nerveless, dorsally rounded, the upper short relative to its lemma; lemma with submarginal usually short relative to its lemma; lemma with sumarginal usually short lateral nerves; palea 3-lobed, with short partly thickened keels and wide flaps; anthers creamy; caryopsis strongly compressed, curved, stipitate, often exposed.

Introduced; occurs in Broome, W.A., near Stirling, N.T., mostly along the E coast from Cairns, Qld, S to Sydney, N.S.W., and also near Hobart, Tas.; occurs in tropical Africa, S America, India, Sri Lanka and Papua New Guinea. Weed of roadsides, lawns and habitation; also on sandy river levees and drained swamps.; flowers Dec.-Feb., Apr.-July, Sept.-Oct.; fruits Dec.-Feb., Apr.-July, Sept.-Oct.

Eragrostis trachycarpa (Benth.) Domin. *Repert. Spec. Nov. Regni Veg* 9: 552 (1911). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Eragrostis nigra* var. *trachycarpa* Benth., *Fl. Austral.* 7: 643 (1878).

Type of Basionym or Protologue Information: ST: *C. Stuart s.n.*, Australia: New South Wales: New England

ST: *Perrott s.n.*, Australia: New South Wales: Armidale.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (643 as *Eragrostis ? nigra*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (258).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 70I-J), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (258).

Habit. Perennial. Culms erect, 14–80 cm tall. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.2–0.4 mm long. Leaf-blades straight, flat or involute or convolute, 1–3 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 15–45 cm long, 8–25 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–7), comprising 1–7 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate or oblong, laterally compressed, 1.5–5.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1–2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1.5–1.7 mm long, keeled, 3 -nerved. Lemma apex muticous. Lodicules present. Anthers 3. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Leichhardt, Darling Downs, Gregory South. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** Gippsland Plain.

Notes. Introduced to England by way of land manured with wool shoddy.

Distinguishing characters include panicle open, decompound, long relative to plant; spikelets loosely flowered, often olive- green, terminated by a vestigial floret, swollen by the globoid caryopsis, with wavy rachilla; florets deciduous; lemmas and paleas membranous to subcoriaceous; lateral nerves on lemma short or obscure; palea 3-toothed, with mostly smooth keels and wide flaps; caryopsis often globoid, honeycombed, dark-coloured, stipitate.

Endemic; distribution is mostly on the coast and tablelands from just N of the Qld/N.S.W. border S to near Melbourne, Vic., also recorded from near Proserpine in northern Qld.; introduced in England. Weed of roadsides, gardens and disturbed grasslands; on podsolis, brown clayey and sandy loam soils; often in damp sites and associated with granite.; flowers Dec.-May, July- Aug., Oct.; fruits Dec.-May, July-Aug., Oct.

Eragrostis trichophora*

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (258).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (258).

Eragrostis triquetra M. Lazarides. *Aust. Syst. Bot.* 10: 162 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Queensland, Cunnamulla: *Martensz 1712* (CANB holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 63C, Fig. 68A-D).

Habit. Perennial. Culms erect, stature slender to delicate, 16–30 cm tall, 2–4 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths scaberulous. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades curved or curled or flexuous, filiform, convolute, 1–1.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 6–10 cm long, 3–4.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((9-)22–31), comprising (9–)22–31 fertile floret(s), with diminished florets at the apex, linear, laterally compressed or terete, 5–13.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 1–1.3 mm long, membranous, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.8 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Anthers 2 or 3. Grain 0.3–0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Maranoa, Mitchell, North Kennedy.

Notes. Distinguishing characters include filiform culms, leaves and spikelets; leaves curly, with delicate hairs and thickened nerves; linear spikelets, with wavy subpersistent rachilla; minute anthers, exerted subterminally, and trigonous strongly curved, shiny, stipitate caryopsis.

Endemic; distribution is from Ingham then inland from about Hughenden S to Cunnamulla, Qld. In red, sandy and podsolic soils on undulating plains, on ridges and in shallow depressions.; flowers Dec., Feb., Apr., June, and Aug.; fruits Dec., Feb., Apr., June, and Aug.

Eragrostis unioides (Retz.) Nees ex Steud. *Syn. Pl. Glum.* 1: 264 (1854). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa unioides* Retz., *Observ. Bot.* 5: 19 (1788).

Type of Basionym or Protologue Information: India: 1776, *Koenig s.n.* (HT: ?; ST: BM, LE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65R-S).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 7–72 cm tall. Leaf-sheath auricles absent, or present. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades straight, flat or involute, 3–10 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–20 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9–72), comprising 9–72 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 4–18 mm long.

Glumes. Glumes similar. Lower glume lanceolate, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.6–2 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.3–2 mm long, keeled, 3 -nerved. Anthers 2. Grain 0.7 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy, South Kennedy, Mitchell.

Notes. Distinguishing characters include leaves with ribbed primary and secondary nerves; blades acute, auricular; ligule curved or V-shaped; florets falling entire, loose in lower part; rachilla straight, thickened; glumes unequal, as long as their adjacent lemmas; lemmas broadly ovate, granular, with thickened nerves; paleas hyaline, broad or orbicular, with winged keels, and hyaline flaps much narrower than body; anthers two; caryopsis strongly compressed, stipitate.

Native; occurs in Qld on the tip of Cape York Penin. and from Cooktown S to near Proserpine.; also occurs through China southern Asia to Malesia and New Caledonia; introduced in Cameroon, Africa. Seasonally wet grey sandy silt.; flowers Apr.-May, July-Aug.; fruits Apr.-May, July-Aug.

Eragrostis uvida M. Lazarides. *Aust. Syst. Bot.* 10: 164 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Cloncurry to Burketown: *Jacobs 1288* (NSW holo, CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65L-M).

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent, 47–80(–120) cm tall, 2–3-noded. Lateral branches sparsely branched. Ligule a fringed membrane, a ciliate membrane, 0.3–0.5 mm long. Leaf-blades straight, flat or convolute, 2–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 18–37 cm long, 1–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (11–25), comprising 11–25 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 3.5–8 mm long.

Glumes. Glumes similar. Lower glume oblong or ovate, membranous, without keels or keeled, 1-keeled, 0–1 -nerved. Upper glume oblong or ovate, 0.4–0.6 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.7–1 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Palea apex dentate. Anthers 2. Grain 0.4–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke.

Notes. Distinguishing characters include compact leafy annual with thin leaves, glabrous orifice and acute blades; ligule a fimbriate membrane; spiciform often whorled panicle; loosely flowered spikelet, with fragile rachilla; florets falling entire; 3-lobed palea, with short ribbed smooth keels; two minute anthers, and turgid, shiny caryopsis.

Endemic; occurs on the Calvert R. in the Gulf of Carpentaria, N.T. and between Burketown and Cloncurry, Qld. On clayey loam roadside and margins of seasonal watercourse.; flowers Apr.; fruits Apr.

Eragrostis xerophila Domin. *J. Linn. Soc., Bot.* 41: 281 (1912). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: North W. Australia: inter fl. Ashburten et De Gray, *E. Clement s.n.*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (124), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (458), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (384), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (258).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (123, Pl. 35), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 65E-G), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (383, fig. 318), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (258).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 16–50 cm tall, 10–20 -noded. Ligule a fringe of hairs, 0.5–0.6 mm long. Leaf-blades straight or curved or curled or flexuous, flat or conduplicate or convolute, 2–8 cm long, 0.5–4.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 5–10 cm long, 0.6 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–76), comprising 8–76 fertile floret(s), with diminished florets at the apex, linear or lanceolate or oblong, laterally compressed, 5–35 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume ovate, membranous, without keels or keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.5 mm long, keeled, 3 -nerved. Lemma apex muticous or mucronate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Giles, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Burke, South Kennedy, Gregory North, Gregory South, Mitchell, Warrego. **New South Wales:** North Far Western Plains.

Notes. A useful fodder species in native pasture, drought-hardy and resistant to heavy stocking.

Eragrostis xerophila intergrades with *E. setifolia*, producing plants which resemble the latter species in panicle structure, habit, foliage and caryopsis shape.

Distinguishing characters of typical *E. xerophila* include rootbase rhizomatous, woolly or pubescent; culms wiry, many-noded, scabrous, covered by overlapping leaf sheaths; leaf blades coriaceous, flat and recurved, rigid, firmly pointed, curly with age; panicle spiciform; florets finally loose; rachilla persistent, straight; glumes nerveless, rounded on the back; lemmas membranous with hyaline margins, the lateral nerves c. midway and often green and short; palea long, usually persistent, 3-lobed, with narrow flaps; anthers large, yellow or purple; caryopsis terete or subterete, subacute, shiny, stipitate.

Endemic; widespread across Australia but not occurring in Vic. Commonly in well-watered, grey, red or brown, heavy clays or clayey loams on alluvial floodplains, grassland plains, stony tablelands, claypans, dune swales, and depressions; also in saline, lateritic, and sandy loam soils.; flowers all year round.; fruits all year round.

Eragrostis sp. A. (Currawinya, M.Page AQ717024) Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 50–60 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades straight, flat, 4–8 cm long, 1–1.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, loose, 18–30 cm long, 5–6 cm wide.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets usually 1-flowered, comprising 1 fertile floret(s) (rarely 2), without rachilla extension, elliptic, terete, 0.8–1.1 mm long.

Glumes. Glumes similar. Lower glume lanceolate, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 0.7–0.9 mm long, hyaline, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 0.7–0.8 mm long, keeled. Palea 2 -nerved. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Warrego.

Notes. Qld: Corona Ck on E side of Quilpie Adavale Rd, *H.D.V.Prendergast 277* (BRI, K); Currainya N.P., on Paroo R flood plain, Apr.1997, *M.Page s.n.* (BRI).

Eragrostis sp. C (Latz 6053) Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 25–30 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades curved, flat or conduplicate, 3.5–6 cm long, 2–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 6–8 cm long, 2–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 10–16 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 6–11.5 mm long.

Glumes. Glumes similar. Lower glume linear, membranous, keeled, 1-keeled, 1 -nerved. Upper glume linear, 2.5–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–3 mm long, keeled, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Grain 0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. N.T.: Warangaiyu Lagoon, Elcho Island, *P.K.Latz 6053* (BRI, CANB, DNA, L).

Eragrostis sp. Erect spikelets (P.K. Latz 2122) Classification. (GPWG 2001) : Subfamily Chloridoideae.

Australian Distribution: Western Australia.

Western Australia: Kertland, Giles.

Eragrostis sp. Limestone (P.K. Latz 5921) Classification. (GPWG 2001) : Subfamily Chloridoideae.

Australian Distribution: Northern Territory.

Eragrostis sp. Mt Robinson (S. van Leeuwen 4109) Classification. (GPWG 2001) : Subfamily Chloridoideae.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Eragrostis sp. A Kimberley Flora Classification. (GPWG 2001) : Subfamily Chloridoideae.

Australian Distribution: Western Australia.

Eremochloa bimaculata Hack. *DC. Monogr. Phan.* 6: 265 (1889). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: India:, *Griffith KD6774* (HT: B (destroyed); IT: G, K, L (fragm. ex B)).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (97), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (259).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (135), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (259).

Habit. Perennial. Culms erect or geniculately ascending, 30–80 cm tall, 2–3 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple. Ligule an eciliate membrane, 0.4–1 mm long. Leaf-blades conduplicate, 5–12 cm long, 2–5 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels or rudimentary, containing empty lemmas. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 4–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume elliptic or oblong, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly, 7 -nerved. Lower glume surface glabrous. Upper glume elliptic or oblong, 4 mm long, membranous or chartaceous, keeled, 1-keeled, winged on keel, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline.

Fertile lemma 3–4 mm long, without keel. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes.

Notes. Occurs from northern N.S.W. through Qld in the open forest and woodland country. Extends to New Guinea and India, Burma and Thailand. Flowers Oct.–May.

Eremochloa ciliaris (L.) Merrill. *Philipp. J. Sci.* 1: 331 (1906). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Nardus ciliaris* L., *Sp. Pl.* 1: 53 (1753).

Type of Basionym or Protologue Information: India: Coll?.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (97), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending, 10–95 cm tall. Mid-culm nodes glabrous or bearded. Lateral branches simple or sparsely branched. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades flat or convolute, 4–27 cm long, 2–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels or rudimentary, containing empty lemmas, 1.5–2 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, keeled, 2-keeled, wingless, 7 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate or elliptic, 4 mm long, membranous or chartaceous, keeled, 1-keeled, winged on keel, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline.

Fertile lemma 2.5 mm long, without keel, 0 -nerved. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Extends from northern Cape York Peninsular to Burma and southern China. Grows on sandy soil in savanna woodland. Flowers Jan. and June.

Eremochloa muricata (Retz.) Hack. *Ann. Sci. Nat. Bot.* ser. 3. 14: 360 (1851). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Aegilops muricata* Retz., *Observ. Bot.* 2: 27 (1781).

Type of Basionym or Protologue Information: India.; *König s.n.* (HT: LD; IT: C, K).

Recent synonyms: *Ischaemum pectinatum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (514 as *Rottboellia muricata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms decumbent, 16–60 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule an eciliate membrane, 1 mm long. Leaf-blades 1–17 cm long, 2–6 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels or rudimentary, containing empty lemmas, 6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, keeled, 2-keeled, winged on keel, winged broadly (fan-shaped), 7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 5.5 mm long, membranous or chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline.

Fertile lemma 3–4 mm long, without keel, 5 -nerved.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. In Australia found on one rocky headland from northern Qld. Occurs also in India, Burma and Sri Lanka. Flowers Feb.

Eremopyrum triticeum* (Gaertn.) Nevski. *Fl. SSSR.* 2: 662 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Agropyron triticeum* Gaertn., *Novi Comment. Acad. Sci. Imp. Petrop.*.

Type of Basionym or Protologue Information: INT: (LE).

NT: V. *Bogdan Herb. Fl. Ross.* 849, May 1899, European Russia: [S Urals]: Samara region: Novouzensk dist. (LE). Orig. label : "Novouzenskij u., Samarskoj gub., v stepi blizsel. Valujki...".

LT: Gaertner, Nov. Comm. Acad. Sci. Petrol. 14: 1, t.19, f. 4–5, 1770, LT designated by Frederiksen, *Nordic J. Bot.* 11: 276 (1991).

Recent synonyms: *Agropyron triticeum* Gaertn.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 15–40 cm tall. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.75 mm long, hyaline, truncate. Leaf-blades flat, 2–6.3 cm long, 6–8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, oblong, 0.9–1.7 cm long, bearing 20–23 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 6–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, cartilaginous or coriaceous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate, 4–6 mm long, coriaceous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 5–6 mm long, keeled, 5 -nerved. Lemma surface glabrous. Lemma apex muticous or mucronate.

Continental Distribution: Europe, Temperate Asia, Australasia, and North America.

Australian Distribution: New South Wales.

Notes. *Eremopyrum triceum* is recorded as being present in N.S.W. (Hnatiuk, 1990), but was not treated in the Flora of New South Wales (1993). Its inclusion here is based on a single specimen which may have escaped from cultivation. This species does not appear to have become naturalised in Australia. Flowers: Nov.

Eriachne agrostidea F. Muell. *Fragm.* 7: 82 (1870). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: ST: *Schultz* 135, 201, Australia: Northern Territory: Darwin and Gulf District: Port Darwin (MEL-95274 (central specimen)). LT designated by Lazarides, *Austral. Syst. Bot.* 8: 363 (1995); both numbers are mounted on the same sheet, and it is uncertain which number pertains to which specimen--fide Lazarides.

LT: *Schultz* 201, Australia: Port Darwin.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (628), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 27E-F).

Habit. Annual or ephemeral. Culms 5–44 cm tall. Mid-culm nodes glabrous or bearded. Lateral branches branched or fastigiate. Ligule a fringe of hairs. Leaf-blades filiform, 1.5–9 cm long, 0.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense or loose, 1–7 cm long, 0.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate or awned. Upper glume ovate, 3–4.3(–6) mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous or indumented. Upper glume apex muticous or mucronate or awned.

Florets. Fertile lemma 1.8–4 mm long, without keel, 5–7 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn 4.5–22 mm long overall. Palea apex entire or erose, muticous. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Resembles *E. filiformis* in habit and spikelet morphology, but differs by its sparse panicles of few, distant spikelets (not contracted and rather dense), longer lemma awn, and shorter blunter callus. Both species are extremely slender annuals or ephemerals, with compact mainly basal foliage, florets that are shorter than glumes and often sparsely hairy, awned lemmas with ciliate submargins and without grooves, and flattened caryopses.

Endemic. N of 14°S in Qld and N.T. Commonly in skeletal, sandy, stony or pebbly soil in association with sandstone, conglomerate or laterite; also recorded from low-lying and other seasonally moist sites. Flowers and fruits Feb.–May (late-summer and autumn).

Eriachne aristidea F. Muell. *Fragm.* 5: 205 (1866). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *Oldfield s.n.*, Australia: Western Australia: Eremaean Province, near Oolingara, Murchinson River (MEL; IT: BR, K, PERTH).

Recent synonyms: *E. aristidea* var. *minor*, *E. gardneri*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (629), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (46), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442 as *E. aristidea* var. *aristidea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (419), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (260).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (47 & 53, Pl. 12 & 13), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (420, fig. 350), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (260).

Habit. Annual or perennial. Culms geniculately ascending, 6–48 cm tall, 1–3 -noded. Mid-culm nodes bearded. Lateral branches simple or sparsely branched or fastigiate. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or conduplicate or involute, 7–19 cm long, 3–6 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 4–10 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 9–13 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume lanceolate or ovate, 4.5–9.3(–11.5) mm long, membranous, without keels, 9–13 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous.

Florets. Fertile lemma 5.8–9 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 4–10 mm long overall. Palea apex lobed, awned (2). Grain 2.8–3.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner. Canning, Kearthland, Giles, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, South Kennedy, Port Curtis, Leichhardt, Gregory North, Gregory South, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Typical plants of the species can be diagnosed by the leafy compact short-lived habit, panicles scattered throughout the plant, large spikelets, hairy tubercled glumes, awned bisulcate lemmas concealed by indumentum, two-awned paleas, and strongly compressed caryopsis. There is considerable variation in spikelet dimensions, awn length, and the indumentum on foliage and spikelets.

Endemic. A characteristic species of the arid interior, but extending into semi-arid areas in Qld and N.S.W. A common species of sand dunes, sand plains and sand hills; also of seasonally flooded, alluvial sandy or loamy floodplains, levees and swales; sometimes also in shallow, stony soils on sandstone and quartzite outcrops and ridges. Flowers and fruits in all seasons in N.T., S.A. and Qld, and chiefly Apr.-Nov. (autumn to spring) in W.A. and N.S.W.

Eriachne armitii F. Muell. ex Benth. *Fl. Austral.* 7: 627 (1878). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: LT: *W.E.D.M. Armit 514*, 1876, Australia: Queensland: Cook District: Gilbert River (K; ILT: A, MEL-95273, US). LT designated by Lazarides, *Austral. Syst. Bot.* 8: 366 (1995).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (627), [1969] E.E.Henty, *Manual Grasses New Guinea* (97), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms erect or geniculately ascending, 5–50 cm tall, 2–3 -noded. Mid-culm nodes bearded. Lateral branches simple or branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades 2–6 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 1.5–7 cm long, 0.8–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 8.75–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate, 8.75–11 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2.5–4 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 15–45 mm long overall. Palea apex lobed, awned (2). Grain 1.5–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Hall. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy, South Kennedy, Gregory South.

Notes. Distinguishing characters include the annual ascending habit, dense often partly exerted panicles with hispid or villous peduncle, axis, branches and pedicels, acuminate sometimes aristulate usually partly glabrous glumes, short florets relative to the glumes, long-awned lemmas entirely obscured by hairs, and beaked biaristulate paleas. Panicles are produced throughout the plant from its base on sometimes short, axillary branches. The lemma lacks the submarginal grooves, which characterise many species in the genus, but may have a depression at its apex on both sides of the awn. Characters distinguishing *E. armitii* from the closely allied *E. stipacea* are given under the latter species. *E. armitii* has been confused with *E. squarrosa*, which is a perennial with erect usually coarser habit, a denser indumentum on the glumes, and lacks axillary panicles.

Endemic. The species is distributed N of the Tropic of Capricorn; known in W.A. only by *P.K.Latz 4010*. Recorded habitats include deep or skeletal, clayey, loamy and sandy soils over quartzite, granite or laterite, which are sometimes saline or gravelly; also seasonally wet sites near swamps, salt pans, lakes and watercourses, and disturbed ground. Flowers and fruits Feb.-June (late-summer to early winter).

Eriachne avenacea R. Br. *Prodr.* 184 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *R. Brown 6263*, 14 Feb 1803, Australia: Northern Territory, Darwin and Gulf District, Cavern Island (BM; IT: B, BR, C, CANB, E, F, G, K, US-734047).

Recent synonyms: *E. setacea*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184), [1878] G.Bentham, *Flora Australiensis* 7 (629 as *Eriachne setacea*, *Eriachne avenacea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 26R-T).

Habit. Annual or perennial. Culms erect or geniculately ascending, stature slender to delicate, 17–68 cm tall, 3–6 -noded. Mid-culm internodes glabrous or hispid. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched or branched or fastigiate. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades filiform, involute, 10–20 cm long, 1 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear or oblong or ovate, 2.5–7 cm long, 0.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 4.8–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 9–13 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume elliptic, 4.5–8 mm long, membranous, without keels, 9–13 -nerved. Upper glume surface smooth, glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 4.5–9 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–6 mm long overall. Palea apex entire or dentate, muticous. Grain 2.5–4.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. Variable in duration, panicle form, the indumentum of the glumes, leaves and culm nodes, spikelet dimensions, and in the length of the lemma awn. However, it is readily distinguished from *E. setacea* by its compact habit, extremely thin culms and blades, strongly many-nerved glumes, and by the long, submarginal indumentum on its lemmas. It has close similarities with *E. melicacea* and *E. bleeseri*, differing from the former by its awned lemmas and glabrous palea margins, and from the latter by its many-nerved glumes, florets longer than glumes, and its ciliate lemmas with longer awns.

Endemic. N.T. and W.A., N of 18°S. Recorded habitats include deep or skeletal, sandy or podsolic, pebbly or gravelly or stony soils over sandstone or laterite, on sandplains, hillslopes or ridges, seasonally wet floodplains, depression flats, creek beds and valley floors, and sometimes disturbed ground. Flowers and fruits Jan.-Oct. (all seasons).

Eriachne axillaris M. Lazarides. *Austral. Syst. Bot.* 8: 368 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf District: Little Nourlangie Rock, 12.24S 132.48E, 18 Mar 1979, *C.R. Dunlop 5103* (HT: CANB; IT: BRI, DNA, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 28F-G).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, stature slender to delicate, 15–25 cm tall, 6–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Lateral branches simple. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades straight, filiform, involute, 1–2.5 cm long, 1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–3 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3.5–4.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, much thinner on margins, without keels, 7–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume elliptic, 3 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2.9–4.3 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex mucronate or awned, 1 -awned. Median (principal) awn 0.6–1 mm long overall. Palea 2 -nerved. Palea apex entire, muticous. Lodicules present. Anthers 3. Grain 1.5–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguished by its axillary and cleistogamous inflorescences; the terminal panicles are overmature and lacking spikelets on both collections. Other distinguishing features include filiform culms and blades, glabrous smooth glumes, narrow florets longer than glumes with appressed lemma and palea, shortly awned grooveless lemmas, entire pubescent palea, and strongly compressed caryopsis.

Endemic. Known from two central northern localities in N.T. Growing in shallow sand on sandstone outcrop and slope. Flowers and fruits chiefly Mar. (early- autumn), extending to June (early- winter).

Eriachne basalis M. Lazarides. *Austral. Syst. Bot.* 8: 369 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf District: on Nutwood Downs Station, 16.03S 134.18E, 2 May 1947, *S.T. Blake 17597* (HT: CANB; IT: BRI, CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 23A-B).

Habit. Annual. Culms erect or geniculately ascending, 35–60 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs, 0.3–0.6 mm long. Leaf-blades involute or convolute, 10–20 cm long, 2–3 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 10–12 cm long, 3–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, membranous, much thinner on margins, without keels, 11–13 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic or oblong, 4.8–8 mm long, membranous, without keels, 11–13 -nerved. Upper glume surface glabrous. Upper glume apex muticous.

Florets. Fertile lemma 5–5.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 18 mm long overall. Palea 2 -nerved. Palea apex dentate. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Distinguishing characters include vesicular leaf blades, the presence of axillary spikelets and racemes, glabrous smooth many-nerved acuminate glumes, florets shorter than glumes with appressed lemma and palea, bearded callus with flattened glossy tip, grooveless thickly nerved lemmas, recurved scabrous partly flattened and grooved awn, beaked bicuspidulate palea, and cuneate truncate flattened caryopsis. *E. basalis* is allied to *E. burkittii*, but differs by its annual (not perennial) habit, acuminate tapered (not abruptly narrowed) glumes, the absence of a pseudo-articulation at the base of the lemma awn, the absence of hyaline wings on the palea flaps and the presence of reduced panicles and solitary spikelets in the basal axils. Although the lemma in *E. basalis* may be depressed between the thick nerves, there is no distinct groove near each margin as in *E. burkittii*. The dense cover of vesicles on the leaf blades is also a distinctive feature, which is lacking in *E. burkittii* except for a few specimens chiefly from Qld.

Endemic. Near 16°S in Qld and N.T. Seasonally wet depressions, pools and damp places, often in heavy-textured soils, in association with open forests of *Eucalyptus* and *Melaleuca* spp. Flowers and fruits Apr.-June (autumn and early-winter).

Eriachne basedowii Hartley. *J. Linn. Soc., Bot.* 52: 344 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *H. Basedow 116*, Apr-may 1928, Australia: Northern Territory: Darwin and Gulf District: Arnhem Land (K; IT: ADBRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25C-F).

Habit. Perennial. Culms erect, 35–80 cm tall, wiry. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades erect, filiform, involute, 5–32 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2.5–6 cm long, 0.7–1 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, membranous, without keels, 9 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate or oblong, 7 mm long, membranous, without keels, 9 -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 6–8 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–3 mm long overall. Palea apex entire or dentate, mucicous. Grain 3–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf, Victoria River.

Notes. The bulbous, woolly base, compact villous spiciform panicles, simple wiry culms, and setaceous blades are distinguishing characters.

Endemic. Distributed in N.T. N of 16°S. Recorded habitats include coarse or fine-textured sands and sandy loams, rocky or stony flats and slopes, and moist sites in valley floors and near small watercourses. Flowers and fruits Mar.-Aug. (autumn and winter).

Eriachne benthamii Hartley. *J. Linn. Soc., Bot.* 52: 344 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *Giles s.n.*, Australia: Northern Territory: Central Australia: Charlotte Waters (K; IT: MEL).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (49), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (423, fig. 354).

Habit. Perennial. Culms erect or geniculately ascending, 45–90 cm tall. Mid-culm internodes pruinose. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched or branched. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades flat or convolute, 9–18 cm long, 2–4.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense or loose, 2.5–17 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate to oblong, membranous or cartilaginous, much thinner on margins, without keels, 9–11 -nerved. Lower glume surface glabrous. Lower glume apex mucicous. Upper glume lanceolate to oblong, 3.5–9 mm long, membranous or cartilaginous, without keels, 9–11 -nerved. Upper glume surface smooth or asperulous or scabrous, glabrous. Upper glume apex mucicous.

Florets. Fertile lemma 6–10 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex mucronate or awned, 1 -awned. Median (principal) awn 0–1.8 mm long overall. Palea 2 -nerved. Palea apex entire or dentate, mucicous. Anthers 3. Grain 1.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Dampier, Fortescue, Ashburton, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Gregory North, Gregory South, Maranoa, Mitchell, South Kennedy.

Notes. Plants of this species are distinctive in the field due to their robust tussock-forming habit, usually flat blades, and glabrous smooth, pruinose or glaucous facies. The chief morphological features are florets that are longer than glumes with divergent or recurved lemma and palea, vesicular blades, and the long-acuminate, mucronate or aristulate, 2-grooved lemmas.

Endemic. Between 16°S and 28°S in S.A., Qld, N.T. and W.A. A common, often dominant, component of grassland plains, gibber plains and clay pans, in grey, brown or black, cracking clays and other heavy-textured soils. Favourable sites are usually low-lying, water-logged or seasonally flooded, and include waterholes, swamps, the channels and banks of watercourses, gilgais, and floodouts. Flowers and fruits Dec.-Sept. (summer to early-spring).

Eriachne bleeseri Pilger. *Notizbl. Bot. Gart. Berlin-Dahlem* 10: 113 (1927). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *F.A.K. Bleeser* 536, 20 Dec 1925, Australia: Northern Territory: Darwin and Gulf District: Port Darwin (B; IT: MEL-95275).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25G-H).

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 15–42 cm tall, 2 -noded. Mid-culm internodes pubescent. Mid-culm nodes bearded. Lateral branches simple. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades curved or flexuous, filiform, conduplicate or involute, 10–23 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 3–5 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, membranous, much thinner on margins, without keels, 7 -nerved. Lower glume surface glabrous. Lower glume apex mucicous. Upper glume elliptic or oblong, 3–4.3 mm long, membranous, without keels, 7 -nerved. Upper glume surface smooth, glabrous. Upper glume apex mucicous.

Florets. Fertile lemma 5–8 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1–1.5 mm long overall. Palea 2 -nerved. Palea apex entire or dentate, mucicous. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The narrow sparsely hirsute florets that are prominently longer than glumes, aristulate lemmas, elongated peduncles, flexuose setaceous blades, and thin pilose or hispid culms and leaves are distinctive features. Superficially, *E. bleeseri* resembles *E. melicacea* and *E. avenacea*, but differs from both in its fewer-nerved glumes and glabrous lemma margins.

Endemic. N.T., apparently confined to the NW part N of 13°S. Flowers June (early-winter), and Sept.-Nov. (spring).

Eriachne burkittii Jansen. *Meded.Rijks.Herb. Leiden* 59:1(1930). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: LT: *Burkitt* 12, 1881, Australia: Northern Territory: Darwin and Gulf District: near Port Darwin, bridge Creek (L [77012]; ILT: BRI, MEL, US-1024920). LT designated by Eck-Borsboom, *Blumea* 26: 131 (1980).

Recent synonyms: *E. burkittii* var. *hirsutissima*, *E. laidlawii*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. G-H).

Habit. Annual or perennial. Culms erect, 40–125 cm tall. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or branched. Ligule a fringe of hairs. Leaf-blades 10–35 cm long, 3–5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 10.5–19 cm long, 1–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5.5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9–13 -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucronate or awned. Upper

glume lanceolate, 4.3–10 mm long, membranous, without keels, 9–13 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented. Upper glume apex mucronate or awned.

Florets. Fertile lemma 5–7 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 10–30 mm long overall. Palea apex entire or dentate, mucicous. Grain 2–2.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Burke.

Notes. Characterised by its leafy perennial habit, purple colouring, large open drooping panicle, firm glumes, florets usually longer than glumes with appressed lemma and palea, and bisulcate scabrous lemmas with recurved semi-articulated awn. Also, the palea is beaked, hairy near the keels, and its keels are glabrous and rounded in the lower part, and scabrous and acute above. On the flaps, there are broad hyaline wings. It appears that plants with glabrous glumes and entirely or partly glabrous leaves are predominant. However, hairy individuals occur periodically in the same population and both conditions on the same plant. Particularly in the panicle, *E. burkittii* resembles *E. stipacea*, but the latter species has longer glumes and lemma awns, an entirely hirsute (not partly glabrous) lemma with two grooves, and two-awned paleas.

Native. N of 16°S in Qld, N.T. and W.A.; also in Papua New Guinea. A characteristic species of the seasonally inundated, heavy clay floodplains, which occur extensively in N.T. N of 14°S. Other recorded habitats include the margins of swamps and lagoons, alluvial floodouts, seepage areas and drainage depressions. Flowers and fruits Mar.-July (autumn to mid-winter); also Jan. (summer) and Oct. (spring).

Eriachne capillaris R. Br. *Prodr.* 184 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6265, 1803, Australia: Northern Territory: Darwin and Gulf District: North Coast, Arnhem Bay (Bay 3) (BM; IT: B, BR, C, CANB, E, G, K, US-734049).

Key references (books and floras): [1810]. R. Brown, *Prodromus* (184), [1878] G. Benth, *Flora Australiensis* 7 (632), [2002] D. Sharp & B. K. Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K. Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 27A-B).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 12.5–50 cm tall. Mid-culm nodes pubescent. Lateral branches branched or fastigate. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades 1–2 cm long, 0.5–1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 6–10 cm long, 2–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous. Upper glume ovate, 1–2 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 1–2 mm long, without keel, 3–5 -nerved. Lemma surface indumented. Lemma apex mucicous. Palea apex entire, mucicous. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The species is recognised by a combination of characters, slender short-lived habit, hispid basal foliage, open capillary panicle, obovate spikelets, fusiform awnless curved florets that are slightly longer than glumes, and acute callus which is longer than many. Characteristically, the glumes appear unequal due to their oblique (not opposite) attachment, and this condition applies also to the pair of florets. In indumentum, the lemma is partly glabrous and its palea entirely pubescent, unlike the common condition in many species in which the lemma and palea are similar. *E. capillaris* has similarities with *E. filiformis* and *E. agrostidea*, but differs from both species by its smaller spikelets and awnless florets.

Endemic. N.T. N of 15°S on mainland and islands. Predominantly in shallow sands on outcrops, plateaux, mesas and hillslopes of sandstone; recorded also on laterite gravel, gritty and stony sand, seepage, crevices, depressions and small valleys. Flowers and fruits Feb.-July (late-summer to mid-winter).

Eriachne ciliata R. Br. *Prodr.* 184(1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *R. Brown* 6264 *pro parte*, 14 Feb 1803, Australia: Northern Territory: Darwin and Gulf District: Melville Bay (Arhem North Bay) (BM; IT: K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184), [1878] G.Bentham, *Flora Australiensis* 7 (629), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (49), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (443), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 26A-I).

Habit. Annual or ephemeral. Culms erect, stature slender to delicate, 7–35 cm tall. Mid-culm nodes pubescent. Lateral branches branched or fastigiate. Leaf-sheaths antrorsely scabrous, hairy. Ligule a fringe of hairs. Leaf-blades 1–5 cm long, 1–4 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 4–12 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–9 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2.5–5 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface smooth or scabrous or tuberculate, glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2–3.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–3 mm long overall. Palea apex entire or dentate. Grain 1.3–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Mitchell, North Kennedy, South Kennedy.

Notes. Diagnostic characters include the slender short-lived habit, prickly-hispid usually antrorsely curved indumentum, short rigid often flat blades, many-noded culms and short internodes, open panicle with filiform divisions and prominent pulvini, small spikelets, florets slightly shorter than glumes, long-ciliate awned lemmas, entirely pubescent (on body) palea, and flattened dark caryopsis. The species resembles *E. capillaris* and *E. agrostidea*, but the former species differs by its awnless lemmas, and the latter by its longer awn on the lemma. The features distinguishing *E. ciliata* from the closely allied *E. semiciliata* are discussed under the latter species.

Endemic. Predominantly N of 20°S in Qld, N.T. and W.A. A common species of shallow and skeletal, sandy or loam soils on laterite, sandstone, quartzite or granite. Common habitats include plateaux, hillslopes, ridges, gorge floors, and sometimes seasonally wet sites in and near watercourses. Sites are often gravelly, rocky or stony. Flowers and fruits chiefly Feb.-May (late-summer and autumn); sometimes secondary or persistent inflorescences June-Oct. (winter to mid-spring).

Eriachne compacta M. Lazarides. *Austral. Syst. Bot.* 8: 377 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf District: Kakadu National Park, 12.17S 132.52E, 23 May 1980, *M. Lazarides* 8938 (HT: CANB; IT: BRI, DNA, K, L, MO, PE, PRE, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 27G).

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 5–40 cm tall, 4–6 -noded. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades flat or convolute, 2.5–4 cm long, 2–3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 0.5–2.5 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 9–11 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume ovate, 5–6 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth or asperulous or scabrous, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 4–4.5 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 3–4 mm long overall. Palea 2 -nerved. Palea apex entire or dentate, muticous. Anthers 3. Grain 1.2–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguished by thin often ribbed and subterete culms with glabrous nodes, loose relatively short leaf sheaths much wider than blades, compact short prominently exerted often ovate panicles, glabrous inflated sometimes orbicular glumes with broad nerveless margins, florets unequal and shorter than glumes, bearded obtuse callus, appressed lemma and palea, grooveless shortly awned membranous lemma with hyaline margins and ciliate or scabrous submargins, ciliate palea keels, and terminally exerted anthers. *E. compacta* is readily distinguished from all other species in the genus and appears to be isolated in its relationships.

Endemic. N.T. N of 15°S. Damp or seasonally wet sites near streams, rock pools and in seepage zones, in often shallow, sand or silt, in association with sandstone plateaux, outcrops and escarpments, and sometimes in rock cracks of sandstone outcrops. Flowers and fruits Mar.-June (autumn to early-winter).

Eriachne fastigiata Lazarides. *J. & Proc. Roy. Soc. Western Australia* 42: 33 (1959). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia: Western Australia: near Clifton Creek, 2.5 mi NW of Glenroy Meatworks, 22 Apr 1955, *Lazarides 5142* (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 28D-E).

Habit. Annual. Culms stature slender to delicate, 27–50 cm tall, wiry, 2–4 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Leaves mostly basal. Leaf-sheaths hairy. Ligule a fringe of hairs, 1 mm long. Leaf-blades erect or recurved, lanceolate, 1.5–2.5 cm long, 1.5–3 mm wide. Leaf-blade surface scaberulous or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2.5–4.5 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, much thinner on margins, without keels, 5–7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 2.7–4.5 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 3–5.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea apex entire or erose, muticous. Anthers 3. Grain 2–2.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. Diagnostic features include the reduced racemose inflorescence, obliquely attached glumes, florets longer than glumes, awnless sparsely pubescent lemmas, acute pubescent callus with glabrous tip, and the ribbed glumes and lemmas. Another distinctive character is the ciliolate keels of the palea, by contrast to the glabrous condition which characterises the genus. The branching habit of plants is also distinctive. An elongated internode separates the short, lower culm internodes from the upper one or two nodes, which fastigiate produce numerous spikelet-bearing branches. *E. fastigiata* resembles *E. pulchella* in branching habit, but differs by its taller dimensions, panicle structure, and the morphology and indumentum of its spikelets.

Endemic. Central and NE Kimberley region of W.A., and N.T. Occurs in skeletal, stony soil and shallow pockets on shale, sandstone, granite and basalt. Flowers and fruits Feb.-June (late-summer to early-winter).

Eriachne festucacea F. Muell. *Fragm.* 5: 205 (1866). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Nov 1855, Australia: Northern Territory: Victoria River District: gravelly banks of Victoria River (MEL-95278).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (630), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (48), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 53–105 cm tall, wiry, 3–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades conduplicate or involute, 10–25 cm long, 2–3 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5.5–13 cm long, 1.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, cartilaginous, much thinner on margins, without keels, 11–13 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 6–10 mm long, cartilaginous, without keels, 11–13 -nerved. Upper glume surface smooth, glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 5–8 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 4–10 mm long overall. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 3. Grain 1.4–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. *Erichne festuacea* is distinguished by its open floret with divergent usually recurved lemma and palea, bisulcate awned lemmas, and aristulate glabrous smooth glumes. Plants have a characteristic facies resulting from the almost glabrous, smooth and glaucous culms and foliage, and glossy cataphylls. Other identifying features include its caespitose tussocks with thickened base and mass of coarse, fibrous roots, narrow panicles, subequal florets relative to the glumes, beaked palea longer than the body of its lemma and scarcely compressed caryopsis of even thickness.

Endemic. Kimberley region of W.A. and in adjacent parts of N.T. A dominant plant in or near seasonal or permanent watercourses and similar moist sites, often in sand, alluvium or running water, and in association with rocks of basalt, sandstone, quartzite and limestone. Flowers and fruits Mar.-Sept. (autumn to early-spring).

Eriachne filiformis Hartley. *J.Linn.Soc., Bot.* 52: 343 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *H. Basedow 81*, Apr-Jun 1928, Australia: Northern Territory: Darwin and Gulf District: Arnhem Land (K; IT: AD, BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 27C-D).

Habit. Annual or ephemeral. Culms erect, stature slender to delicate, 3–60 cm tall, 2–4 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades filiform, involute, 2–5 cm long, 0.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 0.5–2 cm long, 0.8–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, membranous, without keels, 9–11 -nerved. Lower glume surface indumented. Upper glume elliptic or oblong, 3–5 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2–4 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 2–6(–8) mm long overall. Palea apex entire or erose, muticous. Grain 1–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Distinguishing features include the extremely slender short-lived habit, mainly basal leaves and setaceous blades, sparse panicles prominently exerted on capillary peduncles much longer than the culm internodes, long-acuminate or beaked, hispid or tubercled glumes, florets shorter than glumes with appressed lemma and palea, acute or subacute callus, grooveless awned lemmas concealed by indumentum, beaked sometimes glabrous palea and thin shiny caryopsis. *E. filiformis* has similarities to *E. agrostidea*, *E. humilis* and *E. capillaris*. Its distinguishing features are discussed under the individual species.

Endemic. N of 17°S on mainland and islands in Qld and N.T. Damp and seasonally wet sites such as floodplains, small watercourses, seepage, and broad shallow depressions, in fine-textured, often white sand, silty sand and sandy loam; recorded also from well-drained lateritic gravel, sand-filled cracks, creeklines on rocky sandstone hills and plateaux, and margins of *Melaleuca* swamps. Flowers and fruits Apr.-July (autumn and winter), and sometimes in Oct. (mid-spring).

Eriachne flaccida Hartley. *J. Linn. Soc., Bot.* 52: 346 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *Helms s.n.*, 1899, Australia: Western Australia: Eremean Province: Pindinni, 70 mi ENE of Menzies (K; IT: B, PERTH).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (50), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 7–50 cm tall, 1–3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-

blades curved or flexuous, involute, 8–20 cm long, 1–2.5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 4–6(–10) cm long, 1–2(–3.5) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–6.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 9–11 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume ovate, 3.5–4.5(–7) mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 5–8 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous or mucronate. Median (principal) awn 2 mm long overall. Palea apex erose or dentate. Grain 1.3–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Kertland, Fortescue, Ashburton, Austin. Irwin. **Northern Territory:** Central Australia North.

Notes. This species is characterised by a combination of features, viz. compact leafy habit, simple few-noded culms, thickened hairy base, glabrous and smooth culms, foliage and glumes, floret longer than glume with divergent lemma and palea, and long-acuminate lanceolate bisulcate lemma. The vesicular blades is a distinctive character shared with a few species including the allied *E. ovata* and *E. benthamii*. A series of intermediate forms, possibly putative hybrids, with *E. ovata* occur in areas where their distributions overlap. However, in its typical condition *E. ovata* is a smaller plant with shorter, broader panicles and larger spikelets, while *E. benthamii* is more robust with usually flat blades, larger spikelets and longer panicles, and differs markedly in its ecology.

Endemic. Arid W.A. and N.T. Seasonally wet areas such as claypans, soaks, depressions, the banks and gravelly beds of creeks, the margins of swamps and waterholes, streamlines, calcrete flats, and soils of sandy clays and loams. In W.A., *E. flaccida* is ecologically sympatric with the closely allied *E. ovata*, but extends further north. Flowers and fruits Mar.–May (autumn), July and Sept. (mid-winter and early-spring).

Eriachne gardneri Hartley. *J. Linn. Soc., Bot.* 52: 344 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *Gardner 3053*, 17 Aug 1932, Australia: Western Australia: Eremaean Province, Ashburton River at Minderoo, 17 Aug 1932 (K; IT: PERTH).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (49), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 23H-I).

Habit. Perennial. Culms erect or geniculately ascending, 30–70 cm tall, 4 -noded. Mid-culm internodes glabrous. Mid-culm nodes bearded. Lateral branches branched. Ligule a fringe of hairs, 1 mm long. Leaf-blades flat or convolute, 10–20 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle oblong, 5–9 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7.5–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, cartilaginous, much thinner on margins, without keels, 11–15 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 7–10 mm long, cartilaginous, without keels, 11–15 -nerved. Upper glume surface indumented. Upper glume apex muticous.

Florets. Fertile lemma 7.5–10 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex dentate, with excurrent keel nerves. Lodicules present. Anthers 3. Grain 3–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue, Ashburton.

Notes. Endemic. W.A. and restricted in area. Seaward face of foredune and red sand dune. Flowers and fruits Mar. and Aug. (early-autumn and late-winter).

Eriachne glabrata (Maiden) Hartley. *J. Linn. Soc., Bot.* 52: 347 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Basionym and/or Replacement Name: *Eriachne obtusa* var. *glabrata* Maiden, *Agric. Gaz. N.S.W.* 19:836 (1908).

Type of Basionym or Protologue Information: Australia, Port Jackson: *Forsyth* (NSW holo, B, BM, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (260).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (137), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (260).

Habit. Perennial. Culms 7–40 cm tall, 2–5 -noded. Mid-culm internodes woolly. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades erect, involute, 2–4(–8) cm long, 1–2 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–4(–5.5) cm long, 0.5–2(–30) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–9 -nerved. Lower glume surface glabrous. Upper glume ovate, 2.5–3.5 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 2.5–6 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire, muticous. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Leichhardt, Moreton, Wide Bay, Cook, Port Curtis. **New South Wales:** North Coast, Central Coast.

Notes. A distinctive species characterised by the relatively short basally compact habit, thin rigid blades, simple few-noded culms, sparse simple or racemose panicles, florets longer than glumes, obliquely attached unequal glumes, awnless sparsely appressed-pubescent lemma and palea, and cuneate flattened caryopsis. It has similarities with *E. insularis*.

Endemic. N.S.W. (Central Coast) and coastal southern Qld; recorded by Wheeler *et al.* (1990) also from the N Coast of N.S.W., but the type from Port Jackson is the only specimen from N.S.W. seen. Low-lying sandplains in association with "wallum" scrub, low heath and open eucalypt forest, and sometimes on disturbed ground. Flowers and fruits Dec.-Jan. (summer), Apr. (mid-autumn), and July (mid-winter).

Eriachne glandulosa M. Lazarides. *Austral. Syst. Bot.* 8: 384 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Mitchell Plateau: *Kenneally 8006* (CANB holo, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25K-M).

Habit. Perennial. Culms erect, 10–30 cm tall, 3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 1 mm long. Leaf-blades erect, flat or involute or convolute, 5–14.5 cm long, 2–3.3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2.5–6 cm long, 2.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2.5–3.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume ovate, 1.6–2 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2.5–3.3 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire or dentate, muticous. Lodicules present. Anthers 3. Grain 1.5–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. The glandular panicle, florets longer than glumes and thickened compactly fibrous base are diagnostic characters. The presence of glands is a unique condition in the genus. The basal fibres, representing the remains of the old, persistent sheaths, combine with the fibrous roots and regenerating tillers to form a dense mass. Other distinctive features include glabrous simple grooved few-noded culms, thickly nerved often scabrous-tubercled leaves, open exerted panicle, awnless spikelets, glabrous small glumes relative to florets, membranous to hyaline finally divergent sparsely hairy lemma and palea, and palea which may split between the keels with maturity. The floret resembles that of *E. bleeseri*, but this species has shortly awned lemmas, much

larger spikelets, and differs in habit and other features. Both species appear to be isolated in their individual relationships.

Endemic. N of 15°S and W of Long. 133°E in N.T. and W.A. Growing in skeletal sand over massive pavements of sandstone and basalt, or amongst granite boulders, often in shallow pools or seepage. Flowers Dec.-Feb. (summer).

Eriachne glauca R. Br. *Prodr.* 284 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae.

Eriachneae.

Type of Basionym or Protologue Information: Australia, Carpentaria, Sweers Is.; *Brown 6262* (BM holo, BR, E, F, G, K, US).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184), [1878] G.Bentham, *Flora Australiensis* 7 (628), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (48), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 45–120 cm tall. Mid-culm nodes glabrous or bearded. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades involute, 250 cm long, 2–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 3–8.5(–14) cm long, 1.5–3(–5) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 3–5.8(–7) mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth or scabrous or tuberculate, indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2.8–5.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 7–15(–25) mm long overall. Palea apex erose or dentate. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, North Kennedy.

Notes. Endemic. N of 20°S in Qld, N.T. and W.A.

Infra-specific taxa: var. **glauca**, var. **barbinodis**.

Nodes glabrous

E. glauca var. **glauca**

Nodes bearded

E. glauca var. **barbinodis**

Eriachne glauca var. **glauca**

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. A common plant of fine-textured usually alluvial sometimes calcareous soils in seasonally flooded habitats, such as the floodplains, levees and banks of watercourses, swamps, lagoons, depressions, claypans and seepage areas. Flowers and fruits Feb.-Aug. (late-summer to winter).

Eriachne glauca var. **barbinodis** Hartley. *J. Linn. Soc., Bot.* 52: 343 (1942).

Classification. Type of Basionym or Protologue Information: HT: *C.T.White 8913 (Herb. Brisb.)*, 28 Mar 1933, Australia: Queensland: North Kennedy District: swamps between Townsville and Rollingstone (BRI-066717; ILT: BRI-066716, CANB, K, US-3465458, US-2640069).

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Known from only four disjunct collections. Similar to the typical variety in ecology.

Eriachne helmsii (Domin) Hartley. *J. Linn. Soc., Bot.* 52: 346 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Basionym and/or Replacement Name: *Eriachne mucronata* var. *helmsii* Domin, *Bibl. Bot.* 20:361 (1915).

Type of Basionym or Protologue Information: Australia, Ferdinand R.: *Helms* (K holo).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (51), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (441), [2002] D.Sharp & B.K.Simon, *AusGrass*,

Grasses of Australia, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (420), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (261).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (47, Pl. 12), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (420, fig. 351), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (261).

Habit. Perennial. Culms geniculately ascending or decumbent, 40–90 cm tall, wiry, 6–10 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 2.5–16 cm long, 2–3 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, loose, 3–11(–18) cm long, 0.8–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume ovate, 4–8.5 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth, glabrous. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 5–9.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex mucicous. Palea apex entire or erose or dentate, mucicous. Grain 2.7–3.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Hall. Carnegie, Giles, Fortescue, Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Eyre Peninsula. **Queensland:** Gregory South, Maranoa, Mitchell, North Kennedy, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. A prominent character of *E. helmsii* is its bulbous, woolly base, sometimes the characteristic crinkly hairs extending along the lower culm internodes and leaf sheaths, and occasionally (e.g. in *Aplin & Trudgen* 5720) on all internodes. Other distinguishing characters include the loose straggly habit, wiry coarse culms, linear rather loose panicles, florets usually longer than glumes with appressed lemma and palea, obtuse entirely bearded callus, acuminate awnless lemmas with indumentum on surface and margins, and the strongly compressed caryopsis. The spikelets of *E. helmsii* resemble those of *E. mucronata*, but this species has abruptly contracted (not gradually narrowed) consistently mucronate lemmas with glabrous (not ciliate) margins, and a slightly thickened, pubescent (not bulbous, woolly) rootbase. The specimens, *Cleland C/A 10/36*, *Smith & Everist 990*, *Sutherland 6* and *Symon 2424*, are intermediate in these features and may represent putative hybrids.

Endemic. All mainland States except Victoria, predominantly in arid and semi-arid areas and extending N to about the Tropic of Capricorn. A common species of deep sands and sandy loams on dunes, sandplains and sandhills; recorded also from quartzite outcrops, sandy levees, upper margins of saline lakes and "samphire" flats, interdunal swales, hard red and red-brown fine-textured soils, colluvial limestone hillslopes, and lateritic gravelly sandridges. Throughout its distribution range, the species flowers and fruits in all seasons, but chiefly Dec.–May (summer and autumn), extending to Sept.–Oct. (spring).

Eriachne humilis Hartley. *J. Linn. Soc., Bot.* 52: 343 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Thursday Is.: *Bailey* (BRI holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 2.5–46 cm tall, 2–3 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades filiform, 5(–20) cm long, 0.5–1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–3(–6) cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or obovate, membranous, without keels, 7–11 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic or obovate, 4–6 mm long, membranous, without keels, 7–11 -nerved. Upper glume surface smooth or tuberculate, glabrous or indumented.

Florets. Fertile lemma 3.3–5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1–3.5 mm long overall. Palea apex entire or dentate. Grain 1.8–2.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook, North Kennedy.

Notes. Distinguishing characters include the basal filiform hispid leaves, and sparse loose exserted panicles. The floret with appressed, dissimilar (in indumentum) lemma and palea is as long as the glumes, the lemmas are awned and partly nerved, the callus is subacute and entirely bearded, and the caryopsis is strongly compressed. The species has larger spikelets than the allied *E. filiformis* and *E. agrostidea*; also larger panicles than the former species, and shorter awns than the latter.

Native. Qld N of 21°S.; also in Papua New Guinea and Irian Barat. Stony, skeletal slopes on sandstone, salt pans, lateritic plains, and sandy soils on seepage slopes and waterhole banks. Flowers and fruits Mar.-May (autumn), extending to July (winter) in Australia.

Eriachne imbricata M. Lazarides. *Austral. Syst. Bot.* 8: 389 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Bungle Bungle Outcamp: *Kenneally 9251* (CANB holo, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25I-J).

Habit. Perennial. Culms geniculately ascending, 23–50 cm tall, wiry. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades straight or curved or flexuous, filiform, conduplicate, 4–9 cm long, 1–2 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2.5–4 cm long, 0.3–0.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic, membranous, much thinner on margins, without keels, 9 -nerved. Lower glume surface glabrous. Upper glume lanceolate or elliptic, 4–4.7 mm long, membranous, without keels, 9 -nerved. Upper glume surface smooth or asperulous, glabrous.

Florets. Fertile lemma 5 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 3–4 mm long overall. Palea 2 -nerved. Palea apex dentate. Anthers 3. Grain 2.7–5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Hall.

Notes. The spiciform panicles with flattened divisions, florets longer than glumes, wiry fastigiate branched (at all nodes) many-noded culms entirely covered by the overlapping leaf sheaths, and filiform tightly complicate often recurved blades are diagnostic characters. Other distinguishing features include its leafy caespitose habit, knotty hairy rootbase, slender sparsely hairy florets with appressed lemma and palea and acute long-bearded callus, bisulcate shortly awned lemma, beaked palea, and narrow caryopsis of even thickness. *Eriachne imbricata* has florets that are prominently longer than the glumes like *E. bleeseri* and *E. glandulosa*, and shortly awned lemmas like the former. However, there are several dissimilarities in spikelet morphology, panicle structure, and habit, and like those two species, it appears to be isolated in its relationships.

Endemic. Known only from the type locality. Sandstone gorge in sheltered rock overhangs and crevices. Flowers and fruits July (mid-winter).

Eriachne insularis Domin. *Biblioth. Bot.* 85: 362 (1915). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Stradbroke Is.: *Domin* (PR holo, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 50–80 cm tall. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Ligule a fringe of hairs. Leaf-blades erect, filiform, convolute, 5–8 cm long, 1–2 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 5–10 cm long, 3–7.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3.25–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume ovate, 2.8–3.8 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth or scabrous, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 3–3.5 mm long, without keel. Lemma surface indumented. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 0.5–0.75 mm long overall. Palea apex entire, muticous. Grain 1.5–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Moreton, Port Curtis, Wide Bay, Cook.

Notes. The species is recognised by its leafy compact habit, wiry fastigate culms, largely glabrous culms and foliage, open panicle with compressed axis and divided branches, awnless spikelets, glabrous many-nerved glumes, and appressed hirsute florets subequal to the glumes. Except for its entire, awnless lemma and palea, *E. insularis* morphologically resembles plants of *E. pallescens* var. *gracilis* with 2-floreted spikelets.

Endemic. Qld on mainland and islands near the east coast. In deep sands and sandy loams on coastal sandhills and dunes. Flowers and fruits chiefly in Dec., Feb., Apr. (summer and autumn), sometimes also Aug. and Sept. (late-winter and early-spring).

Eriachne lanata M. Lazarides. *Austral. Syst. Bot.* 8: 391 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Sahara Track, Telegraph Line: *George 9159* (PERTH holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25N-O, Fig. 26J-Q).

Habit. Perennial. Rhizomes absent or present, short. Culms erect or geniculately ascending, 45–60 cm tall, wiry, 4–6 -noded. Mid-culm internodes glabrous or hispid. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or sparsely branched or branched. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades curved or flexuous, filiform, conduplicate, 2–3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 6–10 cm long, 2.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3.5–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 9–11 -nerved. Lower glume surface glabrous. Upper glume ovate, 2.6–5 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 3.5–5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire or dentate, muticous. Lodicules present. Anthers 3. Grain 1.5–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Canning.

Notes. The species is distinguished by its perennial compactly tufted habit, thickened usually woolly base, setaceous curved blades, indumentum of prickly hairs and tubercles on culms and foliage, open often purple panicle with dichotomous filiform branches and pedicels, awnless spikelets, glabrous smooth glumes, narrow florets with appressed lemma and palea, minute bearded subacute callus, grooveless lemmas with ciliate submargins, entire muticous paleas, and narrowly ellipsoid compressed caryopsis. A highly distinctive species with apparently isolated relationships.

Endemic. W.A. in the Great Sandy Desert. Growing with spinifex (*Triodia*) on red sandplains, sometimes in drainage lines, and on rocky hills. Flowers and fruits Apr.-May (autumn) and July-Aug. (mid-late-winter).

Eriachne melicacea F. Muell. *Fragm.* 5: 205 (1866). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Victoria R.: *Mueller* (MEL holo, B, BR, K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (631), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (52), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (443), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (47, Pl. 12).

Habit. Annual or perennial. Culms erect, 3–45.5 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches simple or branched or fastigate. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades 3–15 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 1–5 cm long, 0.5–0.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 11–13 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 4–8.3 mm long, membranous, without keels, 11–13 -nerved. Upper glume surface smooth or tuberculate, glabrous or indumented.

Florets. Fertile lemma (5.8–)6.8–7.3(–9) mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea apex erose or dentate. Grain 3.8–4.8(–5.8) mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Dampier. Mueller. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook.

Notes. The ciliate flaps of the palea in *E. melicacea* is an unusual feature in the genus. Other distinguishing characters include the setaceous blades and numerous sparse, linear panicles on elongated, filiform peduncles. Also, the glumes are many-nerved and usually hispid or tubercled, the florets longer than glumes and awnless, the lemmas long-ciliate on the margins, and the caryopsis is thin, concave and long relative to the floret. Characteristically, the glumes and lemmas are purple when young, and mature to a yellowish or straw colour. Often, the lemma nerves are green and prominent in the developing spikelet, but become colourless and less distinct with maturity and thickening of the lemma. *Eriachne melicacea* closely resembles *E. avenacea*, but is readily distinguished by its awnless spikelets. A noteworthy variant is represented by *Basedow 65* (BRI, K), *Fitzgerald 522* (K, PERTH), *Lazarides 3101* (CANB, K), *4786* (BRI, CANB, K), and *Poulton s.n.* (BM, K, L, MEL). These plants differ from those in typical condition by their elongated florets that are longer than glumes by 1.8–3 mm, their long lemmas (7.3–9 mm) and caryopses (4.5–5.8 mm), and by their obtuse glumes.

Endemic. Predominantly N of 22°S in Qld, N.T. and W.A. Deep sands and loams on plains and coastal dunes, skeletal and shallow often gravelly or stony soils in association with granite, sandstone plateaux, quartzite hills and lateritic rises, and seasonally wet usually sandy sites such as in and near streams, depressions and swamps, which may be saline. Flowers and fruits Feb.–Sept. (late-summer to early-spring).

Eriachne minuta M. Lazarides. *Austral. Syst. Bot.* 8: 395 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Kakadu Nat. Park: *Dunlop 4849* (CANB holo, BRI, DNA, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 28A–B).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 4.5–15 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades conduplicate or involute or convolute, 2–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 3–6 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1.5–1.8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 1.5–1.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1.3–1.8 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn 3.3–5.5 mm long overall. Palea 2 -nerved. Palea apex entire or dentate, muticous. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguished by its delicate short-lived habit, stiff indumentum on foliage and inflorescence, open prominently exserted panicles, extremely small spikelets, minute subacute bearded callus, three-nerved hairy glumes, subequal (to glumes) florets with appressed lemma and palea, awned lemmas ciliate on margins and without grooves, and glabrous muticous entire paleas. A distinctive species apparently isolated in its relationships.

Endemic. N.T. N of 15°S. Damp or seasonally wet sites, in shallow or deep sand or organic matter, often in or near small watercourses or in seepage, and sometimes in cracks in sandstone escarpment, rock faces, and on outcrops. Flowers and fruits Apr.–July (mid-autumn to mid-winter).

Eriachne mucronata R. Br. *Prodr.* 184 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Broad Sound: *Brown 6264* (BM holo, CANB, E, K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184 & as *Eriachne brevifolia*), [1878] G.Bentham, *Flora Australiensis* 7 (632), [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (50), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (441), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (421), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (261).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (422, fig. 352), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (261).

Habit. Perennial. Culms geniculately ascending, 10–80 cm tall, wiry, 4–6 -noded. Mid-culm nodes glabrous or bearded. Lateral branches sparsely branched or branched. Ligule a fringe of hairs. Leaf-blades conduplicate, 2–5(–20) cm long, 1–2 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2–8 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–13 -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucronate. Upper glume ovate, 4–7 mm long, membranous, without keels, 9–13 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented. Upper glume apex mucronate.

Florets. Fertile lemma 5–7 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex mucronate. Palea apex entire or dentate. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Hall, Mueller, Canning, Carnegie, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin, Irwin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. This species is highly variable in habit, varying from elongated, loose largely glabrous plants, with mostly simple culms, short leaf sheaths and well-developed panicles (representing the mesophytic form) to xerophytic plants which have a short compact habit, strongly branched culms, overlapping leaf sheaths, and reduced often racemose inflorescences of usually few spikelets. The blades are relatively long and herbaceous or short, tough pungent with a woolly or hispid or tubercled indumentum. The morphology and indumentum of the spikelet are generally uniform. The lemma is abruptly contracted at the apex into a mucro, and its pubescence is confined to the lower part of its dorsal surface. On comparison, the lemmas of the allied *E. obtusa* and *E. helmsii* are evenly narrowed to the apex, usually muticous, and have ciliate margins as well as surface pubescence.

Endemic. All mainland States (excluding Victoria) between 2°S and 32°S. A common, widespread and adaptable species. The xerophytic forms predominate in skeletal and shallow soils on rocky or gibber slopes and crests of hills, ridges, plateaux, mesas, rises and tablelands of sandstone, quartzite, laterite, granite and calcareous rocks, often occupying sandy pockets, gullies, crevices and beds of seasonal creeks and drainage lines. The mesophytic forms occur on deeper, finer-textured sands, sandy and clayey loams, and red earth soils in flat to gently undulating country and outwash plains. Flowers and fruits in all seasons in Qld and N.T.; Feb.-Apr. (late-summer and autumn) in N.S.W.; chiefly Aug.-Sept. (late-winter to early-spring) in S.A.; chiefly Apr.-Sept. (mid-autumn to early-spring) in W.A.

Eriachne nervosa Ewart & Cookson. *Fl. North.Terr.* 44 (1917). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Eva Downs: *Hill 923* (MEL holo, K).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms erect, stature robust to moderate, 60–105 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades 8–30 cm long, 2–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 7.5–22 cm long, 1.5–3.5(–5) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 11.5–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 13–17 -nerved. Lower glume surface glabrous. Upper glume ovate, 6–8.5 mm long, membranous, without keels, 13 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 8–14 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex muticous or mucronate or awned, 1 -awned. Median (principal) awn 2–4 mm long overall. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Gregory South.

Notes. Plants of this species form robust, glaucous tussocks, largely glabrous and smooth on the vegetative parts, with simple few-noded culms, long coriaceous usually flat, vesicular blades, and contracted panicles. The large spikelets feature firm many-nerved glabrous smooth glumes, florets longer than glumes with divergent lemmas and paleas, and bisulcate shortly awned lemmas. *Eriachne nervosa* has similarities with *E. benthamii*, which occurs in a similar, but more southerly environment and differs chiefly by its smaller, awnless spikelets. Also, there are similarities with the westerly *E. festuacea*, but this species has long-acuminate obscurely nerved glumes, smaller lemmas, recurved lemmas and paleas, largely glabrous rootbase and lacks the vesicles on the blades.

Endemic. N.T. N of 21°S, NW Qld, and recorded from W.A. only by *Petheram 611*. A characteristic species of the grey to black, cracking clay, grassland plains of the Barkly Tableland and similar areas, where plants form large stands in or near swamps, depressions, watercourses, and major drainage channels. Flowers and fruits in the N.T. and Qld May-Aug. (late-autumn to winter), and also Oct. (mid-spring); in W.A. in Feb. (late-summer).

Eriachne nodosa M. Lazarides. *Austral. Syst. Bot.* 8: 400 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Darwin & Gulf district: *Lazarides 6844* (CANB holo, BRI, DNA, K, MEL, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig28H-I).

Habit. Annual. Culms erect or geniculately ascending, 32–62 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades flat or involute, 1.4–8 cm long, 2–4 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle ovate, 6–10.5 cm long, 6–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 4–5.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 5–7(–9) -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 4–5 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth, glabrous or indumented.

Florets. Fertile lemma 4–5.3 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire or dentate, muticous. Lodicules present. Anthers 3. Grain 1.4–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf.

Notes. The most characteristic features of this species are the open panicles, often almost as wide as long, with filiform often purple divisions bearing thickened callus-like nodes and pulvini, which are bearded with long filiform hairs often in whorls. Other useful characters are awnless spikelets, florets shorter than glumes with appressed often purple lemma and palea, usually glabrous and smooth glumes, grooveless lemmas with ciliate margins, entire muticous paleas, relatively small shiny caryopsis almost as wide as long, and fastigiate branched culms with glabrous nodes. In morphology, the spikelet resembles those of *E. obtusa* and *E. major*, but *E. nodosa* differs by its annual habit and other characters.

Endemic. N.T. and W.A. N of 18°S. Sandstone plateaux, undulating volcanic country, basalt outcrops and lateritic flats, and usually sandy, moist or seasonally wet sites in or near streams, in depressions and sometimes on disturbed ground. Flowers and fruits chiefly in Mar. and May (autumn), but extending from Feb.-Sept. (late-summer to early-spring).

Eriachne obtusa R. Br. *Prodr.* 184 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Carpentaria, Sweers Is.: *Brown 6260* (BM holo, CANB, E, K).

Recent synonyms: *E. obtusa* var. *major*, *E. major*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184), [1878] G.Bentham, *Flora Australiensis* 7 (632), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (51), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (441 as *E. obtusa* var *obtusa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–60(–90) cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades flat or involute, 5–16 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, dense, 4–7(–13) cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–4.75 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 3–4.75 mm long, membranous, without keels, 7 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 3–5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire, muticous. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Mueller, Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy, Warrego, Port Curtis.

Notes. Distinguishing characters include wiry branched glabrous culms, awnless spikelets, florets shorter than glumes with appressed lemma and palea, grooveless lemmas with ciliate margins, straw-coloured glumes at maturity, broad strongly compressed caryopsis, and the mostly glabrous callus with a basal ring of hairs. Considerable variation occurs in the size and form of the panicle, spikelet dimensions, indumentum on the glumes and foliage, and to a lesser extent in the shape of the glumes. *Eriachne obtusa* closely resembles *E. mucronata* (mesophytic form). However, in *E. mucronata* the florets are often slightly longer than the glumes (not slightly shorter). The lemmas are abruptly contracted at the apex and mucronate or aristulate (not tapered and muticous), and have hyaline, glabrous margins (not entirely membranous and ciliate on the margins). The callus is entirely bearded (not mostly glabrous), and the glumes are broadly ovate-elliptic, obtuse, mucronate and 11–13-nerved (usually ovate, acuminate, muticous and 5–7-nerved in *E. obtusa*).

Native. N of 24°S in Qld, N.T. and W.A. (predominantly N of the Tropic of Capricorn); also in Irian Barat. A common, widespread and adaptable species, growing in skeletal, shallow or deep soils of fine (clays and clayey loams), intermediate (podsoils and red earths), or coarse (sands) texture, in association with sandstone, laterite, basalt, quartzite, granite and calcareous rocks. Habitats include sandplains, coastal sand dunes, salt pans and marshes, lagoons, depressions and swamps, coastal "pindan", rocky undulating plateaux, gorge floors, the alluvial banks, beds and levees of streams, seepage slopes, and the slopes of hills, ridges and mesas. Over its distribution range, the species flowers and fruits in all seasons, but most commonly Dec.-Aug. (summer to winter).

Eriachne ovata Nees. *London J. Bot.* 2: 416 (1843). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *Toward 4*, Australia: Western Australia: Sout-west Province: Swan River (CGE; IT: B).

Recent synonyms: *E. ovata* var. *villosa*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (630), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (50), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (421).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (frontispiece), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (423, fig. 353 & plate 16).

Habit. Perennial. Rhizomes absent or present, elongated. Culms 3–42 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades curved or flexuous, filiform, convolute, 1 mm wide. Leaf-blade surface scabrous or papillose, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 1.5–5 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, membranous, without keels, 9–13 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate or oblong, 5–8 mm long, membranous, without keels, 9–13 -nerved. Upper glume surface smooth, glabrous or indumented.

Florets. Fertile lemma 6–10 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea apex entire or dentate, muticous. Grain 1.8–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Gardner, Fitzgerald. Canning, Fortescue, Ashburton, Carnarvon, Austin. Drummond, Avon, Coolgardie. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin.

Notes. Variable in size, indumentum and panicle form. *Eriachne ovata* is closely allied to *E. flaccida*, which in turn is related to *E. benthamii*. In overlapping areas of distribution, putative hybrids may occur which present a complex of intermediate features between all three species. In their typical condition, plants of *E. ovata* on comparison with those of *E. flaccida* are smaller, usually hairy to a greater or lesser degree, and have shorter, broader panicles and larger spikelets. Also, the two grooves on the lemma are not always obvious as grooves are present often between all the nerves. Furthermore, the acuminate lemma and palea, the dissimilarity in texture between the lower and upper parts of the lemma, and the often entirely bearded callus are distinguishing features of *E. ovata*.

Endemic. SW W.A. (W of 121°E and S of 26°S) and northern S.A. Sandplains or in association with granite. Flowers and fruits June-Feb. (early-winter to early-summer), commonly Sept.-Oct. (spring).

Eriachne pallescens R. Br. *Prodr.* 184(1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Endeavour R.: *Banks & Solander* (BM holo).

Recent synonyms: *E. anomala* (syn. of var. *gracilis*), *E. muelleri*, *E. yarrabensis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (184), [1878] G.Bentham, *Flora Australiensis* 7 (630), [1969] E.E.Henty, *Manual Grasses New Guinea* (100), [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (261).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (261).

Habit. Perennial. Culms erect, 23–105 cm tall, wiry. Mid-culm nodes glabrous. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades convolute, 5–18 cm long, 1–3.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 6–15 cm long, 3–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3.5–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 8–9(–13) -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, membranous, without keels, 9 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented.

Florets. Fertile lemma 3.3–5 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–8 mm long overall. Palea 2 -nerved. Palea apex entire or dentate, awned (2). Anthers 2. Grain 1.7–3.3 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burnett, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. Native. Qld. and N.T., recorded for the N Coast of N.S.W. by Wheeler *et al.* (1990), but no specimens seen. Also in Malaysia, India, Burma, Thailand, S China and the Caroline Is.

Infra-specific taxa: var. *pallescens*, var. *gracilis*.

Spikelets normally 1-flowered; lower glume 2.5–3.5 mm long; inflorescence 6–8 cm long, 30–60 mm wide; plants 2.3–6 cm high **E. pallescens** var. *gracilis*

Spikelets normally 2-flowered; lower glume 2.5–6.3 mm long; inflorescence 7–15 cm long, 40–90 mm wide; plants 4.5–10.5 cm high **E. pallescens** var. *pallescens*

Eriachne pallescens var *pallescens*

Australian Distribution: Northern Territory, Queensland.

Notes. Distributed in Qld along the eastern coast in near-coastal areas and on islands, and in N.T. N of 14°S; also throughout the range of the species. Sandy usually deep soils, often in low-lying sites such as swamps and

flood channels; also on coastal dunes and in skeletal and shallow often stony soils on hillslopes, ridges, gorges, outcrops and plateaux of sandstone, quartzite or laterite. Flowers and fruits in all seasons, and commonly Mar.-May (autumn).

Eriachne pallescens var. gracilis (Brongn.) Lazarides. *Austral. Syst. Bot.* 8(3): 407, f. 27L, 29M-N (1995).

Classification. Basionym and/or Replacement Name: *Eriachne gracilis* Brongn., *Voy. Monde* 2 (2): 25 (1829).

Type of Basionym or Protologue Information: Trouvée a lile Bourou, l'une des iles Molugues, d'Urville s.n. (HT: P).

Australian Distribution: Northern Territory, Queensland.

Notes. In Qld S of 21°S on islands and coastal mainland; also in the Moluccas. Deep, sandy or sandy loam soils, under open forest or "wallum" scrub in flat to gently undulating country. Flowers and fruits Apr. (mid-autumn), Aug. (late-winter) and Oct. (mid-spring).

Eriachne pauciflora W. V. Fitzg. *J. & Proc. Roy. Soc. W.A.* 3: 115 (1918). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Edkins Range: *Fitzgerald 1461* (PERTH holo, US).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (48), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 24I-J).

Habit. Annual or perennial. Rhizomes present, elongated. Culms erect, 14–85 cm tall. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or branched. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades filiform, 1.9 cm long, 1–4 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle 3–6(–10) cm long, (0.8–)1.5–2(–3) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 7–13 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 3.3–10 mm long, membranous, without keels, 7–13 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 3.5–8 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 7–27(–43) mm long overall. Palea apex entire or dentate, muticous. Grain 2–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. Noteworthy characters include florets slightly longer than glumes, a bisulcate awned partly hirsute lemma, a beaked palea longer than body of its lemma, and glumes with a deep constriction at their base. *Eriachne pauciflora* has similarities with *E. sulcata* and *E. rara*, but differs from the former species by its looser panicles, smaller spikelets, florets longer than glumes, shortly acute or obtuse glumes with a usually sparser indumentum, and by a longer lemma awn. *Eriachne rara* is readily distinguished by the absence of grooves on its lemma.

Endemic. Kimberley region of W.A. and Kakadu Natl Park, N.T. Seasonally wet and damp sites such as the levees and banks of creeks, swamps, seepage and drainage lines, usually in alluvial, or shallow sandy or gravelly soils, in association with sandstone, basalt and laterite. Flowers and fruits Jan.-Sept. (mid-summer to early-spring).

Eriachne pulchella Domin. *Repert. Spec. Nov. Regni Veg* 9: 552 (1911). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Between Ashburton & De Grey R.: *Clement* (K syn); Australia, Western Australia, Whim Creek: Mitchell comm. *Winn* (K syn).

Recent synonyms: *E. isingiana*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (51), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (442 & as *E. isingiana*), [2002] D.Sharp &

B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (424), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (261).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (424, fig. 355), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (262).

Habit. Annual or ephemeral. Culms stature slender to delicate, 2–30 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched or fastigiate. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades 20 cm long, 1–3.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 1–5 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, scarious, without keels, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume ovate, 2–5 mm long, scarious, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 3–4.8 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex mucicous or mucronate. Palea apex entire or dentate. Grain 1.3–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Canning, Carnegie, Fortescue, Carnarvon, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Burke, Gregory North, Maranoa, Warrego, Gregory South. **New South Wales:** North Far Western Plains.

Notes. Endemic.

Subsp. **pulchella**

Northern S.A., NW N.S.W., and extending to 20°S in W Qld, N.T. and W.A. A common plant of shallow and skeletal soils on hillslopes, outcrops and terraces over laterite, sandstone or granite, often in barren or scalded, stony or gravelly or pebbly sites; also recorded from plains with deeper sandy or clayey loams, seepage slopes, seasonal creek beds, and near salt lakes. In overlapping areas of distribution, the two subspecies are sometimes ecologically sympatric. Over its distribution range, flowers and fruits throughout the year.

subsp. **dominii**

W Qld, N.T. and W.A. between 16°S and 24°S. Common in skeletal often pebbly or stony soils on hillslopes, outcrops and ridges of sandstone, quartzite and laterite; recorded also from sandplains, reddish-brown loams and from disturbed ground. Flowers and fruits chiefly Apr.-July (mid-autumn to mid-winter), also Nov. (late-spring).

Inflorescence densely spicate, up to 3.5 cm long when mature

E. pulchella subsp. **pulchella**

Inflorescence loosely spicate, more than 3.5 cm long when mature

E. pulchella subsp. **dominii**

E. pulchella subsp. pulchella

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Notes. *Eriachne pulchella* subsp. *pulchella* is distinguished by its slender short-lived habit, usually simple or sparsely branched culms, compact leafy base, short flat stiff hispid blades, the presence of prophylls, its dense panicles (usually 1–2 x 0.5–1 cm), relatively large awnless spikelets (3–5 mm long), acute bearded often curved callus, and flattened cuneate caryopsis. The indumentum of the floret is also distinctive. The lemma is hirsute on the back in the lower part and ciliate upwards on the submargins. Usually, the palea is pubescent between the keels, with the hairs in the lower half and near the keels longer than those elsewhere.

Northern S.A., NW N.S.W., and extending to 20°S in W Qld, N.T. and W.A. A common plant of shallow and skeletal soils on hillslopes, outcrops and terraces over laterite, sandstone or granite, often in barren or scalded, stony or gravelly or pebbly sites; also recorded from plains with deeper sandy or clayey loams, seepage slopes, seasonal creek beds, and near salt lakes. In overlapping areas of distribution, the two subspecies are sometimes ecologically sympatric. Over its distribution range, flowers and fruits throughout the year.

E. pulchella subsp. dominii (Hartley) Lazarides. *Austral. Syst. Bot.* 8(3): 410, f. 26I, 30G-I (1995).

Classification. Basionym and/or Replacement Name: *Eriachne tuberculata* Domin *J. Linn. Soc., Bot.* 41: 280, t. 11, f. 14–17 (1912), non Nees (1841).

Type of Basionym or Protologue Information: HT: *Clement s.n.*, Australia: Western Australia: Northern Province: between the Ashburton and Yule Rivers (K).

Recent synonyms: *Eriachne dominii* Hartley.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Plants of this subspecies consistently differ from those of the typical subspecies only by their looser panicles and smaller spikelets. In habit, they tend to be cuneate in outline due to their narrow compact base and the profuse production of fastigiate bunched spikelet-bearing branches at their upper nodes. In contrast, plants of subspecies pulchella tend to spread from ground level and the culms are simple or sparsely branched. Also, the caryopsis is usually obovate or elliptic and obtuse rather than cuneate and truncate, which is the common condition in subspecies pulchella. In distribution, subspecies pulchella is predominantly arid, while subspecies dominii is semi-arid and higher rainfall.

W Qld, N.T. and W.A. between 16°S and 24°S. Common in skeletal often pebbly or stony soils on hillslopes, outcrops and ridges of sandstone, quartzite and laterite; recorded also from sandplains, reddish-brown loams and from disturbed ground. Flowers and fruits chiefly Apr.-July (mid-autumn to mid-winter), also Nov. (late-spring).

Eriachne rara R. Br. *Prodr.* 183 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Shoalwater Bay: *Brown 6261* (BM holo, B, BR, CANB, E, K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (183), [1878] G.Bentham, *Flora Australiensis* 7 (628), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (261).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (262).

Habit. Perennial. Culms 16–75 cm tall. Mid-culm nodes bearded. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades conduplicate or involute, 4–20 cm long, 1–3 mm wide. Leaf-blade surface scaberrulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 3–10 cm long, 0.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 5–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11-nerved. Lower glume surface glabrous or indumented. Lower glume apex mucicous or awned. Upper glume ovate, 5–9 mm long, membranous, without keels, 9–11-nerved. Upper glume surface smooth, glabrous or indumented. Upper glume apex mucicous or awned.

Florets. Fertile lemma 3–5.5 mm long, without keel, 5-nerved. Lemma surface indumented. Lemma apex awned, 1-awned. Median (principal) awn 12–30 mm long overall. Palea apex erose or dentate, awned (2). Grain 1.8–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy, Maranoa. **New South Wales:** North Coast.

Notes. The chief features of this species are dense indumentum, loose often tubercled hairy panicle, sparsely hairy long-acuminate often aristulate glumes, short (relative to glumes) often red florets with appressed lemma and palea, relatively long callus, cartilaginous awned finely nerved lemmas obscured by simple hairs, and beaked bifid palea. The body of the lemma lacks the submarginal grooves of many other species, but there may be a depression or short groove on both sides of the awn at its base. *Eriachne rara* has similarities with *E. armitii* and *E. squarrosa*, but there are differences in habit, panicle structure, and in the dimensions and indumentum of the spikelet.

Endemic. Qld and N.S.W. between 20°S and 30°S, predominantly on islands and coastal mainland. Deep or shallow, sandy, sometimes gritty or stony, soils in association with sandstone, laterite or granite; recorded also on "wallum" slopes, hillslopes and ridges, *Melaleuca* swamps, and seasonal water channels. Flowers and fruits chiefly Feb.-May (late-summer to autumn), extending to Sept. (winter and early-spring).

Eriachne schultzi F. Muell. *Fragm.* 8: 137 (1873). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: LT: *Schultz 183*, Australia: Northern Territory: Darwin and Gulf District: Port Darwin (MEL-95271; IT: BR, E, K). LT designated by Lazarides, *Astral. Syst. Bot.* 8: 412 (1995).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 24E-F).

Habit. Perennial. Culms 67.5–150 cm tall. Mid-culm nodes bearded. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades 7–37 cm long, 2–9 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 3–14 cm long, 1.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–11 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 6.5–13 mm long, membranous, without keels, (7–)9–11 -nerved. Upper glume surface smooth or scabrous or tuberculate, glabrous or indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 5–9 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 1–30 mm long overall. Palea apex dentate. Grain 2–3.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. In *E. schultzi*, the lemma in upper 1/3 or less is usually glabrous, but concealed by the long hairs arising from below. In this respect, the species differs from the allied *E. sulcata*, in which the indumentum does not extend above the lower 1/2–1/3. Also, *E. schultzi* is a coarser plant, longer in its spikelet parts, and with the indumentum on its glumes sometimes sparse or absent. There is a close resemblance with *E. squarrosa*, but the indumentum on the glumes of this species is much denser and its lemma lacks grooves. Also, the lemma in *E. schultzi* gradually tapers into an awn, whereas in *E. squarrosa* (and also in *E. stipacea*), the awn is attached appendage-like on the abruptly contracted apex of the lemma.

Endemic. N.T. on islands and mainland N of 16°S. Usually deep or shallow, sandy or loamy soils on gentle slopes and plains, in association with sandstone, laterite, granite or quartzite; often moist alluvial sites such as drainage lines, valley floors, broad shallow depressions, and near swamps and watercourses; recorded also from humic clays, rocky slopes of gorges and from outcrops. Flowers and fruits Mar.–July (autumn to mid-winter), also Nov. (late-spring).

Eriachne scleranthoides F. Muell. *Fragm.* 8: 233 (1874). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *E. Giles s.n.*, Sep 1873, Australia: Northern Territory: Central Australia, Mt. Olga (MEL; IT: B, BRI, K, US-734055).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (631), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (441), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 60–105 cm tall, woody. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades erect or spreading or recurved, straight or curved, flat or conduplicate, 2.5–12 cm long, 0.5–1 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, of only a few spikelets.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent or rudimentary, 0–2 in number. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–9 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume ovate, 3.5–4.25 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface smooth, glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 4–5.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 2 -nerved. Palea apex entire or dentate.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Central Australia South. **Queensland:** Burke, Gregory North, Gregory South, Mitchell.

Notes. An extremely distinctive species due to its xerophytic shrubby compact habit, woolly indumentum on culms and basal cataphylls, completely covered (by overlapping leaf sheaths) culms of numerous nodes and very short internodes, short rigid long-spiny finally recurved blades, reduced scarcely exerted inflorescences, awnless florets with appressed lemma and palea that are longer than glumes, minute obtuse bearded callus, and glabrous smooth mucronate glumes almost as wide as long, which are widely divergent at maturity. *Eriachne scleranthoides* closely resembles the xerophytic forms of *E. mucronata*, but differs by its florets that are longer than the glumes, often muticous lemmas evenly narrowed to the apex (abruptly mucronate in *E. mucronata*), woolly (not hispid) culms, finally recurved (not straight) blades with a longer apical spine, longer anthers (3–4

mm, not c. 2.6 mm), and its inflorescences are much reduced (to 1–3 spikelets) and scarcely exerted, compared with the relatively well-developed prominently exerted panicles of *E. mucronata*.

Endemic. Known from two localities in SW central Australia. Conglomerate monoliths (Mt Olga and Mt Currie) on crests, scree slopes, in chasms and crevices, in shallow sand, gravelly slopes or shallow stony red soil, sometimes in seepage from massive boulders. Flowers May (late-autumn) and Aug.-Oct. (late-winter to mid-spring).

Eriachne semiciliata M. Lazarides. *Austral. Syst. Bot.* 8: 416 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin and Gulf District: 12.30S 131.70E, *M. Lazarides & L.G. Adams 266* (HTCANB; IT: B, BRI, DNA, E, NSW, P, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 28C).

Habit. Annual. Culms geniculately ascending, stature slender to delicate, 20–54 cm tall, 4–6 -noded. Mid-culm internodes hispid. Mid-culm nodes pubescent or bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.8–1.7 mm long. Leaf-blades flat or involute, 2–4 cm long, 2–3 mm wide. Leaf-blade surface smooth or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 2–10.5 cm long, 1–1.4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2.5–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or ovate or orbicular, membranous, much thinner on margins, without keels, 7–9(–11) -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume elliptic or ovate or orbicular, 2.5–4 mm long, membranous, without keels, 7–9(–11) -nerved. Upper glume surface smooth or asperulous, glabrous or indumented. Upper glume apex mucronate.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 0.6–4.5 mm long overall. Palea 2 -nerved. Palea apex entire or dentate. Lodicules present. Anthers 3. Grain 1.5–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf.

Notes. *Eriachne ciliata* is similar in appearance and morphology to *E. semiciliata*. However, in *E. ciliata* the glumes are acuminate (not obtuse), the florets slightly shorter than the glumes (not longer), and the lemmas ciliate on the margins for their entire length (not glabrous near the apex). Also, the dense scaberulous indumentum on the culms and foliage is predominantly retrorse or retrorsely tipped, in contrast to the chiefly antrorse condition in *E. ciliata*.

Endemic. N of 18°S in N.T. and W.A. Common in skeletal, often gravelly, soils over sandstone, laterite, quartzite, conglomerate and shale, on hillslopes, ridges and rocky plateaux; recorded also from disturbed ground, floodplains, red brown sandy loams, sand dunes and sandy clay "pindan" plains. Flowers and fruits chiefly Mar.-Apr. (autumn), but extending Feb.-June (late-summer to early-winter).

Eriachne squarrosa R. Br. *Prodr.* 183 (1810). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *J. Banks & D. Solander s.n.*, 1770, Australia: Queensland: Cook District: Bustard Bay, Bay of Inlets and Endeavour River (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (183), [1878] G.Bentham, *Flora Australiensis* 7 (628), [1969] E.E.Henty, *Manual Grasses New Guinea* (100), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 24C-D).

Habit. Perennial. Culms 38–90 cm tall. Mid-culm nodes bearded. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades 15–30 cm long, 3–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 3–8 cm long, 1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 8–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 13 -nerved. Lower glume surface indumented. Upper glume lanceolate, 8–15 mm long, membranous, without keels, 13 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.5–6 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 25–28 mm long overall. Palea apex dentate, awned (2). Grain 2.3 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook, North Kennedy.

Notes. A distinctive character of this species is the elongation of the glumes and palea into an apical beak, which is entire on the glumes and bifid on the palea. Other diagnostic features are hirsute glumes, lemmas and paleas, which on the lemma and palea entirely obscures their bodies, short florets relative to the glumes, abruptly contracted lemma often with apical depressions, relatively long, often recurved awn, and dense hairy panicle. *Eriachne squarrosa* is often confused with *E. armitii*, which is an annual with a loose panicle, mostly glabrous glumes, and often axillary inflorescences. *Eriachne sulcata* is closely allied, but differs by its bisulcate partly glabrous lemmas and mucicous paleas.

Native. In Australia distributed in coastal NE Qld N of 20°S; also in Malesia. A plant of often moist, low-lying, sandy flats and depressions under *Melaleuca* spp. and on floodbanks of seasonal streams; also recorded from sandy granite ridges. Flowers and fruits Apr.-July (mid-autumn to mid-winter), but also Dec. (early-summer).

Eriachne stipacea F. Muell. *J. Linn. Soc., Bot.* 52: 342 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *E. Daemel s.n.*, Australia: Queensland: Cook District: Cape York (MEL-95280; IT: BR, K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (627), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 24A-B).

Habit. Annual or perennial. Culms erect, 37.5–100 cm tall. Mid-culm internodes hirsute. Mid-culm nodes bearded. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades 10–23 cm long, 2–7.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense or loose, 4–13 cm long, 2.4–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 7–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–11 -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucicous or awned. Upper glume lanceolate, 7–9 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth, glabrous or indumented. Upper glume apex mucicous or awned.

Florets. Fertile lemma 3.5–6 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn (28–)40–60 mm long overall. Palea apex dentate, awned (2).

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, Leichhardt.

Notes. Distinguishing features include loose hairy panicle, long-acuminate awned often inverse glumes, two-awned paleas, and relatively long callus. The florets are small relative to the glumes and concealed by indumentum. The lemma is abruptly contracted at the junction with its long recurved awn, which readily fractures though not articulated. Sometimes, there is a short groove or depression on each side of the awn at its base, but these differ from the grooves on the upper part of the body of the lemma, which characterize a number of other species in the genus. There are similarities with *E. squarrosa* and *E. rara*, but *E. stipacea* differs in panicle form, and dimensions and indumentum of the spikelet. From the allied *E. armitii*, *E. stipacea* differs by its often perennial duration, loose panicle and slightly longer callus.

Endemic. Qld N of 20°S. and in N.T. on islands and coastal mainland. Usually on flat to gently undulating country in sandy or sandy loam soils, often in association with laterite and seasonally wet sites. Flowers and fruits Mar.-Aug. (autumn and winter); also Jan. (mid-summer).

Eriachne sulcata Hartley. *J. Linn. Soc., Bot* 52: 342 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: HT: *W.V. Fitzgerald 315*, Apr 1905, Australia: Western Australia: Northern Province: 9 mi from Goody Goody (K; IT: PERTH).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (48), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 25A-B).

Habit. Perennial. Culms erect, 30–80 cm tall. Mid-culm nodes bearded. Lateral branches simple or sparsely branched. Ligule a fringe of hairs. Leaf-blades involute, 10–30 cm long, 1–7 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 4–13 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface indumented. Lower glume apex muticous or awned. Upper glume ovate, 5.5–8.5(–10) mm long, membranous, without keels, 9–11 -nerved. Upper glume surface indumented. Upper glume apex muticous or awned.

Florets. Fertile lemma 5–8 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 10–35 mm long overall. Palea apex dentate. Grain 2.5–4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. Distinguishing characters include bearded and tubercled culm nodes, dense panicles, stiffly hirsute hardened sometimes aristulate glumes, awned bisulcate lemmas, and shortly beaked paleas. *Eriachne pauciflora* has similarities with *E. sulcata* but differs by its looser panicles, smaller spikelets, florets longer than glumes, shortly acute or obtuse glumes with a usually sparser indumentum, and by a longer lemma awn. In appearance and morphology, *E. sulcata* resembles *E. schultzeana*, but in the latter species the spikelet is larger, the lemma totally concealed by indumentum, the glumes are sometimes glabrous and smooth, and the apical beak and two awnlets of the palea are longer.

Endemic. Common N of 18°S in W.A., and rare in N.T. as far east as Kakadu Natl Park. Deep or shallow, sandy or heavy-textured soils, salt flats, outcrops or hillslopes of granite and sandstone, and seasonally wet alluvial sites such as floodouts, drainage channels, waterways and seepage. Flowers and fruits Mar.-Aug. (autumn-winter).

Eriachne tenuiculmis Hartley. *J. Linn. Soc., Bot* 52: 346 (1942). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Basionym and/or Replacement Name: *Eriachne pallida* F. Muell. ex Benth., *Fl. Austral.* vii. 631. (1878) non Nees (1841).

Type of Basionym or Protologue Information: Australia, Dampier Archipelago: *Walcot* 75 in Herb. Mueller (K holo, MEL).

Recent synonyms: *E. pallida*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (631as *Eriachne pallida*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (49), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 23F-G).

Habit. Perennial. Culms stature slender to delicate, 60–65 cm tall, wiry. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades 9 cm long, 1.5–2 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 4–10 cm long, 0.5–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous. Upper glume ovate, 5–7 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 7–10 mm long, without keel, 5–7 -nerved. Lemma surface glabrous or indumented. Lemma apex muticous. Palea apex entire or dentate, muticous. Grain 4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Notes. Distinguished by pubescent base thickened by cataphylls, thickened rigid blades with prickly margins, loose linear panicles, glabrous glumes, floret longer than glumes, bisulcate relatively awnless lemma with long-ciliate submargins, and an almost entirely glabrous palea. *Eriachne tenuiculmis* appears to be rare in occurrence and isolated in its relationships.

Endemic. W.A. Stony creek beds and gullies, and crevices in Maddina basalt. Flowers and fruits May-June (late-autumn and early-winter).

Eriachne triodioides Domin. *Biblioth. Bot.* 85: 356 (1915). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Russell R.: *Domin* (PR holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, stature robust to moderate, 75–120 cm tall. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or branched. Ligule a fringe of hairs. Leaf-blades straight or curled, convolute, 10–40 cm long, 2–90 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–15 cm long, 1.5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 9–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 7–10.5 mm long, membranous, without keels, 9–11 -nerved. Upper glume surface smooth, glabrous or indumented.

Florets. Fertile lemma 7–9 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 2–13 mm long overall. Palea apex dentate, awned (2). Anthers 3. Grain 2.8–3.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, North Kennedy, Port Curtis, South Kennedy, Cook, Gregory North.

Notes. Plants of this species are robust, tussocky mostly glabrous perennials, with pubescent base, large spikelets, flattened caryopsis, and cartilaginous lemma and palea concealed by a hirsute indumentum. Also, the lemma is bisulcate, awned, and hairy on the nerves near apex on the inner surface, and the palea is bifid. The glumes may be variously hairy or glabrous. There are close similarities between *E. triodioides* and *E. nervosa*, though they differ markedly in their ecological preferences for deep sands (*E. triodioides*) and cracking clay soils (*E. nervosa*).

Endemic. N of 22°S in Qld, N.T., and extending slightly into W.A., commonly on islands and coastal mainland. A plant chiefly of coastal sand dunes and deep, sandy inland soils. Flowers and fruits July-Oct. (mid-winter to mid-spring), also Mar.-Apr. (autumn).

Eriachne trisetata Nees ex Steud. *Syn. Pl. Glum.* 1:237(1854). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Sri Lanka: *Walker* (P holo, K).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (100), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 50–120 cm tall, wiry. Mid-culm nodes glabrous. Lateral branches simple or branched. Ligule a fringe of hairs. Leaf-blades straight, convolute, 5–25 cm long, 1–2 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 7–15 cm long, (1–)25–45 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 1–1.25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 10–13 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 9.5–15 mm long, membranous, without keels, 10–13 -nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 5–7 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 8–18 mm long overall. Palea 2 -nerved. Palea apex dentate, awned (2). Anthers 2. Grain 2.8–4 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy.

Notes. The two well-developed awns on the palea is rare, but not unique in the genus. The plants are tussock-forming mostly glabrous perennials, with setaceous finely pointed often flexuose blades. The spreading panicle of drooping, divided primary branches is relatively sparse. The glumes are glabrous, many-nerved, and usually unequal due to their oblique attachment. The florets (excluding awns) are shorter than the glumes, with appressed lemma and palea, and an acute relatively long hairy callus. The lemmas are cartilaginous with narrow hyaline margins, appressedly pubescent on the surface and ciliate on the submargins, without grooves, and with a

well-developed awn slightly longer than the two awns on the palea, which has a pubescent body and glabrous keels and flaps.

Native. In Australia, Kimberley region of W.A., and N of the Tropic of Capricorn in Qld and N.T.; also in Sri Lanka, India and throughout Southeast Asia. A common plant of sandy seasonally flooded habitats (floodplains, seepage slopes, along creeks, and the margins of fresh-water marshes, swamps, springs in gorge floors, lakes and billabongs); also recorded from coastal sand dunes, rocky hillslopes, and plateaux, often in association with sandstone and laterite. Flowers and fruits Dec.-Aug. (summer to winter).

Eriachne vesiculosa M. Lazarides. *Aust. Syst. Bot.* 423 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Type of Basionym or Protologue Information: Australia, Darwin & Gulf District: *Craven 4246* (CANB holotype).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 23C-E).

Habit. Perennial. Stolons absent or present. Culms erect or geniculate ascending, 30–90 cm tall, 3–5 -noded. Mid-culm nodes pubescent or bearded. Lateral branches branched or fastigiate. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.3–0.5 mm long. Leaf-blades convolute, 15–30 cm long, 2–3 mm wide. Leaf-blade surface smooth or scabrous or papillose, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 5–10.5 cm long, 1–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic, cartilaginous, much thinner on margins, without keels, 7–9(–11) -nerved. Lower glume surface glabrous. Upper glume lanceolate or elliptic, 6–9 mm long, cartilaginous, without keels, 7–9(–11) -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 4–8 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 18–30 mm long overall. Palea 2 -nerved. Palea apex dentate, awned (2). Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Distinguishing characters include fastigiate branched glabrous culms with bearded nodes, tightly convolute vesicular blades, loose hairy panicle, firm glabrous smooth muticous glumes, short (relative to glumes) often cleistogamous florets with appressed lemma and palea, and obovate strongly compressed caryopsis. The lemma is mostly indurated, bisulcate entirely hairy, and with a curved scabrous grooved awn. The palea is indurated, beaked, biaristate entirely hairy on the body, and with rounded keels. In spikelet morphology, *E. vesiculosa* has similarities with *E. stipacea* and *E. burkittii*, but differs from both by its vesicular leaf blades. Also, from *E. stipacea* it differs by its grooved lemmas and muticous glumes, and from *E. burkittii* by its entirely hirsute florets and biaristate paleas.

Endemic. N of 19°S in Qld and N.T. Growing usually in deep sandy often whitish soils, in damp and seasonally flooded, often shaded sites, such as the channels and banks of watercourses, stream lines and grassy swamps. Flowers and fruits Apr.-Aug. (autumn and winter), and Oct. (mid-spring).

Eriachne sp. A. (aff. obtusa A.A. Mitchell PRP255) Classification. (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–40 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 4–10 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–8 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, 2.5–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume membranous. Upper glume membranous.

Florets. Fertile lemma without keel, 5 -nerved. Lemma apex muticous. Palea 2 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Eriachne sp. B (Lazarides 7926) Classification. (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 6–16 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades involute, 1–3 cm long, 0.5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, of only a few spikelets.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6.5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or obovate, membranous, without keels, 11 -nerved. Lower glume apex muticous. Upper glume lanceolate or obovate, 5–6 mm long, membranous, without keels, 11 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 7–8 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 1.5–2.5 mm long overall. Palea 2 -nerved. Palea apex entire. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Eriachne sp. C (Dugald River, Simon 3007) Classification. (GPWG 2001) : Subfamily Micrairoideae. Eriachneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or ephemeral. Culms erect or geniculately ascending, stature slender to delicate, 20–40 cm tall, 2–5 -noded. Mid-culm internodes hispid. Mid-culm nodes pubescent. Lateral branches branched. Leaf-sheaths antrorsely scabrous, hairy. Ligule a fringe of hairs, 0.6–0.8 mm long. Leaf-blades flat, 0.5–3 cm long, 1–2 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 4–10 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2.5 mm long (excluding awn length).

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, of similar consistency on margins, without keels, 7–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume ovate, 2.5 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 0.09–1.2 mm long overall. Palea 2 -nerved. Palea apex entire. Lodicules present. Grain 1–1.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Victoria River. **Queensland:** Burke, North Kennedy, South Kennedy.

Eriachne sp. Carson Escarpment (R.L. Barrett & M.D. Barrett RLB 4884) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Eriachne sp. Hamersley Range hilltops (S. van Leeuwen 4199) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Eriachne sp. Meentheena Station (S. van Leeuwen 4484) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Eriachne sp. Mitchell Plateau (M.D. Barrett & R.L. Barrett MDB 1517) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Eriachne sp. Morgan River (R.L. Barrett & M.D. Barrett RLB 3282) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Eriachne sp. North Kimberley (M.D. Barrett & R.L. Barrett MDB 1779) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Eriachne sp. Theda (R.L. Barrett & M.D. Barrett RLB 3275) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Eriachne sp. Woolly culms (P.K. Latz 10065) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Kearnland.

Eriochloa australiensis Stapf ex Thellung. *Vierteljahrsschr. Naturf. Ges. Zurich* 64: 697 (1919).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (232), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (477), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (451), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (263).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (452, fig. 383), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (263).

Habit. Annual or perennial. Culms erect or geniculately ascending, 20–70 cm tall, 1–1.5 mm diam., 2–3 - noded. Mid-culm nodes glabrous or pubescent. Ligule a fringe of hairs, 0.7–1.3 mm long. Leaf-blades linear or lanceolate, 2–17 cm long, 3–7 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–7, appressed, 2–3 cm long. Central inflorescence axis 6–16 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5–15 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate or elliptic, 5.6–14.7 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved.

Fertile lemma 2.1–3 mm long, without keel. Lemma apex mucronate. Median (principal) awn 1.5 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier. Ashburton, Carnarvon, Austin. Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Burke, South Kennedy, Gregory South, Mitchell. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. The shape of the upper glume apex is variable and may be long acuminate with a long awn or blunt with a short mucro. This variation has led to confusion in the identification of *E. australiensis*, *E. crebra* and *E. pseudoacrotricha*.

In arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Occurs in the arid and semi-arid regions of central Australia. Flowers mostly Feb.-July.

Eriochloa crebra S. T. Blake. *Proc. Roy. Soc. Queensland* 59: 156 (1948). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia, Ilfracombe: *Blake* 11358.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (451), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (263).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (453, fig. 385), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (263).

Habit. Perennial. Culms erect, 35–100 cm tall, 2–5 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.6–1 mm long. Leaf-blades 4–25 cm long, 2–7 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–25, 1.5–5 cm long. Central inflorescence axis 9–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 3.7–5.5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate or ovate, 3.9–5.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucicous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved.

Fertile lemma 2–3 mm long, without keel. Lemma apex mucronate. Median (principal) awn 1 mm long overall.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Distinguished from *E. procera* by the larger spikelets. Some specimens indicate hybridization with *E. pseudoacrotricha*.

In tropical heaths, tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, and arid tussock grasslands. Occurs over a wide geographical area, and is regarded as a good forage grass. Flowers Feb.-June.

Eriochloa fatmensis (Hochst. & Steud.) Clayton. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum fatmense* Hochst. & Steud. in sched., *Schimper It. Un.* :806 (1837).

Type of Basionym or Protologue Information: HT: *Schimper* 806, Saudia Arabia: Mecca (P; IT: K, L, MO, LE-TRIN-0545.04). herb. un. arab. nr. 806.

Recent synonyms: *Eriochloa decumbens* F.M. Bailey, *Queensland Agric. J.* 1: 234 (1897).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (463 as *Eriochloa annulata* var. *acrotricha*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent, 10–120 cm tall. Ligule a fringe of hairs, 0.4–0.7 mm long. Leaf-blades 3–30 cm long, 2–10 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, 1–5 cm long. Central inflorescence axis 3–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, (2.5–)2.7–3–5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, (2.5–)2.7–3–5 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex mucronate or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved, awned.

Fertile lemma 1.8–3 mm long, without keel, 5 -nerved. Lemma apex mucronate. Median (principal) awn 0.3–1 mm long overall.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Cook, Burke, Leichhardt, Wide Bay, Moreton, Gregory North.

Notes. *Eriochloa decumbens* is morphologically similar to *E. procera*, having an acuminate and shortly awned upper glume and a decumbent habit. *E. procera* has been limited to those specimens with acute spikelets and erect habit. Bor (1960) placed *E. decumbens* as a synonym of *E. nubica* (Steud.) Thell. Clayton (1982) placed *E. nubica* as a synonym of *E. fatmensis* (Hochst. & Steud.) W.D. Clayton and his description and drawing of this taxon could apply to Australian specimens that have tentatively been identified as *E. decumbens*.

In tropical heaths, tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, coastal grasslands, and tropical sub-humid grasslands. Flowers sporadically throughout the year but mostly Jan.-May.

Eriochloa longiflora S. T. Blake. *Univ. Queensland Dept. Biol. Pap.* 1: 18 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia, Birdsville: Blake 12243 (K iso).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Inflorescence. Inflorescence compound, a panicle of racemes.

Spikelets. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s).

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia South. **South Australia:** Lake Eyre, Eastern. **Queensland:** Gregory South, Mitchell. **New South Wales:** South-Western Plains.

Notes. Placed as a synonym of *E. australiensis* in other publications but the extra long acuminate spikelets are distinctive.

Eriochloa meyeriana* (Nees) Pilger. *Pflanzenfam. ed 2*, 14E: 56 (1940). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum meyerianum* Nees, *Fl. Afr. Austr.* 1: 32 (1841).

Type of Basionym or Protologue Information: South Africa, Omsamculo: Drege (K iso).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms decumbent or sprawling, 30–200 cm tall. Ligule a fringe of hairs. Leaf-blades 5–25 cm long, 3–15 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–18 cm long, contracted about secondary branches. Racemes 10–30, 2–7 cm long. Central inflorescence axis 8–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.3–3.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate or ovate (rarely), hyaline, without keels, 0 -nerved. Upper glume ovate, membranous, without keels, 5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved.

Fertile lemma 1.5–2.2 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: North Kennedy, South Kennedy, Leichhardt, Wide Bay.

Eriochloa procera (Retz.) C. E. Hubbard. *Bull. Misc. Inform.* 256 (1930). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Agrostis procera* Retz., *Obs.* 4: 19 (1786).

Type of Basionym or Protologue Information: India, Malabar: Koenig (LD holo).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (188 as *Paspalum polystachyum*), [1878] G.Bentham, *Flora Australiensis* 7 (463 as *Eriochloa annulata*), [1969] E.E.Henty, *Manual Grasses New Guinea* (101), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (453), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (264).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (453, fig. 385), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (264).

Habit. Annual or perennial. Culms erect or geniculately ascending, 20–120 cm tall. Ligule a fringe of hairs, 0.7–1.2 mm long. Leaf-blades 2–40 cm long, 2–8 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, 2–10 cm long. Central inflorescence axis 4–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, (2.5–)3–4 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 2.8–3.7 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved, muticous.

Fertile lemma 1.7–2.2 mm long, without keel. Lemma apex mucronate. Median (principal) awn 0.3–0.5 mm long overall.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory North. **New South Wales:** North Coast, Central Coast, North-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Asian and African specimens have an acute to acuminate spikelet apex, spikelet length mostly below 3.9 mm and spikelets not arranged orderly on the primary branches. Many Australian specimens previously identified as *E. procera* possess neatly arranged secund spikelets with an aristate apex. It seems that *E. procera* has been misinterpreted in Australia and these aristate specimens belong to another species, probably *E. decumbens*. *Eriochloa procera* is native to Australia, but is not as widely distributed as previously believed.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, and coastal grasslands. Flowers sporadically throughout the year.

Eriochloa pseudoacrotricha (Stapf ex Thell.) J. M.Black. *Trans. & Proc. Roy. Soc. South Australia* 67: 43 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Eriochloa ramosa* var. *pseudoacrotricha* Stapf ex Thell., *Viert. Nat. Ges. Zurich* 64:697 (1919).

Type of Basionym or Protologue Information: Australia: Coll? (K holo).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (188 as *Milium punctatum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (232), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (454), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (264).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (233, Pl. 69), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (139), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (454, fig. 386), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (264).

Habit. Perennial. Culms erect, 20–100 cm tall, 1–2.5 mm diam., 2–5 -noded. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.6–1 mm long. Leaf-blades involute, 7–30 cm long, 1.5–7 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–10, appressed, 2–10 cm long. Central inflorescence axis 5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.6–6 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate or ovate, 3.7–5.2 mm long, membranous, without keels, 5 -nerved. Upper glume surface indumented. Upper glume apex muticous or mucronate or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, 5 -nerved.

Fertile lemma 2.3–2.7 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Hall, Dampier. Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina, Wimmera.

Notes. In tropical and subtropical rain forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. A widespread native species which tends to intergrade with *E. crebra* and *E. australiensis*.

Eulalia annua B.K. Simon. *Trans. & Proc. Roy. Soc. South Australia* 67: 43 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms decumbent, 10–45 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringed membrane, a ciliolate membrane, 0.1 mm long. Leaf-blades 3–7 cm long, 1–3 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile (upper), comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or elliptic, chartaceous, without keels or keeled, 2-keeled, 5 -nerved. Lower glume surface indumented. Upper glume linear or lanceolate or elliptic, 3 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea.

Fertile lemma 0.5 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 18–20 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Sandy soil of *Eucalyptus* spp./*Melaleuca* spp. savanna woodland in northern Australia. Flowers Apr.-May.

Eulalia aurea (Bory) Kunth. *Rev. Gram.* 1: 359 (1830). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon aureus* Bory, *Voy.* 1, 367. t. 21 (1804).

Type of Basionym or Protologue Information: Reunion: Bory (P holo), K.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (203 as *Saccharum fulvum*), [1878] G.Bentham, *Flora Australiensis* 7 (526 as *Pollinia fulva*, 541 as *Sorghum fulvum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (314 as *E. fulva*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (491 as *E. fulva*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (518), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (265).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (315, Pl.93 as *E. fulva*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (141 as *E. fulva*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (519, fig. 444), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (265).

Habit. Perennial. Rhizomes present. Culms 40–150 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane, 0.5–0.8 mm long. Leaf-blades 3–30 cm long, 2–6 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Companion spikelets developed. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic, dorsally compressed, 3.5–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or elliptic, cartilaginous or coriaceous, without keels or keeled, 2-keeled, 5 -nerved. Lower glume surface indumented. Upper glume linear or lanceolate or elliptic, 3 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1.

Fertile lemma 1–1.5 mm long, without keel, 3 -nerved. Lemma apex lobed, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 0–20 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Africa, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Carnegie, Giles, Fortescue, Ashburton, Carnarvon, Austin. Irwin. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Murray. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee, Riverina, Wimmera.

Notes. Found in all mainland states in drier parts, although mainly in the subtropics and tropics. Also in tropical southern Africa and Réunion. Flowers Nov.--Sept.

Eulalia mackinlayi (F. Muell. ex Benth.) Kuntze. *Rev. Gen. Pl.* 2: 775 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Pollinia mackinlayi* F. Muell. ex Benth., *Fl. Austral.* 7: 527 (1878).

Type of Basionym or Protologue Information: Australia, Arnhem Land: *Mackinlay*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (527 as *Pollinia mackinlayi*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 140–250 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaves mostly basal. Ligule a fringed membrane, a ciliate membrane, 0.2–1.5 mm long. Leaf-blades involute, 15–35 cm long, 1–6 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Companion spikelets developed. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or oblong, dorsally compressed, 6–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or oblong, coriaceous, keeled, 2-keeled, 4 -nerved. Lower glume surface indumented. Upper glume lanceolate, keeled, 1-keeled, 1–3 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet.

Fertile lemma 1 mm long, without keel, 2 -nerved. Lemma apex entire or lobed, awned, 1 -awned. Median (principal) awn apical, 20–27 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Sandy and rocky soils in tropical Australia north of 15 degrees S. Endemic. Flowers Feb.--July.

Eulalia trispicata (Schult.) Henrard. *Blumea* 3: 453 (1940). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon trispicatus* Schultes, *Syst. Veg.* 2, *Mant.* 92 (1831); *Mant.* 2: 452 (1824), based on *A. tristachyos* Roxb.

A. tristachyos Roxb., *Fl. Ind.* 1: 261 (1820) non Kunth (1816).

Type of Basionym or Protologue Information: T: India, Roxburgh illustration at K (photo BRI).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (527 as *Pollinia tristachya*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–130 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringed membrane, a ciliate membrane, 0.1 mm long. Leaf-blades 4–35 cm long, 1–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Companion spikelets developed. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic, dorsally compressed, 3.5–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or oblong, coriaceous, much thinner above, keeled, 2-keeled, 3 -nerved. Lower glume surface indumented. Upper glume oblong, 1–3 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile

florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 0 - nerved.

Fertile lemma 1.5 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 7–15 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Moreton, North Kennedy, Wide Bay, Burke.

Notes. Coastal sandy soils of southern and northern Qld, extending through New Guinea, Malesia and SE Asia to Sri Lanka. Flowers Dec.–July.

Eulalia sp. A (Sabai Island J.R.Clarkson 7801) Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *E.sp.A*).

Habit. Perennial. Culms erect, 60–80 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Leaves basal and cauline. Ligule a fringed membrane, a ciliate membrane, 0.3 mm long. Leaf-blades flat, 3–20 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Companion spikelets developed. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3–3.5 mm long.

Glumes. Glumes dissimilar. Lower glume linear or lanceolate or oblong, coriaceous, keeled, 2-keeled, 2 - nerved. Lower glume surface indumented. Upper glume oblong, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 1.5 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 5–7 mm long overall, without a column. Palea absent.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Eulalia sp. (Three Rivers Grass)

Australian Distribution: Western Australia.

Western Australia: Ashburton.

Eustachys distichophylla* (Lag.) Nees. *Agros. Bras.* 418 (1829). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris distichophylla* Lag., *Gen. et Sp. Nov.* 4. (1816).

Type of Basionym or Protologue Information: Argentina: Nee (MA holo, BA).

Recent synonyms: *Chloris distichophylla*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (384), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (266).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 47), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (385, fig. 319), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (266).

Habit. Perennial. Rhizomes present. Culms 25–130 cm tall. Ligule a fringe of hairs. Leaf-blades linear, flat or conduplicate, 9–40 cm long, 4–20 mm wide.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, obovate, laterally compressed, 2.5–3.3 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 1 -nerved. Upper glume elliptic or oblong, 1.8–2.5 mm long, membranous, without keels, 1 -nerved. Upper glume apex lobed, awned.

Florets. Fertile lemma 2.2–3.3 mm long, keeled, 3 -nerved. Lemma apex mucronate. Palea 2 -nerved. Grain 0.9–1.3 mm long.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Western Australia: Irwin, Drummond. **South Australia:** Northern Lofty, Southern Lofty. **Queensland:** Burnett, Darling Downs, Moreton, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. Known from isolated occurrences in several states, probably always as a garden escape; tropics; native to S America.

Festuca arundinacea* Schreb., nom cons. *Spic. Fl. Lips.* 57 (1771). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Germany, Biniz: *Schreber* (M holo).

Recent synonyms: *F. elatior* subsp. *arundinacea*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (417), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (123), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (267), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (279).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (123, fig. 80), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (267), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (280, Fig.37).

Habit. Perennial. Culms 38–200 cm tall. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.4–2 mm long. Leaf-blades aciculate or linear, flat or conduplicate, 9.5–60 cm long, 3–14 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, dense or loose, 10–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 7.7–18 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, without keels, 1–3 -nerved. Upper glume lanceolate or oblong, 4.5–7 mm long, chartaceous, without keels, 3 -nerved.

Florets. Fertile lemma 6–9.4 mm long, without keel or keeled, 5 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn subapical, 0–4.3 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Dale, Menzies, Warren. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, North West, North East, Midlands, East Coast, Mt Wellington.

Notes. Cultivars are occasionally used for hay and fodder.

Introduced. Native to Europe and temperate Asia. Usually in open and damp sites e.g. roadsides, creeks, swampy verges and open paddocks, in regions of higher rainfall. Flowers Oct.-Apr. Fruits Dec.-Mar.

Festuca asperula Vickery. *Contr. New South Wales Natl Herb.* 1: 12 (1939). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Armidale: *McKie 611* (K holo).

Recent synonyms: *F. diuruscula* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (92 as *Festuca duriuscula*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (267), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (282).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (267), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (280, Fig.37).

Habit. Perennial. Stolons absent or present. Culms erect, 48–105 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.2–0.4 mm long. Leaf-blades filiform, conduplicate or involute or convolute, 10.5–30 cm long, 0.4–1 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–19 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, without keels, 1–3 -nerved. Upper glume oblong, 5.1–7 mm long, chartaceous, without keels, 3–5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 6–8.5 mm long, without keel or keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 1–5 mm long overall. Palea 2 -nerved. Palea apex dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Midlands, Snowfields.

Notes. Endemic. S from Guyra, N.S.W. Usually in dryish eucalypt woodlands. Flowers Dec.-Feb.

Festuca benthamiana Vickery. *Contr. New South Wales Natl Herb.* 1: 13 (1939). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca duriuscula* var. *aristata* Benth., *Fl. Austral.* 7:664 (1878).

Type of Basionym or Protologue Information: Australia: *Mueller* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (124), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (283).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (125, fig. 81).

Habit. Perennial. Culms erect, 30–90 cm tall, 2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.2–0.6 mm long, truncate. Leaf-blades filiform, conduplicate or involute or convolute, 8–20 cm long, 0.3–2.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 11–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 12.8–22 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, without keels, 1–3 -nerved. Upper glume oblong, 4.7–8 mm long, chartaceous, without keels, 3–5 -nerved.

Florets. Fertile lemma 9–12.8 mm long, without keel or keeled, 5–7 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 5–17 mm long overall. Palea 2 -nerved. Palea apex dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Flinders Ranges, Northern Lofty, Southern Lofty.

Notes. Endemic. Restricted to the Flinders Ra., S.A. Flowers Oct.-Nov.

Festuca contracta

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Festuca muelleri Vickery. *Contr. New South Wales Natl Herb.* 1: 9–10 (1939). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Mt. Buller: *Mueller* (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (268), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (279).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (268), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (280, Fig.37).

Habit. Perennial. Culms erect, 53–169 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.9–5.5 mm long, obtuse. Leaf-blades aciculate or linear, flat or conduplicate or involute or convolute, 15–49 cm long, 4.3–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 14.5–29 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6(–7)), comprising 3–6(–7) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–16.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, much thinner on margins, without keels, 1–5 -nerved. Upper glume oblong, 4.9–8.7 mm long, chartaceous, without keels, 3–5 -nerved.

Florets. Fertile lemma 8.5–11 mm long, without keel or keeled, 5 -nerved. Lemma apex muticous. Palea 2 -nerved. Palea apex dentate. Anthers 3. Grain 5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Snowfields.

Notes. Endemic. S from Barrington Tops. Occurs in sub-alpine eucalypt woodlands amongst rocks, often in association with *Eucalyptus pauciflora*. Flowers Dec.-Mar. Fruits Jan.-Apr.

Festuca nigrescens* Lam. *Encycl.* 2: 460 (1788). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: France, Mont Dore: *Lamarck* (P holo).

Recent synonyms: *F. rubra* var. *commutata*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (268), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (282).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (268).

Habit. Perennial. Culms 27–90 cm tall. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.2 mm long. Leaf-blades filiform, flat or conduplicate, 5–27 cm long, 0.4–0.9 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 4–14 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7–9.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, without keels, 1 -nerved. Upper glume lanceolate, 2.6–5.2 mm long, chartaceous, without keels, 3 -nerved.

Florets. Fertile lemma 4.6–6.2 mm long, without keel or keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0.6–3 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe and Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** Central Highlands, East Coast, Mt Wellington.

Notes. Often used as a lawn grass.

Very similar to *F. rubra*, and difficult to distinguish from it, particularly if the base is not complete.

Although commonly referred to as *F. nigrescens* in Australia, the status and correct name of plants referred to this name is uncertain. The history and publications relevant to *Chewing's Fescue* are discussed by Aiken *et al.* (1996 onwards).

Introduced. Usually in drier open habitats, e.g. roadsides, pasture. Flowers Nov.-Jan.

Festuca plebeia Vickery. *Prodr.* 178 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Tasmania: *Brown* 6293 (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (281).

Habit. Perennial. Stolons present. Culms erect, 70–90 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, truncate. Leaf-blades aciculate or filiform, conduplicate or involute, 2.3–14.5 cm long, 0.4–1.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle linear, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10.2–18 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, without keels, 1–3 -nerved. Upper glume oblong, 4.3–6 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 6.4–9 mm long, without keel or keeled, 5–7 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 1–3.7 mm long overall. Palea 2 -nerved. Palea apex dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. Endemic. Rocky areas under light eucalypt cover, sometimes in wet areas. Flowers Dec.-Feb.

Festuca pratensis* Honck, non Huds (1762). *Fl. Angl.* 37 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Europe: Herb. Linn. 92.1 (LINN lecto).

Recent synonyms: *F. elatior* subsp. *pratensis*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (as *F. elatior*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (124), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (268), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (278).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (126, fig. 82), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (268).

Habit. Perennial. Culms erect or geniculately ascending, 30–140 cm tall, 2–4 -noded. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.2–1.5 mm long. Leaf-blades linear, flat or involute, 10–45 cm long, 2–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, effuse, (6–)10–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–14), comprising 4–14 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed, 9–20 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, much thinner above, much thinner on margins, without keels, 1(–2) -nerved. Upper glume oblong, 3–6 mm long, chartaceous, without keels, 1–3 -nerved.

Florets. Fertile lemma 5–7(–8) mm long, without keel, 5 -nerved. Lemma apex muticous or awned. Median (principal) awn 0–2 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales.

Western Australia: Drummond. **South Australia:** Northern Lofty, Southern Lofty, South-eastern. **New South Wales:** South Coast, Northern Tablelands, Southern Tablelands, Central-Western Slopes.

Notes. Planted as a pasture grass.

Introduced. Native of Europe and Asia. Flowers summer-spring, Jan.

Festuca rubra* Linn. *Sp. Pl.* 74 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Sweden, Upsala: Anon (GB lecto).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (126), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (269), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (281).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (127, fig. 83as subsp. *rubra*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (269).

Habit. Perennial. Rhizomes absent or present, elongated. Culms erect or geniculately ascending, stature slender to delicate, 15–104 cm tall, 1–3 -noded. Lateral branches sparsely branched. Leaves basal and cauline. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.2–0.4 mm long. Leaf-blades filiform, flat or conduplicate, 3–40 cm long, 0.4–1(–2) mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 3–17 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–9), comprising 3–9 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 5–14 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, chartaceous, without keels, 1 -nerved. Upper glume oblong, 3–5.5 mm long, chartaceous, without keels, 3 -nerved.

Florets. Fertile lemma 4–6.4 mm long, without keel or keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–3.4 mm long overall. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Drummond, Warren. **South Australia:** Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands. **Victoria:** Gippsland Plain, Midlands, Otway Plain, Snowfields, Volcanic Plain. **Tasmania:** North West, East Coast.

Notes. Introduced. Native of Europe. Usually in damp open habitats, common in suburban lawns. Flowers Oct.-Jan. Fruits Jan.-Feb.

Garnotia stricta var. longiseta Brongn. In Duperr. *Voy. Coq. Bot.* 133: t. 21 (1832). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Arundinelleae.

Type of Basionym or Protologue Information: Tahiti: *Duperrey* (P holo).

Recent synonyms: *G. tortuosa*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending or decumbent, 10–80 cm tall, wiry, 3–5 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous or bearded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades linear, flat, 3–40 cm long, 2–15 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 5–40 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2.5–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume apex muticous or awned. Upper glume lanceolate, 2.2–4.5 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume apex muticous or awned.

Florets. Fertile lemma 2–4.5 mm long, without keel, 3 -nerved. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 1–2 mm long overall (when straight) or 6–14 mm long overall, without a column (when straight) or with a twisted column. Palea 2 -nerved. Anthers 3. Grain 2 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Occurs in the Philippines, the Moluccas, New Guinea and NE Qld. Sclerophyll forests and woodlands and rainforest margins. Flowers Nov.-Jul.

Gastridium phleoides (Nees & Meyen) C. E. Hubbard. *Kew Bull.* 9: 375 (1954). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Lachnagrostis phleoides* Nees & Meyen, *Nov. Act. Nat. Cur.* 19. *Suppl.* i.146 (1843).

Type of Basionym or Protologue Information: Chile, Valparaiso: *Meyen* (B holo, LE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (222), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (269), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (239).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (221, fig. 167), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (269), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (241, Fig.34).

Habit. Annual. Culms erect or decumbent, 10–60 cm tall. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–7 mm long. Leaf-blades 2.5–15 cm long, 1–4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate to oblong, dense, 4–18 cm long, 0.5–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, oblong or cuneate, laterally compressed, 4.3–5.5(–8) mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.6–5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.1–1.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex erose, muticous or awned, 1 -awned. Median (principal) awn dorsal, 4–6(–8) mm long overall, with a twisted column. Palea 2 -nerved. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Dale. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Tablelands. **Victoria:** Grampians, Midlands, Volcanic Plain, Wannon.

Notes. Introduced. Native of the Mediterranean, now naturalised in New Zealand, the Americas and southern Africa. Uncommon, a weed of disturbed areas preferring fat, low-lying sites or near watercourses. Flowers Oct.-Feb. Fruits unknown.

Gastridium ventricosum (Gouan) Schinz & Thellung. *Vierteljahrsschr. Naturf. Ges. Zürich* 58: 39 (1913). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis ventricosa* Gouan, *Hort. Monsp.* 39, 547 [Apr-June] (1762).

Type of Basionym or Protologue Information: France, *Puy de St Loup*: Coll?.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (150), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (239).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (149, Pl. 45).

Habit. Annual. Culms erect or decumbent, 10–60 cm tall. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 2–11 cm long, 2–4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate to oblong, 2–13 cm long, 0.5–1.2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, laterally compressed, 3–5 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, scarious, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.25–3.5 mm long, scarious, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.3 mm long, without keel, 5 -nerved. Lemma surface glabrous or indumented. Lemma apex erose, mucicous or awned, 1 -awned. Median (principal) awn dorsal, 0–5 mm long overall, with a twisted column. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Tasmania.

Tasmania: North East, Midlands, East Coast.

Notes. Introduced. Occasional in Tas. Mediterranean, northern Africa and New Zealand. Wet areas. Flowers Nov.-Feb. Fruits Oct.-Mar.

Gaudinia fragilis* (L.) Beauv. *Ess. Agrostogr.* 95, 164 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena fragilis* L. *Sp. Pl.* 80 (1753).

Type of Basionym or Protologue Information: Spain, Portugal: *Herb. Linn.* 43.19 (S lecto).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (222), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (156).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (223, fig. 168), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (162, Fig.24).

Habit. Annual. Culms erect or geniculately ascending, 10–95 cm tall, 4 -noded. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.4–0.7 mm long, truncate. Leaf-blades 13–20 cm long, 0.6–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets ((3-)4–7(-11)), comprising (3-)4–7(-11) fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–22 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 3–4 -nerved. Lower glume surface glabrous or indumented. Upper glume oblong, 5–10 mm long, herbaceous, keeled, 1-keeled, 5–10 -nerved. Upper glume surface smooth or scabrous, glabrous or indumented.

Florets. Fertile lemma 4.3–9.4 mm long, keeled, 5–9 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn dorsal, 9–15 mm long overall, with a twisted column. Palea 2 -nerved. Anthers 3. Grain 0.5–3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** Gippsland Plain, Otway Plain, Volcanic Plain, Wannon.
Tasmania: Midlands.

Notes. Native to the Mediterranean. Usually in damp habitats. Flowers Oct.-Nov.

Germainia capitata Balansa & Poitrass. *Bull. Soc. Hist. Nat. Toulouse* 7: 344 (1873). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Vietnam, Saigon: *Germain* .

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (105), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–90 cm tall, 3–5 -noded. Lateral branches simple. Ligule a fringed membrane, a ciliate membrane, 1–1.5 mm long. Leaf-blades flat or involute, 7–38 cm long, 3–9 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame. Rhachis obsolete (rame capitate).

Spikelets. Spikelets pedicelled, 1 in the cluster. Companion spikelets sessile, 1 in the cluster. Basal sterile spikelets well-developed, 1–4 in number. Companion spikelets developed, male, 16–23 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, terete, 8–14 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, without keels, 3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 7–9 mm long, chartaceous, without keels, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 60–90 mm long overall, with a twisted column. Column 40–60 mm long. Palea absent. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Port Curtis.

Notes. Grows in open *Eucalyptus* and *Melaleuca* woodland, only in a limited area NW of Bundaberg, Gladstone and Badu and Moa Is.. Extends to New Guinea and in Malaya, Thailand, Vietnam and south China. Flowers Jan.–Mar.

Germainia grandiflora (S. T. Blake) Chaianan. *Thai For. Bull.* 6: 44 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sclerandrium grandiflorum* S. T. Blake, *Austral. Journ. Bot.* 2: 108 (1954).

Type of Basionym or Protologue Information: Australia, Hayes Creek: *Blake 16405* .

Recent synonyms: *Sclerandrium grandiflorum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 30–100 cm tall, 4–5 -noded. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.5–1 mm long. Leaf-blades erect, 7–30 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis tough.

Spikelets. Spikelets pedicelled, 1 in the cluster. Companion spikelets sessile, 1 in the cluster. Basal sterile spikelets absent or well-developed, 2 in number. Companion spikelets developed, male, 6.5–12 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, terete, 4–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels, 3–5 -nerved. Upper glume oblong, 3–6 mm long, coriaceous, without keels, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn 25–53 mm long overall, with a twisted column. Palea absent. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Grows in sandy soil in wet areas in *Eucalyptus* and *Melaleuca* savannas in tropical N.T. and Qld. Flowers Sept.--Feb. & May--Jul. Map 15.

Germainia truncatiglumis (F. v. M. ex Benth.) Chaianan. *Thai For. Bull.* 6: 45 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Ischaemum truncatiglume* F. Muell. ex Benth., *Fl. Austral.* 7: 518 (1878).

Type of Basionym or Protologue Information: Australia, Arnhem Land: *Mueller* (K iso).

Recent synonyms: *Sclerandrium truncatiglume*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (518 as *Ischaemum truncatiglume*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (302 as *Sclerandrium*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (303, Pl.88 as *Sclerandrium truncatiglume*).

Habit. Perennial. Culms 55–150 cm tall, 4–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long. Leaf-blades 10–50 cm long, 2–10 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Central inflorescence axis 5–10 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Companion spikelets sessile, 1 in the cluster. Companion spikelets developed, male, 5–6.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 3–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, without keels, 3–5 -nerved. Lower glume surface indumented. Upper glume oblong, chartaceous, without keels, 1–3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 15–25 mm long overall, with a twisted column. Palea absent. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North.

Notes. Occurs in wet areas of sandy savanna country of northern N.T. and W.A. extending to New Guinea. Flowers July--Oct. Map 13.

Glyceria australis C. E. Hubbard. *Bull. Misc. Inf. Kew* 1934: 450 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Type of Basionym or Protologue Information: Australia, Port Jackson: *Brown* 6296 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (176), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (270), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (73).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (177, fig. 126 & plate 5), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (270), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (75, Fig 11).

Habit. Perennial. Rhizomes present. Culms decumbent, 30–150(–200) cm tall, 4–6 -noded. Lateral branches simple or branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–8.5 mm long, truncate or obtuse or acute. Leaf-blades 9–20 cm long, 2–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 1.5–3 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–14(–20)), comprising 5–14(–20) fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 20–38 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, without keels or keeled, 1 -nerved. Upper glume lanceolate or ovate, (5–)5.5–8.1 mm long, membranous, without keels or keeled, 1 -nerved.

Florets. Fertile lemma (6–)7.9–10(–11) mm long, without keel, 7 -nerved. Lemma apex entire. Palea 2 -nerved. Palea apex dentate. Lodicules present. Grain 3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **South Australia:** Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, Central Highlands, Midlands, East Coast.

Notes. Specimens seen from Tas., S.A. and some from Vic. differ in the upper leaf surface which is grooved and with distinct soft, broad, white, translucent hair-like projections.

Endemic. All states but N.T. and Qld. Grows alongside creeks and rivers, often in shallow water. Flowers Nov.-Jan. Fruits Feb.

Glyceria declinata* Breb. *Fl. Normandie* ed. 3, 354 (1859). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Type of Basionym or Protologue Information: France, Normandy: Coll?.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (418), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (178), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (270), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (76).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (45), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (178, fig. 127), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (270), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (75, Fig 11).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending or decumbent or prostrate, 10–85 cm tall, 1–3 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 4–9 mm long, obtuse or acute. Leaf-blades flat or conduplicate, 3–18 cm long, 1.5–8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 4–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–15), comprising 8–15 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 13–27 mm long.

Glumes. Glumes similar. Lower glume oblong or ovate, membranous, without keels, 1 -nerved. Upper glume oblong or ovate, 2.5–5.5 mm long, membranous, without keels or keeled, 1 -nerved.

Florets. Fertile lemma 4–6 mm long, without keel, 7 -nerved. Lemma apex dentate. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.5–2.3 mm long.

Continental Distribution: Europe, Africa, Australasia, and North America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies. **South Australia:** Flinders Ranges, Northern Lofty, Southern Lofty, South-eastern. **New South Wales:** South Coast, Southern Tablelands, South-Western Plains. **Victoria:** Eastern Highlands, Gippsland Plain, Midlands, Volcanic Plain, Wannon. **Tasmania:** King Island, North East, West Coast, Midlands, East Coast.

Notes. Introduced. Native to Europe. Grows in wet and seasonally inundated places. Flowers Aug.-Oct., Jan.-May. Fruits Nov.-Feb.

Glyceria drummondii (Steud.) C. E. Hubbard. *Bull. Misc. Inf. Kew* 450 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Basionym and/or Replacement Name: *Porroteranthe drummondii* Steud., *Syn. Pl. Gram.* 287 (1855).

Type of Basionym or Protologue Information: Australia: *Drummond* 390 (K iso).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (102), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (77).

Habit. Annual. Culms geniculately ascending or decumbent, 20–100 cm tall, spongy. Lateral branches branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5–7 mm long, acuminate. Leaf-blades 17–110(–150) cm long, 1.6–3.5(–4.5) mm wide. Leaf-blade surface scaberulous or papillose, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 7–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–14), comprising 4–14 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 10–30 mm long.

Glumes. Glumes similar. Lower glume oblong or ovate, membranous, without keels, 1 -nerved. Upper glume oblong or ovate, 0.8–2.5 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 5–8 mm long, without keel, 7 -nerved. Lemma apex entire. Palea 2 -nerved. Palea apex entire or erose. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond.

Notes. Endemic. In brown clay pans within clay plains, seasonally flooded site. Flowers Oct.

Glyceria fluitans* (L.) R. Br. *Prodr.* 179 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Basionym and/or Replacement Name: *Glyceria fluitans* L, *Sp. Pl.* 75 (1753).

Type of Basionym or Protologue Information: Europe: *Herb. Linn.* 92/22 (LINN holo).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (179), [1878] G.Bentham, *Flora Australiensis* 7 (657), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (102), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (74).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (103, Pl. 29).

Habit. Perennial. Culms erect or decumbent, 50–100 cm tall. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 5–15 mm long, acute. Leaf-blades flat or conduplicate, 5–25 cm long, 3–10 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–16), comprising 8–16 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 15–35 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, without keels, 1 -nerved. Upper glume oblong, 3–5 mm long, membranous, without keels, 1(–3) -nerved.

Florets. Fertile lemma 5.5–7.5 mm long, without keel, 7 -nerved. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Tasmania.

Tasmania: East Coast.

Notes. Introduced. A few records from East Coast, Tas. Native to Europe, temperate Asia, North Africa, North America.

Glyceria latispicea (F. Muell.) F. Muell. ex Benth. *Fl. Austral.* 7: 658 (1878). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Basionym and/or Replacement Name: *Festuca latispicea* F. Muell., *Fragm.* 8: 127 (1873); *Poa aquatica* L. *Sp. Pl.* 1: 67 (1753).

Type of Basionym or Protologue Information: Ad Gwydir et Myall-Creek, Leichhardt; in Nova Anglia, C. St.,.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (658), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (270), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (77).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (270), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (75, Fig 11).

Habit. Perennial. Culms 110 cm tall. Ligule an eciliate membrane, 5 mm long. Leaf-blades 5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 11–11.5 cm long.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), 15 mm long.

Glumes. Lower glume lanceolate, keeled, 1-keeled, 5 -nerved. Upper glume lanceolate, 8–11 mm long, keeled, 1-keeled, 5 -nerved.

Florets. Fertile lemma 6–9 mm long, keeled. Lemma apex erose or dentate.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast, Northern Tablelands, North-Western Slopes.

Notes. Restricted to northern N.S.W. Wet areas in grasslands and near roadsides. Flowers spring-summer.

Glyceria maxima* (Hartm.) O. R. Holmberg. *Bot. Not.* 1919: 97 (1919). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Basionym and/or Replacement Name: *Molinia maxima* Hartm., *Handb. Skand. Fl.* 56 (1820).

Type of Basionym or Protologue Information: LT: (LINN-87.1). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 255 (2000).

Recent synonyms: *G. aquatica*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (102 as *G. aquatica*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (418), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (179), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (271), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (73).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (178, fig. 128), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (271), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (75, Fig 11).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 90–250 cm tall. Lateral branches simple. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–7 mm long, truncate or obtuse (cuspidate). Leaf-blades flat, 22–60 cm long, 7–20 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 15–45 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 5–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong or ovate, membranous, without keels or keeled, 1 -nerved. Upper glume oblong or ovate, 2.8–4 mm long, membranous, without keels or keeled, 1 -nerved.

Florets. Fertile lemma 3–4 mm long, without keel or keeled, 7 -nerved. Lemma apex entire. Palea 2 -nerved. Palea apex erose. Lodicules present. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Europe, Temperate Asia, Australasia, and North America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies, Warren. **South Australia:** South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Riverina, Volcanic Plain, Wannon. **Tasmania:** North West, North East, Midlands, East Coast, South West.

Notes. Previously used as a forage grass in wet areas, but now a significant weed of wetlands in some areas.

Introduced. Native of Europe of temperate Asia. Wet areas such as creeks, dams and waterholes. Flowers Nov.-Feb.

Glyceria plicata* (Fries) Fries. *Nov. Fl. Suec. Mant.* 3: 176 (1842). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Meliceae.

Basionym and/or Replacement Name: *Glyceria fluitans* var. *plicata* Fr., *Novit. Fl. Suec. Mant.* 2: 6 (1839).

Type of Basionym or Protologue Information: Sweden., *Fries 91* (HT: ?).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (76).

Habit. Perennial. Culms geniculately ascending or decumbent, 30–100 cm tall, spongy. Lateral branches branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–8.5 mm long, obtuse or acute. Leaf-blades flat or conduplicate, 5–30 cm long, 3–14 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 10–47 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–16), comprising 7–16 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–25 mm long.

Glumes. Glumes similar. Lower glume elliptic or oblong or ovate, membranous, without keels or keeled, 1 -nerved. Upper glume elliptic or oblong or ovate, 2.5–4 mm long, membranous, without keels or keeled, 1 -nerved.

Florets. Fertile lemma 3.5–5.1 mm long, without keel, 7 -nerved. Lemma apex entire. Palea 2 -nerved. Palea apex erose or dentate. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Victoria, Tasmania.

Victoria: Eastern Highlands, Gippsland Plain. **Tasmania:** North West.

Notes. Introduced. Of restricted distribution, in Tas. known from one site in NW, and from two sites in Vic. Native to Europe. Growing in wet areas. Flowers Nov.-Jan.

Hainardia cylindrica* (Willd.) Greuter. *Boissiera* 13: 177 (1967). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Rottboellia cylindrica* Willd., *Sp. Pl.* 1(1): 464 (1797).

Type of Basionym or Protologue Information: Habitat in Europa australi.,

Recent synonyms: *Monerma cylindrica*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (668 as *Lepturus cylindricus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (188 as *Monerma cylindricas*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (469 as *Monerma*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (418), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (127), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (271), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (351).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (189, Pl.50 as *Monerma*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (128, fig. 84), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (147), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (271), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (350, Fig. 47).

Habit. Annual. Culms erect or geniculately ascending, 4–48 cm tall. Ligule an eciliate membrane, 0.2–0.6 mm long. Leaf-blades aciculate, involute, 3–16 cm long, 1.5–2.6 mm wide.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 4.3–7 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 4.3–7.2 mm long, coriaceous, without keels, 3–5(–9) -nerved.

Florets. Fertile lemma 4.3–5.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Warren, Avon. **South Australia:** Lake Eyre, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Murray Mallee, Otway Plain, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, East Coast.

Notes. Southern and eastern Australia, all states except N.T. and Qld, also on Lord Howe Is. Native to the Mediterranean. Usually found on saline or gypsaceous soils associated with coastal vegetation. Flowers Oct.-Mar.

Hemarthria uncinata R. Br. *Prodr.* 207 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *R. Brown 6160*, Australia (BM (photo, BI, K); IT: K, LE?).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (207 & as *Hemarthria compressa*), [1878] G.Bentham, *Flora Australiensis* 7 (510 as *Hemarthria compressa*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (306), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (419), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (520), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (272).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (305, Pl. 89), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (521, Fig. 445 as var. *uncinata*), [1984] N.T.Burbidge, rev. S.W.L.Jacobs, *Australian Grasses* (149).

Habit. Perennial. Stolons present. Culms erect or prostrate, 20–100 cm tall. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Ligule a fringed membrane, a ciliate membrane, 0.3 mm long. Leaf-blades flat or conduplicate, 5–15 cm long, 1.5–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a rame. Rhachis fracturing into irregular segments.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male. Companion spikelet glumes muticous or awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 5–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, herbaceous, keeled, 2-keeled, winged on keel, winged narrowly, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex muticous or awned. Upper glume elliptic or oblong, membranous, without keels, 1–3 -nerved. Upper glume surface glabrous.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 0 -nerved. Palea present or absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T.

Western Australia: Irwin, Drummond, Menzies, Warren, Eyre. **South Australia:** Eyre Peninsula, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, West Coast, Midlands, East Coast, South West.

Notes. Locally abundant near the coast, in wet areas. From all Australian states except N.T.

Infra -specific taxa: var. *uncinata*, var. *spathacea* .

Leaf sheaths loose, expanded, flattened and spathe-like

Leaf sheaths not as above

H. uncinata var. *spathacea*

H. uncinata var. *uncinata*

Hemarthria uncinata var. *uncinata*

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T.

Notes. Occurs in coastal south-western W.A., coastal Tas to central Qld. Flowers Jan.--May and Nov.-Dec.

Hemarthria uncinata var. *spathacea* (Domin) Vickery. *Contr. New South Wales Natl. Herb.* 3(2): 83 (1961).

Classification. Basionym and/or Replacement Name: *Rottboellia compressa* var. *spathacea* Domin *Biblioth. Bot.* 85(2): 261–262, f. 62 (1915).

Type of Basionym or Protologue Information: HT: *Domin s.n.*, Dec 1909, Australia: Queensland: in frutice apud Sunny Bank procul opp. Brisbane (PR (photo, BRI, K); IT: NSW (fragm.)).

Australian Distribution: Queensland, New South Wales.

Notes. Occurs in coastal areas from central N.S.W. to northern Qld. Flowers Nov.--July and Sept.

Heterachne abortiva (R.Br.) Druce. *Bot. Soc. Exch. Club Brit. Isles* 1916: 627 (1917). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa abortiva* R. Br., *Fl. Nov. Holl.* 181 (1810).

Type of Basionym or Protologue Information: Australia. Queensland: Burke District: Gulf of Carpentaria, Island C.: Nov. 1802, *Brown 6268LT* designated by C.E.Hubbard 1935.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (635 as *Heterachne brownii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 74E-F).

Habit. Annual. Culms erect or decumbent, 10–35 cm tall, 3–5 -noded. Ligule a fringe of hairs. Leaf-blades flat or convolute, 5–18 cm long, 0.8–4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 1.5–5 cm long, 1–2 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret or many flowered, with at least 2 fertile florets (1–3), comprising 1–3 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 3–11 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.8–2.5 mm long, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.6–3.6 mm long, keeled, winged on keel, 3 -nerved. Lodicules present. Anthers 3. Grain 1.3–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook.

Notes. Common in some roadside locations, and has been collected with *H. gulliveri* var. *gulliveri*, from which it is readily distinguished by its denser, spiciform panicles overtopped by leaves, and its longer and usually more numerous sterile florets.

Distributed from the Kimberley, W.A., around to the Gulf of Carpentaria, N.T., within 150 km of the coast, and across Cape York Penin., Qld. In the Kimberleys recorded from grassland areas among woodland in fine-textured loamy soil; elsewhere known from heavy grey and yellow clays in seasonal swamps, and lateritic sandy soils, fine solodized and podzolized soils, in woodlands or shrublands of *Eucalyptus tetrodonta*, *E. polycarpa*, *Melaleuca*, *Hakea*, *Acacia*.

Heterachne baileyi C. E. Hubbard. *Hooker's Icon.* t.3283: 3 (1935). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook Dist.: Weipa, on the Embley River, Jun 1901, *J.F. Bailey s.n.* (HT: K; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 74C-D).

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 9–45 cm tall, 4–6 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or convolute, 3–8 cm long, 0.6–3.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 3.5–20 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret or many flowered, with at least 2 fertile florets (1–2), comprising 1–2 fertile floret(s), with diminished florets at the apex, ovate or orbicular, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or ovate, 1.8–3 mm long, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.8–3.2 mm long, keeled, winged on keel, 3 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Cape York Penin., Qld, N of 14°S. Considered rare, but reported as locally common on road and track margins particularly in wetter sites in drains. Occurs on lower slopes in open forest or woodland of such species as *Eucalyptus tetrodonta*, *E. clarksoniana*, *E. polycarpa*, *E. confertiflora* and *E. platyphylla*, on podsolic or rocky soils.

Heterachne gulliveri Benth. *Hooker's Icon. Pl.* t.1250 (1877). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Northern Australia: between Norman and Gilbert Rivers, Carpentaria, *Gulliver s.n.*.

Recent synonyms: *H. gulliveri* var. *major*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (635), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 10–66 cm tall. Ligule a fringe of hairs. Leaf-blades filiform, flat or involute or convolute, 3.5–16 cm long, 0.5–3.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret or many flowered, with at least 2 fertile florets (1(-3)), comprising 1(-3) fertile floret(s), with diminished florets at the apex, ovate or orbicular, laterally compressed, 2–4 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 1.5–2.8 mm long, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2–3.5 mm long, keeled, winged on keel, 3 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. Two varieties are recognised.

Basal leaf sheath margins glabrous; spikelets 2–2.5 mm long, 2–2.5 mm wide; glume midnerve scaberula toward the apex **2a.** var. **gulliveri**

Basal leaf sheath margins pilose; spikelets 3–4 mm long, 3–4 mm wide; glume midnerve scaberula extending the entire nerve length **2b.** var. **major**.

Across northern Australia, within 300 km of the coast. Mostly in sandy and swampy areas in woodlands and shrublands.

var. **gulliveri**

Recorded from northern N.T., around the Gulf of Carpentaria to the E of Cape York Penin., Qld. Found with *Eucalyptus*, *Melaleuca*, *Callitris* and *Pandanus* in woodlands, shrublands and heathlands, often in depressions and seasonal swamps, in sandy lateritic, loamy, brown or grey clay soils, sometimes with granite.

var. **major**

Recorded from the Kimberley region, and across the base of Cape York Penin., Qld. Found in damper, sometimes shaded, places such as creek edges, depressions in forests and woodlands, also open salt-pans, usually on sandy soils.

Heterachne gulliveri var. **gulliveri**

Australian Distribution: Northern Territory, Queensland.

Heterachne gulliveri var. **major**

Australian Distribution: Western Australia, Queensland.

Heteropogon contortus (L.) Beauv. ex Roem. & Schult. *Syst. Veg.* 2: 836 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon contortus* L., *Sp. Pl.* 2: 1045 (1753).

Type of Basionym or Protologue Information: India.; *Plukenet, Phyt. pl.* 191, f. 5, 1692.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (201 as *Andropogon contortus*), [1878] G.Bentham, *Flora Australiensis* 7 (517), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (341), [1969] E.E.Henty, *Manual Grasses New Guinea* (108), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (494), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (273).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (339, Pl. 99), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (151), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (273).

Habit. Perennial. Culms erect, 30–100 cm tall, 1.5–3 mm diam. Mid-culm internodes solid. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Leaves cauline. Ligule a fringe of hairs, 1 mm long. Leaf-blades flat or conduplicate, 3–30 cm long, 2–8 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 6–34 in number. Companion spikelets developed, containing empty lemmas or male, asymmetrical, 5–15 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 5–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear, hyaline or coriaceous, without keels, 5–9 -nerved. Lower glume surface indumented. Upper glume linear, 4 mm long, coriaceous, without keels, 3 -nerved. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3–5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 50–80 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory North. **New South Wales:** North Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. A pantropic species found in Australia in the wet tropical savannas from northern N.S.W. to the Kimberley region of W.A. Very variable morphologically, particularly the hairiness of the pedicelled spikelet. Readily eaten by stock although the seed, with its pungent callus, presents a problem at maturity. Flowers all year.

Heteropogon triticeus (R.Br.) Stapf ex Craib. *Bull. Misc. Inform.* 432 (1912). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon triticeus* R. Br. *Prodr.* 201 (1810).

Type of Basionym or Protologue Information: T: Australia.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (201 as *Andropogon triticeus*), [1878] G.Bentham, *Flora Australiensis* 7 (517 as *Heteropogon insignis*), [1969] E.E.Henty, *Manual Grasses New Guinea* (108), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 100–160 cm tall, 4–8 mm diam., 80–300 -noded. Mid-culm internodes solid. Mid-culm nodes glabrous. Lateral branches branched or fastigiate. Leaves cauline. Ligule an eciliate membrane, 1 mm long, membranous, truncate. Leaf-blades flat or conduplicate, 20–80 cm long, 3–16 mm wide. Leaf-blade surface scaberrulous.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 2 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 16–40 in number. Companion spikelets developed, containing empty lemmas or male, asymmetrical, 18–25 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear, terete, 10–15 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear, hyaline or coriaceous, without keels, 5–9 -nerved. Lower glume surface indumented. Upper glume linear, coriaceous, without keels, winged on margins, 3 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline or membranous, 0 -nerved.

Fertile lemma 5 mm long, 3 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 70–140 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. *Eucalyptus* forests and woodlands of northern and eastern Australia through SE Asia to India. Flowers Dec.--Oct.

Hierochloë fraseri Hook. f. *Fl. Antarct.* 1: 93 (1845). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Tasmania,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (142).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Culms stature slender to delicate, 11–50 cm tall, 2–3 -noded. Lateral branches simple. Ligule an eciliate membrane, obtuse or acute. Leaf-blades 2.2–13.5 cm long, 1.5–8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 3.5–10.5 cm long.

Spikelets. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), oblong, 3.4–4.7 mm long.

Glumes. Lower glume ovate, keeled, 1-keeled, 1(–3) -nerved. Upper glume ovate, 2.9–4.05 mm long, keeled, 1-keeled. **Florets.** Basal sterile florets 2 or more, barren. Lemma of lower sterile floret awned. Lemma of upper sterile floret dentate, awned.

Fertile lemma 2.5–3.4 mm long, 5 -nerved. Lemma apex muticous or awned.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, Central Highlands, Ben Lomond, South West, Mt Wellington.

Notes. Endemic and restricted to Tas. Common in herb and grassfields, heath, shaded sites among boulders, cliff ledges, stream banks, above 950 m altitude. Flowers Jan.-Mar.

Hierochloë rariflora Hook. f. *Fl. Antarct.* 1: 93 (1844). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: HT: *Hooker s.n.*, Australia (K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (559), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (274), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (143).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (153), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (274), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Perennial. Rhizomes absent or present, short. Culms geniculately ascending or decumbent, stature robust to moderate or slender to delicate, 27–100 cm tall, wiry, 5–10 -noded. Lateral branches branched. Ligule an eciliate membrane, 1 mm long, truncate or obtuse. Leaf-blades flat or convolute, 7.5–43.5 cm long, 2–10.8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 3–14.5 cm long, 3–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, herbaceous, without keels or keeled, 1-keeled, 3 -nerved. Upper glume oblate, 2.5–4.7 mm long, herbaceous, without keels or keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 2 or more, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 5 -nerved, muticous. Lemma of upper sterile floret entire or erose, muticous.

Fertile lemma 3.2–5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex muticous. Palea 1 -nerved, 1-keeled. Lodicules present. Anthers 2 (bisexual) or 3 (male).

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Moreton. **New South Wales:** North Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain. **Tasmania:** North East, East Coast.

Notes. The type is said to be from West Australia, King George's Sound, *Baxter*, but Bentham (*Fl. Austral.* 7: 559 (1878)) suggested 'coast of Victoria'. The species is not recorded in W.A.

Endemic. Commonly in shaded, rocky habitats. Flowers July-Dec.(-Feb.).

Hierochloë redolens (Vahl) Roem. & Schult. *Syst. Veg.* 2: 514 (1817). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Holcus redolens* Vahl, *Symb. Bot.* 2: 102 (1791).

Type of Basionym or Protologue Information: HT: [J.R. & G. Forster] *Fabricius [misit]*, 20 Dec. 1774 – 3 Jan. 1775, Terra del Fuego (C; IT: BM-FORST, K (p.p. Tierra del Fuego)). "Vahl index card: Habitat in terra del fuego Prof Fabricius." This is a Forster collection sent to Vahl by Dr. Fabricius, of Kiel. See Hansen & Wagner, *Allertonia* 7: 345 (1998). The province of the C specimen has been argued to be New Zealand by Zotov [who saw a photo] (1973), or Fuegian by De Paula (1975).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (209 as *H. antarctica*), [1878] G.Bentham, *Flora Australiensis* 7 (558), [1969] E.E.Henty, *Manual Grasses New Guinea* (109), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (274), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (141).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (153), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (274), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Perennial. Rhizomes absent or present, short. Culms erect, 36–100 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule an eciliate membrane, 4–9 mm long, obtuse. Leaf-blades 8–45 cm long, 5–12 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, laterally compressed, 6–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 5–8.9 mm long, hyaline, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 2 or more, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 1-keeled, 5 -nerved, awned. Lemma of upper sterile floret entire or erose or dentate, awned.

Fertile lemma 4–4.5 mm long, without keel, (3–)5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 1 -nerved, 1-keeled. Lodicules present. Anthers 2 (bisexual) or 3 (male).

Continental Distribution: Tropical Asia, Australasia, South America, and Antarctica.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Grampians, Snowfields. **Tasmania:** North East, Central Highlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. Native. S from Barrington Tops. New Guinea, New Zealand, South America. Usually in wet subalpine to alpine grasslands, also under light forest. Flowers Dec.-Feb.

Hierochloë submutica F. Muell. *Trans. & Proc. Victorian Inst. Advancem. Sci.* 48 (1855). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Australia: Victoria: Cobberas Mts (MEL; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (274), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (142).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (274), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Perennial. Rhizomes present, short. Culms erect, 30–70 cm tall, 4–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Ligule an eciliate membrane, 4–9 mm long, erose, truncate or acute. Leaf-blades 5–25 cm long, 4–8 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or ovate, laterally compressed, 3.9–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume ovate, hyaline, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 3.8–6 mm long, hyaline, keeled, 1-keeled, 3 -nerved. **Florets.** Basal sterile florets 2 or more, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 1-keeled, 5 -nerved, muticous or mucronate. Lemma of upper sterile floret entire.

Fertile lemma 3.2–3.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex muticous. Palea 1 -nerved, 1-keeled. Lodicules present. Anthers 2 (bisexual) or 3 (male).

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** Mt Field.

Notes. Endemic. S from Kosciusko, N.S.W. Rare, confined to boggy sites usually above the tree line and in alpine herbfields. Flowers Dec.-Feb.

Holcolemma dispar W.D. Clayton. *Kew Bull.* 42: 402 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *F. Mueller s.n.*, Australia: ad flumen Dawsoni (MEL; ILT: K). LT designated (as holotype) by ?; cited by Webster, *Sida* 16: 443 (1995).

Recent synonyms: *Paspalidium inaequale*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (482 as *Panicum inaequale*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms geniculately ascending or decumbent, stature slender to delicate, 25–45 cm tall. Ligule a fringed membrane, a ciliolate membrane, 0.4–0.6 mm long. Leaf-blades 2–10 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle lanceolate, 5–12 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3–4 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels, 7–9 -nerved. Upper glume oblong, 1.8–2.2 mm long, membranous, without keels, 11 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved.

Fertile lemma 2.3–2.4 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, North Kennedy, Port Curtis.

Notes. In tropical and subtropical rain forests and Brigalow forests. A rare species with transverse enrolling of the glumes. Flowers Mar.-July.

Holcus annuus* Salzm. ex C.A.Mey. *Verz. Pfl. Casp. Meer.* 17 (1831). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: T: Caspian Sea, Asia/Europe.

Recent synonyms: *H. setiglumis*, *H. setosus* Trin., *Mem. Acad. Imp. Sci. St. Petersbourg, ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 3: 87 (1839).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (224 as *H. setosus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (140).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (226, fig. 170).

Habit. Annual or perennial. Culms erect or geniculately ascending, stature slender to delicate, 20–100 cm tall. Mid-culm nodes pubescent. Leaves cauline. Leaf-sheaths hairy. Ligule an eciliate membrane, obtuse. Leaf-blades 2–10 cm long, 1–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3–5 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume elliptic, 3–5 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented. Upper glume apex awned.

Florets. Fertile lemma 1.5–2 mm long, keeled, 3–5 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Murray, Southern Lofty, Kangaroo Island. **Victoria:** Eastern Highlands, Midlands, Otway Range, Volcanic Plain, Wannon.

Notes. Introduced. Currently restricted to Vic. where its range is considered to be increasing, particularly through the drier Midlands where it has become a weed of grass-seed crops. Native to the Mediterranean. Flowers Nov.-Feb.

Holcus lanatus* Linn. *Sp. Pl.* 1048 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Habitat in Europae pasenis arenosis, typ. cons.

LT: *Anon.*, (LINN-1212.10). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 54 (1993), typ. cons.. ST: *van Royen s.n.*, (L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (586), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (41), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (419), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (224), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (275), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (137).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (40, Pl. 10), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (225, fig. 169), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (155), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (275), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (138, Fig.21).

Habit. Perennial. Culms erect or geniculately ascending, 20–80(–120) cm tall, 2–5 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Leaves mostly basal. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–2.5(–4) mm long, abaxially hairy, bilobed, truncate. Leaf-blades 4–20 cm long, 3–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong or ovate, dense or loose, 25–270 cm long, 1–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3.7–6 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1 -nerved. Lower glume apex mucicous or mucronate. Upper glume elliptic, 3.7–6 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous, indumented. Upper glume apex mucronate.

Florets. Fertile lemma 2–2.5 mm long, keeled, 3–5 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **South Australia:** Gairdner-Torrens Basin, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton, South Kennedy, Wide Bay, Burnett. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon. **Tasmania:** North East, Central Highlands.

Notes. Introduced. Southern and eastern Australia. Native of Europe, now widely naturalized. A weed of wastelands, roadsides, poor pasture, and occasionally of native communities following disturbance. Flowers July-May.

Holcus mollis* Linn. *Syst. Nat.* 10th edn, 2: 1305 (1759). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-1212.9). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 251 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (275), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (139).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (275).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending or decumbent, 20–110 cm tall, 4–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes bearded. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–5 mm long, abaxially hairy, erose, obtuse. Leaf-blades 4–20 cm long, 3–12 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense or loose, 4–12(–22) cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, (3.5–)5–7 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1-nerved. Lower glume apex muticous. Upper glume elliptic, (3.5–)5–7 mm long, chartaceous, keeled, 1-keeled, 3-nerved. Upper glume surface asperulous, indumented. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2–3 mm long, keeled, 5-nerved. Lemma surface glabrous or indumented. Anthers 3.

Continental Distribution: Europe, Africa, Tropical Asia, Australasia, and North America.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, Central Tablelands. **Victoria:** Gippsland Highlands. **Tasmania:** North West.

Notes. Introduced. Known only from Tewkesbury, NW Tas., occasional in Vic. and the central coast and central tablelands, N.S.W. Native of Europe. A weed of damp areas. Flowers Dec.-Feb.

Holcus setiger* Nees. *Linnaea* 7: 278 (1832). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (41), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (420), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (139).

Habit. Annual. Culms 12–65 cm tall. Mid-culm nodes pubescent. Leaves mostly basal. Leaf-sheaths hairy. Ligule an eciliate membrane, abaxially hairy, lacerate, obtuse or acute. Leaf-blades 6–14 cm long, 1–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic, 2.3–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3.6–4.3 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, 1-nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume oblong, 3–4.3 mm long, chartaceous, keeled, 1-keeled, 3-nerved. Upper glume surface indumented. Upper glume apex entire or dentate, awned.

Florets. Fertile lemma 1.6–1.8 mm long, without keel or keeled, 3–5-nerved. Anthers 3.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Menzies.

Notes. Introduced. Naturalised in bushland; recorded from sandy loam. Flowers Oct.-Nov.

Homopholis belsonii C. E. Hubbard. *Bull. Misc. Inform.* 127(1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: IT: *E. Belson s.n.*, Nov 1930, Australia: Queensland: Darling Downs Dist. (US-1611720).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (276).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (276).

Habit. Perennial. Stolons present. Culms 20–40 cm tall. Lateral branches sparsely branched. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.8–1.5 mm long. Leaf-blades flat, 3–15 cm long, 2–4.5 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate to globose, 8–25 cm long, 0.25–0.35 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.5–6.1 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, without keels, 7-nerved. Upper glume lanceolate, 4.5–5.7 mm long, membranous, without keels, 7-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 900 % of length of spikelet, membranous, 7-nerved.

Fertile lemma 2–3.5 mm long, 5–7-nerved. Lemma apex muticous or mucronate. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs. **New South Wales:** North-Western Slopes.

Notes. Rarely collected in the Darling Downs and North Western Plains regions of Qld and N.S.W. In Brigalow forests and temperate sub-humid woodlands. Wheeler *et al.* (1982, Grasses of New South Wales) reports it as locally abundant. Flowers Feb.-May.

Hookerochloa eriopoda (Vickery) S.W.L.Jacobs. *Telopea* 12(2): 277 (2008). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca eriopoda* Vickery, *Contr. New South Wales Natl. Herb.* 1: 10 (1939).

Type of Basionym or Protologue Information: New South Wales: Blue Mountains, Kanimbla Valley (Mt. Victoria) 24 Dec 1892, J.J. Fletcher *s.n.* (HT: K; IT: Sydney).

Recent synonyms: *Festucella eriopoda* (Vickery) E.B.Alexeev, *Austrofestuca eriopoda*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Austrofestuca eriopoda*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (276), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (276 as *Austrofestuca eriopoda*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (276).

Derivation: Gk. *erion*, wool; *pous*, foot. Basal leaf-sheaths woolly.

Habit. Perennial. Culms erect, 50–160 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Ligule an eciliate membrane, 2–3 mm long, abaxially hairy. Leaf-blades filiform, conduplicate or involute, 6–26.5 cm long, 0.2–0.65 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4.5–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 6.8–17 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume linear, coriaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 4.7–6.2 mm long, coriaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 5.5–8 mm long, keeled, (3–)5 -nerved. Lemma apex erose or dentate, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 1 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, A.C.T.

New South Wales: South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Snowfields.

Notes. Endemic. Extending from the East Gippsland area of Vic., to the S coast and southern, central and northern tablelands of NSW, and the A.C.T. Commonly in dry montane to subalpine open eucalypt forests and grasslands, occasionally in damp sites. Flowers Nov.-Feb. Fruits May ?.

Hookerochloa hookeriana (F.Muell.) S.W.L.Jacobs. *Byull. Moskovsk. Obsc. Isp. Prir.* 90(5): 106–107, f. 1, 22–31 (1985). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca hookeriana* F. Muell. ex Hook. f., *Fl. Tasman.* 2: 127, t. 165 (1858).

Type of Basionym or Protologue Information: Tasmania: Cheshunt, *Archer s.n.*.

Recent synonyms: *Austrofestuca hookeriana* (F.Muell.) S.W.L.Jacobs.,

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (656 as *Schedonorus hookerianus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Austrofestuca hookeriana*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (277), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (276 as *Austrofestuca hookeriana*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (277), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (273, Fig.36 as *Austrofestuca hookeriana*).

Derivation: L. *-ana*, indicating connection. As for *hookeri*, usually in honor of Joseph Dalton Hooker (1817–1911), English botanist, traveller and Garden's Director.

Habit. Perennial. Culms erect, 55–185 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 2–6.8 mm long, abaxially hairy, obtuse. Leaf-blades flat or conduplicate, 5–76 cm long, 2–6.8 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 18–34.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7.7–14 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume linear, coriaceous, keeled, 1-keeled, 2–3 -nerved. Upper glume lanceolate, 5.5–9.4 mm long, coriaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 5.5–10.2 mm long, keeled, 5–11 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn subapical, 0.5–3 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania, A.C.T.

New South Wales: Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Otway Plain, Snowfields, Volcanic Plain, Wannon. **Tasmania:** Central Highlands, Ben Lomond, East Coast.

Notes. Endemic. In SE Australia, from the central tablelands of N.S.W. S from Bundanoon, the A.C.T., Vic. and Tas. From near sea-level to subalpine-alpine areas, often in open, wet (e.g. swampy, boggy, waterlogged) sites of eucalypt woodlands/forests. Flowers Nov.-Mar. Fruits Feb.-Apr.

Hordeum distichon* Linn. *Sp. Pl.* 85 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: France: 'pl. de l'ouest de la France', 29 June 1879, *Gadecau s.n.* (HT: ?; NT: BM).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (268), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (278), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (114).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (268, fig. 207), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (278).

Habit. Annual. Culms erect, 29–120 cm tall, 3–5 -noded. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.25–2 mm long, hyaline, truncate. Leaf-blades flat, 10–45 cm long, 3–12 mm wide.

Inflorescence. Inflorescence solid, a spike. Rhachis tough.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 10 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 8–12 mm long.

Glumes. Glumes similar. Lower glume subulate or linear or oblong, chartaceous. Lower glume apex muticous or awned. Upper glume linear, 4–5 mm long. Upper glume apex awned.

Florets. Fertile lemma 5.75–12 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 67–130 mm long overall. Anthers 3.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Eyre, Roe, Avon. **South Australia:** Lake Eyre, Flinders Ranges, Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty. **Queensland:** Cook, Darling Downs, Moreton. **New South Wales:** Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** Murray Mallee, Wimmera, Riverina, Midlands, Volcanic Plain, Gippsland Plain. **Tasmania:** No region given.

Notes. Native to Europe and naturalized in all Australian states except N.T. where it is generally restricted to roadsides. Flowers Sept.-Dec.

Hordeum glaucum* Steud. *Syn. Pl. Glumac.* 1: 352 (1854). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: France: 'pl. de l'ouest de la France', 29 June 1879, *Gadecau s.n.* (HT: ?; NT: BM).

Recent synonyms: *Hordeum glaucum*, *H. murinum* subsp. *glaucum*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (433), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (269), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (278), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (115).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (269, fig. 208), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (278).

Habit. Annual. Culms geniculately ascending, 6–60 cm tall, 3–5 -noded. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.5–1 mm long, hyaline. Leaf-blades flat, 2–20 cm long, 2–8 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 7–11 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7–12 mm long.

Glumes. Glumes similar. Lower glume subulate or oblong, chartaceous or coriaceous. Lower glume apex awned. Upper glume subulate, 25–30 mm long.

Florets. Fertile lemma 6–13.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 0–50 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe, Christmas Is.

Western Australia: Helms, Austin. Eucla, Irwin, Drummond. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Port Curtis, Leichhardt, Wide Bay, Darling Downs, Moreton, Gregory North, Warrego, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Lowan Mallee, Murray Mallee, Riverina, Wimmera. **Tasmania:** Furneaux Group, North East, East Coast.

Notes. This species, along with *H. leporinum* and *H. murinum*, is a widespread component of annual pastures in Australia. However, while it provides useful early feed it is considered undesirable because its sharp seeds can enter the eyes, skin and wool of sheep with resulting loss of productivity. In cereal-growing areas it can act as a host to several cereal diseases.

All states and territories. Flowers all year.

Hordeum hystrix* Roth. *Catal. Bot.* 1: 23 (1797). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: Habitat in Hispania --- Semina hujus graminis ante aliquot annos inter Passulas majores legi --- ex horto amici Roth [Mertens],

HT: (LE). "Hordeum hystrix mihi".

IST: *F.C. Mertens*, -- *Scrips s.n.*, no date, Spain (US-730911).

IST: (L).

Recent synonyms: *Hordeum geniculatum*, *Critesion hystrix*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (420 as *H.geniculatum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (270), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (279), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (112).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (270, fig. 209), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (279), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (113, Fig.17).

Habit. Annual. Culms erect or geniculately ascending, 6–35 cm tall. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.25–0.5 mm long, hyaline. Leaf-blades flat, 1–6 cm long, (0.75–)2–3.25 mm wide.

Inflorescence. Inflorescence solid, a spike. Rhachis fracturing into irregular segments.

Spikelets. Spikelets sessile. Fertile spikelets 8.5–11.5 mm long.

Glumes. Lower glume subulate or oblong, chartaceous or cartilaginous. Lower glume apex awned.

Florets. Fertile lemma 9–11.5 mm long. Lemma apex awned. Median (principal) awn 6–10 mm long overall.

Continental Distribution: Europe and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Drummond, Dale, Menzies. **South Australia:** Nullabor, Northern Lofty, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Moreton. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, West Coast.

Notes. *Hordeum hystrix* has, in the past, been confused with *H. marinum*, but differs from this species by its non-winged inner glumes of lateral spikelets, and its possession of trichomes up to 0.5 mm long on the sheaths of lower leaves.

In all states and territories except N.T. Said to be a widely distributed weed of disturbed, sandy (and often saline) soils. Flowers Sept.-Jan.

Hordeum leporinum* Link. *Linnaea* 9: 133 (1834). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: Frequens in Graecia, HT: (B (destroyed)).

Recent synonyms: *Critesion murinum* subsp. *leporinum*, *H. murinum* subsp. *leporinum*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (433), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (420), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (270), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (279), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (115).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (271, fig. 210), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (157), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (279), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (113, Fig.17).

Habit. Annual. Culms erect or geniculately ascending, 6–60 cm tall, 3–5 -noded. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.5–1 mm long, hyaline. Leaf-blades 2–20 cm long, 2–8 mm wide.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 7–11 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7–12 mm long.

Glumes. Glumes similar. Lower glume subulate or oblong, cartilaginous or indurate. Lower glume apex awned. Upper glume subulate, 25–30 mm long.

Florets. Fertile lemma 7–14 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 10–50 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe, Christmas Is.

Western Australia: Helms, Carnarvon. Eucla, Irwin, Drummond, Dale, Menzies, Avon, Coolgardie. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Gregory North, Leichhardt, Maranoa, Moreton, Port Curtis, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast, South West.

Notes. Planted as a winter or spring fodder crop (said to be particularly useful as a feed on sheep camps). However, the disarticulated triads of mature spikelets can be a contaminant of wool, and the point of attachment with the rachis may injure stock. Covas (1949) considered this species to be an allotetraploid arising from hybridisation between *H. murinum* and *H. glaucum*.

In all states and territories. Introduced into most parts of the world including New Zealand, southern Africa and North America, indigenous to the Mediterranean. Flowers Sept.-Nov.

Hordeum marinum* Huds. Fl. Angl. Ed. 2, 1: 57 (1778). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: T: Morison, Hist. Oxon. 3: 179, t. 6, f. 5 (1699).

Recent synonyms: *Critesion marinum*, *Hordeum maritimum*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (200), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (272), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (280), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (114).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (272, fig. 211), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (280), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (113, Fig.17).

Habit. Annual. Culms erect or geniculately ascending, 10–40 cm tall, 3–4 -noded. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.5–1 mm long, hyaline. Leaf-blades flat, 1.5–8 cm long, 1–3.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas, 3–5 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–11 mm long.

Glumes. Glumes similar. Lower glume subulate, cartilaginous or indurate. Upper glume subulate, 10–24 mm long.

Florets. Fertile lemma 5.5–8 mm long, without keel, 5 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 3–24 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Moreton. **New South Wales:** Southern Tablelands, South-Western Plains. **Victoria:** Murray Mallee, Lowan Mallee, Wimmera, Wannon, Grampians, Riverina, Midlands, Volcanic Plain, Otway Plain, Gippsland Plain, East Gippsland. **Tasmania:** Midlands, East Coast.

Notes. Indigenous to S and W Europe, naturalised in all eastern Australian states where it is found predominantly in coastal and inland saline habitats. Flowers Oct.-Jan.

Hordeum murinum* Linn. *Sp. Pl.* 85. (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: Habitat in Europae locis rudertis,

LT: *specimen 3 of Hordeum in the Clifford Herbarium*, LT designated by Baum & Jarvis, *Taxon* 34: 529 (1985). Bowden, *Can. J. Bot.* 40: 1695 (1960) considered LINN-103.8 to be the type.

Recent synonyms: *Critesion murinum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (669), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (200), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (116).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (199, Pl. 59).

Habit. Annual. Culms 6–60 cm tall, 3–5 -noded. Ligule an eciliate membrane, 0.5–1 mm long, hyaline. Leaf-blades 2–20 cm long, 2–8 mm wide.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 5–9 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–10 mm long.

Glumes. Glumes similar. Lower glume subulate or oblong, cartilaginous or indurate. Lower glume apex awned. Upper glume subulate, 20–30 mm long.

Florets. Fertile lemma 7–14 mm long, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 15–45 mm long overall. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: North West, East Coast.

Hordeum secalinum* Guss., non Schreb.(1771). *Spicil. Fl. Lips.* 148 (1771). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: ST?: *T. Thomson*, China: Xizang: western part, 10–15,000 ft.

Recent synonyms: *Critesion secalinum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (112).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (113, Fig 17).

Habit. Annual or perennial. Culms erect, 20–80 cm tall, 3–5 -noded. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.5–1 mm long, membranous. Leaf-blades flat, 2–15 cm long, 2–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a spike. Racemes 2–8. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile or pedicelled, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 4–6 mm long. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–9 mm long.

Glumes. Glumes similar. Lower glume subulate or oblong, cartilaginous or indurate. Upper glume subulate, 7–14 mm long.

Florets. Fertile lemma 4–9 mm long, without keel, 5 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 6–12 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: Victoria.

Victoria: Midlands, Riverina, Volcanic Plain, Wimmera.

Notes. Native to S and W Europe, naturalised in Tas. and Vic. where it has been recorded from roadsides and irrigated pastures. Flowers Oct.-Feb.

Hordeum vulgare* Linn. *Sp. Pl.* 84 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: LT: *Anon.*, (LINN-103.11). LT designated by Bowden, *Canad. J. Bot.* 37: 679 (1959).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (433), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (273), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (280), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (111).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (273, Fig. 212), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (280).

Habit. Annual. Culms erect, 40–87 cm tall, 2.5–4 mm diam., 3–5 -noded. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–2.5 mm long, hyaline, truncate. Leaf-blades flat, 10–45 cm long, 6–15 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a spike. Rhachis tough.

Spikelets. Spikelets sessile, 3 in the cluster. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, cuneate, dorsally compressed, 10–15 mm long.

Glumes. Glumes similar. Lower glume linear or elliptic or obovate, chartaceous. Lower glume surface indumented. Lower glume apex awned. Upper glume linear, 4–5 mm long. Upper glume surface indumented. Upper glume apex awned.

Florets. Fertile lemma 9–17 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 85–112 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Avon. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Cook, Moreton. **New South Wales:** Central Coast, South Coast, North-Western Slopes, South-Western Slopes. **Victoria:** Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera. **Tasmania:** No region given.

Notes. Numerous cultivars are grown throughout the temperate regions of the world. Most are utilised as a food source for humans, domestic animals and in the brewing industry.

In all states and territories. Individuals may form short-lived populations in the vicinity of cultivated *H. vulgare*, or where its seed is used as fodder, for example stock yards. Flowers mainly Aug.-Oct.

Hygrochloa aquatica M. Lazarides. *Brunonia* 2: 87 (1979). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: near Howard Springs, 12.25S 131.05E, 29 Jun 1977, *Craven 4462* (HT: CANB; IT: BRI, K, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Culms decumbent or prostrate (floating), 15–200 cm tall (long), spongy. Lateral branches sparsely branched. Ligule a fringe of hairs, 0.3–0.8 mm long. Leaf-blades floating, linear, flat, 2–16 cm long, 2.5–6 mm wide. Leaf-blade surface papillose.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, 1 cm long, bearing 1–4 fertile spikelets on each. Central inflorescence axis 4–10 cm long.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–2.8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume orbicular, membranous, without keels, 0 -nerved. Upper glume ovate, 1.2–2.3 mm long, membranous, without keels, 5(–7) -nerved. Upper glume apex entire or lobed. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5(–7) -nerved. Fertile florets female.

Fertile lemma 1.9–2.7 mm long, without keel, 5 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. *Hygrochloa aquatica* has specialized culm and leaf characteristics adapted to aquatic conditions. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Jan.-July.

Hygrochloa cravenii M. Lazarides. *Brunonia* 2: 89 (1979). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: 17 mi N of Wilton River crossing, 13.29S 134.31E, 15 Jun 1972, *Latz 2768* (HT: CANB; IT: NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 30–100 cm tall. Lateral branches branched or fastigiate. Leaf-sheaths antrorsely scabrous. Ligule a fringe of hairs, 0.2–1.5 mm long. Leaf-blades filiform, involute, 1–22 cm long, 0.5–3 mm wide. Leaf-blade surface papillose.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, 1–2 cm long, bearing 1–10 fertile spikelets on each. Central inflorescence axis 10.5–30 cm long.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–2.6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume ovate, 1.8–2.6 mm long, membranous, without keels, 5(–7) -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved. Fertile florets female.

Fertile lemma 1.9–2.5 mm long, without keel, 5 -nerved. Palea 2 -nerved. Anthers 3. Grain 1.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland. **Queensland:** Burke.

Notes. Diagnostic features include a longer main axis than *H. aquatica*, longer lowermost primary branches, more spikelets on these branches, the erect habit, involute leaves and the highly branched culms. *Hygrochloa cravenii* is known from only a few collections.

In tropical and subtropical sub-humid woodlands. Flowers June-July.

Hymenachne acutigluma (Steud.) Gilliland. *Gard. Bull. Straits Settle.* 20: 314 (1963). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum acutiglumum* Steud. *Syn. Pl. Glumac.* 1: 66 (1853).

Type of Basionym or Protologue Information: Philippine Islands:, *Cuming* 2287 (HT: P; IT: L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (480 as ?*Panicum myuros*), [1969] E.E.Henty, *Manual Grasses New Guinea* (109 as *H. amplexicaulis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms decumbent, 30–200 cm tall, spongy. Mid-culm internodes solid. Ligule an eciliate membrane, 0.7–2 mm long. Leaf-blades linear or lanceolate, 12–45 cm long, 6–30 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 8–50 cm long, 1–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.5–5.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 3–5 -nerved. Upper glume ovate, 3–4.3 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface asperulous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, awned.

Fertile lemma 2.5–3.5 mm long, without keel, 3 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy.

Notes. Variable in habit and size of the spikelets.

In tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. An aquatic or subaquatic species occasionally collected in the tropics of Qld and the N.T. Flowers sporadically throughout the year.

Hymenachne amplexicaulis* (Rudge) Nees. *Mex. Pl.* 2: 51, 67 (1886). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum amplexicaule* Rudge, *Pl. Guian.* 1: 21, pl. 27 (1805).

Type of Basionym or Protologue Information: T: *Rudge s.n.*, Guianas (?). IT: *mis. Nees ab Esenb.*, Brazil, British Guiana (LE-TRIN-0576.01). riliq. specimina Martinicensia Sieber s.no 266. T: *Martin s.n.*, French Guiana? (BM). T: British Guiana.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (281).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (281).

Habit. Perennial. Culms decumbent, stature robust to moderate, 200–350 cm tall, spongy. Mid-culm internodes solid. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1–2.5 mm long. Leaf-blades lanceolate, 15–33 cm long, 12–28 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 10–40 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3–4 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 2.8–3.9 mm long, membranous, without keels, 5 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–3.5 mm long, without keel, 3 -nerved. Palea 2 -nerved, without keels. Anthers 3.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Leichhardt, North Kennedy, South Kennedy.

Notes. Introduced relatively recently as a "ponded pasture" species in Qld and N.T., but spreading fairly rapidly as an aquatic weed.

Hymenachne acutigluma x amplexicaule **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Queensland.

Queensland: Cook.

Hyparrhenia filipendula (Hochst.) Stapf. *Fl. Trop. Afr.* 9: 323 (1918). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon filipendulus* Hochst., *Flora* 29(8): 115 (1846).

Type of Basionym or Protologue Information: HT: *Krauss* 28, South Africa: Natal (B; IT: K, MO-2103102).

Recent synonyms: *H. filipendula* var. *pilosa*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (534 as *Andropogon lachnatherus*), [1969] E.E.Henty, *Manual Grasses New Guinea* (110), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (282).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (282).

Habit. Perennial. Rhizomes present, short. Culms erect, 60–200 cm tall. Lateral branches simple or branched. Leaves cauline. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 15–30 cm long, 1.5–5 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Central inflorescence axis 20–90 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, on lower raceme 2 in number. Companion spikelets developed, containing empty lemmas or male, 5–7 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or elliptic or oblong, dorsally compressed, 5.5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous or coriaceous, without keels, 9–11 -nerved. Lower glume surface glabrous or indumented. Upper glume linear, chartaceous or coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 30–55 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Moreton, Port Curtis, South Kennedy, Wide Bay, North Kennedy. **New South Wales:** North Coast, North-Western Slopes, Central-Western Slopes.

Notes. Two varieties have been recognised traditionally with glabrous spikelets (var. *filipendula*, very rare in Australia) or hairy spikelets (var. *pilosa*, the form commonly found in Australia) but the distinction is not worth upholding (W.D.Clayton in Kew Bull. 30: 579 (1975)).

Fairly widespread in coastal areas of Qld and NSW, spreading through Malesia to Sri Lanka and abundant in Africa. Flowers Nov.–June.

Hyparrhenia hirta* (L.) Stapf. *Fl. Trop. Afr.* 9: 315 (1919). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon hirtus* L., *Sp. Pl.* 2: 1046 (1753).

Type of Basionym or Protologue Information: LT: *Burser* 1.119, (UPS). LT designated by Sherif & Siddiqui, *Fl. Libya* 145: 310 (1889). ST: *van Royen s.n.*, (L).

Recent synonyms: *H. quarrei*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (421), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (523), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (282).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (159), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (522, fig. 446), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (282).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 30–60(–100) cm tall, wiry. Leaves mostly basal. Ligule an eciliate membrane, 2–4 mm long. Leaf-blades flexuous, filiform or linear, flat or conduplicate, 2–30 cm long, 1–2(–4) mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, composed of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, containing empty lemmas or male, 3–7 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or elliptic, dorsally compressed, 4–6.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, hyaline or coriaceous, without keels, 9 -nerved. Lower glume surface indumented. Upper glume linear, hyaline or coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 10–35 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Irwin, Drummond, Dale. **South Australia:** Eastern, Northern Lofty, Southern Lofty. **Queensland:** Burnett, Darling Downs, Maranoa, Moreton, Cook. **New South Wales:** North Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** Riverina.

Notes. A widespread species from the Mediterranean and NE tropical Africa through to Pakistan and in South Africa with isolated records in tropical Africa. Introduced to Australia where it is naturalised in northern and SE Qld, coastal and northern N.S.W., S S.A., central N.T. and south-western W.A. Flowers Mar.--Aug.

Hyparrhenia rufa* (Nees) Stapf. *Fl. Trop. Africa* 9: 304 (191). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Trachypogon rufus* Nees, *Fl. Bras. Enum. Pl.*

Type of Basionym or Protologue Information: HT: *Martius s.n.*, Brazil: Piauí (M; IT: L, LE-TRIN-0226.01).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (282).

Habit. Perennial. Rhizomes present, short. Culms erect, 30–300 cm tall, 2–6 mm diam. Mid-culm internodes solid. Lateral branches fastigiate. Leaves cauline. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 10–60 cm long, 2–8 mm wide.

Inflorescence. Inflorescence compound, composed of racemes. Central inflorescence axis 5–80 cm long. Rachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number (lower raceme). Companion spikelets developed, containing empty lemmas or male, 3.5–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3.5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume lanceolate, chartaceous or coriaceous, without keels, 5–11 -nerved. Lower glume surface indumented. Upper glume linear, chartaceous or coriaceous, without keels, 3 -nerved. Upper glume apex dentate, mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3–4 mm long, without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 20–30 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** Central Coast.

Notes. Infra -specific taxa: subsp. *rufa*, subsp. *altissima*.

Peduncles glabrous or pubescent; racemes not deflexed **H. rufa**
subsp. *rufa*

Peduncles bearded with tubercle-based hairs; racemes sometimes deflexed on maturity **H. rufa**
subsp. *altissima*

Hyparrhenia rufa subsp. rufa*

Australian Distribution: Queensland.

Notes. An African savanna species introduced to Australia, where it occurs in coastal areas of central and southern Qld. Flowers Feb.--Aug.

Hyparrhenia rufa subsp. altissima* (Stapf) B.K. Simon. *Austrobaileya* 3(1): 86 (1989).

Classification. Basionym and/or Replacement Name: *Hyparrhenia altissima* Stapf, *Fl. Trop. Afr.* 9(2): 307–308 (1919).

Type of Basionym or Protologue Information: Ethiopia, *Schimper s.n.* (IT: K) Plants cultivated at Karlsruhe from seed collected by Schimper.

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (282).

Australian Distribution: Queensland, New South Wales.

Notes. A savanna grass from high altitude savannas of Africa and found naturalised in northern Qld and the Newcastle region of N.S.W. Flowers Mar., May--June.

Ichnanthus pallens (Sw.) Munro ex Benth. *Flora Hongkongensis* 414. 1861. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pallens* Sw., *Prodr.* 23 (1788).

Type of Basionym or Protologue Information: LT: *O.P. Swartz s.n.*, Jamaica (M; ILT: BM, G, S, US-2489445 (fragm. ex M), US-2489446 (fragm. ex S)). LT designated by Stieber, *Syst. Bot.* 12: 203 (1987).

Recent synonyms: *I. vicinus*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (111 as *I. vicinus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms prostrate, 10–60 cm tall. Ligule a fringed membrane, a ciliolate membrane, 0.9–1.1 mm long. Leaf-blades lanceolate, 2–11 cm long, 5–25 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle oblong, 5–15 cm long, contracted about primary branches and contracted about secondary branches. Racemes 3–7.5 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 4–5.6 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, keeled, 1-keeled, 5 -nerved. Upper glume elliptic, 3.8–4.9 mm long, herbaceous, keeled, 1-keeled, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, 1-keeled, 5–7 -nerved.

Fertile lemma 2–2.8 mm long, without keel. Lemma apex muticous. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. A member of the section *Foveolatus* which is characterized by two small areas of sclerified tissue at the base of the upper lemma, a curved stipe and the presence of rosette clusters at the palea apex.

Native to the Old World, it is a trailing forest grass which is widely distributed in the tropics of Asia. In tropical and subtropical rain forests. Occasionally collected in the tropical rainforests of Qld. Flowers Oct.-May.

Imperata cylindrica (L.) Raeusch. *Nomencl. Bot. ed. 3*, ed. 3, 3: 10 (1797). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Lagurus cylindricus* L. *Syst. Nat. (ed. 2)*.

Type of Basionym or Protologue Information: Italy:, *Anon.* (HT: LINN-96.2).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (204 as *Imperata arundinacea*), [1878] G.Bentham, *Flora Australiensis* 7 (536 as *Imperata arundinacea*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (312), [1969] E.E.Henty, *Manual Grasses New Guinea* (as var. *major*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (525), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (283 as var. *major*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (313, Pl. 92), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (161), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (524, fig. 447), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (283 as var. *major*).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 10–150 cm tall. Mid-culm nodes bearded. Lateral branches simple. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 1.5 mm long. Leaf-blades erect, flat or convolute, 3–100 cm long, 2–20 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–22 cm long. Rhachis tough.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 2.2–6 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume linear or lanceolate or oblong, membranous, without keels, 3–7 -nerved. Lower glume surface indumented. Upper glume oblong, 2.2–6 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 1 mm long, without keel, 0 -nerved. Palea 0 -nerved, without keels. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and North America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, A.C.T., Norfolk I (*), Lord Howe (*), Christmas Is (*), Cocos Keeling Is, Ashmore Reef, Coral Sea Is (*).

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **South Australia:** Lake Eyre, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, East Coast.

Notes. Three varieties have previously been recognised, with the name var. *major* being applied to the Australian entity. However the varieties intergrade to such a degree that individual specimens are difficult to identify.

Found in all States in wet areas. Throughout the Old World tropics extending to the Mediterranean and Middle East. Flowers Jan.--Dec. Map 3.

Isachne confusa Ohwi. *Bull. Tokyo Sci. Mus.* 18: 14 (1947). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Type of Basionym or Protologue Information: Indonesia: Sumatra: Sumatera Selatan, Bangka, 30 m, 18 Oct. 1917, *Bünnemeijer 1577* (HT: BO; IT: L).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (113), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms geniculately ascending or decumbent, 10–45 cm tall, wiry. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringe of hairs or absent. Leaf-blades ovate, 0.7–2.5 cm long, 2–10 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–4 cm long, 2.5 cm wide. Racemes 1–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1–2 fertile floret(s), without rachilla extension, orbicular, terete or dorsally compressed, 1–1.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 5(–7) -nerved. Lower glume surface indumented. Upper glume oblong, 0.85–1.1 mm long, membranous, without keels, 5(–7) -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous or indurate, 5 -nerved. Fertile florets female.

Fertile lemma 0.7–1 mm long, without keel. Palea 2 -nerved. Anthers 3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Native (?). In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers May–Oct.

Isachne globosa (Thunb.) Kuntze. *Rev. Gen. Pl.* 2: 778 (1891). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Basionym and/or Replacement Name: *Milium globosum* Thunb. ex Murray, *Syst. Veg.*, 109 (1784).

Type of Basionym or Protologue Information: Japan: without specific locality, *Thunberg 2041* (HT: UPS).

Recent synonyms: *I. australis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (196 as *Isachne australis*), [1878] G.Bentham, *Flora Australiensis* 7 (625 as *Isachne australis*), [1969] E.E.Henty, *Manual Grasses New Guinea* (114), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (507), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (284).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (508, fig. 436 & plate 19), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (163).

Habit. Annual or perennial. Culms erect or geniculate ascending or decumbent or prostrate, 10–90 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 1–4 mm long. Leaf-blades linear or lanceolate or ovate, 1–14 cm long, 3–20 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–15 cm long, 1–8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, orbicular, terete or dorsally compressed, 1.5–2.4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic to orbicular, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous or indumented. Upper glume oblong or ovate, 1–2.1 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous or cartilaginous, 5 -nerved. Fertile florets bisexual or female.

Fertile lemma 1–1.8 mm long, without keel, 5–7 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Northern Territory: Darwin & Gulf. **South Australia:** Murray, Southern Lofty. **Queensland:** Cook, Darling Downs, Moreton, North Kennedy, Wide Bay, South Kennedy, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Riverina, Wannon.

Notes. Diagnostic features include leaf length and shape, and the cartilaginous lower floret. Anatomically there appears to be a split between the northerly and southerly specimens. Those from Qld. and NT are broader and abaxially flat in transverse section; prickles are usually only present on the intercostal zones of the abaxial epidermis.

Native. Native to India, tropical Asia and in Australia. In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and coastal grasslands. In Australia from the tropics to the temperate regions. Regarded as a good fodder species. Flowers throughout the year.

Isachne minutula* (Gaudich.) Kunth. *Rév. Gram.* 2: 407 (1831), *Suppl.* (1834). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Basionym and/or Replacement Name: *Panicum minutulum* Gaudich., *Voy. Monde* 410 (1829).

Type of Basionym or Protologue Information: India., *Heyne s.n.* (HT: B).

Recent synonyms: *I. miliacea*, *I. brassii*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (625 as ? *Isachne myosotis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *I. pulchella*).

Habit. Annual. Culms prostrate, stature slender to delicate, 3–35 cm tall. Mid-culm nodes bearded. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.8–1.2 mm long. Leaf-blades elliptic, 1–5 cm long, 2–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 2–12 cm long, 0.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1–1.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, herbaceous, without keels, 5–7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 1.1–1.5 mm long, herbaceous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret chartaceous, 3–5 -nerved.

Fertile lemma 1–1.3 mm long, without keel. Lemma surface indumented. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Introduced. Native to tropical Asia and apparently introduced in Australia. In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Occurs in damp shaded forests and swampy areas. Flowers Mar.-July.

Isachne sharpii B.K.Simon ms. *Fora of Australia* 44A: xx (2004). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Isachneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *I. sp. A*).

Habit. Annual. Culms geniculately ascending or aquatic, stature slender to delicate, 26–44 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1.5–1.7 mm long. Leaf-blades lanceolate, 2.5–5.5 cm long, 7–13 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 3.5–4 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile (?), comprising 2 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.5–2.8 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 7–8-nerved. Lower glume surface indumented. Upper glume lanceolate, 2.8 mm long, coriaceous, without keels, 9-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 50 % of length of spikelet, coriaceous, 5-nerved. Fertile florets bisexual.

Fertile lemma 1.5 mm long, without keel, 3-nerved. Lemma surface glabrous. Lemma apex round at apex. Palea present, 2-nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Ischaemum afrum

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (285).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (285).

Australian Distribution: New South Wales (+).

Ischaemum albobillosum B.K. Simon. *Austrobaileya* 3: 86 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Western Australia: Hamersley Railway line between Dampier and Mount Tom Price, Oct 1968, *Campion s.n.* (HT: PERTH-00349925 (photo, BRI)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 20–40 cm tall. Mid-culm nodes bearded. Lateral branches simple. Ligule an eciliate membrane, 1 mm long. Leaf-blades 5–12 cm long, 2–5 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 10 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, keeled, 2-keeled, wingless, 9-nerved. Lower glume surface glabrous. Upper glume lanceolate, 9 mm long, coriaceous, keeled, 1-keeled, 5-nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline or membranous.

Fertile lemma 5 mm long, without keel. Lemma apex lobed, awned, 1-awned. Median (principal) awn from a sinus, 20–30 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Notes. Only three collections from the Pilbara region of W.A.

Ischaemum australe R. Br. *Prodr.* 205 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: (J.) apud Portum Jackson, inclusis ripis aestuarii Hunter's River vel Coal River,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (205 as *I. villosum*, *I. asutrale*), [1878] G.Bentham, *Flora Australiensis* 7 (519 as *Ischaemum arundinaceum*, *Ischaemum australe*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (298 as *I. arundinaceum* & 300), [1969] E.E.Henty, *Manual Grasses New Guinea* (116), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (285).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (165), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (285).

Habit. Perennial. Rhizomes present, short. Culms erect, 50–150 cm tall, 4–5 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 2–3 mm long. Leaf-blades 10–20 cm long, 3–5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile to sessile and pedicelled, 1 in the cluster or 2 in the cluster. Companion spikelets pedicelled, 0–1 in the cluster. Companion spikelets developed, male, asymmetrical, 6–7 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly. Upper glume lanceolate, chartaceous, keeled, 1-keeled, winged on keel, 7 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret membranous, 3 -nerved.

Fertile lemma without keel. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–10 mm long overall. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Victoria River, Barkly Tableland. **Queensland:** Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast.

Notes.

Coastal districts from northern N.S.W. through to the eastern Kimberley, W.A., usually in wet situations. Also tropical Asia.

Infra -specific taxa: var. **australe**, var. **arundinaceum**, var. **villosum**.

1. Nodes glabrous	I. australe var. arundinaceum
Nodes hairy	2
2. Leaves, rachis internodes and pedicels hairy	I. australe var. villosum
Leaves, rachis internodes and pedicels glabrous	I. australe var. australe

Ischaemum australe var. **australe**

Classification. Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (299, Pl. 87).

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Notes. Coastal districts from central N.S.W. through to the eastern Kimberley, W.A., in wet situations. Flowers Nov.--July.

Ischaemum australe var. **arundinaceum** (F. Muell. ex Benth.) B.K. Simon. *Austrobaileya* 2(1): 21 (1984).

Classification. Basionym and/or **Replacement Name:** *Ischaemum arundinaceum* F. Muell. ex Benth., *Fl. Austral.* 7: 519 (1878).

Type of Basionym or Protologue Information: ST: *F. Mueller s.n.*, Australia: Northern Australia: Roper River\ ST: *Schultz 30*, Australia: Northern Australia: Port Darwin ST: *Schultz 182*, Australia: Northern Australia: Port Darwin ST: *Schultz 815*, Australia: Northern Australia: Port Darwin.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Coastal regions of northern Qld, N.T. and northern W.A. in wet situations. Flowers Jan.--Mar. and Aug.--Sept.

Ischaemum australe var. **villosum** (R. Br.) Benth. *Flora Austral.* 7: 520 (1878).

Classification. Basionym and/or **Replacement Name:** *Ischaemum villosum* R. Br., *Prodr.* 205 (1810).

Type of Basionym or Protologue Information: (T.) Littora Novae Hollandiae intra tropicum.,

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Coastal regions of northern N.S.W., Qld and N.T. in wet situations. Flowers Aug.-July.

Ischaemum barbatum Retz. *Observ. Bot.* 6: 35 (1791). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Indonesia: Java.; *D. Wennerberg* ?.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (116), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending, 60–160 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule an eciliate membrane, 2–3.5 mm long. Leaf-blades 7–20 cm long, 4–10 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, asymmetrical, 4–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 5.5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, membranous or coriaceous or indurate, much thinner above, keeled, 2-keeled, winged on keel, winged narrowly, 13–15 -nerved. Upper glume lanceolate, 5–7 mm long, coriaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 75 % of length of spikelet, hyaline or membranous, 3 -nerved.

Fertile lemma 4–5 mm long, without keel, 3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 9–15 mm long overall, with a twisted column. Grain 1 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. A few collections from northern N.T. Throughout the Old World tropics. Flowers Apr.

Ischaemum decumbens Benth. *Fl. Austral.* 7: 521 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: N. Australia, Port Darwin, *Schultz* 126.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (521), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms sprawling, 5–40 cm tall. Mid-culm nodes bearded. Lateral branches branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–1.5 mm long. Leaf-blades linear or lanceolate, 1–5 cm long, 1–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas, 2–6 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 5–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume ovate, coriaceous, without keels or keeled, 2-keeled, wingless, 11 -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume lanceolate, 4 mm long, membranous or coriaceous, keeled, 1-keeled, winged on keel, 5 -nerved. Upper glume surface glabrous or indumented. Upper glume apex awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline or membranous, 3 -nerved.

Fertile lemma 3 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 12–14 mm long overall, with a twisted column. Palea present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Grows in damp to wet areas of sandy soil in *Melaleuca* savanna woodland in northern N.T. and Qld. Flowers Apr.–Oct.

Ischaemum fragile R. Br. *Prodr.* 205(1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Littora Novae Hollandiae intra tropicum, *Collected on Cook's journey by Banks*. T: Australia.

Recent synonyms: *I. baileyi*, *Digastrum fragile*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (205), [1878] G.Bentham, *Flora Australiensis* 7 (522), [1969] E.E.Henty, *Manual Grasses New Guinea* (72 as *Digastrum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending, 40–110 cm tall, 3–7 -noded. Mid-culm nodes glabrous or bearded. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1–3.5 mm long. Leaf-blades 6–33 cm long, 3–7 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, 2–6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume oblong, cartilaginous or coriaceous, much thinner above, keeled, 2-keeled, winged on keel, winged narrowly, 5–7 -nerved. Upper glume lanceolate, 6–7 mm long, coriaceous, keeled, 1-keeled, winged on keel, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline or membranous, 3 -nerved.

Fertile lemma 3–4 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–18 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy.

Notes. In savannas and open grasslands with seasonal rainfall. Occurs throughout coastal Qld and NT, extending to New Guinea. Flowers Apr.--Dec. and Feb.

Ischaemum muticum L. *Sp. Pl.* 1049 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: India:, (LT: LINN-1214.1).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (520), [1969] E.E.Henty, *Manual Grasses New Guinea* (116), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms prostrate or sprawling, 15–40 cm tall, 2–6 mm diam. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheath auricles present. Ligule an eciliate membrane, 1 mm long. Leaf-blades 2–15 cm long, 4–14 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 6–8 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 5–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, cartilaginous or coriaceous, keeled, 2-keeled, winged on keel, winged broadly or moderately or narrowly, 6–8 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 6–10 mm long, coriaceous, keeled, 1-keeled, winged on keel, 3–5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 90 % of length of spikelet, hyaline or membranous, 3 -nerved.

Fertile lemma 5–6 mm long, without keel, 3 -nerved. Lemma apex lobed, muticous or mucronate or awned, 1 -awned. Median (principal) awn from a sinus, 1–8 mm long overall. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook, North Kennedy.

Notes. Littoral areas of northern Qld, extending to coasts of tropical Asia. Flowers Feb.--Nov.

Ischaemum nativitatis

Australian Distribution: Christmas Is.

Ischaemum polystachyum J. & C. Presl. C.B.Presl, *Reliq. Haenk.* 1: 328 (1830). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Mariana Islands.; *Haenke s.n.* (IT: US-91463 (fragm.)).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (117), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms sprawling, 120 cm tall. Lateral branches simple. Ligule an eciliate membrane, 2 mm long. Leaf-blades 14 cm long, 14 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with ramose branches.

Spikelets. Companion spikelets developed, male, 5.5 mm long. Fertile spikelets elliptic, 5.5 mm long.

Glumes. Lower glume oblong, keeled, winged on keel, 12 -nerved. Upper glume oblong, 5 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1.

Lemma apex awned. Median (principal) awn 5 mm long overall.

Continental Distribution: Tropical Asia, or Australasia.

Australian Distribution: Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook.

Notes. The only Australian record of this common New Guinea species are from Duan Is. in the Torres Strait. Flowers Feb.

Ischaemum rugosum Salisb. *Icon. Stirp. Rar.* 1 (1791). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: India: Orissa, ad margines agrorum oryzaceorum, *J.G. Koenig s.n.* (HT: BM).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms decumbent, 10–100 cm tall. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Ligule an eciliate membrane. Leaf-blades 5–30 cm long, 3–15 mm wide.

Inflorescence. Inflorescence digitate, a rame, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed or rudimentary, containing empty lemmas or male, 2–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, membranous or coriaceous or indurate, much thinner above, keeled, 2-keeled, winged on keel, winged narrowly, 15 -nerved. Upper glume lanceolate, membranous or chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline or membranous.

Fertile lemma 5 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 15–20 mm long overall, with a twisted column. Grain 2–2.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy.

Notes. Growing in wet sites in northern N.T. and central and northern coastal Qld. Extends to most of tropical Asia and introduced to tropical Africa and America.

Infra -specific taxa: var. **rugosum**, var. **segetum** .

Pedicelled spikelet developed

I. rugosum var. **rugosum**

Pedicelled spikelet much reduced

I. rugosum var. **setegum**

Ischaemum rugosum var. **rugosum**

Australian Distribution: Northern Territory, Queensland.

Notes. Occurs in coastal N.T. and central and northern coastal Qld. Extends to tropical Asia. Flowers Mar.--June.

Ischaemum rugosum var. segetum (Trin.) Hack. *Monogr. Phan.* 6(1): 208 (1889).

Classification. **Basionym** and/or **Replacement Name:** *Ischaemum segetum* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 2(3): 294 (1832).

Type of Basionym or Protologue Information: Philippine Is., Manila: Coll?.

Australian Distribution: Northern Territory, Queensland.

Notes. Occurs mainly in northern coastal Qld and the Torres Strait; one record from N.T. Extends to India and Taiwan. Flowers May--Aug.

Ischaemum triticeum R. Br. *Prodr.* 205 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or **Replacement Name:** *Andropogon triticiformis* Steud., *Syn. Pl. Glumac.* 1: 376 (1854).

Type of Basionym or Protologue Information: T: Shoalwater Bay, Qld, 22 Oct. 1802, *R. Brown Iter Australiense* 6153; holo: BM (photo BRI, K); iso: K (photo BRI).

Key references (books and floras): [1810]. R. Brown, *Prodromus* (205), [1878] G. Bentham, *Flora Australiensis* 7 (519), [2002] D. Sharp & B. K. Simon, *AusGrass, Grasses of Australia*, [2008] S. W. L. Jacobs, R. D. B. Walley & D. J. B. Wheeler, *Grasses of New South Wales* (285).

Illustrations: [2008] S. W. L. Jacobs, R. D. B. Whalley & D. J. B. Wheeler, *Grasses of New South Wales*, 4th edn (285).

Habit. Annual or perennial. Culms sprawling, 50–200 cm tall. Mid-culm nodes glabrous or bearded. Lateral branches simple or branched. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–3.5 mm long. Leaf-blades linear or lanceolate, 6–33 cm long, 3–12 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes or developed, comprising 2 subequal glumes without lemmas or male, 3.5–10 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 6–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume oblong, cartilaginous or coriaceous, keeled, 2-keeled, winged on keel, winged broadly or narrowly, 5–7 -nerved. Upper glume lanceolate, 6–7 mm long, coriaceous, keeled, 1-keeled, winged on keel, 5–9 -nerved. Upper glume surface glabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline or membranous, 7 -nerved.

Fertile lemma 3–4 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–18 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton, Port Curtis, Wide Bay, South Kennedy. **New South Wales:** North Coast.

Notes. Occurs on sandy foredunes of northern N.S.W. and southern Qld. and one specimen from Lizard Is. Flowers July--May.

Ischaemum tropicum B. K. Simon. *Austrobaileya* 3: 88 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S. T. Blake 17475*, 26 Apr 1947, Australia: Northern Territory, Katherine, 150 m (BRI; IT: CANB, DNA, K, L, MEL, NSW).

Key references (books and floras): [2002] D. Sharp & B. K. Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect, 80–120 cm tall. Mid-culm nodes pubescent. Lateral branches simple. Ligule a fringe of hairs, 2 mm long. Leaf-blades 8–20 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes or rudimentary or developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male or male with a few bisexual, 2–7 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly, 10 -nerved. Lower glume surface glabrous. Upper glume lanceolate,

coriaceous, keeled, 1-keeled, 4 -nerved. Upper glume surface glabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret membranous.

Fertile lemma 5 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 12–16 mm long overall, with a twisted column. Palea present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Collected from the Katherine and Robins Falls regions, N.T. and Moa Is., Qld. Extends to New Guinea. Flowers Mar.--Apr. and Aug.

Ischaemum sp. A (George Creek I.D.Cowie+ 5306) Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 80–110 cm tall, 4–6 -noded. Mid-culm nodes pubescent. Leaf-blades 12–20 cm long, 1–2 mm wide.

Inflorescence. Inflorescence digitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male with a few bisexual, 5.5 mm long. Companion spikelet glumes muticous or awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume lanceolate, coriaceous, keeled, 2-keeled, winged on keel, winged narrowly, 11 -nerved. Upper glume lanceolate, 5 mm long (without awn), chartaceous, keeled (obscurely), 1-keeled, 5 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 80 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 5.5 mm long, without keel, 3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10 mm long overall, with a twisted column.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Ischaemum Three Rivers Classification. (GPWG 2001) : Subfamily Panicoideae.

Isilema calvum C. E. Hubbard. *Hooker's Icon. Pl.* t.3286: 1 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Hughenden: *Hubbard & Winders 7173* (K holotype).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (350), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (349, Pl. 102).

Habit. Annual. Culms erect or geniculately ascending, 15–40 cm tall, 4–6 -noded. Lateral branches branched. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 10–25 cm long, 3–6 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 8–12 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret membranous, 3 -nerved. Fertile florets female.

Fertile lemma 3–5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 15–22 mm long overall, with a twisted column. Column 5–10 mm long. Palea absent. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Barkly Tableland. **Queensland:** Burke, Cook, Gregory North.

Notes. Grows in cracking clay soils on the Barkly Tableland of NT and the Mitchell grass Downs of Qld. Flowers Jan.--May and Aug.

Iseilema ciliatum C. E. Hubbard. *Hooker's Icon. Pl.* t.3286: 6 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Hughenden: *Domin* .

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 15–35 cm tall. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades conduplicate, 6–12 cm long, 2–3 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 3–3.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 6 -nerved. Lower glume surface glabrous. Upper glume lanceolate, coriaceous, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 2–4 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 18–22 mm long overall, with a twisted column. Column 1–1.2 mm long. Palea absent. Anthers 3. Grain 3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Hall. **Northern Territory:** Victoria River. **Queensland:** Burke.

Notes. Growing in cracking clay soils in isolated parts of tropical Australia. Flowers Apr.--June.

Iseilema convexum C. E. Hubbard. *Hooker's Icon.Pl.* t.3286: 8 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Darling Downs, Bybera: *White 9741* .

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 30–70 cm tall, 2–3 -noded. Lateral branches simple or sparsely branched. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades flat or conduplicate, 9–18 cm long, 3–5.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, containing empty lemmas or male, 3–4 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5.5–6.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 8–9 -nerved. Lower glume surface indumented. Upper glume lanceolate, coriaceous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 2.5–3 mm long, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 16–20 mm long overall, with a twisted column. Column 8–10 mm long. Palea absent. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Barkly Tableland. **Queensland:** Burke, Gregory North, Mitchell.

Notes. Growing in cracking clay soils on Barkly Tableland of N.T. and Mitchell grass Downs of Qld. Flowers Mar.--Aug.

Iseilema dolichotrichum C. E. Hubbard. *Hooker's Icon. Pl.* t.3285 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Duchess: *Hubbard 7347* (K holo).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (493), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 6–8 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Ligule an eciliate membrane, 1 mm long. Leaf-blades conduplicate, 2–4 cm long, 1–2.5 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, comprising 2 subequal glumes without lemmas or containing empty lemmas or male, 2.3–3 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 10 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 3 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 15–20 mm long overall, with a twisted column. Column 0.8 mm long. Palea absent. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. Fortescue, Ashburton. **Northern Territory:** Central Australia North, Central Australia South. **Queensland:** Gregory North, Gregory South.

Notes. *I. dolichotrichum* and *I. eremaeum* appear to grade into each other.

Growing in basaltic and stoney soils and red earths in isolated localities in the Ereman zone. Flowers Mar.--Aug.

Iseilema eremaeum S. T. Blake. *Proc. Roy. Soc. Queensland* 49: 83 (1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 12213*, 19 Jul 1936, Australia: Queensland: Gregory South Dist. (US-2959128).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (351), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (493), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (526).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (349, Pl. 102), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (526, Fig. 448).

Habit. Annual. Culms erect or geniculately ascending, 5–20 cm tall, 1 -noded. Ligule a fringed membrane, a ciliolate membrane, 0.7–0.9 mm long. Leaf-blades linear or lanceolate, flat or conduplicate, 2–6 cm long, 1–4 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 2–3 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 8 -nerved. Lower glume surface indumented. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 2.9–3.5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 13–16 mm long overall, with a twisted column. Column 5–6.5 mm long. Palea absent. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Gardner. Giles, Helms, Fortescue, Carnarvon, Austin. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin. **Queensland:** Gregory North, Gregory South.

Notes. Growing in stony, clay soils. Rare from scattered parts of the Ereman zone. Flowers Jan.--July.

Iseilema fragile S. T. Blake. *Proc. Roy. Soc. Queensland* 49: 85 (1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 11545*, 19 May 1936, Australia: Queensland: Burke District (AD, K, L, NSW, NT, PERTH, US-2959127).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (349, Pl. 102).

Habit. Annual. Culms erect or geniculately ascending, 10–20 cm tall. Lateral branches branched. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.75 mm long. Leaf-blades flat or conduplicate, 3–7 cm long, 2–4 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets represented by a single scale (vestige of pedicel & spikelet), 4 in number. Companion spikelets developed, comprising 2 unequal glumes without lemmas or comprising 2 subequal glumes without lemmas or containing empty lemmas or male (1 developed, 1 reduced), 0–4.2 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, cartilaginous, without keels, 8 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile florets female.

Fertile lemma 5 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 16–18 mm long overall, with a twisted column. Column 7 mm long. Palea absent. Grain 3.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Gregory South, Mitchell, Warrego.

Notes. Grows in cracking clay soils in the Kimberley, the Victoria R. region, the Barkly Tableland and Gulf Country and a few localities in subtropical Qld. Flowers Mar.–Aug.

Iseilema holmesii S. T. Blake. *Univ. Qd. Pap. Dept. Biol.* 2(3): 59 (1944). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Kunmunya Mission: *Holmes* (BRI holo, MEL).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (348 & as *I. filipes*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (349, Pl. 102 & as *I. filipes*).

Habit. Annual. Culms erect, stature slender to delicate, 20–40 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.6–0.8 mm long. Leaf-blades flat or conduplicate, 6–30 cm long, 4–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, containing empty lemmas, 3.2–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 3–6 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline. Fertile florets female.

Fertile lemma 3–5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 12–24 mm long overall, with a twisted column. Column 12–14 mm long. Palea absent. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Notes. Growing in skeletal soil in basalt country, on heavy textured soils and stony creek bed of the northern Kimberley, W.A.. Flowers Mar.–June.

Iseilema macratherum Domin. *Biblioth. Bot.* 85: 283 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Chillagoe: *Domin*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (351), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (492), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (349, Pl. 102).

Habit. Annual. Culms erect or geniculately ascending, 25–70 cm tall. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 10–25 cm long, 2–6 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising

1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 6–9 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma 5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 20–30 mm long overall, with a twisted column. Column 8–15 mm long. Palea absent. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Dampier. Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, Warrego, South Kennedy.

Notes. Grows in cracking clay mainly in the Gulf country of N.T. and Qld and isolated occurrences elsewhere in W.A., N.T. and Qld. Flowers Feb.--Aug.

Isilema membranaceum (Lindl.) Domin. *Biblioth. Bot.* 85: 280 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Anthistiria membranacea* Lindl., *Trop. Austr.* 88 (1848).

Type of Basionym or Protologue Information: Australia, Narran R.: Coll?.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (543 as *Anthistiria membranacea*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (492), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (526), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (286).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (527, fig. 449), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (286).

Habit. Annual. Culms erect or geniculately ascending, 5–40(–90) cm tall. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 2–20 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, containing empty lemmas or male, 2–3.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 8 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 2.5–3.5 mm long, 1 -nerved. Lemma apex entire, muticous or awned, 1 -awned. Median (principal) awn 0–15 mm long overall, without a column or with a twisted column. Palea absent. Grain 2–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Canning, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Growing in clay and stoney soils in all mainland states except Vic. Flowers mainly Dec.--July.

Isilema trichopus (Benth.) C. E. Hubbard. *Icon. Pl.* 33: t. 3286: 7 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Anthistiria membranacea* var. *trichopus* Benth., *Fl. Austral.* 7: 544 (1878).

Type of Basionym or Protologue Information: Australia, Hooker's Creek: *Mueller* (K holo).

Habit. Annual. Culms erect, 10–25 cm tall, 1–2 -noded. Lateral branches sparsely branched. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 6–12 cm long, 3–5.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, comprising 2 unequal glumes without lemmas, 3–4 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, membranous or coriaceous, without keels, 8 -nerved. Lower glume surface indumented. Upper glume lanceolate, coriaceous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 3–4 mm long, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 15–18 mm long overall, with a twisted column. Column 6 mm long. Palea absent. Anthers 3. Grain 3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Victoria River.

Notes. Growing in sandy loam. Rare in the tropical W.A.- N.T. border region. Flowers Mar.

Iseilema vaginiflorum Domin. *Biblioth. Bot.* 85: 281 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Hughenden: *Domin* .

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (352), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (492), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (528), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (287).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (347, Pl. 100), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (167), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (528, fig. 450), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (286).

Habit. Annual. Culms erect or geniculately ascending, 45–75 cm tall. Ligule a fringed membrane, a ciliate membrane, 0.5–1 mm long. Leaf-blades flat or conduplicate, 10–20 cm long, 2.5–6 mm wide.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets represented by a single scale or rudimentary, 4 in number. Companion spikelets developed, containing empty lemmas or male, 3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5.5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 8–10 -nerved. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved. Fertile florets female.

Fertile lemma 4–5.5 mm long, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 15–20(–23) mm long overall, with a twisted column. Column 6–9 mm long. Palea absent. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Fortescue, Carnarvon, Austin. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Grows in cracking clay soils in tropical and subtropical Australia. Flowers Dec.--July and Sept.

Iseilema windersii C. E. Hubbard. *Hooker's Icon. Pl.* t.3284 (1935). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia, Bundoran: *Hubbard & Winders* 7286 (K holo).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (493), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 20–40 cm tall, 1–2 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths smooth. Ligule a fringed membrane, a ciliate membrane, 1–1.5 mm long. Leaf-blades flat or conduplicate, 8–16 cm long, 3–6 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, composed of rames.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 4–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, coriaceous, without keels, 8–10 -nerved. Lower glume surface indumented. Upper glume lanceolate, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 1 -nerved. Fertile florets female.

Fertile lemma 3–5 mm long, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 18–33 mm long overall, with a twisted column. Column 2 mm long. Palea absent. Anthers 3. Grain 2.5–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Mitchell.

Notes. Growing in cracking clay soils on the Barkly Tableland of N.T. and the Mitchell grass Downs of Qld and a few other localities. Flowers Feb.–Aug.

Jarava plumosa* (Spreng.) S.W.L. Jacobs & J. Everett. *Telopea* 7: 301 (1997). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Calamagrostis plumosa* Spreng., *Syst. Veg.* 1: 253 (1825 [1824]).

Type of Basionym or Protologue Information: IT: *F. Sello s.n.*, Uruguay: Montevideo (US).

Recent synonyms: *Stipa papposa*, *Achnatherum papposum* (Nees) Barkworth

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (105), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (62).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (106, fig. 68), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms erect or geniculately ascending, 30–300 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.1–2 mm long, membranous, truncate. Leaf-blades flat or involute or convolute, 10–20 cm long, 0.2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 8–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Upper glume lanceolate, 5–9 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 5–7 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 15–40 mm long overall, with a straight or slightly twisted column. Column 3.5 mm long. Palea without keels. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: South America.

Australian Distribution: South Australia.

South Australia: Southern Lofty.

Notes. A South American species, thus far only occurring in the Southern Lofty region of South Australia.

Koeleria macrantha* (Ledeb.) Schult. *Mant* 2: 345 (1824). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Aira macrantha* Ledeb. *Mem. Acad. Imp. Sci. Saint Petersburg (Ser. 7)* 5: 515(1815).

Type of Basionym or Protologue Information: Russia: Siberia:.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (639 as *Koeleria cristata*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (60 as *Koeleria phleoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (288), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (157).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (61, Pl. 16), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (288), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (155, Fig.23).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 10–75 cm tall, 1–3 -noded. Leaves mostly basal. Ligule an eciliate membrane, 0.2–0.7 mm long. Leaf-blades filiform or linear, flat or convolute, 5–20 cm long, 1–3.5 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 1–12.5 cm long, 0.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3(–4)), comprising 2–3(–4) fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 4–7 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume oblong or obovate, membranous, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous or indumented. Upper glume oblong or obovate, 4–6.2 mm long, membranous, keeled, 1-keeled, 3(–5) -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 3.5–5.5 mm long, keeled, 3–5 -nerved. Lemma apex muticous or mucronate or awned, 0–1 -awned. Median (principal) awn 0–0.4(–0.7) mm long overall. Palea apex dentate. Lodicules present. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Eastern Highlands, Snowfields. **Tasmania:** No region given.

Notes. A variable species with a number of forms in Europe. *K. australiensis* Domin, described as native, appears to fall within the range of variability of *K. macrantha* and is included here pending further study of the species complex.

Introduced (?). Native of Europe. Montane woodland or grassland often on shallow, rocky soils. Flowers Nov.–Feb.

Lachnagrostis adamsonii (Vickery)S.W.L.Jacobs. *Telopea* 9:445(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis adamsonii* Vickery, *Contr. New South Wales Natl. Herb.* 1: 107 (1941).

Type of Basionym or Protologue Information: HT: *Adamson* 226, 12 Nov 1853, Australia: Victoria: Melbourne (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (176).

Habit. Annual or perennial. Culms erect or geniculately ascending, 45–70 cm tall, 5 -noded. Mid-culm nodes glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–6 mm long, abaxially scaberulous, lacerate. Leaf-blades linear, flat or conduplicate, 8–25 cm long, 1–3.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 20–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate or elliptic, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–3.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 2–2.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn subapical, 2–3 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: Gippsland Plain, Midlands, Volcanic Plain.

Notes. Apparently endemic in Vic. From slightly saline, seasonally wet areas on and near the volcanic plain in the western part of the state. Flowers Nov.

Lachnagrostis aemula (R.Br.)Trin. *Fund. Agrost.* 128 (1820). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis aemula* R. Br., *Prodr.* 172 (1810).

Type of Basionym or Protologue Information: LT: *R. Brown 6219 (pro parte)*, Australia: New South Wales: Port Jackson and Port Dalrymple (BM). LT designated by Vickery, *Contr. New South Wales Herb* 1: 101–119 (1941).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (172 as *Agrostis aemula*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (155 as *A. aemula*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (227), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (289), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (176).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (227, fig. 171), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (289), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (182, Fig.26).

Habit. Annual or perennial. Culms erect, 25–65 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3–8 mm long, abaxially scaberulous, lacerate, obtuse or acute. Leaf-blades filiform or linear, flat or involute, 8–20 cm long, 1–5(–7) mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 9–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, (3.5–)4–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 1.8–4.5 mm long, without keel, 4–5 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 5–10 mm long overall, with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond, Dale, Menzies. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Endemic. Flowers spring-summer.

Occurs in all states and territories except the N.T., also on Lord Howe Is. Coastal, in grasslands or under light woodland, more common in lowland areas but extending to subalpine regions in Tas. and Vic. Flowers Sept.-Jan.

Lachnagrostis aequata (Nees)S.W.L.Jacobs. *Telopea* 9:445(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis aequata* Nees, *Hooker's J. Bot. Kew Gard. Misc.* 2: 412 (1843).

Type of Basionym or Protologue Information: HT: *R.C. Gunn 1005*, 18 Jan 1838, Australia: Tasmania (C; IT: L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (578 as *Deyeuxia aequata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (as *L. scabra*, nom. inval. *fide* TROPICOS).

Habit. Annual. Culms erect or geniculately ascending, 60–75 cm tall, 4 -noded. Mid-culm nodes glabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 2–3 mm long, lacerate, truncate or obtuse. Leaf-blades linear, flat, 6–13 cm long, 1.5–2.5(–4) mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 12–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 1.75–2(–2.5) mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume ovate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 1.4–1.7 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex dentate, muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Tasmania.

South Australia: South-eastern. **New South Wales:** Southern Tablelands. **Tasmania:** North West, South West.

Notes. Endemic. Extending S from Bega, N.S.W., to Vic., Tas., and S.A. In coastal habitats, in beach sands, coastal woodlands and coastal ranges. Flowers spring-summer.

Lachnagrostis batesii A.J.Br. *Muelleria* 26: 31 (2008).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (177).

Australian Distribution: South Australia.

Lachnagrostis billardieri (R.Br.)Trinius. (1820). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis billardieri* R. Br., *Prodr.* 171 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown* 6218, 1802–1805, Australia: New South Wales: Port Jackson (BM). LT designated by Vickery, *Contr. New South Wales Herb* 1: 101–119 (1941).

Recent synonyms: *Agrostis billardieri* R.Br. var. *billardieri*, *Agrostis billardieri* R.Br. var. *tenuiseta* D.I.Morris

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (580 as *Deyeuxia billardieri*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (229), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (289), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (177, 178 as subsp. *billardieri*, subsp. *tenuiseta*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (228, fig. 172 as subsp. *billardieri*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (289), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (182, Fig.26 as subsp. *billardieri*).

Habit. Annual or perennial. Rhizomes absent or present, short. Culms erect or geniculate ascending, 25–75 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–12 mm long, abaxially scaberulous, lacerate, obtuse or acute. Leaf-blades filiform or linear, flat or conduplicate, 5–40(–50) cm long, 1–8 mm wide. Leaf-blade surface papillose.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 10–30 cm long, 5–30 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 3–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4–7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 2.5–4.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn subapical or dorsal, 3–10 mm long overall, with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** East Gippsland, Gippsland Plain, Lowan Mallee, Otway Plain, Wilsons Promontory, Wannon. **Tasmania:** North West, North East, West Coast, East Coast, South West.

Notes. .

Endemic.

Infra -specific taxa: subsp. *billardieri*, subsp. *tenuiseta*.

Awn longer than 3.5 mm, exceeding the glumes

L. billardieri subsp. *billardieri*

Awn less than 2.0 mm, not or hardly exceeding the glumes

L. billardieri subsp. **tenuiseta**

Lachnagrostis billardieri subsp. **billardieri**

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Notes. Widely distributed along the coast in SE Australia from the vicinity of Grafton (NSW) to as far west as Port Lincoln (SA) with a few scattered inland occurrences (Little desert in Victoria) and in Tasmania, virtually all round the coast. Also coastal areas of New Zealand except the far north.

Lachnagrostis billardieri subsp. **tenuiseta** (D.I. Morris) S.W.L. Jacobs. *Telopea* 9 (3): 445. 2001.

Classification. Basionym and/or Replacement Name: *Agrostis billardieri* var. *tenuiseta* D.I. Morris, *Muelleria* 7(2): 147, 149, f. 2b, 3 (1989)

Type of Basionym or Protologue Information: HT: *Buchanan* 4763, 10 Dec 1984, Australia: Tasmania: Dolphin Sands, Nine Mile Beach (HO-889020; IT: NSW).

Australian Distribution: Tasmania.

Notes. Confined to coastal areas in NE Tasmania (including eastern Bass St islands) (Brown & Walsh, 2000).

Lachnagrostis collicola (D.I. Morris) S.W.L. Jacobs. *Telopea* 9:445(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis billardieri* var. *collicola* D.I. Morris,.

Type of Basionym or Protologue Information: HT: *Collier* 309, 10 Feb 1985, Australia: Tasmania: Saddle between The Hippo and Moonlight Ridge Hill 3 (HO-93165).

Recent synonyms: *Agrostis collicola* (D.I. Morris) A.J. Brown & N.G. Walsh

Key references (books and floras): [2002] D. Sharp & B.K. Simon, *AusGrass, Grasses of Australia*, [2009] A. Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (179).

Habit. Perennial. Culms erect, 10–20 cm tall. Mid-culm nodes glabrous. Ligule an eciliate membrane, 1.5–4 mm long, obtuse. Leaf-blades 5–15 cm long, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle loose, 2–9 cm long, 4–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, 2.5–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume subulate or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 1–3.5 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, South West.

Notes. Endemic to Tasmania, where it occurs in the mountainous areas from 800–850 m. (Brown & Walsh, 2000).

Lachnagrostis deflexa A.J. Br. *Muelleria* 26: 42 (2008).

Classification. Key references (books and floras): [2009] A. Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (179).

Australian Distribution: Victoria.

Lachnagrostis drummondiana (Steud.) S.W.L. Jacobs. *Telopea* 9:445(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Dichelachne drummondiana* Steud., *Syn. Pl. Glumac.* 1: 120 (1854).

Type of Basionym or Protologue Information: HT: *J. Drummond* IV, 371, Australia: Western Australia: fl. Cygnorum (P; IT: K (photo, SI), L, LE). L lists their specimen as HT.

Recent synonyms: *Agrostis drummondiana* (Steud.) Vickery.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (154), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (179).

Habit. Annual. Culms erect, 40–60 cm tall, 4 -noded. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 3–7 mm long, obtuse or acute. Leaf-blades linear, flat or involute or convolute, 3–15 cm long, 1–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 15–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, elliptic, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4.5–5.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 7–10 mm long overall, with a twisted column. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Endemic. Restricted to W.A.

Lachnagrostis filiformis (Forst.)Trin. (1820). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena filiformis* G. Forst., *Fl. Ins. Austr.* 9 (1786).

Type of Basionym or Protologue Information: LT: *J.R. & G. Forster s.n.*, 1779, New Zealand (B-W-2208 (misit Sprengel); IT: BM, GOET, K, KIEL, LE, LINN-Sm.-135.32, MW-77, P, UPS). LT designated by Edgar, New Zealand *J. Bot.* 33: 19 (1995) based on the New Zealand specimen B-W-2208. Zizka, *Palm. Hort. Franc.* 3: 71 (1991) cited the same specimen but did not clarify whether it was from New Zealand or Easter Island. See Nicolson (2002)..

Recent synonyms: *Agrostis avenacea* J.F.Gmel., *L. filiformis* var. *perennis* .

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (579 as *Deyeuxia forsteri*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (154 as *Agrostis avenacea*), [1969] E.E.Henty, *Manual Grasses New Guinea* (25 as *Agrostis avenacea*), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (435 as *Agrostis avenacea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (394 as *Agrostis avenacea*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (229), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (290), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (180).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (153, Pl.46 as *Agrostis avenacea*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (41, as *Agrostis avenacea*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (229, fig. 173), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (290), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (182, Fig.26).

Habit. Annual or perennial. Rhizomes present, short. Culms erect or geniculately ascending, 15–80 cm tall, 4 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 2–8 mm long, lacerate, obtuse or acute. Leaf-blades filiform, flat or conduplicate, 8–30 cm long, 1–3.5(–5) mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle obovate, effuse, 10–30 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 2–4.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–3.5 mm long, without keel, 4–5 -nerved. Lemma surface indumented. Lemma apex dentate, awned. Median (principal) awn dorsal, 3.5–5.5 mm long overall, with a twisted column. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Africa, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Giles, Austin. Irwin, Drummond, Dale, Menzies, Warren, Eyre, Avon. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Flinders Ranges,

Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, South Kennedy, Leichhardt, Burnett, Darling Downs, Gregory South, Maranoa, Moreton, Port Curtis, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. Occurring in all states and territories and Lord Howe Is. In New Zealand, Polynesia, and naturalized in the western U.S.A. Widespread in a variety of habitats but usually in damp sites from sea-level to highland areas, although rare at higher altitudes. Flowers Sept.-Jan.

Lachnagrostis lacunarum, as 'lacunis' (D.I.Morris)S.W.L.Jacobs. *Telopea* 9:446(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis lacunis* D.I. Morris, *Muelleria* 7(2): 149, 151–153, f. 4, 5a (1989).

Type of Basionym or Protologue Information: Australia: Tasmania: Twisted Tarn, Mt Field National Park, 1110 m, aquatic, shallow water with mud bottom; 1 Mar 1983, *A.M. Buchanan 1187* (HT: HO-93290; IT: AD, CANB, CHR, MEL, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (181).

Habit. Annual or perennial. Culms erect or geniculately ascending, 20–40 cm tall. Ligule an eciliate membrane, 3–6 mm long, acute. Leaf-blades linear, flat, 10–20 cm long, 1.5–2.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 6–12 cm long, 4–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, (2.5–)2.75–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate or elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic, 2.75–4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma (1.5–)2–2.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate, awned. Median (principal) awn dorsal, 1.5–3.25 mm long overall, with a straight or slightly twisted column. Column 1.5 mm long. Palea present, 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Central Highlands, Mt Field.

Notes. Endemic. Restricted to the Central Highlands and Mt Field, Tas. at altitudes of 850–1250 m. At the edge of tarns and lakes in highland areas.

Lachnagrostis leviseta A.J.Br. *Muelleria* 26:40 (2008).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (181).

Australian Distribution: Victoria.

Lachnagrostis limitanea J.M.Black. *Telopea* 9:446(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis limitanea* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 55: 137, f. 5 (1931).

Type of Basionym or Protologue Information: HT: *W.C. Johnston s.n.*, Mar 1931, Australia: South Australia, near Riverton (AD; IT: US-1761920 (ex hb. Black)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (230), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (183).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (230, fig. 174).

Habit. Perennial. Culms erect, 30–45 cm tall, 5 -noded. Mid-culm nodes glabrous. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 3 mm long, abaxially scaberulous, acute. Leaf-blades linear, flat or involute, 3–12 cm long, 1.5–2.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, effuse, 8–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 2.5–5.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2.7 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1.7 mm long, without keel, 4–5 -nerved. Lemma surface glabrous. Lemma apex erose or dentate, muticous. Palea present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Northern Lofty.

Notes. Endemic. Restricted to S.A.

Lachnagrostis meionectes (Vickery) S.W.L.Jacobs. *Telopea* 9:446(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis meionectes* Vickery, *Contr. New South Wales Natl. Herb.* 4(1): 12 (1966).

Type of Basionym or Protologue Information: Australia: New South Wales: Lake Cootapatamna, Kosciusko, 6800 ft, in moist places, amongst *Plantago*, 24 Jan 1951, *Johnson & Constable s.n.* (NSW-15995).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (290), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (183).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (290).

Habit. Annual. Culms erect, stature slender to delicate, 20 cm tall, 3 -noded. Ligule an eciliate membrane, 1.5–5 mm long, lacerate, acute or acuminate. Leaf-blades flat or conduplicate, 6 cm long, 0.4–1.8 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 2–6(–10) cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), 2–3.5 mm long.

Florets. Fertile lemma 2–2.5 mm long. Lemma surface indumented. Lemma apex erose or dentate, muticous or awned. Median (principal) awn dorsal. Palea present. Anthers 3.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** Snowfields.

Notes. Endemic. In highland areas of N.S.W. S from Cooma and Vic. Occasional in alpine and subalpine grasslands and heaths, often in moist, mossy sites. Flowers Dec.-Mar.

Lachnagrostis morrisii A.J.Br. *Muelleria* 24:127 (2006).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (183).

Lachnagrostis nesomytica A.J.Br. *Muelleria* 24:130 (2006).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (184 as subsp. *nesomytica*, 185 as subsp. *paralia*, subsp. *pseudofiliformis*, subsp. *palustris*).

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Infra-specific taxa: subsp. *nesomytica*, subsp. *paralia*, subsp. *pseudofiliformis*.

1 Lemma covered with scattered hairs **L. nesomytica** subsp. **pseudofiliformis**

Lemma glabrous

2

2 Lemma awns to 0.8 mm long, straight **L. nesomytica** subsp. **nesomytica**

Lemma awns 2–2.5 mm long, curved to geniculate **L. nesomytica** subsp. **paralia**

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Lachnagrostis nesomytica subsp. **nesomytica**

Australian Distribution: Western Australia.

Western Australia: Drummond.

Lachnagrostis nesomytica subsp. paralia A.J.Br. *Muelleria* 24: 133–134 (2008).

Australian Distribution: Western Australia.

Western Australia: Drummond.

Lachnagrostis nesomytica subsp. pseudofiliformis A.J.Br. *Muelleria* 24: 131–132 (2008).

Australian Distribution: Western Australia.

Western Australia: Drummond.

Lachnagrostis palustris A.J.Br. *Muelleria* 26: 39 (2008).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (185).

Australian Distribution: South Australia.

Lachnagrostis perennis (Vickery) A.J.Br. *Muelleria* 26: 35 (2008).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (186).

Australian Distribution: South Australia.

Lachnagrostis plebeia (R.Br.)Trin. (1820). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis plebeia* R. Br., *Prodr.* 1: 172 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6220*, Australia: New South Wales: Port Jackson (BM). Vickery, Contr. New South Wales Natl. *Herb.* 1: 101–119, notes that this is the only specimen of this species not from Western Australia, and this probably indicates a problem with the locality data on the type specimen.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (172 as *Agrostis plebeia*), [1878] G.Bentham, *Flora Australiensis* 7 (580 as *Deyeuxia plebeia*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (as *Agrostis plebeia*), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (395), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (186).

Habit. Annual. Culms stature slender to delicate, 20–30 cm tall, 3 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2–3 mm long, obtuse. Leaf-blades filiform or linear, flat or involute or convolute, 2–7 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 4–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, elliptic, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3–3.7 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3–3.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 6–8 mm long overall, with a twisted column. Palea present. Lodicules present. Anthers 2–3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale.

Notes. .

Endemic. Restricted to W.A.

Lachnagrostis preissii Nees. (1846). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: IT: *J.A.L. Preiss 1896*, Oct 1840, Australia: Western Australia: in regionibus interioribus Australiae meridionali-occidentalis (BM, K, L).

Recent synonyms: *Agrostis preissii* (Nees) Vickery.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (154), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (187).

Habit. Annual. Culms erect or geniculately ascending, 12–45 cm tall, 4 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 3–6 mm long, acute. Leaf-blades filiform, conduplicate, 2–12 cm long, 0.5 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, loose, 4–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, elliptic, laterally compressed, 3–4.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 3.6–4.2 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 4 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 8–9 mm long overall, with a twisted column. Palea present. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Eyre, Avon, Coolgardie.

Notes. Endemic. Restricted to W.A.

Lachnagrostis punicea (A.J.Brown & N.G.Walsh)S.W.L.Jacobs. *Telopea* 9:446(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis punicea* A.J. Brown & N.G. Walsh, *Muelleria* 14: 83–84. 2000; *Agrostis billardieri* var. *setifolia* Hook. f., *Fl. Tasman.* 2: 115 (1858).

Type of Basionym or Protologue Information: HT: *Ballantine 1446*, 15 Nov 1840, Australia: Tasmania: New Norfolk (K; IT: HO).

Recent synonyms: *Agrostis punicea* A.J.Brown & N.G.Walsh, *Agrostis aemula* R.Br. var. *setifolia* (Hook.f.) Vickery.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (230), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (187 as subsp. *punica*, 188 as subsp. *filifolia*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (231, fig. 175 as var. *punica* & 231, fig. 176 var. *filifolia*).

Habit. Perennial. Culms erect, 20–65 cm tall. Ligule an eciliate membrane, 2–8 mm long, obtuse. Leaf-blades conduplicate, 5–25 cm long, 0.2–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 10–25 cm long, 5–30 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, elliptic, laterally compressed, 4.5–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 4–5–7 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 3–5.5 mm long. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal. Palea present. Palea apex narrowly lobed. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** Wannon, Volcanic Plain, Gippsland Plain. **Tasmania:** North West, Midlands, East Coast.

Notes. Lemma covered in hairs in the lower three quarters subsp. **punicea**

Lemma (excluding callus) without hairs subsp. **filifolia**

Endemic.

subsp. **punicea**

Scattered across the Volcanic Plain of sw Victoria, extending into SE S. Australia, with isolated occurrences in south Gippsland. Also scattered in the Tasmanian midlands

subsp. **filifolia**

Scattered in the western half of sw Victoria, extending into SE S. Australia with isolated occurrences in Gippsland. Also two records from Hobart in Tasmania. (Brown & Walsh, 2000)

Infra-specific taxa: subsp. **punicea**, subsp. **filifolia**.

Lemma densely villous in lower 75% of body **L. punicea** subsp. **punicea**

Lemma glabrous or finely papillose except for
tuft of hairs at callus **L. punicea** subsp. **filifolia**

Lachnagrostis punicea subsp. punicea

Lachnagrostis punicea subsp. filifolia (Vickery) S.W.L. Jacobs. *Telopea* 10 (4): 840. 2004.

Classification. Basionym and/or Replacement Name: *Agrostis billardieri* var. *filifolia* Vickery, *Contr. New South Wales Natl. Herb.* 1: 110 (1941).

Lachnagrostis x contracta A.J.Brown. *Muelleria* 26: 21–44 (2008).

Australian Distribution: Victoria.

Lachnagrostis robusta (Vickery) S.W.L. Jacobs. *Telopea* 9:446(2001). **Classification.** (GPWG 2001) : Subfamily Pooideae.

Basionym and/or Replacement Name: *Agrostis billardieri* var. *robusta* Vickery, *Contr. New South Wales Natl. Herb.* 1: 110 (1941).

Type of Basionym or Protologue Information: Australia: Victoria: Melbourne, 27 Nov 1853, Adamson 224 (HT: K).

Recent synonyms: *Agrostis robusta* (Vickery) A.J.Brown & N.G.Walsh.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (232), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (188).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (232, fig. 177).

Habit. Annual or perennial. Culms erect or geniculately ascending, 25–75 cm tall. Ligule an eciliate membrane, 2–7 mm long. Leaf-blades 10–50 cm long, 0.2–1 mm wide.

Inflorescence. Inflorescence compound, a panicle, a panicle. Panicle 10–25 cm long, 10–30 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, laterally compressed, 3.5–5.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1-nerved. Upper glume lanceolate, 3.5–5.5 mm long, membranous, 1-keeled, 1-nerved.

Florets. Fertile lemma 0.5–5.5 mm long, 5-nerved. Lemma surface indumented. Lemma apex dentate, awned, 1-awned. Median (principal) awn dorsal, 3–5–8 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Northern Lofty, Murray, South-eastern. **Victoria:** Volcanic Plain, Otway Plain, Gippsland Plain. **Tasmania:** North West, North East, East Coast, South West.

Notes. Scattered in coastal areas from SE Victoria westward to S.Australia. Also scattered along the Tasmanian coast, particularly on the east coast (Brown & Walsh, 2000).

Lachnagrostis scabra (P.Beauv) Nees ex. Steud. *Nomencl. Bot.* 2nd edn 1: 250 (1840). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis rudis* Roem. & Schult., *Syst. Veg.* 2: 360 (1817).

Type of Basionym or Protologue Information: HT: *R. Brown s.n.*, Without locality (BM).

Recent synonyms: *Agrostis rudis* Roem. & Schult.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis scabra*), [1878] G.Bentham, *Flora Australiensis* 7 (583 as *?Deyeuxia scabra*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *L. rudis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (2332), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (290), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (189 as subsp. *scabra*, 190 as subsp. *curviseta*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (233, fig. 178 as *L. scabra*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (290).

Habit. Annual. Culms erect or geniculately ascending, 60–80 cm tall, 3–4 -noded. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 1–4 mm long, lacerate, obtuse. Leaf-blades linear, flat, 10–17 cm long, 3.5–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 12–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 1.8–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 1.5–2.3 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 0.5–2 mm long overall. Palea present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** Central Highlands, Midlands, East Coast, South West, Mt Field.

Notes. Endemic. In Tas., rare in Vic. from a few coastal sites, and S.A. In damp areas on margins of forest from sea level to 1200 m altitude.

Infra-specific taxa: subsp. *scabra*, subsp. *curviseta*.

Lemma awnless or with a fine straight awn 0.1–0.7 mm long

L. scabra subsp. *scabra*

Lemma awn 1–1.4 mm long, curved to geniculate, occasionally absent **L. scabra** subsp. *curviseta*

Lachnagrostis scabra subsp. scabra

Australian Distribution: South Australia, Victoria, Tasmania.

Lachnagrostis scabra subsp. curviseta A.J.Br. *Muelleria* 24: 127 (2006).

Australian Distribution: Victoria.

Lagurus ovatus* Linn. *Sp. Pl.* 1: 81 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-96.1). LT designated by Cope in Jarvis et al., *Regnum Veg.* 59 (1993).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (146), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (421), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (233), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales* (291), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (240).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (148, Pl. 44), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (234, fig. 179), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (169), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (291), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (241, Fig.34).

Habit. Annual. Culms erect or geniculately ascending, 5–90 cm tall. Mid-culm nodes pubescent. Leaves cauline. Leaf-sheaths hairy. Ligule an eciliate membrane, 1–4 mm long, abaxially hairy, lacerate, truncate or obtuse. Leaf-blades linear or lanceolate, 1–20 cm long, 2–15 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate or globose, 0.8–7 cm long, 0.6–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 5.5–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume surface indumented. Lower glume apex muticous or awned. Upper glume lanceolate, 5.5–7.7(–10) mm long, membranous, without keels, 1 -nerved. Upper glume surface indumented. Upper glume apex muticous or awned.

Florets. Fertile lemma 4–5.1 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 3 -awned. Median (principal) awn dorsal, 8–18 mm long overall, with a twisted column. Lateral lemma awns present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond, Dale, Menzies, Warren, Eyre. **South Australia:** Nullabor, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Moreton, Port Curtis, Warrego. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon. **Tasmania:** King Island, Furneaux Group, North West, North East, East Coast.

Notes. Cultivated as an ornamental.

Introduced. Native of the Mediterranean, now widely naturalised. Coastal scrub, often in sand dunes, occasionally found inland in dry open areas. Flowers Sept.-Feb.

Lamarckia aurea* (L.) Moench. *Meth. Pl.* 201 (1794). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Cynosurus aureus* L., Sp. Pl. 1: 73 (1753).

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-91.19). LT designated by MeikleFl. Cyprus 2: 1727 (1985), but specific sheet not indicated; specific sheet indicated by Scholz in Cafferty et al., *Taxon* 49(2): 249 (2000).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (636), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (42), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (129), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (291), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (347).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (43, Pl. 11), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (130, fig. 85), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (171), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (291), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (345, Fig. 46).

Habit. Annual. Culms geniculately ascending, 10–40 cm tall. Ligule an eciliate membrane, 4.3–10.2 mm long, acute. Leaf-blades 2.5–20 cm long, 2.6–7.5 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1.5–6 cm long, gathered into fascicles.

Spikelets. Spikelets pedicelled, 1 in the cluster. Companion spikelets pedicelled, 3 in the cluster (and a rudiment). Involucre composed of imperfect spikelets. Companion spikelets developed, containing empty lemmas, 4–8 mm long. Companion spikelet glumes mucronate or awned. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 2.5–5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume apex mucronate or awned. Upper glume lanceolate, 2.6–5 mm long, membranous, without keels, 1 -nerved. Upper glume apex mucronate or awned.

Florets. Fertile lemma 2.3 mm long, without keel, 5 -nerved. Lemma apex entire or dentate, awned. Median (principal) awn subapical or from a sinus, 4.7–7.2 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Irwin, Avon. **South Australia:** Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Darling Downs, Maranoa, Moreton. **New South Wales:** Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Gippsland Plain, Lowan Mallee, Murray Mallee, Riverina, Wimmera.

Notes. Southern and eastern mainland Australia. Native to the Mediterranean, now widely naturalized. Often in sandy soil, usually a weed of disturbed areas. Flowers July-Apr.

Leersia hexandra Sw. *Prodr. Veg. Ind. Occ.* 21 (1788). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzaceae.

Type of Basionym or Protologue Information: HT: *Swartz s.n.*, Jamaica (S; IT: BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210 as *L. australis*), [1878] G.Bentham, *Flora Australiensis* 7 (549), [1969] E.E.Henty, *Manual Grasses New Guinea* (117), [2002] D.Sharp &

B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (292), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (360).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (173), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (292), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (363, Fig. 49).

Habit. Annual or perennial. Rhizomes present, elongated. Culms erect or geniculately ascending or decumbent or aquatic, 30–150 cm tall. Mid-culm nodes pubescent. Lateral branches simple. Ligule an eciliate membrane, 1–2 mm long, scarious, truncate. Leaf-blades 6–20 cm long, 2–16 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 5–13.5 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, (3.2–)3.4–4.8(–5.2) mm long.

Florets. Fertile lemma (3.2–)3.4–4.8(–5.2) mm long, keeled, 5 -nerved. Lemma apex muticous. Palea present, 3 -nerved, 1-keeled. Palea apex entire. Lodicules present. Anthers 6.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast.

Notes. Widely distributed throughout the tropics. Usually in swamps and creeks, waterholes, lakes; substrate sand, peat, clay. Flowers Mar.-Sept.

Leersia oryzoides* (L.) Sw. *Nov. Gen. Sp. Pl. Prodr.* 21 (1788). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Basionym and/or Replacement Name: *Phalaris oryzoides* L., *Sp. Pl.* 1: 55 (1753).

Type of Basionym or Protologue Information: LT: *Clayton s.n.*, USA: Virginia, "5. oryzoides" (LINN-78.10). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 115 (1908).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (292), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (361).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (292).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending or decumbent, 30–150 cm tall. Mid-culm nodes pubescent. Lateral branches branched. Ligule an eciliate membrane, 0.5–1.5 mm long, truncate. Leaf-blades 3–30 cm long, 3–10 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 10–22 cm long, 5–14 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 4–8 mm long.

Florets. Fertile lemma 4–8 mm long, keeled, 5 -nerved. Lemma apex mucronate. Palea present, 3 -nerved, 1-keeled. Palea apex entire. Lodicules present. Anthers 2–3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: New South Wales, Victoria.

New South Wales: South-Western Plains. **Victoria:** Gippsland Plain, Midlands.

Notes. Introduced. Native of North America, Europe and Japan. At the edge of streams subject to seasonal inundation; a weed. Flowers Mar.

Leptaspis banksii R. Br. *Prodr.* 211 (1810). **Classification.** (GPWG 2001) : Subfamily Pharoideae. Tribe Phareae.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (211), [1878] G.Bentham, *Flora Australiensis* 7 (548), [1969] E.E.Henty, *Manual Grasses New Guinea* (120), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (6).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (8, Fig.1C-D).

Habit. Perennial. Culms erect, 20–100 cm tall. Mid-culm internodes solid. Ligule a fringed membrane, a ciliate membrane, 0.4–0.5 mm long. Leaf-blades lanceolate, 9.5–39 cm long, 9–40 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 14.5–30 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Male spikelets pedicelled, 1 in a cluster. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, orbicular, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1–3 -nerved. Lower glume surface indumented. Upper glume ovate, 2–2.2 mm long, membranous, without keels, 1–3 -nerved. Upper glume surface indumented. **Florets.** Fertile florets female.

Fertile lemma 4–7 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex muticous. Lodicules absent or vestigial. Anthers 6.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy, South Kennedy.

Notes. In northern Qld. In rainforest or vine forests, dark sandy loam, dry creek beds, red clay soil, granite. Flowers recorded for Jan.-Feb., May-July. Fruits recorded in Nov.

Leptochloa decipiens (R. Br.) Stapf ex Maiden. *Agric. Gaz. N. S. Wales*, xx. 307 (1909). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa decipiens* R. Br., *Prodr.* 181 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6271*, Australia: Queensland: Port Curtis Distr.: Keppel Bay (BM; IT: E, K).

Recent synonyms: *L. ciliolata*, *L. debilis* (syns. of subsp. *asthenes*).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (643 as *Eragrostis imbecilla*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (293 & 295 as *L. asthenes* & *L. peacockii*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 79C), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (175).

Habit. Perennial. Culms stature slender to delicate, 16–150 cm tall, wiry. Lateral branches simple or sparsely branched or branched. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.8–2 mm long, lacerate. Leaf-blades 1.7–21 cm long, 2–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–25, 5–16 cm long. Central inflorescence axis 4–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.5–6 mm long.

Glumes. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic or oblong or ovate or obovate, 1.2–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.8 mm long, keeled, 3 -nerved. Lemma apex mucronate. Palea 2 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett, Wide Bay, Darling Downs, Moreton, Mitchell, Warrego, Maranoa. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes.

Infra-specific taxa: subsp. **decipiens**, subsp. **asthenes**, subsp. **peacockii**.

1. Leaves hairy; lemmas densely bearded on the margin	L. decipiens subsp. peacockii
Leaves glabrous; lemmas shortly hairy on the margin	2

2. Racemes bearing spikelets to or almost to the base	L. decipiens subsp. decipiens
Racemes naked near the base	L. decipiens subsp. asthenes

Leptochloa decipiens subsp. decipiens

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (293).

Australian Distribution: Queensland, New South Wales.

Notes. Near coastal regions of Qld and northern N.S.W. and inland to about 600 km around the border. Eastern Australia (Qld and

N.S.W.) and New Caledonia. Flowers throughout the year as conditions allow.

Leptochloa decipiens subsp. asthenes (Roem. & Schult.) N.W. Snow. *Novon* 8(1): 77 (1998).

Classification. Basionym and/or Replacement Name: *Poa asthenes* Roem. & Schult., *Syst. Veg.* 2: 574 (1817); *Poa imbecilla* R. Br. *Prodr.* 181 (1810) non Sol (1807).

Type of Basionym or Protologue Information: LT: *Brown 6270*, Australia: Queensland: Upper Head [= Chadron Point], Broad Sound (BM; ILT: K5). LT designated by Snow, *Novon* 8: 77 (1998). Blake, *Contr. Queensland Herb.* 14: 6 (1972), cited the type without designating a specific collection as the lectotype..

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (293 as *L. asthenes*).

Australian Distribution: Queensland, New South Wales.

Notes. In Qld occurring inland to about 400 km and in all coastal regions except Cape York Penin., and in N.S.W. known from the eastern third of the state to just N of the Hunter R. area. Eastern Australia (Qld and N.S.W.) and New Caledonia. Flowers throughout the year as conditions allow.

Leptochloa decipiens subsp. peacockii (Maiden & Betche) N.W. Snow. *Novon* 8(1): 78 (1998).

Classification. Basionym and/or Replacement Name: *Diplachne peacockii* Maiden & Betche, *Agric. Gaz. New South Wales* 15: 925, with plate (1904)

Type of Basionym or Protologue Information: LT: *Maiden & Boorman s.n.*, 4 Dec 1904, Australia: New South Wales: Coolabah (NSW-126631; IT: BM, BRI, K, W). LT designated (as holotype) by Lazarides, *Brunonia* 3: 263 (1980).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (293 as *L. peacockii*).

Australian Distribution: Queensland, New South Wales.

Notes. Occurs 100 to 600 km inland from the coast in the southern half of Qld and the northern third of N.S.W., and also collected from Middle Percy Island off the Qld coast near Mackay. Eastern Australia (Qld and N.S.W.) and New Caledonia. Flowers throughout the year as conditions allow. In Qld occurring inland to about 400 km and in all coastal regions except Cape York Penin., and in N.S.W. known from the eastern third of the state to just N of the Hunter R. area. Eastern Australia (Qld and N.S.W.) and New Caledonia. Flowers throughout the year as conditions allow.

Leptochloa digitata (R.Br.) Domin. *Biblioth. Bot.* 85: 379 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa digitata* R. Br., *Prodr.* 181 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6266*, Australia: Queensland: Port Curtis Distr.: Broad Sound (BM; IT: BM, E, K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (617 as *Leptochloa subdigitata*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (211), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (462), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (386), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (294).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (213, Pl. 63), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (387, Fig. 320), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (294).

Habit. Perennial. Rhizomes absent or present. Culms erect, stature robust to moderate, 100–300 cm tall. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaves cauline. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5–1 mm long. Leaf-blades flat, 5–22 cm long, 2–7 mm wide.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 6–20, 2–13 cm long. Central inflorescence axis 0.5–1 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 2.5–4(–5) mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1-nerved. Upper glume ovate, 1.5–2 mm long, membranous, keeled, 1-keeled, 1-nerved.

Florets. Fertile lemma 1.8–2 mm long, without keel or keeled, 3-nerved. Lemma surface glabrous. Lemma apex muticous or mucronate. Palea 2-nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier, Fortescue, Carnarvon, Coolgardie. **Northern Territory:** Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory South, Leichhardt, Maranoa, Mitchell, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. A distinctive species with several diagnostic features including robust xerophytic habit, cane-like smooth powdery culms, olive-green spikelets, congested subdigitate panicle, rounded rather than keeled lemmas and flattened grain. Glabrous on all floral and vegetative parts except for sparse hairs on the callus and auricles.

Endemic; widely distributed in all mainland States except Vic. Occurring chiefly in arid and semi-arid regions, but extending into higher rainfall areas in Queensland and New South Wales. In most parts of its distribution, plants are associated with watercourses, floodplains and similar better-watered sites, often forming conspicuous, bamboo-like stands.

Leptochloa divaricatissima S. T. Blake. *Contr. Queensland Herb.* 14: 8 (1972). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 10517*, Australia: Queensland: Goondiwindi (BRI-131665-6; IT: CANB, K, MO, NSW, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (294).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (294).

Habit. Perennial. Culms stature slender to delicate, 20–60 cm tall. Mid-culm internodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1–2 mm long, lacerate. Leaf-blades 3–24 cm long, 1.5–4 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 20–30, spreading or deflexed, 6.5–20 cm long. Central inflorescence axis 15–60 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–4 mm long.

Glumes. Lower glume ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong or ovate, 1.5–2.8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 2–2.4 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex muticous or mucronate. Palea 2 -nerved. Grain 0.9–1.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Leichhardt, Darling Downs, Moreton, Maranoa. **New South Wales:** North-Western Plains.

Notes. The extremely large, effuse panicle is very distinctive. Other diagnostic features include the oblong spikelet with imbricate florets, obtusely trigonous almost terete grain, hairy lemma and palea, and unequal glumes short relative to the spikelet.

Endemic; distributed in SE Qld and inland northern N.S.W. Chiefly on heavy-textured soils subject to periodic flooding.

Leptochloa dubia*

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (294).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (294).

Leptochloa fusca (L.) Kunth. *Rev. Gram.* 1: 91 (1829). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Festuca fusca* L., *Syst. Nat. (ed. 10)*: 2: 876 (1759).

Type of Basionym or Protologue Information: LT: *F. Hasselquist s.n.*, Palestine (LINN-92.21). LT designated by Phillips, *Fl. Trop. E. Afr., Gram* (2): 281 (1974).

Recent synonyms: *Diplachne fusca*, *D. parviflora*, *D. reptatrix*; *Diplachne uninervia* (syn. of subsp. *uninervia*); *Diplachne muelleri* (syn. of var. *uninervia*)

Key references (books and floras): [1810]. R.Brown, *Prodromus* (183 as *Triodia ambigua*, 182 as *Triodia parviflora*), [1878] G.Bentham, *Flora Australiensis* 7 (619 as *Diplachne muelleri*, *Diplachne fusca*, 620 as *Diplachne parviflora*), [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (110 as *Diplachne muelleri*, 111 as *Diplachne fusca*, *Diplachne parviflora*), [1969] E.E.Henty, *Manual Grasses New Guinea* (121 as *L. polystachya*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (461 as *Diplachne fusca* & 462 as *Diplachne parviflora*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (386), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (222 as *Diplachne fusca*, *D. parviflora*, *D. uninervia*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: Poaceae 3 (Fig. 79 as var. *fusca*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (387, fig. 321 as var. *fusca*, 388, fig. 322 as var. *uninervia* & 389, fig. 323 as var. *muelleri*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *Diplachne fusca*).

Habit. Annual or perennial. Rhizomes absent. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 25–150 cm tall. Ligule an eciliate membrane, 1.2–8 mm long, entire or lacerate, acute. Leaf-blades flat or conduplicate or involute or convolute, 14–55 cm long, 0.8–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 10–30, erect or spreading, straight, 2–15 cm long. Central inflorescence axis 7–40 cm long.

Spikelets. Spikelets pedicelled or sessile. Fertile spikelets many flowered, with at least 2 fertile florets (6–11), comprising 6–11 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed or dorsally compressed, 5–18 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong, 1.8–7.4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 1.8–6.1 mm long, without keel or keeled, 3 -nerved. Lemma surface indumented. Lemma apex dentate, mucronate or awned, 1 -awned. Median (principal) awn from a sinus, 0.3–1.6 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.6–1.8 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Hall, Dampier. Carnegie, Helms, Fortescue, Ashburton, Carnarvon, Austin. Avon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, Warrego, South Kennedy, Gregory South. **New South Wales:** North Coast, Central Coast, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee, Riverina, Volcanic Plain.

Notes. There are four subspecies, three in Australia.

1 Annual or biennial; ligule 4.8–7.5 mm long; spikelet 4–6 floreted; lower glume less than 1/2 the length of the upper glume, 0.9–1.3 mm long **c.** subsp. **uninervia**

1: Perennials; ligule 1.2–4.5 mm long; spikelet 5–13 floreted; lower glume c. 1/2 the length of the upper glume, 1.2–3.6 mm

2 Ligule 1.5–2.5 mm long; spikelets 5–13.3 mm long; upper glume 1.8–4.3 mm long; lemma 2.2–5 mm long **a.** subsp. **fusca**

2: Ligule 2.1–4.5 mm long, spikelets 10.5–18 mm long; upper glume 3.4–5.2 mm long; lemma 4.3–6.1 mm long **b.** subsp. **muelleri**.

Native; all states; widespread and common in warm-temperate and tropical areas. Flowers usually after rain.

Infra-specific taxa: subsp. **fusca**, subsp. **muelleri**, subsp. **uninervia** .

1. Lowermost panicle branches not exerted at maturity; lemma often smoky white at maturity with a darker area surrounding the caryopsis **L. fusca** subsp. **muelleri**

Lowermost panicle branches exerted at maturity; lemma colour various but not generally smoky white with a darker area 2

2. Lemma apex obtuse to truncate; lemma dark green or lead coloured; anthers almost always less than 0.7 mm long **L. fusca** subsp. **uninervia**

Lemma apex obtuse to acute or acuminate; lemma of various colours; anthers usually 0.5–2.5 mm long **L. fusca** subsp. **fusca**

Leptochloa fusca subsp. fusca

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (222 as *Diplachne fusca*, 223 as *Diplachne parviflora*).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Notes. Distributed across most of the flatter inland areas of N.S.W. except the far western corner, just reaching northern Vic. and eastern S.A., and widespread but sporadic N of 29°S, especially along the N coast of the N.T. Widespread and common in warm-temperate and tropical areas. Flowers usually after rain.

Leptochloa fusca subsp. muelleri (Benth.) N.W. Snow. *Novon* 8(1): 78 (1998).

Classification. Basionym and/or Replacement Name: *Diplachne muelleri* Benth., *Fl. Austral.* 7: 619 (1878)

Type of Basionym or Protologue Information: LT: *Giles s.n., herb Munro*, Australia: Charlotte waters (K; ILT: K). LT designated by Snow, *Novon* 8: 78 (1998).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (112, Pl.32 as *Diplachne muelleri*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (223 as *Diplachne muelleri*).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Notes. Inland areas of Australia, S of 18°S, excepting the great deserts. Widespread and common in warm-temperate and tropical areas. Flowers usually after rain.

Leptochloa fusca subsp. uninervia (J. Presl) N.W. Snow. *Novon* 8 (1): 79 (1998).

Classification. Basionym and/or Replacement Name: *Megastachya uninervia* J. Presl, *Reliq. Haenk.* 1(4–5): 283 (1830).

Type of Basionym or Protologue Information: LT: *Haenke 101*, Mexico (PR; ILT: LE-TRIN-2424.01, US-78697 (fragm.), W). LT designated by Snow, *Novon* 8: 79 (1998).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (223 as *Diplachne uninervia*).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Tasmania.

Notes. All states. Native to the southern third of North America, the West Indies and S through Argentina. Introduced in a number of regions including Saudi Arabia, Egypt, the Canary Is., and New Zealand. Flowers usually after rain.

Leptochloa ligulata Lazarides. *Brunonia* 3: 259 (1980). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: North Kennedy District: S of Charters Towers, ca. 20.26S 146.13E, 25 Apr. 1945, *Blake & Webb 15751* (HT: BRI; IT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 80).

Habit. Perennial. Culms erect, stature robust to moderate, 60–120 cm tall. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 3–5 mm long, lacerate. Leaf-blades flat, 14–35 cm long, 3–7 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 30–40, ascending, 4–15 cm long. Central inflorescence axis 30–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 2–2.5 mm long.

Glumes. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 0.9 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 1–1.2 mm long, keeled, 3 -nerved. Lemma surface indumented. Lemma apex muticous or mucronate. Palea 2 -nerved. Grain 0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Mitchell, North Kennedy, South Kennedy, Port Curtis.

Notes. Diagnostic features include the subterete, scarcely compressed, plump grain and broad, blunt upper glume. Also, the prominent, exerted ligule is the longest among Australian species.

Endemic; distributed in central eastern Qld. Occurring on heavy-textured soils in gilgais and waterholes, often in association with brigalow (*Acacia harpophylla*).

Leptochloa neesii (Thw.) Benth. *J. Linn. Soc., Bot.* 19: 108 (1881). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Cynodon neesii* Thwaites, *Enum. Pl. Zeyl.* 371 (1864).

Type of Basionym or Protologue Information: HT: *Thwaites C.P.* 3749, Ceylon: Eastern Prov.: Trincomalee (PDA).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (187 as *Cynodon polystachyon*), [1878] G.Bentham, *Flora Australiensis* 7 (617 as *Leptochloa polystachya*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (211 as *L. brownii*), [1969] E.E.Henty, *Manual Grasses New Guinea* (121 as *L. virgata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 79D).

Habit. Annual or perennial. Culms stature slender to delicate, 60–150 cm tall. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 2–4 mm long, lacerate. Leaf-blades linear or lanceolate, flat or involute, 5–35 cm long, 2–6 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 60–70, erect or spreading, straight or arcuate, 2.5–9 cm long. Central inflorescence axis 15–45 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 1–1.8 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 1–1.9 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.5 mm long, keeled, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex entire, mucronate. Palea 2 -nerved. Grain 0.5–0.75 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, North Kennedy.

Notes. Considered to be a potential weed of tropical crops cultivated under flood irrigation, for in Ceylon and Java the species is a common component of rice fields and similar disturbed, wet areas.

The species is recognized by 1-flowered spikelets, terete grain, roughened glumes long relative to the spikelet, hairy lemma and palea, prominent ligule and elongated rather dense panicle.

Native; in Australia the species occurs N of 20°S in W.A., N.T. and Qld; distributed in Australia, Ceylon and Java. Almost invariably, plants grow on cracking clay plains and floodplains, usually in gilgais and similar seasonally flooded depressions. In saline situations, the species is often associated with *Sporobolus virginicus* (L.) Kunth.

Leptochloa panicea* (Retz.) Ohwi. *Bot. Mag., Tokyo*, lv. 311 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Poa panicea* Retz., *Observ. Bot.* 3: 11 (1783).

Type of Basionym or Protologue Information: China: E China, *Honoratiss. Bladh.* (HT: LD).

Recent synonyms: *L. mucronata*, *L. filiformis* (syns. of var. *brachiata*).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (121), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms decumbent, stature slender to delicate, 30–120 cm tall. Leaf-sheaths hairy. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 1–2.5 mm long, lacerate. Leaf-blades flat, 3–26(–35) cm long, 1–14 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes numerous, 60–70, spreading or erect, flexuous, (2–)3–8(–16) cm long. Central inflorescence axis 8–35 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, obovate, laterally compressed, 1.5–3.2 mm long.

Glumes. Glumes dissimilar. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume linear or lanceolate, 1.5–1.8 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucinous or mucronate.

Florets. Fertile lemma 1–1.5 mm long, without keel or keeled, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex entire, mucinous. Palea 2 -nerved. Grain 0.7–0.8 mm long.

Continental Distribution: Africa, Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: Burke, North Kennedy, Wide Bay, Darling Downs, Moreton.

Notes. Diagnostic characters include the long panicle relative to the plant itself, thin papery hairy blades and sheaths, prominent ligule, subequal glumes long relative to the spikelet, pubescent lemma and palea, and trigonous grooved grain.

Introduced; coastal districts and inland areas of NW Qld; native in America in warm-temperate and tropical regions; introduced to western Africa. A weed of disturbed places, usually within pastures and crops such as sorghum and sugar-cane.

Infra -specific taxa: subsp. *brachiata* .

Lower lemma mostly more than 1.2mm long

Lower lemma mostly less than 1.2mm long

L. panicea subsp. *brachiata*

L. panicea subsp. *panicea* .

Leptochloa. panicea subsp. panicea

Australian Distribution: Queensland.

Queensland: Burke.

Leptochloa panicea subsp. brachiata

Australian Distribution: Queensland.

Queensland: Burke, North Kennedy, Leichhardt, Wide Bay, Moreton.

Leptochloa simoniana N. Snow. *Novon* 10: 238 (2000). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *B.M. Waterhouse & J.F. Grimshaw BMW 4862*, 31 Mar 1998, Australia: Queensland: Cook District: Boigu Island, a mud cay., Torres Strait, 9°13.29'S, 142°13.26'E, three clumps of this grass growing close together at rubbish dump, beyond far western end of airstrip. Not observed elsewhere in community area not previously on island (BRI; IT: BO, BRI, CANB, GREE, K, L, LAE, MEL, MO-04968440, NAQS, NSW, QRS).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 90–140 cm tall, 2.5–4 mm diam. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous (and often glaucous). Lateral branches branched (sometimes). Leaf-sheaths hairy. Ligule an eciliate membrane, erose, truncate. Leaf-blades linear, flat or involute (when dry), 20–35 cm long, 0.35–0.9 mm wide. Leaf-blade surface scabrous (throughout above and below), indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle 45–75 cm long, 2–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3–3.4 mm long.

Glumes. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume narrowly ovate (to triangular), 1.8–2.4 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate (sometimes shortly).

Florets. Fertile lemma 2.3–2.7 mm long, 3 -nerved. Lemma surface indumented. Lemma apex mucronate (sometimes shortly). Lodicules present. Anthers 3. Grain 1.2–1.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Leptochloa southwoodii N. Snow & B.K. Simon. *Austrobaileya* 5: 138 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: A greenhouse-grown specimen based on seed collected from Snow & Simon 7364, Queensland, Darling Downs District, along Surat Developmental Road, 18 km W of its junction with Leichardt Highway, in brigalow remnants, common, with *Leptochloa divaricatissima*, L. aff. *fusca*, and *Acacia harpophylla*, clay soil, GPS 27.22.50S 150.00.37E, *N. s.n.ow* 7401 (HT: BRI; IT: MO, CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, stature slender to delicate, 137–170 cm tall. Mid-culm internodes hollow. Ligule an eciliate membrane, 3–5.5 mm long, lacerate. Leaf-blades flat or involute, 15–60 cm long, 12.5 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 60–80, ascending or spreading, 1–17.5 cm long.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), laterally compressed or terete, 3.5–4.6 mm long.

Glumes. Lower glume lanceolate or ovate. Upper glume 1.2–1.7 mm long.

Florets. Fertile lemma 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Port Curtis, Darling Downs.

Notes. Endemic; Darling Downs District, Qld. In brigalow remnants.

Lepturopetium sp.

Australian Distribution: Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Lepturus copeanus B.K. Simon. *Fl. Austral.* 44B::460 (2005). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Northern Territory: E of Mataranka, near Roper River, 28 Apr 1947, *S.T. Blake 17514* (HT: BRI; IT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *L. so. B*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 75S-Z).

Habit. Annual. Stolons absent. Culms erect or geniculately ascending, 30–40 cm tall. Ligule a fringe of hairs. Leaf-blades lanceolate, flat, 3.5–4.5 cm long, 4–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence solid, a spike.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 7–8 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 7–8 mm long, coriaceous, without keels, 7-nerved. Upper glume surface smooth, glabrous. Upper glume apex muticous.

Florets. Fertile lemma 3 mm long, without keel, 3-nerved. Lemma surface glabrous. Palea 2-nerved.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** North Kennedy.

Lepturus geminatus C. E. Hubbard. *Hooker's Icon. Pl.* t.3233 (1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, Thursday Is.: *Hockings*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms decumbent, 30–120 cm tall. Ligule an eciliate membrane. Leaf-blades flat or conduplicate or convolute, 10–23 cm long, 2–7 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid, a spike. Racemes 1, moniliform. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 5–7 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 5–7 mm long, coriaceous, without keels, 11–13 -nerved. Upper glume surface smooth, indumented. Upper glume apex awned.

Florets. Fertile lemma 3.7–4.3 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex entire. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. *L. geminatus* is distinguished from other members of the genus by its greater height, shorter moniliform spikes, and by having all except the terminal spikelet in opposite pairs. The glumes and rachis are pubescent rather than scabrous as in the other two species.

Endemic; restricted to the northern part of Cape York Penin., Qld, and to Thursday Island. Occurring on the inland faces of sand dunes, and on sand within and at the edges of evergreen vine forests; designated rare.

Lepturus minutus B.K. Simon. *Fl. Austral.* 44B:461 (2005). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: Forty Mile Scrub National Park, 31 Mar 2001, *R.J. Fensham 4379* (HT: BRI; IT: CANB, K, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *L. sp. B*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 75J-R).

Habit. Annual. Stolons present. Culms prostrate, 5–15 cm tall. Ligule a fringe of hairs. Leaf-blades lanceolate, flat, 0.3–0.6 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence solid, a spike. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 2–2.5 mm long, coriaceous, without keels, 7–9 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 3 mm long, without keel, 3 -nerved. Lemma surface glabrous. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Lepturus repens (Forst.) R. Br. *Prodr.* 207(1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Rottboellia repens* G. Forst., *Fl. Ins. Austr.* 9 (1786).

Type of Basionym or Protologue Information: Insula intra tropicos.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (207), [1878] G.Bentham, *Flora Australiensis* 7 (668), [1969] E.E.Henty, *Manual Grasses New Guinea* (121), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (295).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 76F-G), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (295).

Habit. Perennial. Stolons present. Culms erect or geniculately ascending, 10–60 cm tall. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades linear or lanceolate, flat or involute or convolute, 3–30 cm long, 2–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a spike. Racemes 1. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1(–2) fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 6–14 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 6–14 mm long, cartilaginous or coriaceous, without keels, 5–12 -nerved. Upper glume surface asperulous or scabrous, glabrous. Upper glume apex muticous or awned.

Florets. Fertile lemma 3.7–5.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex entire. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, Lord Howe, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. There are two subspecies.
Spikelets always solitary **3a.** subsp. **repens**

Spikelets paired in lower or middle part of rachis **3b.** subsp. **stoddartii**.

Fairly common in tropical and sub-tropical coastal areas, growing on sand, especially coral sand, or in shallow soil on rocks; in exposed locations above the water line, or in *Casuarina* woodland. Associated taxa include *Thurea involuta*, *Spinifex*, *Zoysia*, *Sporobolus virginicus*. The long stolons allow the formation of large, loose, green mats.

Sand binder.

Lepturus repens (G.Forst.) R.Br. subsp. **repens**

Coasts of northern and eastern Australia, from Derby in W.A. to Coffs Harbour in N.S.W, and off-shore islands. Coastal E Africa, Southern Asia and Pacific Islands.

Lepturus repens subsp. **stoddartii**

Along the E coast of Qld and on off-shore islands, from Ingram Is. in the Great Barrier Reef near Cape Melville to Brisbane.

Lepturus xerophilus Domin. *Biblioth. Bot.* 85: 412 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Nord-Queensland, Karsthügel (Bluff) bei Chillagoa ST: *Domin s.n.*, Feb 1910, Australia: Queensland: Boonmoo.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Stolons present. Culms geniculately ascending, 30–90 cm tall. Ligule a fringed membrane, a ciliate membrane. Leaf-blades flat or convolute, 2.5–11 cm long, 0.5–5.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a spike. Racemes 1. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 fertile floret(s), with a barren rachilla extension, lanceolate, dorsally compressed, 4–7 mm long.

Glumes. Glumes firmer than fertile lemma. Upper glume lanceolate, 4–7 mm long, cartilaginous or coriaceous, without keels, 7–11 -nerved. Upper glume surface scabrous, glabrous or indumented. Upper glume apex awned.

Florets. Fertile lemma 2.8–4 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex entire. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. *L. xerophilus* differs from the common coastal species *L. repens* in the usually much more densely hairy leaf blades, the constrictions in the rachis at points of disarticulation, the much longer awns on the glume, and the spikelets consistently having 2 well-developed florets.

Endemic; very sporadic from the NE Kimberley, W.A. to the base of Cape York, Qld. Uncommon, growing on limestone in partial shade; designated rare.

Leymus arenarius* (L.) Hochst. *Flora* 31: 118 (1848)

. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Elymus arenarius* L., *Sp. Pl.* 1: 83 (1753).

Type of Basionym or Protologue Information: LT: (LINN-100.1). LT designated by Bowden, *Canad. J. Bot.* 42: 567 (1964).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (95).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 60–200 cm tall. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.3–1 mm long, truncate. Leaf-blades flat or involute, 20–60 cm long, 8–22 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, erect, 15–35 cm long.

Spikelets. Spikelets sessile, 2 in the cluster. Fertile spikelets comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 20–32 mm long.

Glumes. Glumes similar, thinner than fertile lemma or similar to fertile lemma in texture. Lower glume lanceolate, coriaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface indumented. Upper glume lanceolate, 18–30 mm long, coriaceous, keeled, 3–5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 15–25 mm long, keeled, 7 -nerved. Lemma surface indumented. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 10 mm long.

Continental Distribution: Europe, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Tasmania.

Tasmania: King Island.

Lolium arvense*

Classification. Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (193).

Notes. Infra-specific taxa: f. *arvense*, f. *temulentum*.

Lemmas awnless or with a weak vestigial awn **L. temulentum** f. *arvense*

Lemmas distinctly awned **L. temulentum** f. *temulentum*

Lolium x hubbardii* Jansen & Wacht. ex B.K. Simon. *Austrobaileya* 2(1): 21 (1984).

Classification. Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (132).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (132, fig. 86).

Australian Distribution: Queensland, Victoria.

Queensland: Cook, Wide Bay, Darling Downs, Moreton.

Lolium x hybridum* Hausskn. *Mitth. Thuring. Bot. Vereins* 5: 32 (1887).

Classification. Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (133).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (133, fig. 87).

Australian Distribution: Queensland.

Queensland: Cook, Burnett, Wide Bay, Moreton.

Lolium loliaceum* (Bory & Chaub.) Hand.-Mazz. *Ann. K.K. Naturhist. Hofmus.* 28: 32 (1914).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Rottboellia loliacea* Bory & Chaub. *Exp. Sci. Moree Bot.* 3: 46 (1832).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (133), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (296), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (287), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (288, Fig.38).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (193), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (134, fig. 88), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (296), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (288, Fig 38).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 4–43 cm tall, 2–4 -noded. Lateral branches simple. Leaf-sheaths smooth or scaberulous. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–1.5 mm long, truncate or obtuse. Leaf-blades 5–17 cm long, 0.5–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence solid, a spike. Racemes 1, straight or arcuate, 3–30 cm long, bearing 2–21 fertile spikelets on each. Rhachis tough.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–8), comprising 2–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–18 mm long.

Glumes. Glumes similar to fertile lemma in texture. Upper glume lanceolate or oblong, 4–20 mm long, coriaceous, without keels, 3–7 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3.2–8.5 mm long, without keel, 3–5 -nerved. Lemma apex entire or erose, muticous or awned (rarely), 1 -awned. Median (principal) awn subapical, 0–3(–10) mm long overall. Lodicules present. Anthers 3. Grain 2.7–5.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, East Coast.

Notes. Should probably be maintained as a variety of *L. rigidum*, see Terrell (1968) and Kloot (1983).

Introduced. All states but N.T. and Qld. Native to the Mediterranean, now in southern Africa, North America and South America. Roadsides, waste places, sandy areas, often in maritime habitats. Flowers Sept.–Feb. Fruits Nov.–Dec.

Lolium multiflorum* Lam. *Fl. Franc.* 3: 621 (1778). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Anon. herb. Lamarck*, France: les environs de Peronne (P). LT designated by Terrell, *Techn. Bull. U.S.D.A.* 1392: 10 (1968).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (422), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (134), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (297), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (286), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (288, Fig.38).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (192), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (135, fig. 89), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (297), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (288, Fig 38).

Habit. Annual or perennial. Culms erect or decumbent, 30–90 cm tall. Lateral branches branched. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades 6–31 cm long, 4–10 mm wide.

Inflorescence. Inflorescence solid, a spike. Racemes 1, 10–30 cm long, bearing 21–42 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–15), comprising 5–15 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7.5–25 mm long.

Glumes. Glumes similar to fertile lemma in texture. Upper glume lanceolate or ovate, 4–9.3 mm long, coriaceous, without keels, 4–7 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 5–8 mm long, without keel, 5 -nerved. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn 0–13 mm long overall. Grain 2.6–3.8 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Dale. **South Australia:** Southern Lofty. **Queensland:** Wide Bay, Darling Downs, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Otway Plain, Riverina, Wimmera. **Tasmania:** No region given.

Notes. Useful as a pasture grass, commonly used is short-term pastures.

Kloot gives the consistent diagnostic characters as the prominent awning of all florets and a short glume. Common as a parent of hybrids with *L. perenne*, the hybrids usually annuals or short-lived perennial with awned or awnless lemmas and rolled leaf blades.

Introduced. Native to Europe, now widely distributed. Fields, roadsides and waste places. Flowers Sept.–Dec.

Lolium perenne* Linn. *Sp. Pl.* 1: 83 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Anon.*, (LINN-99.1). LT designated by Terrell, Techn. Bull. USDA 1392: 7 (1968). See also Loos & Jarvis, *Bot. J. Linn. Soc.* 108: 399–408 (1992) for a detailed discussion of the type..

Recent synonyms: *L. perenne* var. *cristatum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (666), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (430), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (422), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (135), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (297), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (285), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (288, Fig.38).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (191, Pl. 56), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (177), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (136, fig. 90), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (297).

Habit. Perennial. Culms erect or decumbent, stature slender to delicate, 24–90 cm tall. Lateral branches simple. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane. Leaf-blades 3–20 cm long, 2–6 mm wide.

Inflorescence. Inflorescence solid, a spike. Racemes 1, 4–30 cm long, bearing 17–27 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (4–14), comprising 4–14 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7–20 mm long.

Glumes. Glumes similar to fertile lemma in texture. Upper glume lanceolate or elliptic or oblong or ovate, 5–12 mm long, coriaceous, without keels, 3–7 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 5–7 mm long, without keel, 5 -nerved. Lemma apex muticous. Grain 3.8–4 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond, Dale, Menzies, Warren, Eyre, Roe, Avon. **South Australia:** Flinders Ranges, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Cook, Darling Downs, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** No region given.

Notes. Cultivated for pasture.

A variable species with numerous morphological forms. In the northern hemisphere some of these have been recognised at various subspecific ranks, but here a broader sense of the species is recognised.

Introduced. All states and territories except N.T. Indigenous in parts of Europe, Asia and presumably north Africa, widely introduced and now throughout temperate regions of both hemispheres. Naturalised throughout the higher rainfall temperate areas, commonly in fields, waste places and roadsides. Flowers Aug.-Feb.

Lolium remotum*

Classification. **Key references (books and floras):** [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (193).

Lolium rigidum* Gaud. *Agrost. Helv.* 1: 334 (1811). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Europe: Switzerland: Augustae Praetoriae ad vias apricas 1809, *Gaudin s.n.* (HT: LAU).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (664 as ?*Festuca rigida*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (430), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (422), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (137), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (297), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (286), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (288, Fig.38).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (193), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (137, fig. 91), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (297), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (288, Fig 38), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (288, Fig 38).

Habit. Annual. Culms erect or geniculate ascending or decumbent, 15–100 cm tall, 2–4 -noded. Lateral branches simple or branched. Leaf-sheaths smooth or scaberulous. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–1.5 mm long, truncate or obtuse. Leaf-blades 5–24 cm long, 0.5–5 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence solid, a spike. Racemes 1, straight or arcuate, 3–30 cm long, bearing 2–30 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–8), comprising 2–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–18 mm long.

Glumes. Glumes similar to fertile lemma in texture. Upper glume lanceolate or oblong or ovate, 4–20 mm long, coriaceous, without keels, 3–7 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3.2–8.8 mm long, without keel, 3–5 -nerved. Lemma apex entire or erose, muticous or awned (rarely), 1 -awned. Median (principal) awn subapical, 0–3(–10) mm long overall. Lodicules present. Anthers 3. Grain 2.7–5.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Nullabor, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Maranoa, Moreton, Port Curtis, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, East Coast.

Notes. Cultivated widely in Australia as a pasture grass, but has become the major grass weed of field crops in southern Australia, see Kloot (1983).

Kloot recognises maritime forms morphologically very close to *L. loliaceum*. His diagnostic characters are: the glume c. equal to the spikelet; the spikelet c. linear; the glume acutely angled to the rachis at maturity; and the stem commonly pigmented.

Introduced. Also on Lord Howe Is. Southern Europe, N Africa, throughout Mediterranean region and Middle East to SW Asia; introduced in many parts of the world including southern Africa, North America and South America. Fields, roadsides, waste places, rocky hillsides, sandy areas. Flowers Aug.-Dec. Fruits Dec.- ?.

***Lolium temulentum** Linn. Sp. Pl. 1: 83 (1753). Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: Gramen loliaceum spica longiore (UPS-BURS-Vol. 1, folio 113). LT designated by Loos and Jarvis, *Bot. J. Linn. Soc.* 108: 408 (1992), who overturn the earlier incorrect lectotypification of Terrell, *USDA Bull.* 1392: 35 (1968)..

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (667), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (193), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (422), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (138), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (298), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (289 & 290 as var *arvense*), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (288, Fig.38 as *f.temulentum*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (194, Pl. 57), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (139, fig. 92, as forma *temulentum* & fig. 93, as forma *arvense*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (298).

Habit. Annual. Culms erect or decumbent, 30–100 cm tall. Lateral branches simple or branched. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 2 mm long. Leaf-blades 6–40 cm long, 3–13 mm wide.

Inflorescence. Inflorescence solid, a spike. Racemes 1, 8.5–30 cm long, bearing 5–22(–30) fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–9(–11)), comprising 3–9(–11) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 10–27 mm long.

Glumes. Glumes similar to fertile lemma in texture. Upper glume lanceolate or oblong, 10–24 mm long, coriaceous, without keels, 5–9 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 6–9.4 mm long, without keel, 5–9 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn (2–)4.3–17 mm long overall. Grain 5–6 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Drummond, Dale, Menzies, Warren, Eyre, Avon. **South Australia:** Eyre Peninsula, Northern Lofty, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Maranoa, Mitchell, Moreton, Port Curtis. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Riverina, Volcanic Plain. **Tasmania:** East Coast.

Notes. Previously a weed of cereal crops.

1(0). Female-fertile lemmas awned **5a. f. temulentum**

Female-fertile lemmas muticous **5b. f. arvense.**

Introduced. All states but N.T. Europe, Mediterranean, eastern Asia and eastern and northern Africa. Terrell (1968) notes the original habitat as unknown. Flowers June–Jan. Fruits Aug.–Jan.

Lemmas awnless **L. temulentum f. arvense**

Lemmas awned ***L. temulentum f. temulentum**

Lolium temulentum L. f. *temulentum*

N.S.W., Vic., W.A., Qld and S.A. Flowers June–Jan. Fruits Aug.–Jan.

Lolium temulentum L. f. *arvense* Lilj.

Tas., Vic., W.A., Qld and S.A. Flowers June–Jan. Fruits Aug.–Jan. Previously a weed of cereal crops.

Lolium. temulentum f. temulentum

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Notes. N.S.W., Vic., W.A., Qld and S.A. Flowers June–Jan. Fruits Aug.–Jan.

Lolium. temulentum f. arvense

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Notes. Tas., Vic., W.A., Qld and S.A. Flowers June–Jan. Fruits Aug.–Jan.

Lophatherum gracile Brongn. *Duperrey Bot. Voy. Coq.* 2 (2): 50 (1831). **Classification.** (GPWG 2001) : Subfamily Centothecoideae. Tribe Centotheceae.

Type of Basionym or Protologue Information: Moluccas, Amboina: *Brongniart*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (124), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 45–100 cm tall. Ligule an eciliate membrane. Leaf-blades lanceolate, flat, 8–20 cm long, 14–50 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–25 cm long. Central inflorescence axis 5–30 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 5.6–9 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume oblong, herbaceous, keeled, 1-keeled, 5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume oblong, 4.4–5.5 mm long, herbaceous, keeled, 1-keeled, 5 -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 5.3–6.5 mm long, keeled, 7–13 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 1–1.5 mm long overall. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 2.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. In northern Qld. NE Himalaya, Burma, Malaya, Sri Lanka, China, Japan, Australia. A forest grass, usually collected on the edge of swamps or in seasonally swampy sites. Flowers June, Aug.-Oct.

Megathysrus maximus* (Jacq.) B.K. Simon & S.W.L. Jacobs. *Austrobaileya* 6(3): 572 (2003).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum maximum* Jacq., *Icon. Pl. Rar.* 1: 2, pl. 13 (1781).

Type of Basionym or Protologue Information: West Indies: Lesser Antilles: Leeward Islands, Guadeloupe, *N. Jacquin s.n.* (HT: W; IT: BM, P).

Recent synonyms: *Urochloa maxima*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (484as *Panicum maximum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (260 as *Panicum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Panicum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (463 as *Panicum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (298).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (463, fig. 396 as var. *Panicum maximum* var. *trichoglume*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (298).

Habit. Perennial or annual (rarely). Rhizomes absent or present, short. Stolons absent or present. Culms erect or geniculately ascending, stature robust to moderate or slender to delicate, (25–)75–200(–450) cm tall. Mid-culm internodes glabrous or hispid or pilose. Mid-culm nodes glabrous or pubescent or bearded. Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear or lanceolate, (6–)12–40(–100) cm long, (4–)10–35 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or pyramidal, 12–60 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, (2.5–)3–4.5(–5) mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1–3 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, 2.1–3.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucinous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.9–5 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Norfolk I.

Western Australia: Drummond, Warren. **Northern Territory:** Darwin & Gulf. **South Australia:** Murray. **Queensland:** Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Burke. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Introduced. Native to tropical Africa but now widely introduced in the tropics and subtropics of the world. Flowers essentially throughout the year.

Infra-specific taxa: var. **maximus**, var. **pubiglumis**, var. **coloratus**, cv. **Embu**, cv. **Hamil**.

1. Culms decumbent, rooting at nodes **M. maximus** var. **maximus** cv. **Embu**

Culms tufted and erect, not rooting at nodes 2

2. Spikelets indistinctly hairy **M. maximus** var. **pubiglumis**
Spikelets glabrous 3

3. Leaf hairy at junction of sheath and blade **M. maximus** var. **coloratus**
Leaf glabrous at junction of sheath and blade 4

4. Plant 1.8–2 m tall; leaf-blades 15–18 mm wide **M. maximus** var. **maximus**

Plant 3–3.5 m tall; leaf-blades 24–26 mm wide **M. maximus** var. **maximus** cv. **Hamil**

Megathyrsus maximus var. **maximus** *

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Notes. W.A., N.T., Qld, and N.S.W. Native to tropical Africa but now widely introduced in the tropics and subtropics of the world. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. An important forage grass. Flowers essentially throughout the year.

Megathyrsus. maximus var. **pubiglumis** * (K. Schum.) B.K. Simon & S.W.L. Jacobs. *Austrobaileya* 6 (3): 572–573 (2003).

Classification. Basionym and/or **Replacement Name:** *Panicum maximum* var. *pubiglume* K. Schum., *Pflanzenw. Ost-Afrikas* B(2–3): 85 (1895)

Type of Basionym or Protologue Information: LT: *Holst 8716*, Tanzania: Usambara, Mashewa (B; ILT: K). LT designated by Veldkamp, *Blumea* 41: 197 (1996).

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Notes. Qld and N.S.W. Native to tropical Africa but now widely introduced in the tropics and subtropics of the world. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. A selected form of the typical variety frequently introduced for pasture improvement. Flowers essentially throughout the year.

Megathyrsus maximus var. **coloratus** * (C.T. White) B.K. Simon & S.W.L. Jacobs. *Austrobaileya* 6 (3): 573. 2003.

Classification. Basionym and/or **Replacement Name:** *Panicum maximum* var. *coloratum* C.T. White, *Queensland Agric. J.* 49: 112, t. 41, f. D1,2 (1938).

Type of Basionym or Protologue Information: Australia: Queensland: Lawnton, near Brisbane, cultivated in experimental plot, Department of Agriculture and Stock, Mar 1932, *F.B. Coleman T.167* (HT: BRI).

Australian Distribution: Northern Territory, Queensland.

Melica ciliata* L. *Sp. Pl.* 1: 66 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-86.1). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 252 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (179), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (71).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (180, fig. 129).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 50–100 cm tall. Ligule an eciliate membrane. Leaf-blades flat or convolute, 5–15 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 4–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5 -nerved. Upper glume ovate, 4–5 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 4.5–5 mm long, without keel, 7–9 -nerved. Palea 2 -nerved. Lodicules present.

Continental Distribution: Europe, Africa, and Temperate Asia.

Australian Distribution: South Australia.

South Australia: Southern Lofty.

Melinis minutiflora* Beauv. *Ess. Agrost.* 54 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Brazil: probably at Rio de Janeiro, *de Jussieu s.n.* (HT: G).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (276), [1969] E.E.Henty, *Manual Grasses New Guinea* (124), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (299).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (275, Pl. 79), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (181), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (299).

Habit. Perennial. Stolons present. Culms geniculately ascending, 30–120 cm tall. Mid-culm nodes pubescent or bearded. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.6–2 mm long. Leaf-blades 5–20 cm long, 3–11 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 6–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.5–2.4 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong or ovate, hyaline, without keels, 0 -nerved. Upper glume oblong, 1.7–2.3 mm long, membranous, without keels, 7 -nerved. Upper glume apex lobed, muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, muticous (rarely) or awned.

Fertile lemma 1.2–2 mm long, without keel, 1–3 -nerved. Lemma apex dentate. Palea without keels. Lodicules present. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales, Norfolk I.

Western Australia: Gardner. Drummond, Menzies, Warren. **Queensland:** Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay. **New South Wales:** North Coast.

Notes. Diagnostic features include the awnless upper glume and prominent nerves on the upper glume and lower lemma.

Native to Africa but widely introduced in the tropics for native pasture improvement. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. Rarely collected in Australia. Flowers June-Aug.

Melinis repens* (Willdenow) G. Zizka. *Bibl. Bot.* 138: 55 (1988). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Saccharum repens* Willd., *Sp. Pl.* 1(1): 322 (1797).

Type of Basionym or Protologue Information: Africa: Ghana:, *Isert s.n. [Thonning and other Danish Botanists]* (HT: B-W-1499).

Recent synonyms: *Rhynchelytrum repens*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (274 as *Rhynchelytrum repens*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (481 as *Rhynchelytrum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (456), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (299).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (275, Pl.79 as *Rhynchelytrum*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (231 as *Rhynchelytrum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (455, fig. 387), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (299).

Habit. Annual or perennial. Culms erect or geniculately ascending or decumbent, 20–150 cm tall. Ligule a fringe of hairs, 0.7–1.2 mm long. Leaf-blades flat or conduplicate, 3–30 cm long, 2–10 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 2–12 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 0–1 -nerved. Lower glume surface indumented. Upper glume ovate, 3–5.3 mm long, chartaceous, without keels, 5 -nerved. Upper glume surface glabrous or indumented. Upper glume apex lobed, mucronate or awned. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, much thinner above, 5 -nerved, mucronate or awned.

Fertile lemma 2–2.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Lord Howe, Christmas Is.

Western Australia: Drummond, Menzies. **Northern Territory:** Darwin & Gulf, Central Australia South. **South Australia:** Flinders Ranges, Eyre Peninsula. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** Volcanic Plain.

Notes. Easily distinguished by the red inflorescence. Diagnostic characteristics include the hairy spikelets, ciliate nerves of the lower palea and the sprawling habit of the flowering culms.

Native to Africa but introduced throughout the world. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, acacia shrublands, and coastal grasslands. In Australia, it is common in the non-arid regions. This species has little if any economic importance. Flowers collected sporadically throughout the year.

Mibora minima* (L.) Desv. *Observ. Pl. Angers* 45 (1818). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis minima* L., *Sp. Pl.* 63 (1753).

Type of Basionym or Protologue Information: LT: *Herb. Burser* 1: 12, (UPS). LT designated by Scholz in Cafferty et al., *Taxon* 49(2): 243 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (145), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (144, Pl. 42).

Habit. Annual. Culms erect or geniculately ascending, 2–15 cm tall. Ligule an eciliate membrane, 0.2–1 mm long, truncate. Leaf-blades flat or involute, 0.5–2 cm long, 0.5 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 0.5–2 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.8–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, membranous, without keels, 1 -nerved. Upper glume oblong, 1.8–3 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1.2–2 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex erose. Palea 2 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, and Australasia.

Australian Distribution: Western Australia.

Western Australia: Menzies.

Notes. Known from only a few records from the early 1900's at K; doubtfully persisting. Native of SW and southern Europe and NW Africa.

Micraira adamsii M. Lazarides. *Brunonia* 2: 71 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: 12.45S 133.20E, 20 Feb 1973, *Craven* 2328 (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 21G-I).

Habit. Perennial. Culms prostrate, 4–5 cm tall, 0.5 mm diam. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.3–0.5 mm long. Leaf-blades 0.7–1.6 cm long, 0.5–1.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–1.5 cm long, 0.7–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 0.5–1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume oblong or ovate, 0.5–1 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose.

Florets. Fertile lemma 0.3–0.5 mm long, keeled, 0–5 -nerved. Lemma apex mucicous or mucronate. Palea 2–4 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Superficially, *M. adamsii* resembles *M. subulifolia*, but differs in its divided palea, fewer-nerved lemma and palea and shorter florets relative to the glumes. Like *M. subulifolia*, its spikelet varies in morphology (viz. glume shape and relative size, relative length of the florets, and shape, relative size and surface texture of the caryopsis), its floral bracts vary in nervation and its leaves in indumentum. When present, the lateral nerves of especially the lemma vary in number, prominence and symmetry. In indumentum, the blades of Martensz and Schodde AE 705 are almost glabrous, but bristly along the margins and densely scabrous on both surfaces. In contrast, the holotype is pubescent on the margins and lower surface of the blades, Adams 3032 is ciliate on the mouth and nearby margins of the sheaths, and Lazarides 7768 is almost entirely glabrous. Also, Adams 3032 is spike-like in its panicle, which resembles the compact spikes of *M. compacta* and *M. subspicata*.

Occurs in Kakadu National Park, N.T.; grows on rocky or gravelly, sandstone slopes, platforms, outliers, outcrops and sandy soil flats, often in shallow depressions, and moist, rock sheltered and shady sites, and occasionally on low, lateritic hills. Flowers-fruits February, April.

Micraira brevis M.D.Barrett & R.L. Barrett. *Fl. Austral.* 44B::458 (2005). **Classification.** (GPWG 2001) : Subfamily Micrairoideae.

Type of Basionym or Protologue Information: Australia: cultivated in Perth from specimen collected 1 km E of summit of Mt Bomford, Drysdale River Station, Western Australia, 15°45'41"S, 125°56'22"E, *M.D. Barrett* 999, *M.D. Barrett* 1292 (HT: PERTH; IT: CANB, DNA, MEL).

Australian Distribution: Western Australia.

Western Australia: Gardner.

Micraira compacta M. Lazarides. *Brunonia* 2: 75 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: Mt. Brockman Range, ca. 15 km S of Jabiru and ca. 28 km E of Nourlangie, 23 Feb 1973, *Adams* 3056 (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 22A-D).

Habit. Perennial. Culms prostrate, 2–3 cm tall, 0.5 mm diam. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane, 0.2 mm long. Leaf-blades 4–8 cm long, 0.3–0.75 mm wide. Leaf-blade surface scaberulous or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 0.4–0.5 cm long, 0.15–0.2 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.75–2 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, membranous, keeled, 1-keeled, 1-nerved. Lower glume apex awned. Upper glume oblong, 1.75–2 mm long, membranous, keeled, 1-keeled, 1-nerved. Upper glume apex lobed, awned.

Florets. Fertile lemma 0.5–1 mm long, keeled, 1(–3) -nerved. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The apical spine on the glumes is a diagnostic character shared only with *M. spinifera*. However, in *M. spinifera* the spine is terete (not flattened) and the inflorescence is paniculate (not spiciform).

Occurs in Kakadu National Park on Mt. Brockman Range and Arnhem Land Plateau, N.T.; grows among boulders and rock pavement on sandstone plateau, on margin of Melaleuca swamp at base of scarp, and in broad, sandy gully, often in shady, seepage sites sheltered by sandstone overhangs, ledges and rocks. Flowers-fruits February, March, April, June.

Micraira dentata M. Lazarides. *Brunonia* 2: 76 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: ca. 10 km SSE of Mt. Brockman, 27 Feb 1973, *Adams* 3121 (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 21J-K).

Habit. Perennial. Culms prostrate, 2–3 cm tall, 1–1.25 mm diam. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.2 mm long. Leaf-blades 1.1–2.5 cm long, 2 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 1.5 cm long, 0.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume apex mucronate. Upper glume oblong, 1 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume apex dentate, mucronate.

Florets. Fertile lemma 0.5 mm long, keeled, 1 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The truncate, dentate glumes is a distinctive feature in the genus. The pungent spine terminating the blades is a character shared only with *M. pungens*, but this species differs by its glandular panicles and 1–3-nerved lemmas, as well as by its 1-nerved differently shaped glumes.

Known only from two collections from the dissected sandstone plateau of Arnhem Land; grows on bare sandstone boulders, seepage flats, and in damp sand among boulders near seasonal creek. Flowers February, March.

Micraira dunlopia M. Lazarides. *Nuytsia* 5: 291 (1984). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Western Australia: Northern Province, Wonjarring Jarring Gorge, Carson Escarpment, c. 36 km E of new Theda homestead, 14.49S 126.49E, 27 Jul 1977, *Telford 6174* (HT: CANB; IT: CBG, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 3–5 cm tall, 0.5 mm diam. Leaves cauline. Ligule a fringed membrane, a ciliate membrane, 0.1–0.2 mm long, abaxially glabrous or abaxially hairy. Leaf-blades flat or conduplicate, 6.5–9.5 cm long, 0.3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–1.3 cm long, 1–1.3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Lower glume apex mucronate. Upper glume oblong or ovate, 1 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 0.3–0.5 mm long, keeled, 3 -nerved. Lemma apex entire or dentate, muticous or mucronate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.2–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. *Micraira dunlopia* closely resembles *M. tenuis*, but differs in habit, by its 3-nerved differently shaped lemma, shorter florets relative to the glumes, shiny smooth caryopsis, 3-nerved blades, and glandular usually smaller panicle.

Occurs in the Drysdale River National Park, W.A. and Fitzmaurice River area of the N.T.; grows on the steep walls of rocky gorges in crevices, moist, shady sites, under rock overhangs, and on rock ledges with seepage. Flowers - fruits March, July and August.

Micraira inserta M. Lazarides. *Nuytsia* 5: 292 (1984). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District: Mt. Gilruth, 13.04S, 133.05E, *Dunlop 4427* (HT: CANB; IT: BRI, DNA, K, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 1 cm tall, 0.5–0.8 mm diam. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.3–0.5 mm long. Leaf-blades 0.5–0.6 cm long, 0.3–0.5 mm wide. Leaf-blade surface scaberulous or papillose, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 0.3–0.4 cm long, 0.1 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Upper glume oblong or ovate, 1 mm long, membranous, keeled, 1-keeled, 1(–3) -nerved. Upper glume surface glabrous.

Florets. Fertile lemma 0.5 mm long, keeled, 1 -nerved. Lemma apex erose or dentate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The spiciform inflorescence, a feature also of *M. compacta*, *M. spiciforma* and *M. subspicata* is, in contrast to those species, much shorter than the upper leaves and often scarcely visible among the foliage. Also, there are differences in the morphology and nervation of glumes and lemmas, structure of blades and ligule, and indumentum of the keels, which distinguish the four species.

Known only from the type locality on the Arnhem Land Plateau, N.T.; grows on summit of escarpment on rippled sandstone rock in shallow seasonal water. Flowers February.

Micraira lazaridis L.G. Clark, J.F. Wendel & L.A. Craven. *Beagle* 12: 2 (1995). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Western Australia, L.A. Craven 9344 (HT: ?; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 3–11 cm tall. Ligule a fringed membrane, 0.2–0.5 mm long, ciliate from base of abaxial surface. Leaf-blades 1.8–3.7(–8.5) cm long, 0.3–0.4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 1.6–2 cm long.

Spikelets. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s).

Glumes. Lower glume ovate, 1–3 -nerved. Upper glume ovate, 1–1.4 mm long, 1–3 -nerved.

Florets. Fertile lemma 0.35–0.5 mm long. Grain 0.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. This species is characterised by its much-reduced, inserted spike, short florets relative to the glumes, emarginate apically ciliate glumes, much-reduced, 3-nerved leaf blades with a prominent, keeled midnerve, extremely condensed whorls of leaves and its relatively tall aerial culms.

Occurs in the Mitchell Plateau area, W.A.; grows in shallow sand on sandstone pavement. Flowering period in nature unknown.

Micraira multinervia M. Lazarides. *Nuytsia* 5: 293 (1984). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District: top of Jim Jim Falls, 13.17'S, 132.51'E; 29 Jan 1981, *Dunlop 5634* (HT: CANB; IT: DNA).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 10–15 cm tall, 1 mm diam. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.2 mm long. Leaf-blades lanceolate, 0.9–1.25 cm long, 1.3 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, loose, 1 cm long, 0.3–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 0.5–1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume ovate, membranous or scarious, keeled, 1-keeled, 1(–2) -nerved. Lower glume apex muticous or mucronate. Upper glume ovate, 0.5–1 mm long, membranous or scarious, keeled, 1-keeled, 1(–2) -nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 0.5–1 mm long, keeled, 5–7 -nerved. Palea 4–6 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5–0.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. *Micraira multinervia* is the only species in the genus excluding *M. subulifolia* with a many-nerved lemma and palea. In this feature and in the scaberulous to smooth (not prickly) margins of the blades, it

resembles *M. subulifolia*, but differs by the apical spine on the blades, the divided palea and the subequal florets and glumes.

Occurs in Kakadu National Park, N.T.; grows in sand on rocky, sandstone escarpment, slopes and pavements in crevices, shallow ephemeral water and moist sites. Flowers-fruits January, May.

Micraira pungens M. Lazarides. *Brunonia* 2: 77 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: 43 km E of Oenpeli Mission, 12.20S 133.26E, alt. 240 m, 17 Feb 1973, *Adams 3010* (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 21L-M).

Habit. Perennial. Culms prostrate, 7–12 cm tall, 1 mm diam. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.2–0.5 mm long. Leaf-blades 1.5–8 cm long, 0.3–2 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 1.5–2.5 cm long, 0.7–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous or mucronate. Upper glume oblong or ovate, 1 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex entire or erose, muticous or mucronate.

Florets. Fertile lemma 0.5–1 mm long, keeled, 1–3 -nerved. Lemma apex muticous or mucronate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The pungent spine terminating the blade is a distinctive feature shared only with *M. dentata*. However, in *M. dentata* the spine is distinctly longer, the glumes differ markedly in shape and nervation, and the divisions of the panicle are eglandular.

Though agreeing with the holotype in many diagnostic characters, *Adams 3031* (paratype) differs in having long prop roots (virtually absent in the holotype), 3-nerved (not 1-nerved) lemmas, and longer florets relative to the glumes.

Occurs on the Arnhem Land Plateau in Kakadu National Park, N.T.; grows in depressions, seepage, damp drainage flats, rock ledges, crevices and gorges in shallow, sandy-loam soils with extensive sandstone pavement. Flowers-fruits February, April.

Micraira spiciforma M. Lazarides. *Nuytsia* 5: 294 (1984). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Western Australia: Northern Province: Mitchell Plateau, 14.50'Lat, 125.42'Long, 24 Feb 1980, *Dunlop 5298* (HT: CANB; IT: BRI, CANB, DNA, K, MEL, NSW, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 2–5 cm tall, 0.5 mm diam. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule absent. Leaf-blades 0.4–0.5 cm long, 0.4–0.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 0.3–0.4 cm long, 0.1 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Upper glume oblong, 1 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface glabrous.

Florets. Fertile lemma 0.5 mm long, keeled, 1–3 -nerved. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. *Micraira spiciforma* is clearly distinct from other species with a spike, viz. *M. inserta*, *M. compacta* and *M. subspicata*. It is distinguished by the following combination of characters - spineless glumes, glabrous glandular peduncle, pilose to hirsute leaves, thickened glabrous ligule, attenuate sheath and blade, 1–3-nerved glumes and lemmas, short florets relative to glumes and nerveless palea with smooth keels.

Only known from the Mitchell Plateau, W.A. and Bucket Spring, N.T.; grows on sandstone plateau on damp ledge under overhang. Flowers-fruits February and August.

Micraira spinifera M. Lazarides. *Brunonia* 2: 78 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: HT: *Lazarides 7989 [7898]*, 27 Feb 1973, Australia: Northern Territory: Darwin & Gulf Distr.: 12.55S 132.59 E (CANB; IT: L, MO-2804489).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 21D-F).

Habit. Perennial. Culms prostrate, 2–5 cm tall, 0.4 mm diam. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.2 mm long. Leaf-blades involute or convolute, 7–10 cm long, 0.3–1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 0.6–1 cm long, 0.3–0.8 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.25–1.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume oblong or ovate, 1.25–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous. Upper glume apex entire or erose, awned.

Florets. Fertile lemma 0.6–0.7 mm long, keeled, 3 -nerved. Lemma apex lobed, mucronate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The apical spine on the glumes is a diagnostic feature shared only with *M. compacta*. However, in *M. compacta*, the spine is flattened (not terete) and the inflorescence is spiciform (not paniculate).

Dunlop's plants differ from those of the holotype collection by their strongly glandular almost smooth (not eglandular, scaberulous) divisions of the panicle, shorter spines on the glumes, less hairy blades and more contracted panicle.

Occurs near the East Alligator River in the vicinity of Oenpelli Mission; grows on the sandstone plateau of Arnhem Land in sandy soils in seepage and in partial shade under the overhang of large boulders. Flowers-fruits February, March and June.

Micraira subspicata M. Lazarides. *Brunonia* 2: 79 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: HT: *Lazarides 8004*, 4 Mar 1973, Australia: Northern Territory: Darwin & Gulf Distr.: 13.04 S, 132.56E (CANB; IT: L, MO-2804490).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 22E-G).

Habit. Perennial. Culms prostrate, 2–3 cm tall, 0.5 mm diam. Leaves cauline. Leaf-sheaths hairy. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 6–9 cm long, 0.75 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate or globose, 0.3–0.4 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.5–2 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume ovate, membranous, much thinner on margins, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume ovate, 1.5–2 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 0.5 mm long, keeled, 3 -nerved. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The subspicate inflorescence resembling that of *M. compacta* is a distinctive character of both species. However, *M. subspicata* differs by its muticous (not spine-bearing) glumes, hairy eglandular peduncle and rachis, pilose glumes and leaf sheaths, and prominently 3-nerved lemma.

Occurs on the sandstone plateau and escarpment of Arnhem Land, N.T.; grows in caves and on rock-sheltered, partially shaded, often damp ledges in shallow sand. Flowers-fruits February-March.

Micraira subulifolia F. Muell. *Fragm.* 5: 208 (1866). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: LT: *Dallachy s.n.*, without date, Australia: Queensland: North Kennedy Distr.: Rockingham Bay, (MEL, BRI). LT designated by Blake, *Proc. Roy. Soc. Queensl.* 74: 46 (1964).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (624), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 6–8 cm tall. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.25–0.4 mm long. Leaf-blades linear or lanceolate, 0.5–1(–1.5) cm long, 0.3–1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 0.7–1.5 cm long, 3–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong or ovate, hyaline, keeled, 1-keeled, 1–5 -nerved. Lower glume apex mucronate. Upper glume oblong or ovate, 0.75–1 mm long, hyaline, keeled, 1-keeled, 1–5 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 1 mm long, without keel, 5–9 -nerved. Lemma apex erose or dentate. Palea 5–7 -nerved. Lodicules absent or vestigial. Anthers 2. Grain 0.75–0.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Moreton, North Kennedy.

Notes. The undivided palea of *M. subulifolia* is a unique feature within the genus. Furthermore, this species differs from many others in the genus by the many, prominent nerves on lemma and palea, the long florets relative to the glumes, the ribbed pallid culms, and the entirely smooth leaf sheaths.

Occurs disjunctly in eastern, coastal and near-coastal Qld; grows on hills and mountains of igneous, granitic and rhyolitic rocks on bare rock slopes and ledges or on the floor of shallow, saucer-like depressions. Flowers-fruits recorded in all seasons.

Micraira tenuis M. Lazarides. *Brunonia* 2: 81 (1979). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: 2–3 mi N of El Sharana Mine, 25 Jan 1973, *Martensz & Schodde AE 595* (HT: CANB; IT: BRI, DNA, K, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (fig. 21A–C).

Habit. Perennial. Culms prostrate, stature slender to delicate, 4–10 cm tall, 0.3 mm diam. Leaves cauline. Leaf-sheaths smooth or scaberulous. Ligule a fringed membrane, a ciliate membrane, 0.5–1.3 mm long. Leaf-blades linear or lanceolate or elliptic, 6–20 cm long, 0.3 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–3 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 0.75–1 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or ovate, membranous, keeled, 1-keeled, 1(–3) -nerved. Lower glume apex muticous or mucronate. Upper glume oblong or ovate, 0.75–1 mm long, membranous, keeled, 1-keeled, 1(–3) -nerved. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 0.8 mm long, keeled, 1 -nerved. Lemma apex muticous. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.3–0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The extremely thin culms and leaves, 1-nerved blades and delicate often prominently exerted panicles are diagnostic features of this species. The 1-nerved blade, comprising one unusually broad nerve and small margins much narrower than the nerve itself, is a rare feature occurring also only in *M. inserta*.

Occurs in a relatively wide area comprising the southern part of the Arnhem Land Plateau and nearby areas to the south; grows in small clumps or dense mats on shallow soils in crevices, seepage, depressions and similar seasonally moist habitats on plateaux and slopes of sandstone and coarse conglomerate, often in association with *Triodia* spp. and other *Micraira* spp. Flowers-fruits January to March, July.

Micraira sp. A Fl. Australia 44B:124 (2005) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Hall. **Northern Territory:** Victoria River.

Micraira sp. Harding Range (M.D. Barrett & R.L. Barrett MDB 1827) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Micraira sp. Purnululu (M.D. Barrett & R.L. Barrett 1507) Classification. (GPWG 2001) : Subfamily Micrairoideae.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Hall. **Northern Territory:** Victoria River.

Micraira viscidula M. Lazarides. *Nuytsia* 5: 295 (1984). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Micraireae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District: c. 8 km SW of Oenpelli, 12.23S 133.01E, 11 Jul 1978, *Dunlop 4975* (IT: CANB; IT: AD, BRI, DNA, K, MEL, NSW, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 3–5 cm tall, 0.5 mm diam. Leaves cauline. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades 1 cm long, 0.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1.5 cm long, 1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.3–1.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 1.3–1.5 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 0.5 mm long, keeled, 3 -nerved. Lemma apex dentate. Palea 2 -nerved. Palea apex divided to base. Lodicules absent or vestigial. Anthers 2. Grain 0.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The glandular, white or translucent tubercles on leaf margins, panicle divisions and glumes are a unique feature in the genus. Also, in many other species the leaf sheaths are glabrous (not pubescent). Other distinguishing characters include the three ribbed nerves on sheaths, blades, glumes and lemmas, the divided nerveless paleas, and the short florets relative to the glumes.

Though all the specimens cited match the holotype in many respects, Dunlop 4906 has blunt glumes which are shorter relative to the florets.

Occurs on the Arnhem Land Plateau in the Oenpelli - Mt. Gilruth area; grows on ledges in sandstone gorges and escarpments, often in sheltered and partially shady sites. Flowers-fruits June, July.

Microchloa indica (L. f.) Beauv. *Ess. Agrostogr.* 115, t. 20, fig. 8 (1812). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Nardus indica* L. f. *Suppl. Pl.*, 105 (1781)[1782].

Type of Basionym or Protologue Information: India: Tranquebaria, *König s.n.* (T: LINN-73.8).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (208 as *M. setacea*), [1878] G.Bentham, *Flora Australiensis* 7 (608 as *Microchloa setacea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 53M-Q).

Habit. Annual. Culms erect or decumbent, 5–10 cm tall, wiry, 2–8 -noded. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.3 mm long. Leaf-blades filiform or linear, flat or conduplicate, 1–8(–11) cm long, 0.3–1.8 mm wide.

Inflorescence. Inflorescence solid, a spike.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 1.5–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume elliptic, membranous, keeled, 1-keeled, 1-nerved. Upper glume elliptic, 1.5–2.9 mm long, membranous, without keels, 1-nerved.

Florets. Fertile lemma 1–1.75 mm long, keeled, 3-nerved. Lemma apex mucronate. Palea 2-nerved. Anthers 3. Grain 0.9–1.25 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. *Microchloa indica* differs from other members of the genus chiefly by its annual (not perennial) duration and usually also by its erect (not prostrate and mat-forming) habit.

Known only from two distant coastal localities in the N.T; occurs in tropical and subtropical regions of the world. Recorded from gravelly lateritic and sandy soils, with perennial grasses, in open eucalypt forest or woodland.

Microlaena stipoides (Labill.) R. Br. *Prodr.* 210 (1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Basionym and/or Replacement Name: *Ehrharta stipoides* Labill., *Nov. Holl. Pl.* 1: 91, t. 118 (1804).

Type of Basionym or Protologue Information: HT: *Labillardière s.n.*, Australia: Tasmania: Capite van-Dieman (FI).

Recent synonyms: *Ehrharta stipoides*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210), [1878] G.Bentham, *Flora Australiensis* 7 (552), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (16), [1969] E.E.Henty, *Manual Grasses New Guinea* (125), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (423), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (58), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (300), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (381 as var. *stipoides*, & var. *breviseta*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (15, Pl.1), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (59, fig. 23 & plate 2 as var. *stipoides*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (183), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (300), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (382, Fig 52 as var. *stipoides*, var. *breviseta*).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending or decumbent, 30–75 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent, or present. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long, membranous. Leaf-blades flat or involute, 2.5–25 cm long, 1–5(–10) mm wide.

Inflorescence. Inflorescence compound, a raceme, a panicle of racemes or a panicle. Panicle linear, effuse, 7–19 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear, laterally compressed, 15–50 mm long. Rachilla internodes elongated between glumes.

Glumes. Lower glume ovate, keeled, 0–1-nerved. Upper glume ovate, 0.3–3.7 mm long, 0–1-nerved.

Florets. Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret coriaceous, 1-keeled, 5–7-nerved, awned. Lemma of upper sterile floret 8–15 mm long, awned.

Fertile lemma 5.5–11 mm long, keeled, 5–7-nerved. Lemma apex muticous or mucronate. Palea 0–1-nerved, 1-keeled. Lodicules present. Anthers 4.

Continental Distribution: Africa, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Menzies, Warren, Eyre. **South Australia:** Flinders Ranges, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Burnett, Wide Bay, Warrego. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, East Coast, South West.

Notes. Morphologically variable; some specimens from W.A. have, relatively speaking, much longer glumes than commonly seen, and a large, robust spikelet. The stipe of the first sterile lemma is also very variable in length, as is spikelet size and scabridity of the sterile lemmas.

Extends to Norfolk Is., New Zealand, New Guinea and the Phillipines. Usually grows in damp, shady areas.

Infra -specific taxa: var. *stipoides*, var. *brevisetata*.

Awns of sterile lemmas more than twice as long as lemmas *M. stipoides* var. *stipoides* (NSW VIC TAS SA WA QLD)

Awns of sterile lemmas shorter than to as long as lemmas *M. stipoides* var. *brevisetata* (NSW)

Microlaena stipoides var. stipoides

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (300).

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Microlaena stipoides var. brevisetata Vickery. *Telopea* 1 (1): 43 (1975).

Classification. Type of Basionym or Protologue Information: Australia: New South Wales: Central Tablelands, Hill Top, 8 Dec 1912, *E. Cheel s.n.* (HT: NSW-115640).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (300).

Australian Distribution: New South Wales.

Microlaena tasmanica (Hook.f.) Hook. f. ex Benth. *Fl. Austral.* 7: 553 (1878). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Basionym and/or Replacement Name: *Diplax tasmanica* Hook. f., *Fl. Tasman.* 2: 105, t. 155 (1858).

Type of Basionym or Protologue Information: Hab. Recherche Bay, Gunn 1481.

Recent synonyms: *M. tasmanica* var. *subalpina*, *Ehrharta tasmanica*, *E. tasmanica* var. *subalpina*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (552), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (383 & *M. tasmanica* as var. *tasmanica* & var. *subalpina*).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (382, Fig. 52 as var. *tasmanica*).

Habit. Perennial. Culms erect, 6–100 cm tall. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane or a ciliate membrane, 4 mm long, membranous. Leaf-blades flat or involute, 6–20 cm long, 1–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle of racemes or a panicle. Panicle linear, 4–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 6–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, chartaceous, without keels, 1 -nerved. Upper glume oblong, 2.5–4 mm long, chartaceous, without keels, 3 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 75 % of length of spikelet, coriaceous, 1-keeled, 7 -nerved, awned. Lemma of upper sterile floret 8–11 mm long, awned.

Fertile lemma 7–9 mm long, keeled, 7 -nerved. Palea 1 -nerved. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, Central Highlands, South West.

Notes. Tasmanian endemic. In damp, often shaded situations in the Central Highlands, South West and West Coast of Tasmania.

Tasmanian endemic. In damp, often shaded situations.

Spikelets 15–20 mm long; awn of sterile lemmas 4–5 mm long

var. *tasmanica*

Spikelets 6–9 mm long; awn of sterile lemmas 1–4 mm long

var. *subalpina*

Microlaena tasmanica var. tasmanica

Australian Distribution: Tasmania.

Microlaena tasmanica var. subalpina

Microstegium nudum (Trin.) A.Camus. *Ann. Soc. Linn. Lyon* 68: 201 (1921). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Pollinia nuda* Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math* 2(3): 307 (1832).

Type of Basionym or Protologue Information: Nepal; Wallich s.n. (hb. Hornem.) (HT: LE-TRIN-0056.01 (fragm.)).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (128), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (301).

Habit. Annual. Culms sprawling, 20–100 cm tall. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Lateral branches branched. Ligule an eciliate membrane or a fringed membrane, 0.5 mm long. Leaf-blades linear or lanceolate, 1–8 cm long, 2–13 mm wide.

Inflorescence. Inflorescence digitate or subdigitate, with ramose branches. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate or elliptic, coriaceous, keeled, 2-keeled, 4 -nerved. Lower glume surface glabrous. Upper glume elliptic, without keels or keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 1.5–2.5 mm long, without keel, 0 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn apical or from a sinus, 6–20 mm long overall. Palea absent. Anthers 2. Grain 2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook. **New South Wales:** North Coast, Central Coast.

Notes. Rainforest clearings and shady places in central N.S.W. and northern Qld, extending through SE Asia to Africa. It has been suggested the species is naturalised in Australia but herbarium label information indicates it is probably native. Flowers Jan. & Mar.--Jun.

Miscanthus sinensis* Anderss. *Öfvers. Förh. Kongl. Svenska Vetensk.-Akad.* 12: 166 (1855).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: China: ??; Cap Syng-Moon, 1837, *F.J.F. Meyen s.n.* (HT: B).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (530), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (301).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (185), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (529, fig. 451 as var. *zebrinus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (301).

Habit. Perennial. Rhizomes present, short. Culms erect, 60–300 cm tall, 3–7 mm diam. Mid-culm nodes glabrous. Lateral branches simple. Leaves basal and cauline. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 1–3 mm long. Leaf-blades 20–70 cm long, 2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Central inflorescence axis 6–15 cm long. Rhachis tough.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.5–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate, chartaceous, without keels or keeled, 2-keeled, 2–3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, chartaceous, without keels, 1–3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 1 -nerved.

Fertile lemma 1.5–4.5 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 5–12 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland (+), New South Wales.

Western Australia: Drummond. **South Australia:** Murray. **New South Wales:** Central Coast.

Notes. *M. sinensis* var. *zebrinus* Beal is a cultivated variant with the lamina banded or zoned with white.

Introduced to Australia where it is naturalised in south-western W.A. and the Blue Mountains, N.S.W. A native of eastern Asia. Flowers Apr. and Dec.

Mnesithea annua (Lazarides) R. de Koning & M.S.M. Sosef. *Blumea* 31: 295 (1986). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Heteropholis annua* Lazarides, *Nuytsia* 5(2): 288, f. 1c-d, 7f. 1984 [1985].

Type of Basionym or Protologue Information: Australia: Western Australia, Mitchell Plateau, 12 km SW of mining camp, Camp Creek, Gauging Station, 14°53'10"S, 125°45'05"E, 3 May 1982, *Kenneally* 8219 (HT: CANB; IT: BRI, DNA, K (photo, BRI), L, PERTH, US).

Recent synonyms: *Heteropholis annua*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature robust to moderate, 100–200 cm tall, 5–10 mm diam. Mid-culm nodes glabrous. Lateral branches branched. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades lanceolate, 30–60 cm long, 10–45 mm wide.

Inflorescence. Inflorescence solid, a rame. Peduncle distinct. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 7.5–8 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 4.5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume obovate, indurate, keeled, 2-keeled, winged on keel, winged narrowly, 11 -nerved. Upper glume oblong, indurate, without keels, 2–3 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2–3 -nerved. Anthers 3. Grain 3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Restricted to the Mitchell Plateau in northern W.A. Flowers Feb.–May.

Mnesithea formosa (R. Br.) R. de Koning & M.S.M. Sosef. *Blumea* 31:288 (1986). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Rottboellia formosa* R. Br., *Prodr.* 1: 206 (1810).

Type of Basionym or Protologue Information: HT: *Brown* 6157, 1 Mar 1803, Australia: Bay of Carpentaria, Mallison Island (BM (photo, BRI, K); IT: K (photo, BRI), MEL (photo, BRI), NSW (photo, BRI)).

Recent synonyms: *Rottboellia formosa*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (206 as *Rottboellia formosa*), [1878] G.Bentham, *Flora Australiensis* 7 (513 as *Rottboellia formosa*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (308 as *Rottboellia formosa*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (495 as *Rottboellia*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (307, Pl.90 as *Rottboellia*).

Habit. Annual. Culms erect, 10–60 cm tall. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 1–1.5 mm long. Leaf-blades 1–12 cm long, 1–4 mm wide.

Inflorescence. Inflorescence solid, a rame. Peduncle distinct. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 unequal glumes without lemmas, 2.5–3 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, terete, 1.8–2.2 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled. Lower glume surface indumented. Upper glume ovate, membranous, without keels. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier, Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **Queensland:** Burke, Cook, Gregory North, North Kennedy, Port Curtis, South Kennedy.

Notes. Occurs in savanna woodlands of northern Australia extending to New Guinea. Flowers Feb.--July.

Mnesithea granularis* (L.) R. de Koning & M.S.M. Sosef. *Blumea* 31: 295 (1986). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Cenchrus granularis* L., *Mant. Pl.* 2: 575 (1771).

Type of Basionym or Protologue Information: India:, (HT: LINN-1217.12).

Recent synonyms: *Hackelochloa granularis*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (511 as *Manisuris granularis*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (308 as *Hackelochloa*), [1969] E.E.Henty, *Manual Grasses New Guinea* (105 as *Hackelochloa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (307, Pl.90 as *Hackelochloa*).

Habit. Annual. Culms erect, 5–100 cm tall. Mid-culm nodes pubescent or bearded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 1–1.5 mm long. Leaf-blades linear to lanceolate, 2–15 cm long, 3–12 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, composed of rames. Peduncle distinct. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, asymmetrical, 1.5–2.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, orbicular, dorsally compressed, 1.5–2.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume orbicular, indurate, without keels. Upper glume oblong or obovate, membranous or cartilaginous, without keels, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma 1 mm long, without keel, 0 -nerved. Palea 0 -nerved, without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, South Kennedy.

Notes. A pantropic weed; occurs in northern tropical Australia. Flowers Feb.--May.

Mnesithea pilosa B.K. Simon. *Austrobaileya* 3: 90 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: Bottom C Paddock, Swans Lagoon, 24 Mar 1983, *P. Chaplain s.n.* [AQ349053] (HT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 25–30 cm tall. Mid-culm nodes pubescent. Lateral branches sparsely branched or branched. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades 3–6 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Peduncle distinct. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes, 0.5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, terete, 2–3.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled, 11 -nerved. Lower glume surface indumented. Upper glume ovate, membranous, without keels, 5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 2–3 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: North Kennedy.

Notes. The habitat is unknown and the species is restricted to the type. Flowers Mar.

Mnesithea rottboellioides (R. Br.) R. de Koning & M.S.M. Sosef. *Blumea* 31: 291(1986). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Ischaemum rottboellioides* R. Br., *Prodr.* 1: 205 (1810).

Type of Basionym or Protologue Information: Australia: Queensland: Bottom C Paddock, Swans Lagoon, 24 Mar 1983, P. Chaplain s.n. [AQ349053] (HT: BRI).

Recent synonyms: *Coelorachis rottboellioides*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (205 as *Ischaemum rottboellioides*), [1878] G.Bentham, *Flora Australiensis* 7 (514 as *Rottboellia ophiuroides*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (304 as *Coelorachis*), [1969] E.E.Henty, *Manual Grasses New Guinea* (53 as *Coelorhachis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (305, Pl.89 as *Coelorhachis*).

Habit. Perennial. Rhizomes present. Culms erect, 100–300 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades 20–50 cm long, 8–20 mm wide.

Inflorescence. Inflorescence compound, composed of racemes. Peduncle distinct. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 3–4 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic or oblong or ovate, coriaceous or indurate, keeled, 2-keeled, winged on keel, winged broadly. Upper glume elliptic or oblong, membranous or coriaceous, keeled, 1-keeled. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River.

Queensland: Burke, Cook, Leichhardt, North Kennedy, South Kennedy.

Notes. Widely encountered although only locally common, in grasslands or open forests of tropical Australia, extending to New Guinea, Indonesia and the Philippines. Flowers Dec.–June.

Monachather paradoxus (R.Br.) Steud. *Syn. Pl. Glum.* 1: 247 (1854). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Type of Basionym or Protologue Information: T: *Drumond Hrb. coll. IV. nr. 396*, Australia: Swan river (IT: US-91132 (fragm.)).

Recent synonyms: *Danthonia bipartita*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (592 as *Danthonia bipartita*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (56 as *Danthonia bipartita*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (440 as *Monochather paradoxa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (304), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (303).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (55, Pl.14 as *danthonia bipartita*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.3, A-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (303, Fig. 238 as *M. paradoxa*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (303).

Habit. Perennial. Culms erect, 25–70 cm tall. Leaves mostly basal. Ligule a fringed membrane, a ciliolate membrane, 1–3 mm long. Leaf-blades 7–16 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, effuse, 5–20 cm long, 2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 8–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, chartaceous, without keels, 11–13 -nerved. Upper glume ovate, 8–17 mm long, chartaceous, without keels, 11–13 -nerved.

Florets. Fertile lemma 2–15 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 3.2–7.8 mm long overall. Palea 0 -nerved, without keels. Lodicules present. Anthers 3. Grain 1.2–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Giles, Helms, Ashburton, Carnarvon, Austin, Irwin, Drummond, Dale, Avon, Coolgardie. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Eastern, Eyre Peninsula. **Queensland:** Darling Downs, Maranoa, Mitchell, Warrego, Gregory South. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Arid grasslands, often reported from sand, usually as a minor element with mulga, naked woollybutt, and hard or feathertop spinifex. Flowers May to Sep.

Monodia stipoides S.W.L. Jacobs. *Kew Bull.* 40: 659 (1985). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Mitchell River, 40°50'S, 125°42'E, 22 Sep 1980, C.R. Dunlop 5233 (HT: CANB; IT: NRI, DNA, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 50–150 cm tall, 3 mm diam., 2(–3) -noded. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades conduplicate, 30–60 cm long, 2 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 20–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, linear, terete, 16–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, without keels, 9–11 -nerved. Upper glume lanceolate, 14–18 mm long, scarious, without keels, 3–5 -nerved.

Florets. Fertile lemma 8–12 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 50–60 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Mitchell Plateau escarpment, Kimberley region, northern W.A., and on the seaward side, towards Admiralty Gulf. Occurs on sandstone areas of the escarpment, and in near coastal grassland exposed to salt laden winds.

Moorochloa eruciformis* (Sm.) Veldkamp. *Reinwardtia* 12(2): 139 (2004). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum eruciforme* Sm, *Fl. Graec.* 1(2): 44, pl. 59 (1808).

Type of Basionym or Protologue Information: Greece: Samos: in arvis circa Junonis templum, *Sibthorp s.n.* (HT: OXF (photo, L, LD, LP)).

Recent synonyms: *Brachiaria eruciformis* (Sm.)Veldk., *Ledeb., Fl. Ross* 4: 469 (1853).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria eruciformis*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (303).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (303).

Habit. Annual. Culms decumbent, stature slender to delicate, 10–60 cm tall. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades linear or lanceolate, 2–15 cm long, 2–6 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of spikes. Racemes 3–14, 0.5–2.5 cm long, 1–1 mm wide. Central inflorescence axis 1–8 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.7–2.7 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0 -nerved. Lower glume surface glabrous or indumented. Upper glume oblong, 1.7–2 mm long, membranous, without keels, 5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.3–2.5 mm long, without keel. Palea without keels.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Moreton, Port Curtis, Wide Bay.

Notes. Native to Africa and the Mediterranean region. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. It has been widely distributed as a lawn grass and now frequently occurs as a weed. Flowers throughout the year.

Mullerochloa moreheadiana (F.M. Bailey) K.M. Wong. *Blumea* 50(3): 435–439, f. 1–9 (2005).

Classification. (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Basionym and/or Replacement Name: *Bambusa moreheadiana* F.M. Bailey, *Rep. Gov. Sci. Exped. Bellenden-Ker Range* 71 (1889).

Type of Basionym or Protologue Information: HT: *F.M. Bailey s.n.*, Jul-Aug 1888, Australia: Queensland: Cook District: Russell River, Harvey's Creek (BRI; IT: K).

Recent synonyms: *Bambusa moreheadiana*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Bambusa*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (354).

Habit. Perennial. Culms sprawling, 30 mm diam. Mid-culm internodes pilose. Leaf-sheath auricles absent. Ligule an eciliate membrane, entire. Leaf-blades lanceolate, 30 cm long, 30 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (3–4(–12)), comprising 3–4(–12) fertile floret(s), 5–6(–12) mm long.

Glumes. Lower glume 9 -nerved. Upper glume 3–4.5 mm long, 9–11 -nerved.

Florets. Fertile lemma 3–5.5 mm long, keeled. Palea 7 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Clifford's description states that only 4 anthers are present, however all florets examined have 6 apparently fertile anthers.

Endemic; in northern Qld. Flowers Sept., Nov. Fruits unknown.

Nardus stricta* L. Sp. Pl. 53 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Nardeae.

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-73.5). LT designated by Cope in Jarvis et al., *Regnum Veg.* 127: 69 (1993).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (11).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (100, Fig.14).

Habit. Perennial. Rhizomes present, short. Culms erect, 10–40(–60) cm tall, wiry, 1 -noded. Leaves mostly basal. Leaf-sheaths smooth. Ligule an eciliate membrane, 1–2 mm long, membranous, truncate. Leaf-blades filiform, involute, 4–30 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, linear, 3–8 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5–9 mm long.

Glumes. Lower glume ovate.

Florets. Fertile lemma 5–9 mm long, keeled, 3 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 1–3 mm long overall. Palea 2 -nerved. Lodicules absent or vestigial. Anthers 3. Grain 3–4 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Tasmania.

Tasmania: West Coast.

Notes. Introduced from Europe into Tasmania, where it is uncommon in swampy areas on flood plains of the King River near Gormaston and south of Queenstown.

Nassella charruana* (Arech.) M.E. Barkworth. *Taxon* 39: 609 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa charruana* Arechav., *Anales Mus. Nac. Buenos Aires* 4: 181, f. 3 (1895).

Type of Basionym or Protologue Information: IT: *J. Arechavaleta s.n.*, Oct, Uruguay: Montevideo (US-993455).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (65).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Rhizomes present, short. Culms erect, 25–100 cm tall. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.8–2 mm long, obtuse. Leaf-blades flat or conduplicate or convolute, 5–20 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, effuse, 6–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 16–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 12–17 mm long, hyaline, without keels, 3 -nerved.

Florets. Fertile lemma 8–10.5 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 45–80 mm long overall, with a twisted column. Column 20–25 mm long. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 3.5 mm long.

Continental Distribution: South America.

Australian Distribution: Victoria.

Victoria: Volcanic Plain.

Notes. This species has only recently been found to occur in Australia.

Nassella hyalina* (Nees) M.E. Barkworth. *Taxon* 39: 610 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa hyalina* Nees, *Fl. Bras. Enum. Pl.* 2(1): 378 (1829).

Type of Basionym or Protologue Information: HT: *F. Sellow*, Brasilia meridionalis (B; IT: LE-TRIN-1404.01 (& fig. ex herb. Chamiss.)). de Schlechtendal 1827; herb. Chamiss.. HT: *F. Sellow 636d*, no date, Uruguay: Montevideo (B; IT: BAA-3088 (fragm. ex B), US-87201 (fragm.), US-81929 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (304), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (66).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (304), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms erect or geniculately ascending, 25–120 cm tall. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.2–2 mm long, membranous, truncate or obtuse. Leaf-blades flat or involute or convolute, 4–30 cm long, 1.5–5.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 5–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5.5–11.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 1–3 -nerved. Upper glume lanceolate, 5.5–11.5 mm long, hyaline, without keels, 1–3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3–5.5 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex entire, awned, 1 -awned. Median (principal) awn constricted at base (of corona), 20–45 mm long overall, without a column or with a straight or slightly twisted column. Column 15 mm long. Palea 0 -nerved, without keels. Lodicules present. Anthers 3. Grain 1.8–2.3 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Coast, Northern Tablelands, North-Western Slopes. **Victoria:** Volcanic Plain.

Notes. An introduction from South America, uncommon on North Western Slopes of New South Wales, and common in the outer northern and western suburbs of Melbourne, Victoria.

Nassella leucotricha* (Trin. & Rupr.) Pohl. *Taxon* 39: 610 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa leucotricha* Trin. & Rupr., *Sp. Gram. Stipac.* 54 (1842).

Type of Basionym or Protologue Information: HT: [*Drummond?*], USA: Texas I,5 (LE-TRIN-1414.01; IT: US-557432).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (107), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (66).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (107, fig. 69), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms erect or decumbent (slightly), 20–50 cm tall, 1.5–3 mm diam. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Leaves basal and cauline. Leaf-sheaths smooth to scaberulous. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.4–0.7 mm long, membranous, truncate. Leaf-blades flat or involute, 10–30 cm long, 2–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle 15 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), elliptic, laterally compressed, 10–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3-nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 10–16 mm long, membranous, without keels, 3(–5)-nerved.

Florets. Fertile lemma 5.3–5.7 mm long, without keel. Lemma surface indumented. Lemma apex entire, awned, 1-awned. Median (principal) awn 50–60 mm long overall, with a twisted column. Column 20–30 mm long. Palea without keels. Lodicules present. Anthers 3.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Victoria.

Victoria: Gippsland Plain, Midlands, Volcanic Plain.

Notes. Native to southern N. America; naturalised in suburban Melbourne, and in the Castlemaine, Ballarat and Geelong areas, Victoria.

Nassella megapotamia* (Spreng. ex Trin.) M.E. Barkworth. *Taxon* 39: 610 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa megapotamia* Spreng. ex Trin., *Mem. Acad. Imp. Sci. St.-Petersbourg, Ser. 6, Sci. Math.* 1(1): 77 (1830).

Type of Basionym or Protologue Information: HT: [*Sellow*] [*mis.*] *Otto*, Brazil: ad Monte Video (LE-TRIN-1415.01 (& fig.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (305), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (66).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (305), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 50–150 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 0.2–0.7 mm long, membranous, truncate. Leaf-blades flat or involute, 30–60 cm long, 3.5–14 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 25–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3-nerved. Upper glume lanceolate, 7–10 mm long, hyaline, without keels, 3-nerved. Upper glume surface asperulous.

Florets. Fertile lemma 4–5 mm long, without keel, 5-nerved. Lemma surface indumented. Lemma apex lobed, awned, 1-awned. Median (principal) awn 30–50 mm long overall, with a twisted column. Column 30 mm long. Palea 0-nerved, without keels. Lodicules present. Anthers 3. Grain 2.7–3 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Native to S. America; apparently still confined to the Canberra region near its point of naturalisation.

Nassella neesiana* (Trinius & Ruprecht) M.E. Barkworth. *Taxon* 39: 611 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa neesiana* Trin. & Rupr., *Sp. Gram. Stipac.* 27–28 (1842); *Stipa eminens* Nees, *Fl. Bras. Enum. Pl.* 2(1): 374 (1829).

Type of Basionym or Protologue Information: HT: *F. Sello s.n., de Schlechtendal*, 1827, Brazilia meridionalis [Uruguay] (LE-TRIN; IT: US-557439 (ex LE-TRIN)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (108), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (305), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (67).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (109, Fig. 71as subsp. *neesiana*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (305), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms erect, 30–100 cm tall, 3–4 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 0.5–3 mm long, membranous, truncate or obtuse. Leaf-blades flat or convolute, 2–5.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate, 5–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 10–22 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels. Upper glume lanceolate, 10–22 mm long, membranous, without keels.

Florets. Fertile lemma 7–11 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 40–85 mm long overall, with a twisted column. Column 25–55 mm long. Palea without keels. Anthers 3.

Continental Distribution: Africa, Australasia, and South America.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Southern Lofty, South-eastern. **Queensland:** Darling Downs. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** Gippsland Plain, Midlands, Volcanic Plain.

Notes. Introduced from S. America and now spreading in the Central Coast, Northern Tablelands and Southern Tablelands subdivisions of New South Wales, and in the Melbourne, Beechworth, Tarnagulla, Maryborough and Warrnambool areas of Victoria.

Nassella tenuissima* (Trin.)Barkworth. *Taxon* 39: 612 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa tenuissima* Trin., *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 4,2(1): 36 (1836).

Type of Basionym or Protologue Information: HT: *W.J. Hooker ex L. Gillies 11*, 1835, Argentina: Mendoza (LE-TRIN-1450.01 (& fig.); IT: US-866053 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (305), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (65).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (305), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms erect or geniculately ascending, 25–70 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane, 1.5–4 mm long, obtuse. Leaf-blades aciculate, 7–40 cm long, 0.4–0.5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Panicle linear, 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets comprising 1 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 5–10.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, hyaline, without keels, 3 -nerved.

Florets. Fertile lemma 1.8–3.6 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 50–90 mm long overall, with a straight or slightly twisted column. Palea 0 -nerved, without keels. Lodicules present. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Africa, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Nassella trichotoma* (Nees) Hackel ex Arech. *Anales Mus. Nac. Montevideo* 1: 336 (1896).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Stipa trichotoma* Nees, *Fl. Bras. Enum. Pl.* 2(1): 375 (1829).

Type of Basionym or Protologue Information: HT: *F. Sellow* 833, no date, Uruguay: Montevideo (B; IT: BAA-3292 (fragm. ex B), MO-2097080, US-733007 (fragm. ex B)).

Recent synonyms: *Stipa trichotoma*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (108), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (305), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (64).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (187), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (108, Fig. 70), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (305), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (63, Fig 9).

Habit. Perennial. Culms 30–60 cm tall. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.5–2.5 mm long, truncate or obtuse. Leaf-blades filiform, convolute, 15–45 cm long, 0.2–0.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 8–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 4–8.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 3 -nerved. Upper glume lanceolate, 4–8.5 mm long, hyaline, without keels, 3 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 1.5–2.5 mm long, keeled. Lemma apex awned, 1 -awned. Median (principal) awn 15–35 mm long overall, with a twisted column. Palea 0 -nerved, without keels. Anthers 3. Grain 1.2 mm long.

Continental Distribution: Europe, Africa, Australasia, and South America.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** Gippsland Plain, Midlands, Otway Plain, Volcanic Plain. **Tasmania:** King Island, East Coast.

Notes. Weed of pastures, unpalatable to stock.

Neoleleba atra (Lindl.) Widjaja. *Reinwardtia* 11(2): 114. 1997.

Classification. (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Basionym and/or Replacement Name: *Bambusa atra* Lindl., *Penny Cyclop.* 3: 357 (1835).

Type of Basionym or Protologue Information: Indonesia, Ambon, Caju Poeti: Robinson 33 (BO epi, K, L).

Recent synonyms: *Bambusa forbesii*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Bambusa forbesii*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (355 as *Neoleleba*).

Habit. Perennial. Rhizomes present, short. Basal leaf sheaths present or absent. Culms 400–800 cm tall, 20–30 mm diam., woody. Mid-culm internodes hollow, thin-walled, pubescent. Lateral branches dendroid. Leaves cauline. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliate membrane, lacerate. Leaf-blades linear or lanceolate or ovate, 25–50 cm long, 45–90 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle.

Spikelets. Fertile spikelets 1 or more flowered, with 1 fertile floret (6), comprising 6 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 5–10 mm long.

Glumes. Lower glume 5–7 -nerved. Upper glume 2.5–3 mm long, 7–9 -nerved.

Florets. Fertile lemma 5–7 mm long, keeled, 10–14 -nerved. Palea 4–9 -nerved. Lodicules absent or vestigial. Anthers 6.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Native; Cape York Penin. Qld, and throughout New Guinea from sea-level to c. 1250 m. In or at the edges of rainforest. Flowers recorded in July, Sept, Oct. Fruits not seen.

Neurachne alopecuroidea R. Br. *Prodr.* 196 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Type of Basionym or Protologue Information: HT: *Robert Brown 6142*, Australia: Western Australia: King George Sound (BM (photo, BRI)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197), [1878] G.Bentham, *Flora Australiensis* 7 (507 as *Neurachne alopecuroides*), [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (271), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (423), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (499).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 Gramineae (272, Pl. 78), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (500, fig. 429).

Habit. Perennial. Rhizomes present, short. Culms erect, 20–60 cm tall, 2–4 -noded. Mid-culm nodes pubescent or bearded. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.4–0.8 mm long. Leaf-blades flat or involute, 4–16 cm long, 1–3 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Panicle oblong or ovate, 1–2.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 8–12 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous or cartilaginous, without keels, 5 -nerved. Lower glume surface indumented. Upper glume lanceolate, 8–12 mm long, chartaceous or cartilaginous, 9–11 -nerved. Upper glume surface indumented. Upper glume apex awned.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–70 % of length of spikelet, chartaceous, 7 -nerved.

Fertile lemma 4.9–6.8 mm long, without keel. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Irwin, Drummond, Dale, Warren, Eyre, Roe, Avon, Coolgardie. **South Australia:** Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Grampians, Lowan Mallee, Murray Mallee, Volcanic Plain, Wannon, Wimmera.

Notes. In temperate heaths, mallee heaths, dry sclerophyll forests, temperate sub-humid woodlands, and eucalypt shrublands. Flowers mostly Aug.-Dec.

Neurachne annularis T. Macfarlane. *Nuytsia* 17: 217 (2007).

Australian Distribution: Western Australia.

Western Australia: Coolgardie.

Neurachne lanigera S.T. Blake. *Contr. Queensland Herb.* 13: 10 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Type of Basionym or Protologue Information: Australia occidentali, prope "Cunya", *Speck 1201* (HT: CANB-72644).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (484), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (500).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (500, fig. 430).

Habit. Perennial. Rhizomes present, short. Culms erect, 15–25 cm tall, 5–10 -noded. Mid-culm nodes pubescent or bearded. Leaf-sheaths smooth, hairy. Ligule a fringe of hairs, 0.5–0.9 mm long. Leaf-blades filiform, involute, 2–12 cm long, 1–2.1 mm wide. Leaf-blade surface smooth or scabrous, indumented.

Inflorescence. Inflorescence solid, a raceme. Panicle oblong, 1.5–3 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 10–12 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, cartilaginous, much thinner on margins, without keels, 5(–7) -nerved. Lower glume surface indumented. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 10–12 mm long, cartilaginous, 7 -nerved. Upper glume surface indumented. Upper glume apex mucicous or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–80 % of length of spikelet, chartaceous, 7 -nerved.

Fertile lemma 6.5–7.8 mm long, without keel, 5 -nerved. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Austin. **South Australia:** North-western, Lake Eyre.

Notes. In acacia shrublands and arid hummock grasslands. Flowers Aug.-Sept.

Neurachne minor S. T. Blake. *Contr. Queensland Herb.* 13: 12 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Type of Basionym or Protologue Information: Carnegie in Australia occidentali, *Bennett 221* (HT: PERTH; IT: BRI-129040).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect, 13–25 cm tall, 2–4 -noded. Mid-culm nodes pubescent or bearded. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.4–0.8 mm long. Leaf-blades triangular or linear, flat or involute, 3–10 cm long, 0.5–2.5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence solid, a raceme. Panicle ovate, 0.6–1.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 5.5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, much thinner on margins, without keels, 5 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume elliptic, 5.5–8 mm long, chartaceous or cartilaginous, 11–13 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 70 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 3.7–5.6 mm long, without keel. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Carnegie, Ashburton, Austin. Dale, Eyre, Avon, Coolgardie.

Notes. In acacia shrublands and arid hummock grasslands. Flowers sporadically throughout the year.

Neurachne munroi (F. Muell.) F. Muell. *Fragm.* 8:200(1874). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Basionym and/or Replacement Name: *Panicum munroi* F. Muell., *Fragm.* 5: 204 (1867).

Type of Basionym or Protologue Information: HT: *H. Beckler s.n.*, Australia: New South Wales: Goginga Mountains, Scrope Range, (MEL; IT: BRI, K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (508), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (484), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (500), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (306).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (501, Fig. 431), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (306).

Habit. Perennial. Rhizomes present, short. Culms erect, 15–50 cm tall, 5–10 -noded. Mid-culm nodes pubescent or bearded. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 5–10 cm long, 1.5–2.5 mm wide.

Inflorescence. Inflorescence solid, a raceme. Panicle linear, 4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, without keels, 3 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 6 mm long, coriaceous, 5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, chartaceous, 3 -nerved.

Fertile lemma 4 mm long, without keel, 3 -nerved. Palea 2 -nerved, without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Kertland, Austin. Avon. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges. **Queensland:** Burke, Gregory North, Gregory South, Mitchell, Warrego. **New South Wales:** North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. In arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers sporadically throughout the year but mostly May-Oct.

Neurachne queenslandica S. T. Blake. *Contr. Queensland Herb.* 13:16(1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Type of Basionym or Protologue Information: Queensland, Enniskillen Station, *White 12746* (HT: BRI-038446).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect or decumbent, 20–40 cm tall, 4–8 -noded. Mid-culm nodes pubescent or bearded. Leaf-sheaths smooth, glabrous on surface or hairy. Ligule a fringe of hairs, 0.4–1 mm long. Leaf-blades filiform or linear, flat or involute, 3–21 cm long, 1–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence solid, a raceme. Panicle linear, 1–3.2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 5.3–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, much thinner on margins, without keels, 3 -nerved. Lower glume surface indumented. Upper glume lanceolate, 5.3–8 mm long, chartaceous, 9 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–70 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 3.7–5.3 mm long, without keel. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Mitchell.

Notes. In Brigalow forests and semi-arid shrub woodlands. Flowers Nov.-Feb., probably sporadically throughout the year.

Neurachne tenuifolia S. T. Blake. *Contr. Queensland Herb.* 13: 18 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Type of Basionym or Protologue Information: Australia centrali, Standley Chasm, *Perry 5387* (HT: BRI-019001; IT: CANB, NSW, PERTH).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (485), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Culms erect or decumbent, 30–50 cm tall, 5–8 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.6–0.9 mm long. Leaf-blades curled, filiform, convolute, 8–25 cm long, 0.8–1.5 mm wide. Leaf-blade surface papillose, indumented.

Inflorescence. Inflorescence solid, a raceme. Panicle linear or oblong, 4–6 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6.5–12 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, cartilaginous, much thinner on margins, without keels, 3 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or awned. Upper glume lanceolate, 6.5–12 mm long, cartilaginous, 7 -nerved. Upper glume surface glabrous. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50–75 % of length of spikelet, chartaceous, 7 -nerved.

Fertile lemma 4.8–6.5 mm long, without keel. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. In acacia shrublands and arid hummock grasslands. Flowers sporadically throughout the year but mostly Sept.-May.

Notochloë microdon (Benth.) Domin. *Repert. Spec. Nov. Regni Veg.* 10: 117 (1911). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Triraphis microdon* Benth., *Fl. Austral.* 7: 605 (1878).

Type of Basionym or Protologue Information: HT: *C. Moore s.n.*, Australia: New South Wales: Blue Mountains (K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (605 as *Triraphis ? microdon*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (306).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 6), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (306).

Habit. Perennial. Culms 30–100 cm tall. Ligule a fringe of hairs. Leaf-blades convolute, 15–30 cm long, 2–3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or ovate, effuse, 80–140 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 6–12 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 15–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3-nerved. Upper glume lanceolate, 5–9 mm long, membranous, keeled, 1-keeled, 3–5-nerved.

Florets. Fertile lemma 6–9 mm long, keeled, 7-nerved. Lemma surface glabrous. Lemma apex dentate. Palea 2-nerved. Grain 2.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands.

Notes. *N. microdon* superficially resembles *Glyceria australis*, but can be distinguished by the ciliate ligule.

Endemic to the Blue Mountains of N.S.W., altitude 800–1100 m, in damp sand on streambanks, near streams, and in permanent seepages. Flowers Dec.

Ophiuros exaltatus (L.) Kuntze. *Rev. Gen. Pl.* 2: 780 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Aegilops exaltata* L., *Mant. Pl.* 2: 575 (1771).

Type of Basionym or Protologue Information: India.

Recent synonyms: *O. megaphyllus*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (207 as *Ophiuros corymbosus*), [1878] G.Bentham, *Flora Australiensis* 7 (512 as *Ophiuros corymbosus*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (312), [1969] E.E.Henty, *Manual Grasses New Guinea* (129 as *O. tongcalingii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (313, Pl. 92).

Habit. Perennial. Culms stature robust to moderate, 150–250(–400) cm tall. Lateral branches branched. Leaf-sheaths hairy. Ligule an eciliate membrane. Leaf-blades linear or elliptic, flat or convolute, 50–100 cm long, 10–40 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, composed of spikes. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 2.5–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, cartilaginous or coriaceous, without keels or keeled, 2-keeled, 5–9-nerved. Lower glume surface glabrous. Upper glume elliptic or ovate, hyaline or membranous, 1–3-nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, Leichhardt, North Kennedy, Port Curtis, South Kennedy.

Notes. Occurs from India and China to tropical Australia in seasonally wet grasslands and open savannas on heavy soils. Flowers Jan.–Oct.

Oplismenus aemulus (R.Br.) Roem. & Schult. *Syst. Veg.* 2: 487 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Orthopogon aemulus* R. Br., *Prodr.* 194 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6132*, Australia: Keppel Bay (BM).

Recent synonyms: *O. aemulus* var. *lasiorhachis*, *O. hirtellus* auct.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (194 as *Orthopogon aemulus* & *O. flaccidus*), [1878] G.Bentham, *Flora Australiensis* 7 (492 as *Oplismenus setarius*), [1969] E.E.Henty, *Manual*

Grasses New Guinea (132), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (308).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (309).

Habit. Perennial. Culms prostrate, 300 cm tall. Ligule a fringed membrane, a ciliate membrane. Leaf-blades ovate, 1–10 cm long, 4–18 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–9, 2.5–3.5 cm long. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 3.5–4 mm long.

Glumes. Glumes similar or dissimilar, thinner than fertile lemma. Lower glume ovate, herbaceous, without keels, 5 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume ovate, herbaceous, without keels, 7 -nerved. Upper glume surface indumented. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, without keels, 7 -nerved.

Fertile lemma 2–3 mm long, without keel, 7 -nerved. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Cook, Burke, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett, Wide Bay, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes, and South-Western Plains. **Victoria:** Gippsland Plain, East Gippsland.

Oplismenus burmannii (Retz.) P.Beauv. *Ess. Agrost.* 54, 168, 169 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum burmannii* Retz., *Observ. Bot.* 3: 10 (1783).

Type of Basionym or Protologue Information: HT: *Koenig s.n.*, India: Madras (LD; IT: BM (4 sheets), C).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Habit. Annual. Culms prostrate, 10–60 cm tall. Mid-culm nodes glabrous. Ligule a fringed membrane, a ciliate membrane, 0.4–0.8 mm long. Leaf-blades lanceolate or ovate, 1–10 cm long, 5–20 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–8, 0.5–2.5 cm long. Central inflorescence axis 2–13 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2–3 mm long.

Glumes. Glumes similar or dissimilar, thinner than fertile lemma. Lower glume ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume ovate, 1.7–2.2 mm long, herbaceous, keeled, 1-keeled, 3–7 -nerved. Upper glume surface indumented. Upper glume apex mucicous or awned. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 7–11 -nerved, mucronate or awned.

Fertile lemma 2–2.7 mm long, without keel, 7 -nerved. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. Diagnostic features include the scabrous awns.

Native to the tropics, occurring mainly in Africa and Asia. In tropical and subtropical sub-humid woodlands and coastal grasslands. In Australia, it is known from relatively few collections. Flowers Mar.-Aug.

Oplismenus compositus (L.) P.Beauv. *Ess. Agrost.* 54, 168 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum compositum* L., *Sp. Pl.* 1: 57 (1753).

Type of Basionym or Protologue Information: LT: *Herb. Hermann* 42, v. 3, fol. 45, (BM-SL). LT designated by Hitchcock, *U.S.D.A. Bull.* 772: 238 (1920); also Davey & Clayton, *Kew Bull.* 33: ? (1978).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (194 as *Orthopogon*), [1878] G.Bentham, *Flora Australiensis* 7 (491), [1969] E.E.Henty, *Manual Grasses New Guinea* (132), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 15–150 cm tall. Mid-culm nodes glabrous or pubescent. Ligule a fringed membrane, a ciliate membrane, 0.8–1.5 mm long. Leaf-blades lanceolate or ovate, 2–24 cm long, 8–27 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–12, 2.5–11 cm long (lowest). Central inflorescence axis 5–25 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2.5–4 mm long.

Glumes. Glumes similar or dissimilar, thinner than fertile lemma. Lower glume ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume ovate, 1.6–3 mm long, herbaceous, keeled, 1-keeled, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 7–11 -nerved, mucronate or awned.

Fertile lemma 2–3.3 mm long, without keel, 7 -nerved. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, Christmas Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis.

Notes. Diagnostic features include the elongate lowermost primary branches with distant spikelet pairs. *Oplismenus compositus* intergrades with *O. hirtellus* and identification of some specimens is difficult.

Distributed throughout the tropics. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. In Australia, it is restricted to the coastal plains of tropical Qld. Flowers Apr.-Aug.

Oplismenus imbecillis (R. Br.) Roem. & Schult. *Syst. Veg.* 2: 487 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Orthopogon imbecillis* R. Br., *Prodr.* 194 (1810).

Type of Basionym or Protologue Information: Australia: New South Wales: Port Jackson, *Brown 6133* (HT: BM; IT: E, LE) 'Sattelberg bei Finschhafen im Walde.'

Key references (books and floras): [1810]. R.Brown, *Prodromus* (194 as *Orthopogon*), [1878] G.Bentham, *Flora Australiensis* 7 (492 as *Oplismenus setarius*), [1969] E.E.Henty, *Manual Grasses New Guinea* (133 as *O. hirtellus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *O. hirtellus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (309).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (189), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (309).

Habit. Annual or perennial. Culms prostrate, 5–100 cm tall. Mid-culm nodes pubescent. Ligule a fringed membrane, a ciliate membrane, 0.4–1.1 mm long. Leaf-blades lanceolate to ovate, 1–13 cm long, 4–20 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–9, 0.5–3 cm long. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2–4 mm long.

Glumes. Glumes similar or dissimilar, thinner than fertile lemma. Lower glume ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume ovate, 1.6–2.1 mm long, herbaceous, keeled, 1-keeled, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or awned. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 7–11 -nerved, mucronate.

Fertile lemma 2–2.5 mm long, without keel, 7 -nerved. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria, Norfolk I, Lord Howe.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Darling Downs, Moreton, North Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central-Western Slopes. **Victoria:** East Gippsland, Gippsland Plain.

Notes. An extremely variable tropical species in which Shultz (1981) recognized 11 subspecies. Tends to intergrade with *O. compositus* and *O. undulatifolius*, however, most specimens can be identified with confidence. The morphological relationship between *O. hirtellus* and *O. aemulus* is even more obscure and the characters commonly used to distinguish these taxa cannot be applied consistently.

In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers Jan.-July.

Oplismenus mollis (Domin) Clifford & Evans ex B.K.Simon ms. *Flora of Australia* xx: xx (200x).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Oplismenus undulatifolius* var. *mollis* Domin, *Biblioth. Bot.* 85: 329 (1915).

Type of Basionym or Protologue Information: ST: *Domin s.n.*, Australia: Sud-Queensland: Tambourine Mts. (PR?). ST: *Guilfoyle s.n.*, Australia: New South Wales: Tweed River (PR?).

Recent synonyms: *O. undulatifolius* auct.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (133 as *O. undulatifolius* var. *imbecilis* **CHECK**), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *O. undulatifolius*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (309 as *O. undulatifolius*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (309 as *O. undulatifolius*).

Habit. Perennial. Culms prostrate, 12–50 cm tall. Mid-culm nodes glabrous. Ligule a fringed membrane, a ciliate membrane, 0.5–1 mm long. Leaf-blades lanceolate or ovate, 1–10 cm long, 4–15 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–11, cuneate, 0.5–1 cm long, bearing 2–6 fertile spikelets on each (in a fascicle). Central inflorescence axis 2–10 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 2.5–4 mm long.

Glumes. Glumes similar or dissimilar, thinner than fertile lemma. Lower glume ovate, herbaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume ovate, 1.7–2.6 mm long, herbaceous, keeled, 1-keeled, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucicous or awned. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1-keeled, 7–11 -nerved, mucronate or awned.

Fertile lemma 2–3.6 mm long, without keel, 7 -nerved. Palea without keels.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton, North Kennedy, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. Diagnostic features of *O. undulatifolius* include the smooth awn and lowermost primary branches reduced to fascicles. It tends to intergrade with *O. hirtellus*.

In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Occurs in the shaded tropical woodlands of eastern Australia. Flowers Apr.-Aug.

Oryza australiensis Domin. *Biblioth. Bot.* 85: 333 (1815). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: Australia, Sturt's Creek: *Mueller* (K iso).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (14), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (364).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (15, Pl.1), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (363, Fig. 49).

Habit. Annual or perennial. Rhizomes present, elongated. Stolons present. Culms erect, 100–220(–300) cm tall, 4–8 mm diam. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent (sometimes subauriculate). Ligule an eciliate membrane, 2–3 mm long, entire (often split), truncate or obtuse. Leaf-blades 10–35 cm long, 3–14 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic, 18–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 6–8.4 mm long.

Glumes. Upper glume 0.3–0.7 mm long. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 10 % of length of spikelet, herbaceous, 1-keeled (slightly), 1 -nerved. Lemma of upper sterile floret 1.4–1.6 mm long.

Fertile lemma 6–8 mm long, keeled, 5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 5–30 mm long overall. Palea 3 -nerved, without keels. Lodicules present. Anthers 6. Grain 4.7–6.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Victoria River, Central Australia North. **Queensland:** Burke, Cook, North Kennedy.

Notes. Endemic. Growing in water, swamps or seasonally inundated areas, often in black or grey clays. Flowers Mar.-Aug.

Oryza meridionalis Ng. *Bot. J. Linn. Soc.* 82: 328 (1981). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: Australia, Darwin: IRRI 101147 (K holo).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (366).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (363, Fig. 49).

Habit. Annual or perennial. Culms erect or geniculately ascending, 100–200 cm tall. Ligule an eciliate membrane, acute. Leaf-blades 18–30 cm long, 9–12 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 11–24 cm long.

Spikelets. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), 6.5–8.9 mm long.

Glumes. Upper glume 0.3–0.4 mm long. **Florets.** Basal sterile florets 2 or more. Lemma of lower sterile floret 10 % of length of spikelet.

Fertile lemma 6.9–8 mm long, 5 -nerved. Lemma apex awned. Median (principal) awn 60–120 mm long overall. Lodicules present. Grain 6–6.4(–8.3) mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook.

Notes. Endemic. In swamps, shallow water or seasonal swamps.

Oryza nivaria (?)

Oryza officinalis* Wall. ex G.Watt. *Dict. Econ. Prod. India* 5: 501 (1891). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: HT: *Haenke s.n.*, Philippines (PR).

Recent synonyms: *Oryza minuta* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *O. minuta*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (364).

Habit. Perennial. Stolons present. Culms geniculately ascending or decumbent, 50–200(–300) cm tall. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 5 mm long, erose, truncate or obtuse. Leaf-blades 15–80 cm long, 7–23 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 7.5–42 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, laterally compressed, 3.7–6.4 mm long.

Glumes. Upper glume 0.1–0.2 mm long. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 10 % of length of spikelet, 1 -nerved.

Fertile lemma 3.7–6.2 mm long, keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 3–18 mm long overall. Palea 3 -nerved, 1-keeled. Palea apex awned. Lodicules present. Anthers 6. Grain 2.3–4.4 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Native (?). SE Asia, India to New Guinea (Sri Lanka, Burma, Thailand, Cambodia, S Vietnam, Malesia). Flowers May.

Oryza rufipogon Griff. *Not. Pl. Asiatica* 3: 5, t. 144 (244?), fig. 2 (1851). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: NT: *Tim s.n.*, Bangladesh (CAL). NT designated by Sharma & Shastry, Indian J. Genet. *Pl. Breed.* 25(20): 157–167 (1965).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (135), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (365).

Habit. Annual or perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 70–90(–300) cm tall, spongy. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 12–17 mm long, lacerate, acute. Leaf-blades 20–60 cm long, 5–25 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 7.3–11.4 mm long. Rachilla internodes elongated between glumes, or elongated below proximal fertile floret.

Glumes. Upper glume 0.3–0.5 mm long. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 10 % of length of spikelet, 1 -nerved.

Fertile lemma 6.5–11 mm long, keeled, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 60–70 mm long overall. Palea 3 -nerved, 1-keeled. Palea apex mucous or awned. Lodicules present. Anthers 6. Grain 5.2–6.7 mm long.

Continental Distribution: Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Cook, North Kennedy, South Kennedy.

Notes. Native. Sri Lanka, India, Bangladesh, Burma, Thailand, Cambodia, S Vietnam, China, Malesia, Australia, S America. Wet, black soil, swampy places or in up to 1 m of water. Flowers Mar.-May, Sept.-Nov.

Oryza sativa* L. *Sp. Pl.* 1: 333 (1753). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: LT: (LINN-460.1). LT designated by Meikle, *Fl. Cyprus* 2: 1716 (1985). LT: India (LINN-460.1). LT designated by Duistermaat, *Blumea* 32: 174 (1987).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (550), [1969] E.E.Henty, *Manual Grasses New Guinea* (135), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (310), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (367).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (191), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (310).

Habit. Annual or perennial. Culms erect or geniculately ascending, 45–190 cm tall, 3–20 -noded. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, 15–30 mm long, entire or lacerate, obtuse or acute. Leaf-blades 12–65 cm long, 4–22 mm wide. Leaf-blade surface scabrous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 9–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, laterally compressed, 8–11 mm long.

Glumes. Upper glume 0.2 mm long. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret membranous, 1 -nerved.

Fertile lemma 6–11 mm long, keeled, 3(–5) -nerved. Lemma surface glabrous or indumented. Lemma apex mucous or awned, 1 -awned. Median (principal) awn 0–160 mm long overall. Palea 3 -nerved, 1-keeled. Lodicules present. Anthers 6. Grain 5.1–7.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Drummond. **Northern Territory:** Darwin & Gulf. **Queensland:** North Kennedy.

Notes. Cultivated rice, the staple food in many parts of the world, and grown in many forms.

Introduced. Native to India, now cultivated all over the world in tropical to Mediterranean areas. Marshes and wet, inundated fields, in fresh or brackish water.

Ottlochloa gracillima C.E.Hubb. *Bull. Misc. Inform.* 445 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *C.E. Hubbard 8600*, 3 Apr 1931, Australia: Queensland: Moreton District: Mogill (K; IT: BRI, CANB, MEL, US-1721123).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (311).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (195), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (311).

Habit. Perennial. Culms sprawling, stature slender to delicate, 5–60 cm tall. Mid-culm internodes glabrous or with pubescent line. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 0.1–0.3 mm long. Leaf-blades linear or lanceolate, 1–10 cm long, 1.5–7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Racemes 2–4, 0.5–2 cm long. Central inflorescence axis 1–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 1.7–2.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume elliptic or ovate, 1–1.2 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.7–2.3 mm long, without keel, 3 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast.

Notes. Distinguished from *O. nodosa* by spikelet length. This species is very variable anatomically and there are reservations as to whether it forms a species distinct from *O. nodosa*. The only differences are in degree of size.

Qld and N.S.W. A sprawling, weak grass occurring sporadically in tropical and subtropical woodlands. Flowers Jan.-May.

Ottlochloa nodosa (Kunth) Dandy. *J. Bot.* 69: 54 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum nodosum* Kunth, *Enum. Pl.* 1: 97 (1833); *Panicum multinode* J. Presl, *Reliq. Haenk.* 1(4–5): 303 (1830), non Lam (1796).

Type of Basionym or Protologue Information: Philippine Islands: Luzon: Sorsogon Prov., *T. Haenke s.n.* (HT: US-80779).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (137 & as *O. fusca*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms decumbent, 20–200 cm tall, spongy. Ligule an eciliate membrane, 0.2–0.6 mm long, truncate. Leaf-blades lanceolate, 1.5–20 cm long, 2–20 mm wide.

Inflorescence. Inflorescence compound, a panicle. Racemes 2–15 cm long. Central inflorescence axis 10–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2.5–3.6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate or ovate, 1.5–2.4 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.4–3.5 mm long, without keel, 5 -nerved. Palea 2 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. Distinguished from *O. gracillima* by spikelet length. See comment on *O. gracillima* regarding anatomical similarity.

Native to the tropics of Asia and Australia. Qld. A poorly understood, widespread species, occurring in shaded areas of tropical forests and woodlands of eastern Australia. Flowers Jan.-May.

Oxychloris scariosa (F. Muell.) M. Lazarides. *Nuytsia* 5: 283 (1985). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Chloris scariosa* F. Muell., *Fragm.* 6: 85 (1867).

Type of Basionym or Protologue Information: HT: *Gregory s.n.*, Australia: Western Australia: Eremean Prov: Stutr's Creek (MEL; IT: K).

Recent synonyms: *Chloris scariosa*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (614 as *Chloris scariosa*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (220 as *Chloris scariosa*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (465 as *Chloris*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (390), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (311).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (221, Pl.65 as *Oxychloris*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 44A, Fig. 46A), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (391, Fig. 324), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (311).

Habit. Annual or perennial. Culms 15–50 cm tall, (3–)5–7 -noded. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long. Leaf-blades flat or involute or convolute, 5–16 cm long, 0.5–3.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with spicate branches.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 1.8–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or elliptic or oblong, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 5–8 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–5 mm long, keeled, winged on margins, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 5.5–8 mm long overall. Anthers 3. Grain 1.3–2.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Hall. Mueller, Kearland, Fortescue, Ashburton. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Eastern. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, South Kennedy, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Distributed in all mainland States except Vic., but mostly in arid and lower rainfall areas of the N.T. and Qld. Usually occurs on clay soils in depressions, often with saline conditions, but also known from sandy and loamy soils, especially in disturbed areas such as roadsides.

Panicum antidotale* Retz. *Obs. Bot.* 4: 17 (1786). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Koenig s.n.*, India (LD; IT: K, US).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (483), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (258), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (457), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (457, fig. 388), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (314).

Habit. Perennial. Rhizomes present, short. Stolons absent. Culms erect or geniculately ascending, 30–200 cm tall, woody, 5–15 -noded. Mid-culm internodes pruinose or glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched or branched. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades 6–30 cm long, 2.5–15 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate or pyramidal, 13–32 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.4–3.2 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 3–5 -nerved. Lower glume apex mucous. Upper glume ovate, 2.5–3.2 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, mucronate.

Fertile lemma 1.5–2.6 mm long, without keel. Lemma apex muticous or mucronate. Anthers 3. Grain 0.25 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner. Drummond. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Port Curtis, South Kennedy, Warrego, Moreton. **New South Wales:** Northern Tablelands, North-Western Slopes, North-Western Plains.

Notes. Similar to *P. coloratum*. Diagnostic features include pronounced rhizomes with hairy cataphylls, the male lower floret, and the glume more than 1/3 the length of the spikelet.

Introduced. Native to India but now widely introduced as a forage species or for soil binding. In Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, and arid hummock grasslands. Flowers essentially throughout the year.

Panicum bisulcatum Thunb. *Nova Acta Regiae Soc. Sci. Upsal.* 7: 141 (1815). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Thunberg s.n.*, 1818, (UPS).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (488 as *Panicum melananthum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (314).

Habit. Annual. Rhizomes absent. Stolons present. Culms decumbent, 20–80 cm tall, compressible or firm, 3–10 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5–0.75 mm long. Leaf-blades linear, 2–25 cm long, 4–13 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–20 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2.2–3 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 2.1–2.6 mm long, membranous, without keels, 5(–7) -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–5 -nerved, muticous.

Fertile lemma 2–2.5 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland, New South Wales, Victoria (*).

Queensland: Wide Bay, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, North-Western Slopes. **Victoria:** Eastern Highlands, Midlands, Riverina.

Notes. Diagnostic features of the species include the absence of a lower palea, the relative length of the lower glume, and the obscure nerves on the upper lemma.

Introduced. Occurs in Japan, China and India and in the SE coastal region of Australia. In tropical heaths, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, and dry sclerophyll forests. Probably introduced. Flowers Mar.-June.

Panicum bombycinum B.K.Simon. *Austrobaileya* 3: 594 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: South Kennedy Dist.: 27 km W of Mirtna HS, 21.18.46S 145.57.47E, open savanna woodland, recently burned, dominated by *Eucalyptus whitei*, with *E. papuana* and *E. brachycarpa* on sandy soil, 6 Apr 1992, *E. J. Thompson & B. K. Simon BUC 1418* (HT: BRI-AQ560012; IT: AD, B, BRI, CANB, DNA, K, L, MEL, MO, NSW, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 15–35 cm tall, 2–4 -noded. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 1.5 mm long. Leaf-blades linear, flat or involute, 9–21 cm long, 2–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 6–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume apex muticous. Upper glume ovate, 3–3.5 mm long, membranous, without keels, 9(–11) -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, muticous.

Fertile lemma 2–2.3 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Mitchell, South Kennedy.

Notes. Endemic; Qld (South Kennedy district).

Panicum buncei F. Muell. ex Benth. *Fl. Austral.* 7: 487 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Queensland. Bokhara Flats, Leichhardt.", *Leichhardt s.n.*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (487), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (458), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (458, fig. 389), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (314).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, stature slender to delicate, 30–80 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 0.75 mm long. Leaf-blades linear, flat or conduplicate or involute, 5–20 cm long, 1.5–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 7–30 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 3–4.5 mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate or oblate, membranous, without keels, 3–5(–7) -nerved. Lower glume apex muticous. Upper glume lanceolate or ovate, 2.8–3.3 mm long, membranous, without keels, 5–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, muticous or mucronate.

Fertile lemma 1.5–2 mm long, without keel, 7 -nerved. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales.

South Australia: Southern Lofty. **Queensland:** Burnett, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, Warrego, Burke, Gregory South. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Diagnostic features of this distinctive species include the very short upper floret (c. 1/2 spikelet length) and the inflated base on the lower glume.

In Brigalow forests, temperate sub-humid woodlands, and semi-arid shrub woodlands. Occurs in the Brigalow forests and clay soil regions of N.S.W. and Qld. Flowers Mar.-July.

Panicum capillare* L. *Sp. Pl.* 58 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *J. Clayton 454*, USA: Virginia (BM; ILT: US-80553 (fragm.& photo ex BM)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 118 (1908).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (257), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (424), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (458).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (459, Fig. 390 as var. *brevifolium*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (314).

Inflorescence. Inflorescence compound, a panicle.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Eyre, Avon. **Victoria:** Wimmera, Midlands, Volcanic Plain, Eastern Highlands. **Tasmania:** North West.

Notes. Native to North America where it is frequently a weed in disturbed sites.

Infra-specific taxa: var. **capillare**, var. **brevifolium**.

Spikelets 2–2.5 mm long

P. capillare var. **capillare**

Spikelets 2.5–3.3 mm long

P. capillare var. **brevifolium**

Panicum capillare var. **capillare** *

Australian Distribution: Western Australia, Queensland, New South Wales, Victoria, Tasmania.

Panicum capillare var. **brevifolium** * Vasey ex Scribn. *Bull. Div. Agrostol., U.S.D.A.* 5: 21 (1897).

Classification. Type of Basionym or Protologue Information: HT: C.L. Shear 436; 19 Jul 1895; USA: Montana: Gallatin Co.: Manhattan, on a shaded sand bar in the Gallatin River (US-80525).

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

Panicum chillagoanum B.K.Simon. *Austrobaileya* 3: 596 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *J. Clayton 454*, USA: Virginia (BM; ILT: US-80553 (fragm.& photo ex BM)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 118 (1908).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 15–60 cm tall, 2–3 -noded. Lateral branches simple. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades linear or triangular, 2–12 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2.1–2.7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5 -nerved. Upper glume ovate, 2.1–2.7 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 1.5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Native; Qld (Cook district, on limestone).

Panicum coloratum* L. *Mant. Pl.* 1: 30 (1767). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Egypt: Cairo.; *Forsskal s.n.* (HT: LINN-80.45).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (459), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (459, Fig. 391), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (315).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or decumbent, 15–120 cm tall, 6–12 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent (rarely). Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane. Leaf-blades linear, (3–)10–30 cm long, (2–)4–10 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4–30(–40) cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2–3.2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1(–3) -nerved. Lower glume apex muticous or mucronate. Upper glume elliptic or ovate, 2–3.2 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, mucronate.

Fertile lemma 1.5–2.5 mm long, without keel. Lemma apex muticous or mucronate.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Dampier, Drummond. **Queensland:** Leichhardt, Darling Downs. **New South Wales:** North Coast, Central Coast, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Midlands, Murray Mallee, Riverina.

Notes. Vegetative characteristics of the species are highly variable. Diagnostic features are the presence of the male lower floret, glabrous cataphylls, and the lower glume less than 1/3 the spikelet length.

Introduced. Native to tropical Africa but now widely introduced as a forage species. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, and shrub steppe shrublands. Flowers throughout the year.

Panicum decompositum R. Br. *Prodr.* 191 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: "(T.) Littora Novae Hollandiae intra tropicum.",.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191), [1878] G.Bentham, *Flora Australiensis* 7 (489), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (259), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (471), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (459), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (460, fig. 392 as var. *decompositum*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (315).

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 30–80 cm tall, compressible, 2–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 2 mm long. Leaf-blades linear, flat or conduplicate or involute, 7–50 cm long, 2.5–12 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 15–35 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 2.3–3.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate or obovate, membranous, without keels, 0–1 -nerved. Lower glume apex muticous. Upper glume lanceolate or elliptic, 2.1–2.9 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved, muticous.

Fertile lemma 1.8–2.2 mm long, without keel, 7 -nerved. Lemma apex muticous. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Giles, Fortescue, Ashburton, Carnarvon, Austin. Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Midlands, Riverina, Volcanic Plain.

Notes. Morphologically variable with intergrading forms. Specimens from the tropics of northern Australia have larger spikelets, rigid and filiform leaf blades, and hairy axils and represent a distinct new species.

In dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Occurs naturally over a wide area of arid, semiarid and mesic Australia. Flowers throughout the year.

Infra-specific taxa: var. **decompositum**, var. **tenuior**.

Spikelets 2.5–2.8 mm long **P. decompositum** var. **tenuius**

Spikelets 3–3.5 mm long **P. decompositum** var. **decompositum**

Panicum decompositum var. **decompositum** Classification. (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Panicum decompositum var. **tenuius** F.M. Bailey. *Queensland Agric. J.* 30: 314 (1913).

Classification. (GPWG 2001) : Subfamily Panicoideae.

Type of Basionym or Protologue Information: "Hab.: Gindie, ..." *E.W. Bick* s.n.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Panicum effusum R. Br. *Prodr.* 191 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *R. Brown 6105*, Australia (BM; IT: K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191), [1878] G.Bentham, *Flora Australiensis* 7 (488), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (258), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (472), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (461), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (461, fig. 393 as var. *effusum*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (315).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 2–100 cm tall, 2–7-noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaves mostly basal. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades linear, flat or involute, 5–25 cm long, 2–6 mm wide. Leaf-blade surface smooth or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, effuse, 8–50 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 2–3 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5-nerved. Lower glume apex muticous. Upper glume lanceolate or ovate, 2.2–2.8 mm long, membranous, without keels, 5-nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 7-nerved, muticous.

Fertile lemma 1.5–2.2 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Norfolk I.

Western Australia: Fitzgerald, Fortescue, Ashburton, Austin, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory North. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, arid tussock grasslands, and arid hummock grasslands. Flowers throughout the year.

Panicum gilvum* Launert. *Mitt. Bot. Munchen* 8: 153 (1970). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: IT: *M.K. Dinter 2544*, 20 Apr 1912, Namibia: Okahandja, Okahandja (L). IT: *R. Seydel 2210*, 27 Mar 1960, Namibia: Damaraland, Okahandja, 1400 m (L).

Recent synonyms: *P. laevifolium* var. *contractum*, *P. schinzii* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (316).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (316).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 15–70 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades linear, 7–25 cm long, 3–8 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4–18 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.3–4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate or obovate, membranous, without keels, 0–1 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 2.2–3 mm long, membranous, without keels, 9–11 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9–11 -nerved, muticous.

Fertile lemma 1.9–3.5 mm long, without keel. Lemma apex muticous.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Moreton. **New South Wales:** Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Riverina, Wannon, Wimmera.

Notes. Australian specimens of this taxon match Launert's description except a for a smaller spikelet size and the absence of stamens in the lower floret.

Introduced. In dry sclerophyll forests, Brigalow forests, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Jan.-June.

Panicum hillmanii* Chase. *J. Wash. Acad. Sci.* 14: 345 fig. 1 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *A.S. Hitchcock 16206*, 11 Aug 1918, USA: Texas: Amarillo (US-1037542).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (462).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (462, fig. 394).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–65 cm tall, 4 -noded. Mid-culm internodes hispid. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, 1.7–2.5 mm long. Leaf-blades linear, 8–15 cm long, 5–12 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–30 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 2.4–3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 2.3–2.5 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–9 -nerved, muticous.

Fertile lemma 1.7–2 mm long, without keel. Lemma apex muticous.

Continental Distribution: Australasia and North America.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Northern Lofty, Murray, Southern Lofty, South-eastern. **Victoria:** Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands, East Coast, South West.

Notes. Introduced. Flowers Jan.

Panicum incomtum* Trin. *Gram. Pan.* 200 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Philippine Islands: Manila, *Chamisso s.n.* (HT: LE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms decumbent or sprawling, 50–200 cm tall, 4–7 mm diam., woody, 7–30 -noded. Mid-culm internodes pubescent. Lateral branches sparsely branched or branched. Leaves cauline. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.5–1 mm long. Leaf-blades linear or lanceolate, 6–30 cm long, 7–25 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or oblong, 8–18 cm long, 3–6 cm wide, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 1.8–2.2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, much thinner on margins, without keels, 3–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 1.9–2.2 mm long, chartaceous, without keels, 5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5 -nerved, mucronate.

Fertile lemma 1.5–1.9 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. The culms become very hardened, bamboo-like and climb over understory vegetation.

Introduced. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Occurs in shady tropical rainforests. Flowers June-Aug.

Panicum lachnophyllum Benth. *Fl. Austral.* 7: 486 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: "Queensland. Moreton Bay, ...", *C. Stuart.*

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (486), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (316).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (316).

Habit. Perennial. Rhizomes absent. Stolons present. Culms erect or decumbent, 10–30 cm tall, wiry, 7–12 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades spreading, linear or lanceolate, 1.5–10 cm long, 3–9 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 2–7 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or ovate, dorsally compressed, 2.5–3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate or oblate, membranous, without keels, 0–3 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 2–2.4 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.7–2 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton, North Kennedy, Wide Bay, Port Curtis. **New South Wales:** North Coast.

Notes. The inflorescence is similar to that of *Cyrtococcum* species. The upper floret is hairy at the apex and occasionally a few scattered hairs are present on the surface. In fact, *Entolasia* specimens have been misidentified as this species. The presence of such variation illustrates the close relationship between *Panicum* and *Entolasia*. Specimens of *P. lachnophyllum* from N Qld have glabrous or nearly glabrous leaves whereas others are distinctly hairy.

In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. Found in the shaded forested areas of SE Qld and NW N.S.W. Flowers Feb.-Aug.

Panicum laevinode Lindl. *Mitchell, Three exped. Int. East. Austr.* 1: 235 (1838). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Mitchell's expedition s.n. specimen no. 3*, Australia (CGE (right-hand specimen)). LT designated by Jacobs, *Kew Bull.* 40(3): 662 (1985).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (259 as *P. whitei*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (471 as *P. whitei*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (462), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (316).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (463, Fig. 396), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (316).

Habit. Annual or perennial. Rhizomes absent. Stolons absent. Culms erect, 15–120 cm tall, compressible, 2–7 -noded. Mid-culm internodes glabrous or pilose. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long. Leaf-blades linear, 5–20 cm long, 2.5–8 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–30 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.3–3.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate or obovate, membranous, without keels, 0–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 2.2–3 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, muticous.

Fertile lemma 1.7–2.1 mm long, without keel, 7 -nerved. Lemma apex muticous. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier, Canning, Kertland, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Murray. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Morphologically similar to *P. decompositum* and these taxa are frequently confused. Diagnostic features of *P. laevinode* include spikelet length, presence of a well developed lower palea, and relative size and shape of the lower glume. Characters which serve to distinguish it from *P. decompositum* are the slender drooping primary branches of the inflorescence with spikelets clustered at the ends of the branches, and the annual or biennial growth habit. The primary branches of *P. decompositum* are rigid and distinctly flattened and swollen at the base.

In Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. An important forage species over a wide area of arid and semiarid central Australia. Flowers throughout the year.

Panicum larcomianum D.K.Hughes. *Bull. Misc. Inform.* 326 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: "Queensland: Mt. Larcom, Bick.", *Bick s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 40–100 cm tall, 4–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.7–1.3 mm long. Leaf-blades filiform, flat or conduplicate, 9–35 cm long, 2–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 12–26 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–2.7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume obovate, membranous, without keels, 1 -nerved. Lower glume apex muticous. Upper glume elliptic, 1.9–2.6 mm long, membranous, without keels, 7–9 -nerved.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, muticous.

Fertile lemma 1.6–2 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burnett, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Cook, Burke.

Notes. *Panicum larcomianum* is similar to *P. laevinode* and future research may show that it is best treated as a variety of this taxon. The species have in common the slender primary branches and numerous spikelet features. Generally, *P. larcomianum* has smaller spikelets, filiform leaf blades and a distinctly perennial habit.

In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Sept.-May.

Panicum latzii R.D. Webster. *Austral. Paniceae* 132 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia, Victoria R. Crossing: *Symon 5214* (CANB holo, AHUC, K, NT).

Recent synonyms: *P. decompositum* var. *acuminatissimum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 40–80 cm tall, 3–8 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliate membrane, 1.2–3 mm long. Leaf-blades filiform, 14–40 cm long, 2.5–8 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 20–40 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.3–4.1 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume obovate, membranous, without keels, 1 -nerved. Lower glume apex muticous. Upper glume lanceolate, 3.1–3.9 mm long, membranous, without keels, 9 -nerved.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9 -nerved, muticous.

Fertile lemma 2.2–2.5 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke.

Notes. Similar to *P. decompositum* but differs in having filiform, rigid, scabrous leaf blades, hairy inflorescence axils and larger spikelets.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, arid hummock grasslands, and tropical sub-humid grasslands. Occurs across the subtropics of northern Australia. Flowers mostly Feb.- July.

Panicum luzonense* J. & C. Presl. *Rel. Haenk.* 1: 308 (1830). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Philippine Islands: Luzon:, *Haenke s.n.* (HT: PR (fragm., LE)).

Recent synonyms: *P. cambogiense*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 3–120 cm tall, 5–8 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1.5–2 mm long. Leaf-blades linear or lanceolate, 7–25 cm long, 6–15 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 15–50 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 1.5–2.6 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–9 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 1.3–2.5 mm long, membranous, without keels, 7–11 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–9 -nerved, mucronate.

Fertile lemma 1.3–2.2 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.4 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Diagnostic features of *P. luzonense* include the anastomosing nerves on the glumes and lower lemma, spikelet length, presence of a lower palea and the hairy sheaths.

Introduced. Occurs in the Darwin area of the N.T. as a weed in rice fields. Geobotanical distribution: Arnhem. Native to India and Malesia. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Jan.-May.

Panicum miliaceum* L. *Sp. Pl.* 1: 58 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: India (LINN-80.49). LT designated by Sherif & Siddiqi, *Fl. Libya* 145: 282 (1988).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (257), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (463), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (316).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (464, Fig. 397), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (316).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 20–120 cm tall, 4–8 -noded. Mid-culm internodes glabrous or pubescent or hispid. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 1.5–3 mm long. Leaf-blades linear, 10–30 cm long, 6–15(–20) mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle obovate, 5–25 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 4–5.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 3.8–5.3 mm long, membranous, without keels, 7–13 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–11 -nerved, muticous.

Fertile lemma 3–4.5 mm long, without keel. Lemma apex muticous.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Warren, Avon. **South Australia:** Eastern, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Mitchell, Moreton, Port Curtis, Warrego, Wide Bay, Darling Downs. **New South Wales:** North Coast, Central Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains, North Far Western Plains, South Far Western Plains. **Tasmania:** No region given.

Notes. Introduced. Native to Asia and Europe where the grain is used for human consumption. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and eucalypt shrublands. Widely introduced and planted as a forage species. Frequently escapes in temperate regions and occurs as a weed in disturbed habitats. Flowers Jan.-May.

Panicum mindanaense Merrill. *Philipp. J. Sci.* 1: 360 (1906). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *M.S. Clemens* 99, Jan 1906, Philippines: Mindanao I., Lanao del Sur prov. (US-709327; IT: B, PNH, US-850166, US-3414719 (ex NEB)).

Recent synonyms: *P. delicatum*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (257 as *P. delicatum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (472), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 20–80 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades linear, 3–18 cm long, 1.5–4.5 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 10–30 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 2–3.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 3–7 -nerved. Lower glume apex mucronate. Upper glume lanceolate or ovate, 2–2.8 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved, muticous.

Fertile lemma 1.4–2.8 mm long, without keel, 5–7 -nerved. Lemma apex muticous. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, North Kennedy, Mitchell.

Notes. Diagnostic features include the relatively long lower glume, spikelet length, and the filiform and lax primary branches. It is very similar to *P. seminudum*.

Native. Occurs across the tropics and subtropics of northern Australia and into New Guinea. New Guinea. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, coastal grasslands, and tropical sub-humid grasslands. Flowers throughout the year.

Panicum mitchellii Benth. *Fl. Austral.* 7: 489 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *P.A. O'Shanesy s.n.*, 1876, Australia: Queensland: Rockhampton (L). ST: *J. Dallachy s.n.*, 1868, Australia: Queensland: Rockingham Bay (L).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (489), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 100–200 cm tall, 4–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.8–1.5 mm long. Leaf-blades linear, 10–50 cm long, 6–14 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 20–40 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 2.3–2.8 mm long, membranous, without keels, 7 -nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved, muticous or mucronate.

Fertile lemma 2–2.5 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy, South Kennedy, Port Curtis, Burnett.

Notes. A robust erect perennial. An examination of the lectotype is needed before a confident evaluation of the taxon is made.

In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Limited in distribution. Flowers May–Sept.

Panicum novemnerve* Stapf. *Fl. Trop. Afr.* 9: 702 (1920). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Allen* 692, "Mozambique Distr. Rhodesia: Mashonaland; Salisbury, ..." ST: *Mrs. Craster* 27, "Mozambique Distr. Rhodesia: Mashonaland; Salisbury, ..." ST: *Mundy*, "N. Mazoe District, ..." ST: *Appleton* 6, "Buluwayo and Matoppos Hills".

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons present. Culms decumbent, 30–120 cm tall, 5–8 -noded. Mid-culm internodes hirsute. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades linear or lanceolate, 3–20 cm long, 4–15 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–27 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2–2.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 2–2.5 mm long, membranous, without keels, 7–11 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, mucronate.

Fertile lemma 1.6–2.2 mm long, without keel. Lemma apex muticous.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland.

Queensland: Burnett.

Notes. Diagnostic features include spikelet length, the dark brown upper floret with pronounced nerves on the 9–11-nerved upper glume.

Introduced. In tropical and subtropical sub-humid woodlands. Rarely collected in SE Qld. Flowers Feb.-May.

Panicum obseptum Trin. *Gram. Pan.* 149 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia, Port Jackson: Woolls (CGE holo).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (486), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (317).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (317).

Habit. Perennial. Rhizomes absent. Culms decumbent, stature slender to delicate, 10–30 cm tall, compressible, 5–10 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.5–0.75 mm long. Leaf-blades linear, 1–10 cm long, 1.25–5 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 1.5–6 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2.7–3.25 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong or ovate or oblate, membranous, without keels, 0–1 -nerved. Lower glume apex muticous. Upper glume ovate, 2.7–3.2 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–9 -nerved, muticous.

Fertile lemma 2.3–2.6 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands. **Victoria:** Midlands.

Notes. Diagnostic features include the decumbent perennial habit, the racemose primary branches, the relatively short lower glume and the semi-aquatic growth habit. The reduced form of the inflorescence is similar to many species of *Urochloa*.

Introduced to Victoria. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers mostly Oct.-May.

Panicum paludosum Roxb. *Fl. Ind. ed. Carey* 1: 310 (1820). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: India:, *Roxburgh 806* (HT: BM; IT: CAL, K(icon. ined. 806)) 'It grows generally in sweet water amongst the Circar mountains.'

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (317).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (317).

Habit. Perennial. Rhizomes absent or present. Stolons present. Culms erect or geniculate ascending or decumbent, 25–130 cm tall, spongy, 3–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades linear or lanceolate, flat, 7–30 cm long, 5–15 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 10–30 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.2–4.1 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate or orbicular, hyaline, without keels, 0–3 -nerved. Lower glume apex muticous. Upper glume lanceolate or ovate, 3.1–4 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9 -nerved, muticous.

Fertile lemma 2.25–2.7 mm long, without keel. Lemma apex muticous. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf, Victoria River. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy, Leichhardt. **New South Wales:** North Coast.

Notes. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Flowers throughout the year.

Panicum pygmaeum R. Br. *Prodr.* 191 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: IT: *R. Brown s.n.*, 1803–1805, Australia: New South Wales (US-2830923 (fragm.)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197), [1878] G.Bentham, *Flora Australiensis* 7 (484), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (317).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (317).

Habit. Perennial. Rhizomes absent. Stolons present. Culms decumbent, stature slender to delicate, 8–29 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades spreading, linear or lanceolate, 1–4.5 cm long, 1–6 mm wide. Leaf-blade surface smooth or scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–8 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 1.7–2.3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 1.7–1.9 mm long, membranous, without keels, 5(–7) -nerved. Upper glume surface smooth or asperulous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, mucronate.

Fertile lemma 1.5–1.9 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Moreton, Wide Bay, Cook. **New South Wales:** North Coast, Central Coast, Northern Tablelands.

Notes. In tropical heaths, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers Jan.-May.

Panicum queenslandicum Domin. *Repert. Spec. Nov. Regni Veg* 10: 58 (1911). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Hartmann in Herb. von Mueller*, 1877, (PR; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (317).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (317).

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 30–80 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1 mm long. Leaf-blades linear, convolute, 10–35 cm long, 1–4 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–35 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 3–7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 3–5 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 3.3–4.8 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved, muticous.

Fertile lemma 2.3–3.5 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, Warrego, North Kennedy. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Diagnostic features of this interesting species include the digitate lowermost primary branches, upper floret with a minute stipe, and the protruding base of the upper palea. A minute flat stipe can frequently be observed, this structure and the protruding palea suggest an affinity with *Yakirra* and *Ichnanthus*.

Infra -specific taxa: var. **queenslandicum**, var. **acuminatum**.

Spikelets 3–4.5 mm long; fertile floret 2.5–2.75 mm long **P. queenslandicum** var. **queenslandicum**

Spikelets 5–7 mm long; fertile floret 3–3.5 mm long **P. queenslandicum** var. **acuminatum** .

Panicum. queenslandicum var. **queenslandicum** **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Queensland, New South Wales, Victoria.

Notes. The rachilla between the florets is not pronounced, however, a minute flat stipe can frequently be observed. This structure and the protruding palea suggest an affinity with *Yakirra* and *Ichnanthus*.

Qld and N.S.W. In dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Nov.-June.

Panicum queenslandicum var. **acuminatum** Vickery. *Contr. New South Wales Natl. Herb.* 1: 334 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Type of Basionym or Protologue Information: New South Wales: Glen Innes, H. Wenholtz 8211, 3.1913 (HT:NSW ; IT:K).

Australian Distribution: Queensland, New South Wales.

Notes. This variety is similar to the typical variety but has distinctly longer spikelets.

Qld and N.S.W. In dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands.

Panicum racemosum* (Beauv.) Spreng. *Syst. Veg.* 1: 313 (1852). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Monachne racemosa* P. Beauv., *Ess. Agrostogr.* 168, t. 10, f. 10 (1812).

Type of Basionym or Protologue Information: HT: *Commerson s.n.*, Uruguay: Montevideo (P).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (318).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (318).

Habit. Perennial. Rhizomes absent or present, elongated. Stolons present. Culms 45–100 cm tall, 1.4–3 mm diam., 7–35 -noded. Mid-culm internodes glabrous. Mid-culm nodes bearded. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1.5–2.5 mm long. Leaf-blades aciculate or linear, convolute, 23–70 cm long, 0.6–5 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10.5–29 cm long, evenly furnished or contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4.5–8 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate or obovate, membranous, without keels, 5–9 -nerved. Lower glume surface indumented. Upper glume ovate, 4–5 mm long, membranous, without keels, 9–12 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9–10 -nerved, muticous.

Fertile lemma 4–4.3 mm long, without keel. Lemma apex muticous.

Continental Distribution: Australasia (*), or South America.

Australian Distribution: New South Wales, Victoria.

New South Wales: Central Coast. **Victoria:** Volcanic Plain, Gippsland Plain.

Notes. Introduced. Flowers Dec.

Panicum repens* L. *Sp. Pl.* 2: 87 (1762). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Spain:, *Alstroemer s.n.* (LT: LINN-80.74).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (484), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (318).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (318).

Habit. Perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 30–100 cm tall, 7–15 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliate membrane. Leaf-blades erect, linear, flat or convolute, 5–25 cm long, 2–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 5–25 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.2–3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate or obovate, hyaline, without keels, 0(–3) -nerved. Upper glume elliptic or ovate, 2.2–3 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, mucronate.

Fertile lemma 1.9–2.5 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland, New South Wales, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Burnett, Moreton. **New South Wales:** North Coast, Central Coast, Central-Western Slopes, North-Western Plains.

Notes. Diagnostic features include the pronounced scaly rhizomes, spikelet length and pronounced lower palea.

Introduced. Occurs on sandy coastal areas in the Mediterranean region and the tropics and subtropics. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. It is widely introduced and its place of origin is uncertain. Flowers Oct.-Dec.

Panicum schinzii* Hack. ex Schinz. *Verh. Bot. Vereins Prov. Brandenburg* 30: 142 (1888). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *H. Schinz 641*, 1886, Namibia: Olukonda (Z: IT: W(fragm., US-81101)). CS.

Recent synonyms: *P. laevifolium*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (260 as *P. laevifolium*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (464), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (318).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (464, Fig. 398), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (318).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending or decumbent, 30–120 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades linear, 8–40 cm long, 4–15 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 10–35 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 2.3–3 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate or obovate, membranous, without keels, 0–1 -nerved. Lower glume apex muticous. Upper glume elliptic or ovate, 2.2–3 mm long, membranous, without keels, 7–11 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved, muticous.

Fertile lemma 2–2.5 mm long, without keel. Lemma apex muticous.

Continental Distribution: Africa, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Drummond, Avon. **South Australia:** Murray, Southern Lofty, South-eastern. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Diagnostic features that distinguish it from similar Australian species include the male lower floret, the subequal florets, and the obscure nerves on the upper floret.

Introduced. Native to SW Africa and introduced in India and Australia. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, temperate sub-humid woodlands, and eucalypt shrublands. Flowers Dec.-May.

Panicum seminudum Domin. *Biblioth. Bot.* 85: 320 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Domin 1/1910*, Jan 1910, Australia: Queensland (PR; IT: K (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, 40–90 cm tall, 2–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliate membrane, 0.8–1.5 mm long. Leaf-blades linear, 4–30 cm long, 3–9 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 15–30 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3.1–3.7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 3–5 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 2.8–3.5 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, muticous.

Fertile lemma 1.9–2.2 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. A variable species and more collections are needed before the various forms can be defined. Specimens with hairy leaves are named *P. seminudum* var. *cairnsianum*, however, there seems to be a gradual transition between the hairy and glabrous forms.

Native. Occurs across the tropics and subtropics of northern Australia and into New Guinea. New Guinea. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Flowers Mar.-July.

Infra-specific taxa: var. **seminudum**, var. **cairnsianum**.

Leaves glabrous **P. seminudum** var. **seminudum**

Leaves hairy **P. seminudum** var. **cairnsianum**

Panicum seminudum var. **seminudum** **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Panicum. seminudum var. **cairnsianum** Domin. *Biblioth. Bot.* 85: 320, f. 74 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Type of Basionym or Protologue Information: Nordost-Queensland: bei Cairns ...", Domin, XII. 1909.

Australian Distribution: Northern Territory, Queensland.

Panicum simile Domin. *Biblioth. Bot.* 85: 322 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: "Queensland: Sandhügel der Dividing Range östlich von Pentland; Savannenwälder bei Pentland.", *Domin, II. 1910.*

Recent synonyms: *P. fulgidum*, *P. effusum* var. *simile*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197 as *Panicum bicolor*), [1878] G.Bentham, *Flora Australiensis* 7 (487as *Panicum bicolor*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (318).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (318).

Habit. Annual. Rhizomes present. Stolons absent. Culms erect, stature slender to delicate, 20–70 cm tall, wiry, 2–4 -noded. Mid-culm internodes glabrous or pilose. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 0.25 mm long. Leaf-blades flat or involute, 3–15 cm long, 1–3.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–20 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2.25–3.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 2.2–2.8 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 90–100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1.7–2.5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales, Victoria.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, North-Western Slopes. **Victoria:** East Gippsland.

Notes. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, tropical and subtropical sub-humid woodlands, acacia shrublands, and eucalypt shrublands.

Panicum trachyrhachis Benth. *Fl. Austral.* 7: 490 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Elseya s.n.*, Australia: Port Darwin LT: *Schultz 343*, Australia: Port Darwin (K). LT designated by Veldkamp, *Blumea* 41: 207 (1996). ST: *M'Kinlay s.n.*, Australia: Arnhem's Land.

Recent synonyms: *Panicum robustum* B.K.Simon, *Austrobaileya* 3: 598 (1992).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, stature robust to moderate, 60–180 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe

of hairs, a ciliate membrane, 1.2–3 mm long. Leaf-blades linear, flat or involute, 12–45 cm long, 3–7 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 30–65 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 3.75–4 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Lower glume apex awned. Upper glume lanceolate, 2.9–3.7 mm long, membranous, without keels, 7 -nerved. Upper glume apex mucicous or awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9 -nerved, mucronate.

Fertile lemma 2.1–2.4 mm long, without keel. Lemma apex mucicous. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, North Kennedy.

Notes. The lower leaves are terete with spongy tissue on the adaxial surface whereas the upper leaves lack this modification. The upper floret has a poorly formed stipe at the base. At maturity, this stipe swells and resembles that found in *Yakirra*. The base of the palea of the upper floret protrudes as in *Ichmanthus*. Close relatives of *P. trachyrachis* include *P. queenslandicum*, *P. seminudum* and *Y. nulla*.

New Guinea. In tropical and subtropical sub-humid woodlands, coastal grasslands, and tropical sub-humid grasslands. Occurs in semi-aquatic or aquatic habitats in the tropics and subtropics of northern Australia and New Guinea. Frequently grows as a weed in rice paddocks. Flowers throughout the year.

Panicum trichoides* Sw. *Prodr. Veg. Ind. Occ.* 24 (1788). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *O.P. Swartz s.n., left-hand specimen*, Jamaica (S; ILT: US-81153 (fragm. ex S)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 140 (1908).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (485), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Stolons present. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 15–100 cm tall, 3–11 -noded. Mid-culm internodes pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane. Leaf-blades lanceolate or ovate, 1.5–8 cm long, 5–20 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 4–20 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 1–1.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Lower glume surface indumented. Lower glume apex mucicous. Upper glume elliptic or ovate, 1–1.3 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–5 -nerved, mucicous.

Fertile lemma 0.8–1.3 mm long, without keel. Lemma apex mucicous.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Leichhardt, North Kennedy, Burke, Port Curtis.

Notes. Diagnostic features include spikelet length, the muricate upper floret, the acute to rounded upper glume and lower lemma with recurved margins, and the vestigial lower palea.

Native (?). Occurs in the Americas from Mexico to Brazil. It is widespread in tropical Asia and introduced into tropical Africa. In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. *Panicum trichoides* grows well in moist, shaded forested areas at lower elevations. Flowers Feb.-Sept.

Paractaenum novae-hollandiae Beauv. *Ess. Agrostogr.* 47, t. 10, f. 6. 1812.

. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Leschenault s.n.*, Australia: Iles Steriles [probably Shark's Bay], 1802 (BM).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (246), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (482), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (465), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (319).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (247, Pl. 73), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (465, Fig. 399 as subsp. *reversum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (319).

Habit. Annual. Culms erect or decumbent, 20–60 cm tall. Ligule a fringed membrane, a ciliolate membrane, 0.8–3 mm long. Leaf-blades 3–19 cm long, 2–8 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–12, deflexed or spreading, 1–6 cm long, bearing 1–4 fertile spikelets on each. Central inflorescence axis 5–24 cm long. Rhachis deciduous from axis.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2.6–6.1 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–7 -nerved. Upper glume ovate, 2.6–6.1 mm long, membranous, without keels, 11–13 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9–13 -nerved.

Fertile lemma 2.4–5.8 mm long, without keel. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Kertland, Helms, Fortescue, Carnarvon. Irwin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Gregory North, Gregory South, Warrego. **New South Wales:** North Far Western Plains.

Notes. Infra-specific taxa: subsp. *novae-hollandiae*, subsp. *reversum*.

Spikelets to 3.7 mm long; upper lemma apically recurved **P. novae-hollandiae** subsp. *novae-hollandiae*

Spikelets more than 3.9 mm long; upper lemma not apically recurved **P. novae-hollandiae** subsp. *reversum*

Paractaenum novae-hollandiae subsp. novae-hollandiae

Australian Distribution: Western Australia.

Notes. The relative sizes of spikelets and spikelet parts vary greatly from the base to the apex of a primary branch. The preceding description excludes the basal spikelet.

W.A. In shrub steppe shrublands and arid hummock grasslands. Flowers June-Sept.

Paractaenum. novae-hollandiae subsp. reversum (F. Muell.) R.D. Webster. *Austral. Paniceae* 147 (1987).

Classification. Basionym and/or Replacement Name: *Panicum reversum* F. Muell., *Fragm.* 8: 152 (1874).

Type of Basionym or Protologue Information: IT: W.E.P. Giles s.n., no date, Australia: Northern Territory (US-1127122 (fragm.)).

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Notes. N.T., S.A., Qld, and N.S.W. In shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers sporadically throughout the year, mostly Mar.-Aug.

Paraneurachne muelleri (Hack.) S. T. Blake. *Contr. Queensland Herb.* 13: 21 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Basionym and/or Replacement Name: *Neurachne muelleri* Hack., *Prodr.* 196 (1810).

Type of Basionym or Protologue Information: Australia: *Mueller* (W holo, MEL).

Recent synonyms: *Neurachne muelleri*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (271 as *Neurachne clementii*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (486), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (502).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (503, fig. 432).

Habit. Perennial. Stolons present. Culms erect, 15–45 cm tall, 0.7–1.2 mm diam. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades 1–12 cm long, 2–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong, 2.7–3.5 cm long, 1.5–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 7.4–12 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume apex awned. Upper glume ovate, 7.4–12 mm long, coriaceous, without keels, 11–13 -nerved. Upper glume surface indumented. Upper glume apex awned. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 75 % of length of spikelet, coriaceous, much thinner above, 7 -nerved.

Fertile lemma 5.5–7 mm long, without keel, 5–7 -nerved. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.1–3.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Kertland, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burke, South Kennedy, Gregory North, Gregory South, Mitchell.

Notes. In arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers Feb.-Aug.

Parapholis incurva* (L.) C.E.Hubb. *Blumea Suppl.* 3: 14 (1946). **Classification.** (GPWG 2001) : Subfamily Pooideae.

Basionym and/or Replacement Name: *Aegilops incurva* L., *Sp. Pl.* 2: 1051 (1753).

Type of Basionym or Protologue Information: LT: (LINN-1218.11). LT designated by Cuccuini in Cafferty et al., *Taxon* 49(2): 243 (2000).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (668 as *Lepturus incurvatus*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (190), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (424), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (141), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (320), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (348).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (189, Pl. 55), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (140, Fig. 94), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (199), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (320), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (350, Fig. 47).

Habit. Annual. Culms geniculately ascending, 2–49 cm tall. Ligule an eciliate membrane, 0.5–1 mm long. Leaf-blades 0.4–6.5 cm long, 0.4–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, incurved, smoothly terete, 1–11 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4–8.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 3–5 -nerved. Upper glume lanceolate, 4–8.5 mm long, coriaceous, without keels, 3–5 -nerved.

Florets. Fertile lemma 3.4–5.5 mm long, without keel, 1(–3) -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Lake Eyre, Nullabor, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, East Coast.

Notes. Introduced. Native to the Mediterranean and western Europe. Saline soils subject to flooding, or coastal sandy and rocky places. Flowers Sept.-Dec. Fruits Oct.-Dec.

Parapholis strigosa* (Dum.) C.E.Hubb. *Blumea* Suppl. 3: 14 (1946). **Classification.** (GPWG 2001) : Subfamily Pooideae.

Basionym and/or Replacement Name: *Lepturus strigosus* Dumort., *Observ. Gramin. Belg.* 146 (823) [1824].

Type of Basionym or Protologue Information: Belgium.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (320), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (349).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (320), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (350, Fig. 47).

Habit. Annual. Culms geniculately ascending, 5–48 cm tall. Ligule an eciliate membrane, 0.3–1 mm long. Leaf-blades 1–12.5 cm long, 0.4–2.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, straight, smoothly terete, 1–20 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 3–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 3–5 -nerved. Upper glume lanceolate, 3–7 mm long, coriaceous, without keels, 3–5 -nerved.

Florets. Fertile lemma 2.5–5.5 mm long, without keel, 1–3 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Australasia, and North America.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Lowan Mallee, Murray Mallee, Otway Plain, Wilsons Promontory, Riverina, Volcanic Plain, Wannon. **Tasmania:** North West, North East.

Notes. Introduced. Native to the coasts of western Europe and the Mediterranean. Usually on coastal dunes and saltmarshes. Flowers Sept.-Jan. Fruits Feb. ?.

Paspalidium albobillosum S. T. Blake. *Proc. Roy. Soc. Queensland* 62: 96 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 10947*, 31 Mar 1936, Australia: Queensland: Maranoa Dist. (BRI; IT: CANB, L, US-2726312).

Recent synonyms: *P. radiatum* var. *hirsutum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (322).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (322).

Habit. Perennial. Rhizomes present. Culms erect, stature slender to delicate, 20–70 cm tall, compressible, 3–8 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane or a fringe of hairs, 0.5–1 mm long. Leaf-blades 3.5–15 cm long, 1–4.5 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 6–10, appressed, flexuous, 1–3 cm long, 1.5–2.5 mm wide, bearing 8–15 fertile spikelets on each. Central inflorescence axis 8–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, laterally compressed or terete, 1.5–1.9 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, membranous, without keels, 0–3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume elliptic or orbicular, 1.4–1.6 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.4–1.9 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers Feb.-Sept.

Paspalidium aversum Vickery. *Contr. New South Wales Natl. Herb.* 1: 331 (1950). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Tamworth, 18 Feb 1941, *T. P. May s.n.* (HT: NSW-8982).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (322).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (201), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (322).

Habit. Perennial. Rhizomes absent. Culms geniculately ascending or decumbent, stature slender to delicate, 40–90 cm tall, compressible, 4–6 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades 8–25 cm long, 3–9 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, flexuous, 1–7 cm long, 3–5 mm wide, bearing 9–20 fertile spikelets on each. Central inflorescence axis 9–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.5–2.75 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume oblong, 2.2–2.6 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.1–2.75 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Darling Downs, Moreton, Port Curtis, Warrego, Wide Bay, North Kennedy, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains.

Notes. The taxonomic relationship among *P. aversum*, *P. distans*, *P. radiatum*, *P. disjunctum* and *P. breviflorum* is presently poorly understood and a critical analysis of this group is needed. The characters used by Blake and Vickery could not be consistently applied.

In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, temperate sub-humid woodlands, and semi-arid shrub woodlands.

Paspalidium basi cladum D.K.Hughes. *Bull. Misc. Inform.* 318 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Stoward 200*, Australia: Western Australia: Kiminoppin ST: *Stoward 139*, Australia: Transcontinental Railway, east of Coolgardie ST: *Drummond s.n.*, Australia.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (477 as *Setaria*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (477, fig. 409 as *Setaria*).

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending or decumbent, 20–70 cm tall, 3–6 -noded. Mid-culm internodes hollow or spongy, glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.8–1.2 mm long. Leaf-blades flat or conduplicate, (4.5–)6–12(–18) cm long, (2–)3(–6) mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, 2–4.5 cm long, 1.5–2.5 mm wide, bearing 9–20 fertile spikelets on each. Central inflorescence axis 8–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic, 2.3–2.8 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.3–2.8 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty. **Queensland:** Burke, Gregory North.

Notes. This species is closely related to *P. clementii* but generally differs in larger vegetative parts and spikelet structures. It is also related to *P. gracile* but differs in the annual habit and lacks the very pronounced constriction at the spikelet base. The lowermost primary branches are generally well formed in *P. basicladum* whereas in *P. gracile* the lowermost primary branch is typically a short cluster of spikelets.

In shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Feb.-Aug.

Paspalidium breviflorum

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (322).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (322).

Australian Distribution: Queensland, New South Wales.

Queensland: Port Curtis, Leichhardt, Maranoa.

Paspalidium caespitosum C.E.Hubb. *Bull. Misc. Inform.* 446 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Darling Downs Dist.: near Goondiwindi, May 1933, *Hirschfield s.n.* (HT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (322).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (322).

Habit. Perennial. Rhizomes present. Culms erect, stature slender to delicate, 20–70 cm tall, 3–7 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.5 mm long. Leaf-blades involute or convolute, 8–25 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 7–10, appressed, flexuous, 0.9–2.5 cm long, 2–3 mm wide, bearing 10–25 fertile spikelets on each. Central inflorescence axis 8–21 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 1.8–2.2 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, membranous, without keels, 1–3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic, 1.5–1.8 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.7–2.2 mm long, without keel, 5 -nerved. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North-Western Plains.

Notes. Closely related to *D. distans*.

In Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, and arid tussock grasslands. Flowers mostly Feb.-Sept.

Paspalidium clementii (Domin) C.E.Hubb. *Bull. Misc. Inform.* 447 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum clementii* Domin, *J. Linn. Soc., Bot.* 41: 272 (1912).

Type of Basionym or Protologue Information: N.W. Australia: inter fl. Ashburton et Yule, *Dr. E. Clement. s.n.*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (249), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (478 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (323).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (478, Fig. 410 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (323).

Habit. Annual. Rhizomes absent. Culms geniculately ascending, stature slender to delicate, 10–40 cm tall, 3–7 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.5 mm long. Leaf-blades 5–12 cm long, 2–4.5 mm wide. Leaf-blade surface scaberrulous or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, appressed, flexuous, 1.5–4 cm long, 2–3 mm wide, bearing 8–20 fertile spikelets on each. Central inflorescence axis 3–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 1.8–2.4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex mucous. Upper glume elliptic, 1.7–2.4 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.8–2.4 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Gregory North, North Kennedy, Gregory South. **New South Wales:** North Far Western Plains.

Notes. Most closely related to *P. basicladium*.

In shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Commonly collected in rock crevices of gorges. Flowers mostly Apr.-Sept.

Paspalidium constrictum (Domin) C.E.Hubb. *Bull. Misc. Inform.* 447 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum constrictum* Domin, *Biblioth. Bot.* 85: 302 (1915).

Type of Basionym or Protologue Information: Queensland: Savannenwalder bei Pentland, *Domin II* 1910.

Recent synonyms: *P. gracile* var. *rugosum*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (478 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (323).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (479, fig. 411 & plate 17 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (323).

Habit. Perennial. Rhizomes absent or present. Culms erect or decumbent, 10–60 cm tall, 4–7 -noded. Mid-culm internodes solid or spongy, pubescent. Mid-culm nodes pubescent. Lateral branches sparsely branched or branched. Leaf-sheaths antrorsely scabrous, glabrous on surface or hairy. Ligule a fringed membrane or a fringe of hairs, 1.25 mm long. Leaf-blades 6–15 cm long, 1–4 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, 0.45–3 cm long, 1.5–3 mm wide, bearing 5–12 fertile spikelets on each. Central inflorescence axis 6–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.25–3.6 mm long. Rachilla internodes elongated between glumes, elongated below basal sterile floret, and elongated below proximal fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, membranous, without keels, (3–)5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume orbicular, 2.1–2.9 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.25–3.5 mm long, without keel. Lemma apex muticous.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Helms. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Cook. **New South Wales:** Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Murray Mallee, Riverina, Volcanic Plain.

Notes. *Paspalidium constrictum* is closely related to and often confused with *P. gracile*. Further studies may show that the two are conspecific.

In semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, eucalypt shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Apr.-Aug.

Paspalidium criniforme S. T. Blake. *Proc. Roy. Soc. Queensland* 62: 98 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: IT: *S.T. Blake* 5282, 10 Mar 1934, Australia: Queensland, Moreton, Brisbane (L).

Recent synonyms: *P. gracile* var. *debile*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (323).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (322).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 10–60 cm tall, 4–7 -noded. Mid-culm internodes solid or spongy, glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth, glabrous on surface or hairy. Ligule a fringed membrane or a fringe of hairs, 0.3–0.5 mm long. Leaf-blades flat or involute, 3–12 cm long, 1–3 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–6, appressed, flexuous, 0.5–2 cm long, 1–3 mm wide, bearing 3–10 fertile spikelets on each. Central inflorescence axis 2.5–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2–2.3 mm long. Rhachilla internodes elongated between glumes, elongated below basal sterile floret, and elongated between basal sterile florets.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume elliptic, 1.8–2.2 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.9–2.3 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Moreton, Port Curtis, Wide Bay, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Plains.

Notes. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Feb.-July.

Paspalidium distans (Trin.) D.K.Hughes. *Bull. Misc. Inform.* 317 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum distans* Trin., *Sp. Gram.* 2(15): , t. 172 (1829).

Type of Basionym or Protologue Information: LT: *R. Brown* 6098, Australia (BM; IT: BRI (photo), K). LT designated by Blake, *Proc. Royal Soc. Queensland* 84: 66–67 (1973); cited in Veldkamp, *Blumea* 39: 376 (1994).

Recent synonyms: *P. radiatum*, *P. disjunctum* S.T.Blake, *Proc. Roy. Soc. Queensland* 84: 65 (1973); *P. scabrifolium* S.T.Blake, *Proc. Roy. Soc. Queensland* 84: 69 (1973).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (323).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (323).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending, stature slender to delicate, 30–70(–100) cm tall, 2–5 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaves basal and cauline. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.5 mm long. Leaf-blades (5–)8–12(–18) cm long, 1–6.5 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–10, appressed, 0.5–3 cm long, 2–3 mm wide, bearing (4–)12(–20) fertile spikelets on each. Central inflorescence axis 6–16 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 1.7–2.2 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate to oblate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume ovate, 1.5–1.9 mm long, membranous, without keels, 5–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.8–2.2 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, North-Western Plains.

Notes. Specimens from northern areas generally have a relatively short upper glume.

In tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and arid and semi-arid low woodlands. Flowers mostly Mar.-Aug.

Paspalidium flavidum (Retz.) A.Camus. *Fl. Indo-Chine* 7: 419 (1922). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum flavidum* Retz., *Observ. Bot.* 4: 15 (1786).

Type of Basionym or Protologue Information: Sri Lanka:, *König. s.n. (in Herb. Retz.)* (HT: LD).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum flavidum*), [1878] G.Bentham, *Flora Australiensis* 7 (474 as *Panicum flavidum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending, 10–100 cm tall, 3–5 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Lateral branches sparsely branched. Ligule a fringed membrane or a fringe of hairs. Leaf-blades 4–20 cm long, 4–8 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–9, appressed, 1–3 cm long, 5–6 mm wide, bearing 5–8 fertile spikelets on each. Central inflorescence axis 7–30 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed or terete, 1.9–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume orbicular, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume orbicular, 1.8–2 mm long, cartilaginous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 5 -nerved.

Fertile lemma 1.8–3 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy, Port Curtis.

Notes. The presence of a well-developed palea of the lower floret and divergent spikelets distinguishes it from *P. jubiflorum*. *Paspalidium flavidum* is closely related to *P. aversum* and *P. gausum*.

Common in tropical Asia. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Known from only a few collections in Australia. Flowers Apr.-Sept.

Paspalidium johnsonii B.K. Simon ms. *Flora of Australia* 44C. **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Queensland.

Queensland: Burke.

Paspalidium gausum S. T. Blake. *Proc. Roy. Soc. Queensland* 84: 68 (1973). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: prope Burpengary, *S.T. Blake 19914* (HT: BRI-131641-2).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (324).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (324).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 35–80 cm tall, wiry, 2–4 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Ligule a fringed membrane, a ciliate membrane, 0.5 mm long. Leaf-blades flat or conduplicate, 7–24 cm long, 2–9 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–5, appressed, 0.5–3.5 cm long, 4–6 mm wide, bearing 9–20 fertile spikelets on each. Central inflorescence axis 10–24 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, terete or dorsally compressed, 2.5–3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume orbicular, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume elliptic, 2.2–2.6 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.3–2.9 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy. **New South Wales:** North Coast.

Notes. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers Mar.-May.

Paspalidium globoideum (Domin) D.K.Hughes. *Bull. Misc. Inform.* 317 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum globoideum* Domin, *Repert. Spec. Nov. Regni Veg.* 10: 119 (1911).

Type of Basionym or Protologue Information: LT: *Wuth. s.n.*, Queensland: Springsure (K). LT designated by ?; cited by Webster, *Sida* 16: 443 (1995).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (324).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (324).

Habit. Perennial. Rhizomes present, short. Culms erect, 25–80 cm tall, 3–10 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth or scaberulous. Ligule a fringed membrane, a ciliate membrane, 0.75 mm long, truncate. Leaf-blades 6–25 cm long, 3–6 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, flexuous, 1.5–6 cm long, 3–5.5 mm wide, bearing 5–20 fertile spikelets on each. Central inflorescence axis 7–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, orbicular, terete or dorsally compressed, 3–4.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–9 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume orbicular, 3–4 mm long, membranous, without keels, 9–13 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 9–11 -nerved.

Fertile lemma 3–4.5 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Port Curtis, Warrego, North Kennedy, South Kennedy, Moreton. **New South Wales:** North-Western Slopes, North-Western Plains.

Notes. In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Feb.-June.

Paspalidium gracile (R.Br.) D.K.Hughes. *Bull. Misc. Inform.* 318 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum gracile* R. Br., *Prodr.* 190 (1810).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum gracile*), [1878] G.Bentham, *Flora Australiensis* 7 (475 as *Panicum gracile*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (249), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (324).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (247, Pl. 73), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (324).

Habit. Perennial. Rhizomes present, short. Culms erect, 10–90 cm tall, wiry, 5–10 -noded. Mid-culm internodes solid or spongy, glabrous or pubescent. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane or a fringe of hairs, 1–1.25 mm long. Leaf-blades filiform, convolute, 7–14 cm long, 1–4 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, appressed, 1–3 cm long, 1.5–4 mm wide, bearing 5–12 fertile spikelets on each. Central inflorescence axis 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, laterally compressed or dorsally compressed, 2–3.2 mm long. Rhachilla internodes elongated between glumes, elongated below basal sterile floret, and elongated between basal sterile florets.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume orbicular, 1.9–2.7 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Austin. Eucla, Coolgardie. **Northern Territory:** Barkly Tableland. **South Australia:** Nullabor, Eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Gippsland Plain.

Notes. The distinction among *P. gracile*, *P. constrictum* and *P. criniforme* seems arbitrary.

In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, and arid tussock grasslands. Flowers mostly Mar.-July.

Paspalidium grandispiculatum B.K.Simon. *Austrobaileya* 1: 465 (1982). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: 14 km N of Helidon, *Peart 1990* (HT: BRI-255048; IT: BRI, CANB, K, L, MO, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (324).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (324).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 40–150 cm tall, woody, 4–9 -noded. Mid-culm internodes hollow, pruinose or glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 1 mm long. Leaf-blades flat or conduplicate, 3.5–9 cm long, 2–5 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–8, appressed, 0.5–4.5 cm long, 3–4 mm wide, bearing 3–8 fertile spikelets on each. Central inflorescence axis 8–22 cm long.

Spikelets. Spikelets pedicelled. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5–4.8 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, scarious, without keels, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic, 3.3–3.9 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3–4.6 mm long, without keel, 5–7 -nerved. Lemma apex mucronate. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Moreton.

Notes. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Flowers Feb.–Nov.

Paspalidium jubiflorum (Trin.) D.K.Hughes. *Bull. Misc. Inform.* 317 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum jubiflorum* Trin., *Gram. Panic.* 130 (1826).

Type of Basionym or Protologue Information: HT: *Lindley s.n.*, Australia (CGE?).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (248), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (478), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (481 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (325).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (481, fig. 414 as *Setaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (325).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending or decumbent, 30–120 cm tall, 4–7 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades 7–25 cm long, 2.5–10 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 6–16, appressed, flexuous, 1–4 cm long, 4–6 mm wide, bearing 13–50 fertile spikelets on each. Central inflorescence axis 8–36 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, laterally compressed or dorsally compressed, 2.4–3.1 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume orbicular, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume elliptic, 2.3–2.9 mm long, membranous, without keels, 5–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.3–3 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Fortescue, Ashburton, Carnarvon. Irwin. **Northern Territory:** Darwin & Gulf, Victoria River. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, South Kennedy, Warrego, North Kennedy, Gregory South. **New South Wales:** North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. Presence of a flat membranous margin on the upper lemma makes this species unique. It is closely related to *P. flavidum*.

In Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Mar.–Aug.

Paspalidium rarum (R.Br.) D.K.Hughes. *Bull. Misc. Inform.* 318 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum rarum* R. Br., *Prodr.* 189 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6100*, 1803, Australia (BM; IT: US-80953 (fragm.)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (189 as *Panicum rarum*), [1878] G.Bentham, *Flora Australiensis* 7 (473 as *Panicum rarum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (250), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (479), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (325).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (325).

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending or decumbent, 15–45 cm tall, 3–10 -noded. Mid-culm internodes hollow. Lateral branches sparsely branched or fastigiate. Ligule a fringed membrane or a fringe of hairs. Leaf-blades flat or conduplicate, 3–19 cm long, 1–3.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 10–20, appressed, 0.3–0.9 cm long, 3–4 mm wide, bearing 1–3(–4) fertile spikelets on each. Central inflorescence axis 5–13 cm long.

Spikelets. Spikelets sessile. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed or dorsally compressed, 2.7–3.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex mucicous. Upper glume elliptic, 2.7–3.4 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.5–3.5 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy, Warrego, Gregory South, Maranoa. **New South Wales:** North Far Western Plains.

Notes. The inflorescence of this species is unique, typically the lateral branches are reduced to a single spikelet. The spikelets are biseriate on the main axis. This arrangement is also found in species of *Stenotaphrum*.

In tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, arid tussock grasslands, arid hummock grasslands, and tropical sub-humid grasslands. Flowers mostly Feb.-July.

Paspalidium reflexum R.D. Webster. *Paniceae Austral.* 166 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Latz 4847*, Australia (NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (484 as *Setaria reflexa*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (484, fig. 418 as *Setaria*).

Habit. Annual. Rhizomes absent. Culms erect, 20–55 cm tall, 2–5 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, 0.6–0.9 mm long, truncate. Leaf-blades 8–26 cm long, 2–4.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, deflexed, 2–6 cm long, 2–3 mm wide, bearing 8–20 fertile spikelets on each. Central inflorescence axis 10–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.6–3.3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex mucicous. Upper glume elliptic, 2.6–3.3 mm long, membranous, without keels, 9–11 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved. Fertile florets bisexual.

Fertile lemma 2.5–3.2 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Canning, Giles. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Nullabor, Gairdner-Torrens Basin.

Notes. Gross morphological features of this species resemble those of *Parectenium*, however, mode of disarticulation and nervation of glumes and lemma excludes it from this genus.

In shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers year-long, but mostly Apr.-Sept.

Paspalidium retiglume (Domin) D.K.Hughes. *Bull. Misc. Inform.* 317 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum retiglume* Domin, *Repert. Spec. Nov. Regni Veg.* 10: 119 (1911).

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Upper Victoria river, Australia (MEL; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Culms erect, 10–50 cm tall, 2–5 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.7–1 mm long. Leaf-blades flat or involute, 4–10 cm long, 3–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, 1.5–3 cm long, 2–3 mm wide, bearing 7–17 fertile spikelets on each. Central inflorescence axis 6.5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.7–3.1 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong or ovate, membranous, without keels, 5 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume ovate, 2.5–2.9 mm long, membranous, without keels, 11–15 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 11 -nerved.

Fertile lemma 2.6–3.1 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Victoria River, Barkly Tableland. **Queensland:** Cook, Burke.

Notes. A distinctive species related to *P. globoideum*.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, arid tussock grasslands, and arid hummock grasslands. Flowers Mar.-June-Sept.

Paspalidium spartellum S. T. Blake. *Proc. Roy. Soc. Queensland* 62: 97 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland, *S.T. Blake 9939* (HT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Culms erect, 50–115 cm tall, wiry, 5–8 -noded. Mid-culm internodes hollow, glabrous. Lateral branches branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.15 mm long. Leaf-blades spreading or recurved, involute, 1–6 cm long, 0.1–4 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–6, appressed, 0.35–0.65 cm long, 2 mm wide, bearing 1–2(–3) fertile spikelets on each. Central inflorescence axis 1.5–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 2.4–3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–4 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume ovate, 2–2.6 mm long, cartilaginous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 7 -nerved.

Fertile lemma 2.5–3 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: North Kennedy, Mitchell.

Notes. Distinct from *P. gracile* in the robust, cylindrical culm and the muricate upper lemma. Flowers Oct.-Apr.

Paspalidium tabulatum (Hack.) C.E.Hubb. *Bull. Misc. Inform. Kew* 1934: 448 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum tabulatum* Hack., *Bot. Jahrb. Syst.* 6: 234 (1885).

Type of Basionym or Protologue Information: HT: *Neumann s.n.*, 29 Apr 1875, Australia: Western Australia (K; IT: US-81289 (fragm.)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (248), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Culms erect, 40–60 cm tall, 4–7 -noded. Mid-culm internodes hollow, glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.35–0.45 mm long. Leaf-blades conduplicate, 5–8 cm long, 1.5–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, 0.5–1.2 cm long, 1.2 mm wide, bearing 2–5 fertile spikelets on each. Central inflorescence axis 7.5–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 3.5–4.4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex mucous or mucronate. Upper glume lanceolate, 3.5–4.4 mm long, membranous, without keels, 3 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 11–13 -nerved.

Fertile lemma 3.5–4 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Notes. In acacia shrublands and arid hummock grasslands. A rare species from W.A. Flowers Apr.-Oct.

Paspalidium udum S. T. Blake. *Proc. Roy. Soc. Queensland* 62: 98 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 16659*, 28 Jul 1946, Australia: Northern Territory (BRI; IT: CANB, L, US-2726310).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms erect or decumbent, 40–90 cm tall, spongy, 6–10 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 1–1.3 mm long. Leaf-blades flat or involute, 15–20 cm long, 5–11 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, 1.5–2 cm long, bearing 7–13 fertile spikelets on each. Central inflorescence axis 12–19 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.7–3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong, hyaline or membranous, without keels, 0–1 -nerved. Upper glume elliptic or obovate, 1.7–2 mm long, hyaline or membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–2.9 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** North Kennedy, Leichhardt.

Notes. The aquatic or semi-aquatic habit with floating spongy stems makes this species unique for Australian members of this genus. It is related to two tropical Asian species.

Tropical to subtropical sub-humid midlands. Flowering July to August.

Paspalum batianoffii B.K.Simon. *Austrobaileya* 3: 599 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Port Curtis District: Statue Bay Beach, 6.5 km SE of Yeppoon, very narrow foredune with open woodland, 8 Sep 1977, *G.N. Batianoff & T.J. McDonald 651* (HT: BRI-AQ294456; BRI-294250, BRI-245882, BRI-245883).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms decumbent, 20–40 cm tall, 2–3 -noded. Lateral branches sparsely branched. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat or convolute, 8–16 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2–3, spreading, 6–9 cm long, 2 mm wide. Central inflorescence axis 1.5–2.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4.5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 4.5 mm long, chartaceous or cartilaginous, without keels, 2 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous.

Fertile lemma 3.5–4 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Port Curtis.

Notes. No further collections from the type locality have been made despite attempts to do so. Now possibly extinct.

Probably native; Qld (Port Curtis district).

Paspalum ciliatifolium* Michx. *Fl. Bor.-Amer.* 1: 44 (1803). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *A. Michaux s.n., third specimen*, USA: Carolina (P-MICHX, ILT: NY-6618, US-2942147 (fragm. ex P)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12(3): 145 (1908).

Recent synonyms: *P. setaceum* var. *ciliatifolium*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (327).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (327).

Habit. Culms 100 cm tall. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 1 mm long. Leaf-blades 20 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 1–4, spreading, 3–10 cm long.

Spikelets. Fertile spikelets 1.9–2.1 mm long.

Glumes. Upper glume 1.9–2.1 mm long, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1. Lemma of lower sterile floret 2–3 -nerved.

Fertile lemma 1.9–2.1 mm long.

Continental Distribution: Australasia, or North America.

Australian Distribution: New South Wales.

New South Wales: North Coast.

Notes. Introduced. North from Macksville, NSW. Native of America. A pasture species; occurs mostly on sandy soils. Flowers summer.

Paspalum conjugatum* Berg. *Acta Helv. Phys.-Math.* 7:129 (1762). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Rolander in Herb. Bergius 36*, Surinam (SBT). LT designated by Koning & Sosef, *Blumea* 30: 290, 293 (1985).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (327).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (327).

Habit. Perennial. Rhizomes present. Stolons present. Culms erect, 20–100 cm tall, 3–10 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–1.5 mm long. Leaf-blades linear or lanceolate, 4–20 cm long, 5–15 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2–3, spreading, 4–17 cm long, 0.8–1 mm wide, bearing 120–250 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, orbicular, dorsally compressed, 1.2–1.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume orbicular, 1.2–1.8 mm long, hyaline or membranous, without keels, 2–3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 2 -nerved.

Fertile lemma 1.2–1.8 mm long, without keel, 3 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Christmas Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. A morphologically very stable species which may result from a high dependence on vegetative reproduction. Preferring wet roadsides or ditches and quickly spreading via highly productive stolons.

A serious weed of orchards, vineyards, sugarcane, lawns and golf courses. Moreover, the stoloniferous plants trail in irrigation channels and reduce water flow. Poor reputation as fodder, highly productive under good circumstances, suitable for grazing only when young.

Introduced. In tropical heaths, tropical and subtropical rain forests, and temperate rain forests. Preferring wet roadsides or ditches and quickly spreading via highly productive stolons. Flowers Apr.-Aug.

Paspalum dilatatum* Poir. *Lam. Encycl.* 5: 35 (1804). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Argentina: Buenos Aires, *P. Commerson s.n.* (HT: P-LAM).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (242), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (425), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (327).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (243, Pl. 71), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (469, Fig. 401), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (203), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (327).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or decumbent, 25–180 cm tall, 2–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–8 mm long. Leaf-blades 6–45 cm long, 3–12 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes (2–)3–5(–11), appressed or spreading, 4–12.5 cm long, 1–1.4 mm wide, bearing 70–140 fertile spikelets on each. Central inflorescence axis 2–20 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.7–3.9 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 2.7–3.9 mm long, membranous, without keels, 3–9 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–9 -nerved.

Fertile lemma 2–3.2 mm long, without keel.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond. **South Australia:** Flinders Ranges, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, East Coast.

Notes. Similar to *P. urvillei* and though the species are very distinctive it is difficult to find a character that distinguishes all specimens. Typically, *P. dilatatum* has larger spikelets, fewer primary branches, a shorter main axis and more nerves on the upper glume and lower lemmas.

Introduced. In temperate heaths, tropical and subtropical rain forests, temperate rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, tropical sub-humid grasslands, and temperate sub-humid grasslands. A weedy species preferring moist ditches, disturbed areas, and is a common invader of gardens. Flowers sporadically throughout the year.

Paspalum distichum* L. *Syst. Nat.* ed.10, 2: 855 (1759). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Browne s.n.*, Jamaica (LINN-75.9, second fertile culm from the left). LT designated by Guedes, *Taxon* 25: 513 (1976), and earlier discussed by Jovet & Guedes, *Taxon* 21: 546 (1972); formally ruled on by Nom. Comm., *Taxon* 32: 281 (1983).

Recent synonyms: *P. paspalodes*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (460), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (241), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (425), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (469), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (327).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (469, Fig. 402), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (327).

Habit. Perennial. Rhizomes absent or present, short. Stolons present. Culms erect or decumbent, 8–60 cm tall, 5–15 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.7–1.6 mm long. Leaf-blades flat or convolute, 2–22 cm long, 2–7 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2(–3), spreading, 1.5–8 cm long, 1.1–1.8 mm wide, bearing 15–50 fertile spikelets on each. Central inflorescence axis 0–1.5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.6–4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume when present ovate, hyaline, 0 -nerved. Upper glume elliptic, 2.6–3.6 mm long, membranous or chartaceous or coriaceous, without keels, 3–6 -nerved. Upper glume surface indented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 3–5 -nerved.

Fertile lemma 2.4–3.6 mm long, without keel.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond, Dale. **South Australia:** Murray, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. Similar to *P. vaginatum* but differs in spikelet shape, pubescence of the upper glume and texture of the lower lemma and upper glume. Prefers moist ditches or coastal areas and associated with fresh water. Valuable pasture grass on alluvial flats and useful as a fodder for cattle, and as a soil binder on stream banks.

Introduced. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. Prefers moist ditches or coastal areas and associated with fresh or salt water. Flowers sporadically throughout the year.

Paspalum exaltatum* J. & C. Presl. *Rel. Haenk.* 1: 219 (1830). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *T. Haenke s.n.*, no date, Cordillera de Chili (PR; IT: B, US-2854692 (fragm. ex B & photo), W). Specimen mislabeled, the collection is from Montevideo, Uruguay.

Recent synonyms: *P. arechavaletae*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 100–300 cm tall, 5–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 3–6 mm long. Leaf-blades 15–150 cm long, 3–20 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 10–44, appressed or spreading, 2–10 cm long, 0.6–0.8 mm wide, bearing 50–80 fertile spikelets on each. Central inflorescence axis 10–25 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–4 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 2.5–3.2 mm long, hyaline or membranous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 2.3–3 mm long, without keel. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: Queensland.

Queensland: Wide Bay.

Notes. Introduced. In tropical heaths. Known from only a few collections. Its present status is uncertain. *Paspalum exaltatum* is a distinctive species with no economic importance. Flowers Jan.–May.

Paspalum fasciculatum* Willd. ex Fluegge. *Gram. Monogr., Paspalum* 69 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *J.C von Hoffmannsegg s.n.*, Brazil (B-W; IT: BM, P, US-2855329 (fragm. ex B-W)). LT designated by Chase, *Contr. U.S. Natl. Herb.* 28: 176 (1929).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons present. Culms decumbent, 100–300 cm tall, 5–7 mm diam., 4–10 -noded. Mid-culm internodes solid, glabrous. Mid-culm nodes glabrous or pubescent. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–0.7 mm long. Leaf-blades 20–70 cm long, 10–20 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 8–33, spreading, 7–16 cm long, 1–1.4 mm wide, bearing 50–80 fertile spikelets on each. Central inflorescence axis 5–11 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5–4.6 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblate, 0 -nerved. Upper glume ovate, 3.5–4.4 mm long, hyaline or membranous, without keels, 3–5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 3.3–4.3 mm long, without keel. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: Western Australia.

Western Australia: Gardner. Fortescue.

Notes. This distinctive species is only known from a few collections in W.A. In tropical and subtropical sub-humid woodlands and arid and semi-arid low woodlands.

Paspalum longifolium Roxb. *Fl.Ind. Carey* 1: 283 (1820). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: India: cultivated, *W. Roxburgh s.n.* (HT: BM (photo, K); IT: US-1445175 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (328).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (328).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 30–130 cm tall, 5–12 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath

auricles absent. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades 9–35 cm long, 3–9 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes (1–)2–5(–12), spreading, 1.5–12 cm long, 2–3.2 mm wide, bearing 90–150 fertile spikelets on each. Central inflorescence axis 1–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 1.7–3 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume obovate, 2.1–3 mm long, hyaline or membranous or chartaceous, without keels, 3–5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 3–5 -nerved.

Fertile lemma 1.6–3 mm long, without keel. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. In tropical heaths, tropical and subtropical rain forests, and tropical and subtropical sub-humid woodlands. Usually associated with damp soils and grazed in moderation. Flowers mostly Nov.–May.

Paspalum mandiocanum* Trin. *Gram. Panic.* 113 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *G.H. von Langsdorff s.n.*, Brazil: prope Mandiocam, in siccis (LE-TRIN-0489.02 (& fig.); IT: US-951095 (fragm. ex LE-TRIN)). fide Chase, Mandiocca is the name of Langsdorff's estate north of Rio de Janeiro..

Recent synonyms: [*P. wettsteinii* auct].

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (328 as *P. wettsteinii*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (328).

Habit. Perennial. Culms 80–200 cm tall, 2–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2 mm long. Leaf-blades 20–40 cm long, 8–15 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 8–20, 3–12 cm long, 2–4 mm wide. Central inflorescence axis 20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, membranous, without keels, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 2.5–3 mm long, without keel. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Port Curtis, Wide Bay, Moreton. **New South Wales:** North Coast, Central Coast.

Notes. Previously material place this species was wrongly named *P. wettsteinii*. However this species (now regarded as a synonym of *P. virgatum*) has larger spikelets which are hairy. This species has recently become a noted weed in Queensland, where it was thought to have good properties as a pasture grass.

Paspalum multinodum B.K.Simon. *Austrobaileya* 3: 600 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook Dist.: Aurukum, *Anon. s.n.* (HT: BRI-AQ540191; IT: CANB, K, L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 150–200 cm tall, 10–13 -noded. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 1–1.5 mm long. Leaf-blades 15–38 cm long, 2–5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence subdigitate, a panicle of racemes. Racemes 2–6, spreading, 3–8 cm long, 2 mm wide. Central inflorescence axis 0.5–1 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 3.5 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 3 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, Burke.

Notes. Only known from two collections from the Aurukun area of Cape York. It has narrower spikelets than *P. notatum* and a broader rachis than *P. vaginatum*. It also has a particularly broad rachis.

Probably native; Qld (Cook District).

Paspalum nicorae* L. Parodi. *Notas Mus. La Plata, Bot.* 8(40): 82 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Paspalum plicatulum* var. *arenarium* Arechav., *Anales Mus. Nac. Montevideo* 1: 58 (1894).

Type of Basionym or Protologue Information: HT: *Arechavaleta s.n.*, Mar-Apr, Uruguay: frecuente en arenas de la costa del Rio de La Plata (MVM; IT: US-950735, W).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (329).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (329).

Habit. Perennial. Rhizomes present, elongated. Culms 20–70 cm tall. Ligule an eciliate membrane, 0.5–2.5 mm long. Leaf-blades conduplicate, 4–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–5, 1.5–6.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.7–3.3 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, membranous, without keels, 5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–3 mm long, without keel. Anthers 3. Grain 1.8 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: New South Wales.

New South Wales: North Coast.

Paspalum notatum* Fluegge. *Monogr.Pasp.* 106 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: West Indies: Virgin Islands: St. Thomas, 1802, *Ventenat s.n.* (LT: B; ILT: BM, KIEL, MO, P, SI, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (329).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (329).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect or decumbent, 15–75 cm tall, 2–5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.3–1 mm long. Leaf-blades spreading, 2–30 cm long, 3–10 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2(–3), spreading, 2.5–13 cm long, 1–1.5 mm wide, bearing 16–80 fertile spikelets on each. Central inflorescence axis 0–1.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 2.8–3.7 mm long, chartaceous or cartilaginous, without keels, 3–5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 5 -nerved.

Fertile lemma 2–3.5 mm long, without keel.

Continental Distribution: Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Drummond. **Queensland:** Cook, Moreton, Wide Bay, Leichhardt, Burnett. **New South Wales:** North Coast, Central Coast, Southern Tablelands, North-Western Slopes.

Notes. A weed, turf and fodder grass. Very resistant to drought spreading rapidly and aggressively, used for soil conservation and prevention of erosion.

Introduced. In tropical heaths, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. Most competitive in subtropical areas where it can dominate disturbed soils, pastures and roadsides. Flowers Jan.-Mar.

Paspalum paniculatum* L. *Syst. Nat.* ed.10, 2: 855 (1759). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Jamaica:, *Browne s.n.* (LT: LINN-79.1).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (329).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (329).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 30–215 cm tall, 2–7 -noded. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule an eciliate membrane, 2–3 mm long. Leaf-blades 8–50 cm long, 6–30 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes few or numerous, 7–60, spreading, 4–12 cm long, 3–6 mm wide, bearing 90–180 fertile spikelets on each. Central inflorescence axis 5–20(–30) cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, orbicular, dorsally compressed, 1.3–1.4 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume orbicular, 1.3–1.4 mm long, hyaline or membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 1–1.4 mm long, without keel.

Continental Distribution: Africa, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Cook, Moreton, North Kennedy, South Kennedy, Wide Bay. **New South Wales:** North Coast, North-Western Slopes.

Notes. Introduced. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. A weedy species which prefers moist sites from forest margins to marshy areas. Flowers Feb.-Aug.

Paspalum plicatulum* Michx. *Fl. Bor. Amer.* 1: 45 (1803). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: A. *Michaux s.n.*, USA: in Georgia or Florida (P-MICHX; IT: US-2942519 (fragm. ex P-MICHX)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short. Stolons absent. Culms erect or geniculately ascending or decumbent, 30–120 cm tall, 5–12 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–3 mm long. Leaf-blades flat or conduplicate, 8–30 cm long, 2–7 mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–7, spreading, 2–15 cm long, 9–12 mm wide, bearing 50–90 fertile spikelets on each. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 2.3–3.2 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 2.5–2.8 mm long, hyaline or membranous, without keels, 5–7 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel.

Continental Distribution: Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Moreton, South Kennedy, Wide Bay.

Notes. *Paspalum plicatulum* belongs to a morphologically confusing group in need of detailed study. A number of cultivars have been introduced to Australia, of which the best known are cv.Rodd's Bay, cv.Hartley and cv.Bryan.

Introduced. In tropical heaths, tropical and subtropical rain forests, Brigalow forests, and tropical and subtropical sub-humid woodlands. Flowers Mar.-July.

Paspalum quadrifarium* Lam. *Gram. Icon.* 2: Tab.128 (1828). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Commerson s.n.*, Argentina: Buenos Aires (P-LA; ILT: FI, P, US-2855979 (fragm. ex P-LA & photo)). LT designated by Parodi, *Revista Mus La Plata* 1: 244 (1937).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (330).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (330).

Habit. Perennial. Rhizomes absent or present, short. Stolons absent. Culms erect, 90–200 cm tall, 4–7 - noded. Mid-culm nodes pubescent. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 1–4 mm long, obtuse. Leaf-blades 15–70 cm long, 4–8.5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 15–25, appressed or ascending, 3–10 cm long, 5–8 mm wide, bearing 50–100 fertile spikelets on each. Central inflorescence axis 10–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.1–2.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 2.2–2.8 mm long, hyaline or membranous or chartaceous, without keels, 3–5 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 3 -nerved.

Fertile lemma 1.9–2.6 mm long, without keel. Anthers 3.

Continental Distribution: Australasia and South America.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Wide Bay, Moreton. **New South Wales:** Central Coast. **Victoria:** Gippsland Plain.

Notes. Similar to *P. exaltatum*, however, South American taxonomists recognize them as distinct.

Introduced. In tropical and subtropical rain forests and tropical and subtropical wet sclerophyll forests. Flowers July.-Oct.

Paspalum regnellii* Mez. Fedde, *Repert.* xv. 75 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Type of Basionym or Protologue Information: LT: *Glaziou 9049*, 8 Mar 1877, Brazil: Rio de Janeiro: Petrópolis, S. Antonio (B; ILT: BAA, MO, P, US-2855813 (fragm. ex B)). LT designated by F. Zuloaga & O. Morrone, *Cat. New. World Grass.* 3: 507 (2003).

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (330).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (330).

Australian Distribution: New South Wales.

New South Wales: North Coast.

Paspalum scrobiculatum L. *Mant. Pl.* 1: 29 (1767). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: Cultivated at Uppsala from material collected in India (LINN-79.4; ILT: K). LT designated by ?.

Recent synonyms: *P. commersonii*, *P. orbiculare*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (188 as *P. orbiculare*, *P. pubescens*), [1878] G.Bentham, *Flora Australiensis* 7 (460), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (242), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (329 & 330 as *P. orbiculare*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (244, Pl.72 as *P. commersonii*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (329 as *P. orbiculare* & 330).

Habit. Perennial. Rhizomes present. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 10–150 cm tall, 1–6 mm diam., 2–17 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent, or present. Ligule an eciliate membrane, 0.4–3 mm long. Leaf-blades 5–40 cm long, 3–15 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 1–20, spreading, 2–15 cm long, 1.7–2.5 mm wide, bearing 30–110 fertile spikelets on each. Central inflorescence axis 0–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate or orbicular, dorsally compressed, 1.4–3 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume elliptic, 2.1–2.9 mm long, hyaline or membranous or chartaceous, without keels, 5–7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 3–5 -nerved.

Fertile lemma 2.1–2.9 mm long, without keel, 5 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Norfolk I.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast.

Notes. This widespread, morphologically variable species is similar to the introduced *P. longifolium*. Whether the spikelets occur singly or in pairs can usually separate the two; however, occasionally paired spikelets occur in *P. scrobiculatum*. Typically, the spikelets of *P. longifolium* are yellow with scattered hairs on the upper glume and lower lemma, whereas those of *P. scrobiculatum* are light green and glabrous. The *P. scrobiculatum* complex is notoriously difficult to treat taxonomically as it is possibly an aggregate swarm of apomicts. The approach of Clayton (1975) is the one followed here. Another approach is that of De Koning and Sosef (1985), where, as well as the separation of *P. orbiculare* Forst.f., the species *P. scrobiculatum* has been divided into 5 varieties. If this revision is followed the variety occurring in Australia is *P. scrobiculatum* var. *bispicatum* Hackel (= *P. commersonii* Lam.).

In tropical and subtropical rain forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Usually associated with damp soils and grazed in moderation. Flowers mostly Dec.-June.

Paspalum setaceum

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (327 as *P. ciliatifolium*).

Paspalum urvillei* Steud. *Syn. Pl. Glum.* 1: 24(1854). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Brazil: 1825, *J.S.C. Dumont de Urville s.n.* (HT: P; IT: B, CN, US-80035 (fragm.)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (242), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (425), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (331).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (331).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 80–250 cm tall, 3–6 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles present. Ligule an eciliate membrane, 2–9 mm long. Leaf-blades 20–60 cm long, 4–25 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 10–30, appressed, 4–14 cm long, 3–4 mm wide, bearing 80–140 fertile spikelets on each. Central inflorescence axis 10–30 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 1.6–2.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 1.6–2.8 mm long, membranous, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3 -nerved.

Fertile lemma 1.4–2.6 mm long, without keel.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **Queensland:** Cook, Darling Downs, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Leichhardt. **New South Wales:** North Coast, Central Coast, Central-Western Slopes, South-Western Slopes. **Victoria:** Gippsland Plain, Midlands, Wannon. **Tasmania:** East Coast.

Notes. A tall, coarse perennial of little or no economic importance.

Introduced. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, and tropical and subtropical sub-humid woodlands. Flowers Nov.- June.

Paspalum vaginatum* Sw. *Prodr. Veg. Ind. Occ.* 21 (1788). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Jamaica, *O.P. Swartz s.n.* (HT: S; IT: US).

Recent synonyms: *P. distichum* auct.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (188 as *Paspalum littorale*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (241), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (425), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (470), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (331).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (470, Fig. 403), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (331).

Habit. Perennial. Rhizomes present. Stolons present. Culms erect or decumbent, 8–60 cm tall, 5–13 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.5–1.2 mm long. Leaf-blades flat or convolute, 2.5–22 cm long, 1–8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence digitate, a panicle of racemes. Racemes 2(–5), spreading, 1.5–7.5 cm long, 1.5–3.5 mm wide, bearing 16–32 fertile spikelets on each. Central inflorescence axis 0–1.2 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.5–4.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume when present ovate, hyaline, 0 -nerved. Upper glume elliptic, 2.5–3.7 mm long, membranous, without keels, 2–6 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 2–5 -nerved.

Fertile lemma 2.3–2.5 mm long, without keel.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Lord Howe, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Dampier. Drummond. **Northern Territory:** Darwin & Gulf. **South Australia:** Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Cook, Port Curtis, South Kennedy, Burke, North Kennedy, Burnett, Wide Bay, Moreton. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** East Gippsland, Gippsland Plain.

Notes. The nomenclatural confusion among *P. distichum*, *P. papsaloides* and *P. vaginatum* was resolved in Taxon (1983). An aquatic weed and fodder plant of brackish or saline chiefly coastal habitats. Readily eaten by cattle, possibly of some nutritional value as a fodder on swampy, saline soils.

Introduced. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. Well-established in Australia but of limited economic importance. Flowers sporadically throughout the year.

Paspalum virgatum* L. *Syst.Nat.* ed.10, 2:855(1759). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Jamaica:, *Browne s.n.* (LT: LINN-80.26).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms stature robust to moderate, 100–200 cm tall. Ligule an eciliate membrane, lacerate. Leaf-blades 10–25 mm wide.

Inflorescence. Racemes 10–16, spreading or drooping, 7–15 cm long, 3.5–4 mm wide. Central inflorescence axis 15–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 2.2–2.5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume oblong, membranous, without keels, 3 -nerved.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 200 % of length of spikelet, 3 -nerved.

Fertile lemma 2.2–2.5 mm long, without keel.

Continental Distribution: Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook.

Pennisetum alopecuroides (L.) Spreng. *Syst.Veg.* 1: 303 (1825). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum alopecuroides* L., *Sp. Pl.* 1: 55 (1753).

Type of Basionym or Protologue Information: LT: (LINN-80.1). LT designated by Veldkamp in Cafferty et al., *Taxon* 49(2): 253 (2000).

Recent synonyms: *P. compressum*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (195 as *Pennisetum compressum*), [1878] G.Bentham, *Flora Australiensis* 7 (495 as *Pennisetum compressum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (332).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (205), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (332).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect, 60–100 cm tall. Mid-culm nodes glabrous. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–0.75 mm long. Leaf-blades erect or drooping, flat or conduplicate or involute, 10–45 cm long, 3–6 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 7–20 cm long, 1–1.5 cm wide.

Spikelets. Spikelets sessile, 1–2 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 6–8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume orbicular, hyaline, without keels, 0 -nerved. Upper glume oblong, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 7 -nerved.

Fertile lemma 6–8 mm long, without keel, 5–7 -nerved. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Darling Downs, Moreton, Port Curtis, South Kennedy, Wide Bay, Leichhardt. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Volcanic Plain.

Notes. The Victorian plants are believed to be introduced.

In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers Jan.-June.

Pennisetum basedowii Summerhayes & C.E.Hubb. *Bull. Misc. Inform.* 440 (1926). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (280), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (279, Pl. 80).

Habit. Annual or perennial. Rhizomes present. Stolons absent. Culms geniculately ascending, 10–70 cm tall. Lateral branches branched. Ligule a fringe of hairs. Leaf-blades 10–20 cm long, 5–7 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 3–8 cm long.

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 6–7 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate, 5–7 mm long, membranous, without keels, 9–11 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 7–9 -nerved.

Fertile lemma 6–7 mm long, without keel, 5 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Barkly Tableland. **Queensland:** Burke, Cook, Mitchell.

Notes. In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, and tropical sub-humid grasslands. Flowers Mar.-Aug.

Pennisetum brevisetosus (B.K. Simon) B.K.Simon. *Flora of Australia* 44C:.

Classification. Recent synonyms: *Cenchrus elymoides* var. *brevisetosus* .

Notes. *P. brevisetosus* is very similar to *P. elymoides*, differing that the outer bristle are very short outside the burr of flattened bristles, although Webster (1987) was of the opinion that this species intergrades with *P. elymoides*. However, this was not found to be the case in the material examined.

Pennisetum ciliare* (L.) Link. *Mant. Pl.* 2: 302 (1771). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Recent synonyms: *Cenchrus ciliaris*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (284 as *Cenchrus ciliaris*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (480 as *Cenchrus ciliaris*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (432 as *Cenchrus ciliaris*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (179 as *Cenchrus ciliaris*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (285, Pl.82 as *Cenchrus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (432, fig. 362 as *Cenchrus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (179 as *Cenchrus*).

Habit. Annual or perennial. Rhizomes present, short. Stolons absent or present. Culms geniculately ascending, 10–150 cm tall, 1–4 mm diam., wiry. Lateral branches sparsely branched. Leaves basal and cauline. Leaf-sheaths scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs, 0.2–2 mm long. Leaf-blades 3–25 cm long, 4–10 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear to oblong, 2–14 cm long, 1–2.6 cm wide. Racemes 2–14 cm long, 1–2.6 mm wide.

Spikelets. Spikelets sessile, 1–4 in the cluster. Involucre composed of bristles, connate into a disc below (0.5–1 mm diam). Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 1 -nerved. Upper glume ovate, hyaline, without keels, 1–3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, mucronate.

Fertile lemma 2–5.5 mm long, without keel, 5 -nerved. Lemma apex mucronate. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1–1.3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Giles, Fortescue, Carnarvon. Irwin, Avon, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Gregory North, Gregory South, Warrego. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Central-Western Slopes, North-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. The name *C. pennisetiformis* has been applied to those specimens with smaller habit and a distinct fusion of the bristles. However, these characters cannot be applied consistently.

Introduced. In temperate rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, eucalypt shrublands, arid tussock grasslands, arid hummock grasslands, coastal grasslands, and tropical sub-humid grasslands. A forage species now well established in Australia. Flowers mostly Mar.-Oct.

Pennisetum clandestinum* Hochst. ex Chiov. *Ann. Ist. Bot. Roma* 8: 41 (1903). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Recent synonyms: *Kikuyochloa clandestina*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (281), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (426), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (471), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (333).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (471, Fig. 404), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (332).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms prostrate, 3–15(–45) cm tall. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 1–15 cm long, 1–5 mm wide.

Inflorescence. Inflorescence solid, a raceme (of 2–4 spikelets and concealed within the subtending sheath).

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 10–20 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 0–3 mm long, hyaline, without keels, 0 - nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 8–12 -nerved.

Fertile lemma 10–20 mm long, without keel, 8–12 -nerved. Palea 2–4 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond. **South Australia:** North-western, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton, Port Curtis, South Kennedy, Leichhardt, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, East Coast.

Notes. The reduced and modified nature of the inflorescence and spikelets may result from reliance on vegetative reproduction from the pronounced stolons and rhizomes. This species could become a troublesome weed in tropical regions.

Introduced. In tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and arid and semi-arid low woodlands. Flowers sporadically throughout the year.

Pennisetum elymoides (F. Muell.) G. A. Gardner. *Flora of Western Australia* 1. pt. 1: 277, t. 80, B.. 1952. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Cenchrus elymoides* F.Muell, *Fragm.* 8: 107 (1873).

Type of Basionym or Protologue Information: LT: *Mueller s.n.*, Australia: western Australia: Mueller District: Sturts Creek (MEL-604906(photo, BRI)). LT designated by ?.

Recent synonyms: *Cenchrus elymoides*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (277), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Cenchrus*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (279, Pl. 80).

Habit. Perennial. Rhizomes present. Stolons absent. Culms stature robust to moderate, 40–150 cm tall. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–2.2 mm long. Leaf-blades 14–34 cm long, 3.3–10.2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, dense (internodes 1.2–2.8mm), 10.5–16 cm long, 1.1–1.5 cm wide. Racemes 10.5–16 cm long, 0.3–0.4 mm wide.

Spikelets. Spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a disc below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5–7.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume ovate, 5–7.4 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–5 -nerved.

Fertile lemma 4.9–6.1 mm long, without keel, 3 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Cook, North Kennedy.

Notes. Commonly 3 spikelets are surrounded by the involucre of flattened bristles. The central spikelet is fully formed whereas the lateral spikelets are morphologically and sexually reduced. The central spikelet only was used in the above description.

In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Jan.-Aug.

Pennisetum glaucum* (L.) R. Br. *Prodr.* 195 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum glaucum* L., *Sp. Pl.* 1: 56 (1753).

Type of Basionym or Protologue Information: LT: *Hermann, Fl. Zeyl.* 44, Sri Lanka (BM). LT designated (as holotype) by Rauschert, *Feddes Repert.* 83(9–10): 662 (1973).

Recent synonyms: *P. americanum*, *P. typhoides*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (195), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (278 as *P. typhoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (333).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (333).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, stature robust to moderate, 50–300 cm tall. Mid-culm internodes solid or spongy. Mid-culm nodes bearded. Leaf-sheath auricles absent. Ligule a fringed membrane or a fringe of hairs, 2–5 mm long. Leaf-blades linear, 15–100 cm long, 7–70 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or elliptic, 4–200 cm long, 0.8–5.5 cm wide.

Spikelets. Spikelets pedicelled, 1–9 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, terete or dorsally compressed, 3–6 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume oblong, 0.5–2 mm long, membranous, without keels, 0–3 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 50–75 % of length of spikelet, chartaceous, 5–7 -nerved, muticous or mucronate.

Fertile lemma 1.4–4 mm long, without keel, 5–7(–9) -nerved. Lodicules absent or vestigial. Anthers 3. Grain 2–5.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Drummond. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Leichhardt, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands, North-Western Slopes, South-Western Slopes.

Notes. Introduced. A crop species that occasionally escapes cultivation and persists in mesic areas. Flowers mostly Mar.-July but sporadically throughout the year.

Pennisetum macrourum* Trin. *Gram. Panic.* 64 (1826). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Link s.n.*, ST: *Swartz s.n.*, South Africa: Cape of Good Hope (LE).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (278), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (426), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (471), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (333).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (472, Fig. 405), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (332).

Habit. Perennial. Rhizomes present, short. Stolons absent. Culms stature reed-like, 60–500 cm tall. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–45 cm long, 2–10(–15) mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 6–40 cm long.

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2–6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume elliptic or oblate, hyaline, without keels, 0 -nerved. Upper glume lanceolate or oblong, membranous, without keels, 0–3 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 75–100 % of length of spikelet, membranous, 5–9 -nerved.

Fertile lemma 2–6 mm long, without keel, 5–7 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Southern Lofty, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** Wannon. **Tasmania:** East Coast.

Notes. Introduced. In dry sclerophyll forests and temperate sub-humid woodlands. Flowers June-Dec.

Pennisetum pedicellatum* Trin. *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 3,1(2–3): 184 (1834)

. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *D. Peters s.n.*, Cape Verde Islands, St. Iago (LE-TRIN-1101.01).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Rhizomes absent. Stolons absent. Culms geniculately ascending, 30–150 cm tall. Lateral branches branched. Ligule a fringed membrane, a ciliate membrane. Leaf-blades 5–25 cm long, 4–15 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 5–15 cm long.

Spikelets. Spikelets sessile and pedicelled, 1–5 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.5–6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate or oblong, hyaline, without keels, 0–1 -nerved. Lower glume surface indumented. Upper glume ovate, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–3 mm long, without keel, 5 -nerved. Lodicules absent or vestigial. Anthers 3. Grain 0.5–2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, South Kennedy, Wide Bay.

Notes. Infra -specific taxa: subsp. **pedicellatum**, subsp. **unispiculum** .

Involucre with 1 spikelet

P. pedicellatum subsp. **unispiculum**

Involucre with 2–5 spikelets

P. pedicellatum subsp. **pedicellatum**

Pennisetum pedicellatum subsp. pedicellatum Brunken.

Notes. W.A. and N.T. In tropical and subtropical sub-humid woodlands and coastal grasslands. A potentially valuable introduced species in disturbed rangelands. Flowers Mar.-June.

Pennisetum pedicellatum subsp. unispiculum Brunken. *J. Linn. Soc., Bot.* 79: 62 (1979).

Classification. Type of Basionym or Protologue Information: T: 2 miles [3.2 km] N of Tamale, Ghana, *R. Innes 30227*; holo: PRE; iso: K (photo BRI).

Notes. W.A., N.T., and Qld. In tropical and subtropical sub-humid woodlands, arid hummock grasslands, and coastal grasslands. This subspecies is more common than the typical form. Flowers Mar.-Aug.

Pennisetum pennisetiforme* (Hochst. & Steud.) Wipff. *Sida* 19(3): 527, f. 1. 2001. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Cenchrus pennisetiformis* Hochst. & Steud., *Syn. Pl. Glumac.* 1: 109 (1854).

Type of Basionym or Protologue Information: LT: *Schimper hrbr. un. it. arab.* 973, 28 JAN 1826, Saudia Arabia: Jedda, indeserto prope oppid. Deschedda (P; ILT: K (3 sheets)). LT designated by Wipff, *Sida* 19: 527 (2001).

Recent synonyms: *Cenchrus pennisetiformis*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (284 as *Cenchrus pennisetiformis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (as *Cenchrus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (181 as *Cenchrus*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (436, fig. 366 as *Cenchrus*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (181 as *Cenchrus*).

Habit. Annual or perennial. Culms geniculately ascending, 10–40 cm tall. Ligule a fringe of hairs. Leaf-blades flat, 2–20 cm long, 2–5 mm wide.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear to oblong, 2–6 cm long. Racemes 2–6 cm long.

Spikelets. Spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a cup below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 3–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, without keels, 1 -nerved. Lower glume surface indumented. Upper glume lanceolate or ovate, 2–3.5 mm long, membranous, without keels, 1–3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3–5 mm long, without keel, 5 -nerved. Lemma apex mucronate. Palea 2 -nerved. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Dampier. Mueller, Fortescue, Ashburton. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Flinders Ranges. **Queensland:** Burke, Cook, Gregory North, Maranoa, Mitchell, North Kennedy.

Pennisetum polystachion* (L.) Schult. Mant. 2: 146 (1824). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum polystachion* L., *Syst. Nat. (ed. 10)* 2: 870 (1759).

Type of Basionym or Protologue Information: T: India (LINN-80.4).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Rhizomes absent. Stolons absent. Culms geniculately ascending, 30–200 cm tall. Lateral branches branched. Ligule a fringed membrane, a ciliate membrane. Leaf-blades 10–40 cm long, 3–16 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–25 cm long, (0.6–)0.8–1(–1.5) cm wide (excluding bristles).

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2–5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 0 -nerved. Upper glume oblong, membranous, without keels, 5 -nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel, 5 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Introduced. In tropical heaths, tropical and subtropical rain forests, and tropical and subtropical sub-humid woodlands. A rare escapee from cultivated plots. Flowers Apr.- June.

Pennisetum purpureum* Schum. *Beskr. Guin. Pl.* 64 (1827). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Africa: Ghana: Guinea, *Thonning* 355 (HT: C; IT: BM).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (281), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (334).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (282, Pl. 81), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (334).

Habit. Perennial. Rhizomes absent or present. Stolons absent or present. Culms erect or geniculately ascending, stature robust to moderate, 100–600 cm tall. Ligule a fringe of hairs, 3–5 mm long. Leaf-blades 30–120 cm long, 20–40 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 7–30 cm long, 1–3 cm wide.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 0–4 in the cluster. Involucre composed of bristles. Companion spikelets developed, male, 4.5–7 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.5–7 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume lanceolate or ovate, 0.75–3 mm long, membranous, without keels, 0–1 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 66–100 % of length of spikelet, chartaceous, (1–)2–5(–7) -nerved.

Fertile lemma 5–7 mm long, without keel, 5–7 -nerved. Lodicules absent or vestigial. Anthers 3. Grain 1.8–2.2 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Norfolk I.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **South Australia:** Northern Lofty. **Queensland:** Cook, Moreton, Port Curtis, South Kennedy, Wide Bay, North Kennedy. **New South Wales:** North Coast.

Notes. Introduced. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. A valuable introduced species that occasionally escapes from cultivation. Flowers Apr.-Aug.

Pennisetum setaceum* (Forsk.) Chiov. *Boll. Soc. Bot. Ital.* 113 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Phalaris setacea* Forssk., *Fl. Aegypt.-Arab.* 17 (1775).

Type of Basionym or Protologue Information: T: *Forsskål s.n.*, Egypt: Cairo (?).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (280 as *P. oreintale*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (472), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (334).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (473, Fig. 406), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (334).

Habit. Perennial. Rhizomes present. Stolons absent. Culms 20–150 cm tall. Ligule a fringe of hairs. Leaf-blades convolute, 15–30 cm long, 1–3 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 6–30 cm long.

Spikelets. Spikelets sessile and pedicelled, 1–3 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension or with a barren rachilla extension, lanceolate, dorsally compressed, 4.5–6.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate or orbicular, hyaline, without keels, 0 -nerved. Upper glume lanceolate or ovate, membranous, without keels, 1 -nerved. Upper glume surface asperulous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 1–3(–5) -nerved, mucronate.

Fertile lemma 4.5–6.5 mm long, without keel, 5 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Drummond. **South Australia:** Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Cook, Moreton, North Kennedy, Port Curtis, Leichhardt. **New South Wales:** Central Coast, North-Western Slopes, South-Western Slopes, North-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain.

Notes. A prolongation of the callus and the incomplete reduction of the primary branch produces a pronounced stipe. In some species the bristles do not form an involucre.

Introduced. In tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and coastal grasslands. Flowers sporadically throughout the year.

Pennisetum setigerum* (Vahl) Wipff. *Sida* 19(3): 526 (2001). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Cenchrus setigerus* Vahl, *Enum. Pl.* 2: 395 (1805).

Type of Basionym or Protologue Information: Saudi Arabia.; *Forsskal s.n.* (HT: C).

Recent synonyms: *Cenchrus setiger*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (286 as *Cenchrus setigerus*), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (480 as *Cenchrus setigerus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (436 as *Cenchrus setigerus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (181 as *Cenchrus setiger*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (285, Pl.82 as *Cenchrus*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (436, fig. 367 as *Cenchrus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (181 as *Cenchrus*).

Habit. Perennial. Rhizomes present. Stolons absent. Culms geniculately ascending, 5–100 cm tall. Ligule a fringe of hairs, 0.6–1.2 mm long. Leaf-blades 2–30 cm long, 2–7 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, of only a few spikelets (spicate). Panicle linear, 2–12 cm long. Racemes 2–12 cm long.

Spikelets. Spikelets sessile, 1–3 in the cluster. Involucre composed of bristles, connate into a cup below. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–5.3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 1 -nerved. Lower glume surface indumented. Upper glume ovate, 1.5–2.9 mm long, hyaline, without keels, 1 -nerved. Upper glume surface scabrous, indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline or membranous, 5 -nerved, mucronate.

Fertile lemma 2.8–5 mm long, without keel, 5–7 -nerved. Lemma apex mucronate. Lodicules absent or vestigial. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald. Canning, Fortescue, Carnarvon, Austin. Irwin. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North, Central Australia South. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Leichhardt, Maranoa, Mitchell, North Kennedy, Warrego. **New South Wales:** North Coast, Central Coast, Northern Tablelands.

Notes. This species has frequently been confused with *C. biflorus*, from which it differs in having antrorsely scabrid bristles.

Introduced. In tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, acacia shrublands, and arid hummock grasslands. Flowers Jan.-July.

Pennisetum thunbergii* Kunth. *Rev. Gram.* 1: 50 (1829). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Pennisetum thunbergii* Kunth, *Revis. Gramin.* 1: 50 (1829); *Panicum hordeiforme* (L.) Thunb., *Fl. Jap.* 46 (1784).

Type of Basionym or Protologue Information: LT: (LINN-82.5). LT designated by Renvoize in Cafferty et al., *Taxon* 49(2): 245 (2000).

Recent synonyms: *P. glabrum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms erect or geniculately ascending, 10–150 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or convolute, 3–40 cm long, 2–8 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 2–5 cm long.

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 2.5–5 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume oblong or ovate, hyaline, without keels, 0–1 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret (25–)33–66(–75) % of length of spikelet, membranous, 1–3 -nerved, mucronate.

Fertile lemma 2.5–5 mm long, without keel, 5–7 -nerved. Lemma apex muticous or mucronate. Lodicules absent or vestigial. Anthers 3. Grain 1.7 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Moreton, Wide Bay.

Notes. Introduced. In tropical and subtropical sub-humid woodlands. This unique species is only known from a few collections in Australia. However, it could potentially spread in tropical and subtropical regions. Flowers Apr.-June.

Pennisetum villosum* Fresen. *Mus. Senckenberg.* 2: 134 (1837). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: T: *H. Salt s.n.*, 1805–1810, Ethiopia.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (280), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (426), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (474), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (334).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (474, Fig. 407), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (334).

Habit. Perennial. Rhizomes present, elongated. Stolons absent. Culms geniculately ascending or decumbent, 15–90 cm tall. Ligule a fringe of hairs. Leaf-blades flat or conduplicate, 7–15 cm long, 2–6 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate or globose, 2–12 cm long, 1–2 cm wide.

Spikelets. Spikelets sessile, 1(–4) in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 9–14 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels, 0–1 -nerved. Upper glume lanceolate or ovate, 3.5–6 mm long, membranous, without keels, 1–3 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–11 -nerved.

Fertile lemma 9–14 mm long, without keel, 5–7 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs,

Maranoa, Moreton. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, East Coast.

Notes. Introduced. An ornamental grass with little or no forage importance. Flowers mostly Jan.-July.

Pentameris airoides* Nees. *Sem. Hort. Bot. Vratisl.* (1834). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneieae.

Basionym and/or Replacement Name: *Pentameris airoides* Nees, *Sem. Hort. Bot. Vratisl.* (1834).

Recent synonyms: *Pentaschistis airoides*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (54), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (427), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (306), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (335).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (53, Pl. 13), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig.4, A-D as subsp. *airoides*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (307, Fig. 240), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (335).

Habit. Annual or perennial. Culms 6–35 cm tall, 2–4 -noded. Lateral branches simple. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades 3–6 cm long, 1–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–6 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 2–3 mm long.

Glumes. Glumes similar, shiny. Lower glume elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 2.5–5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1.5–2.5 mm long, without keel, 5–9 -nerved. Lemma surface glabrous. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 5–8 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.1 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Drummond. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** Central Tablelands, Southern Tablelands, South-Western Slopes, South-Western Plains.

Notes. Widespread annual weed in the temperate southern half of Australia, introduced from South Africa, widespread annual. Flowers Aug. to Dec.

Pentameris pallida* (Thunb.) Galley & H.P. Linder. *Ann. Mo. Bot. Gard.*. **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneieae.

Basionym and/or Replacement Name: *Avena pallida* Thunb., *Prodr. Pl. Cap.* 22 (1794).

Recent synonyms: *Pentaschistis pallida*, *P. thunbergii* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (54 as *P.Thunbergii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (307).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (308, fig. 241).

Habit. Perennial. Culms 15–40 cm tall, 2–5 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades 10 cm long, 5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2–8 cm long, 1–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 4–5 mm long.

Glumes. Glumes similar, shiny. Lower glume elliptic, membranous, keeled, 1-keeled, 1 -nerved. Upper glume elliptic, 3–5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 2–2.5 mm long, without keel, 5–9 -nerved. Lemma surface indumented. Lemma apex dentate, awned, 3 -awned. Median (principal) awn from a sinus, 6–7 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.4 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Drummond. **South Australia:** Northern Lofty, Murray, Southern Lofty, South-eastern.

Notes. Uncommon in West and South Australia, a weed introduced from South Africa, very variable. Flowers Nov. to Dec.

Pentapogon quadrifidus (Labill.) Baill. *Histoire des Plantes* 12: 280 (1893). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis quadrifida* Labill., *Nov. Holl. Pl.* 1: 20, t. 22 (1804).

Type of Basionym or Protologue Information: Tasmania: Coll?.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (171 as *Agrostis billardieri*, 175), [1878] G.Bentham, *Flora Australiensis* 7 (572 as *Pentapogon billardieri*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (235), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (335), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (234 & as var. *quadrifidus*, 235 as var. *parviflorus*).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (207), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (236, fig.180 as var. *quadrifidus*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (335), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (236, Fig.33 as var. *quadrifidus*).

Habit. Perennial. Culms 10–70 cm tall. Leaves cauline. Ligule an eciliate membrane, 0.5–1(–2) mm long, truncate. Leaf-blades filiform, involute or convolute, 2–15 cm long, 0.3–1.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or obovate, laterally compressed, 4.3–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume lanceolate, 3–8.1(–10) mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous. Upper glume apex awned.

Florets. Fertile lemma 4.3–6(–7) mm long, without keel, 5 -nerved. Lemma apex awned, 5 -awned. Median (principal) awn from a sinus or dorsal, 7–20 mm long overall, with a twisted column. Lateral lemma awns present.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Murray, Southern Lofty, South-eastern. **New South Wales:** Northern Tablelands, Southern Tablelands. **Victoria:** Lowan Mallee, Murray Mallee, Wimmera. **Tasmania:** Furneaux Group, North East, West Coast, Central Highlands, Midlands, East Coast.

Notes. .

Infra -specific taxa: var. *quadrifidus*, var. *parviflorus*.

Glumes 6.5–10 mm long; awn to 20 mm long

P. quadrifidus var. *quadrifidus*

Glumes 3–5 mm long; awn to 10 mm long

P. quadrifidus var. *parviflorus*

Pentapogon quadrifidus var. *quadrifidus*

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

Notes. One specimen from Vic. with flat, glabrous leaves, glabrous sheath and nodes, but otherwise apparently conforming to sp. A number of specimens apparently cleistogamous, with small (0.3 mm) anthers retained at the top of the fruit and tightly enclosed within the lemma.

SE Australia, Tas., Vic., S.A., and N.S.W. Occurring in a variety of habitats, but often in open woodland and heath, and moist, shady situations. Flowers Nov.-Dec. Fruits Oct.-Feb.

Pentapogon quadrifidus var. *parviflorus* (Benth.) D.I. Morris. *Muelleria* 72(2): 167. 1989.

Classification. Basionym and/or Replacement Name: *Pentapogon billardieri* var. *parviflorus* Benth., *Fl. Austral.* 7: 573 (1878).

Type of Basionym or Protologue Information: HT: C. Stuart s.n., Australia: Recherche Bay (K).

Australian Distribution: Tasmania.

Notes. Tas. Grows from sea-level to c. 1200 m in sedge-grasslands, heath, rock-crevices, boulder slopes and stream banks in the Central Highlands and on Mt Wellington.

Periballia minuta* (L.) Aschers. & Graebn. *Syn. Mitteleur. Fl.* 2: 298 (1899). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Aira minuta* L., *Sp. Pl.* 1: 64 (1753).

Type of Basionym or Protologue Information: LT: *Loefling s.n.*, Spain: near Madrid (LINN-85.4). LT designated by Scholz in Cafferty et al., *Taxon* 49(2): 244 (2000).

Recent synonyms: *Mollineriella minuta*, *Molineria minuta*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (238), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (302 as *Molineriella*), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (153 as *Molineriella*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (237, fig. 181), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (302 as *Molineriella*), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (138, Fig.21 as *Molineriella*).

Habit. Annual. Culms erect or decumbent, 3–20 cm tall, 1–2 -noded. Leaves cauline. Ligule an eciliate membrane, 1–2.5 mm long, entire or bilobed, obtuse. Leaf-blades 1–4 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1.2–4.3 cm long, 1.2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 1.5–2 mm long.

Glumes. Glumes similar, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or elliptic, 1.3–1.7 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.3–1.8 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex mucous. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Irwin, Drummond, Dale, Avon. **South Australia:** Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** South-Western Slopes, South-Western Plains. **Victoria:** Gippsland Plain, Grampians, Midlands, Riverina, Volcanic Plain, Wimmera.

Notes. Callus hairs much shorter than as described in Fl. Europ., and anthers much shorter 0.9–1 mm in Fl Eur. Resembles *Aira*.

Native to the Mediterranean. Dry, open habitats, often on sand and tolerating somewhat saline conditions, commonly a weed of pasture or disturbed woodland. Flowers Aug.–Oct.

Perotis clarksonii J.F. Veldkamp. *Austrobaileya* 3: 609 (1922). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *J.R. Clarkson 6802*, 7 Mar 1987, Australia: Queensland, Cook, 90 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 15–40 cm tall. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades spreading, lanceolate, flat or involute, 1.7–3.5 cm long, 1.7–3.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 12–29 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, terete, 47.5–55 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume linear, 1 -nerved. Lower glume apex awned. Upper glume subulate, 6–11 mm long, 1 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 8–9 mm long, without keel, 1 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Endemic; in lower altitude areas of the Great Dividing Ra., in the SE quarter of Cape York Penin., Qld. On sandy soils in granitic areas with savannah woodland and a grassy understorey.

Perotis indica* (L.) Kuntze. *Rev. Gen. Pl.* 2: 287 (1891). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Anthoxanthum indicum* L., *Sp. Pl.* 1: 28 (1753).

Type of Basionym or Protologue Information: Sri Lanka:, *Hermann s.n.* (HT: BM).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms geniculately ascending, 15–40 cm tall. Mid-culm nodes glabrous. Ligule an eciliate membrane. Leaf-blades erect or spreading, lanceolate or ovate, flat or involute, 1–5 cm long, 2–10 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 2–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, terete, 6.5–30 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume lanceolate, 1.5–2.5 mm long, membranous, without keels, 1 -nerved. Upper glume surface scabrous, indumented. Upper glume apex awned.

Florets. Fertile lemma 0.5–1 mm long, without keel, 1 -nerved. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Introduced; Only one locality reported in N Qld, but species is definitely naturalized there; distributed from India to E. China (Hopeh), throughout Malesia; introduced elsewhere in tropical countries. In Australia, known from open grassy *Eucalyptus* woodland on sandy loam; elsewhere it grows in sandy soil near the coast, under *Casuarina* sp., in coconut plantations, dry grasslands, usually at low altitudes, rarely as high as 1065 m in Malesia.

Perotis rara R. Br. *Prodr.* 172 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: *Brown 6149* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (172), [1878] G.Bentham, *Flora Australiensis* 7 (509), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (186), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (469), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (393), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (336).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (187, Pl. 54), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 40G-H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (393, Fig. 325), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (336).

Habit. Annual or perennial. Culms erect or geniculately ascending, 15–40 cm tall. Mid-culm nodes glabrous. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades erect or ascending, lanceolate, flat, 2–5 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 10–28 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, terete, 13–35 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume linear, membranous, without keels, 1 -nerved. Lower glume apex awned. Upper glume linear, 5–11 mm long, membranous, without keels, 1 -nerved. Upper glume surface scabrous. Upper glume apex awned.

Florets. Fertile lemma 2–4 mm long, without keel, 1 -nerved. Palea 0 -nerved, without keels. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Kearthland, Fortescue, Ashburton, Austin. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, North-Western Slopes, North-Western Plains, North Far Western Plains.

Notes. Native; widespread through elevated areas of northern Australia, including the Pilbara and Kimberley regions of W.A., most of the N.T. and Qld excluding the great deserts and channel country, and in N.S.W. chiefly on the western slopes and plains of the Great Divide, extending S to the central coast hinterland; Asia (Vietnam), through Papua New Guinea. Occurs in a variety of habitats from coastal dunes and vine thickets to *Eucalyptus* open forests on lateritic soils, but most often on sandy soils near streams or waterholes or in other disturbed areas, in woodland with *Angophora*, *Eucalyptus*, *Acacia*, *Callitris*, *Alphitonia*, *Petalostigma*,

Terminalia, *Brachychiton* or *Melaleuca* spp.; may be the dominant grass species or a minor component of the understorey.

Phalaris angusta* Nees ex Trin. *Spec. Gram.* 1: pl. 78 (1828). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Trinius, Sp. Gram. t.* 78 (1828), LT designated by Anderson, *Iowa St. J. Sci.* 36: ? (1961).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (23), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (427), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (337), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (152).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (24 & 25, Pl. 4 & 5), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (337).

Habit. Annual. Culms stature robust to moderate or slender to delicate, 29–150 cm tall, 4–7 -noded. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, entire. Leaf-blades 5.5–27 cm long, 4–10 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 2.5–18.5 cm long, 0.6–1.5 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 2.9–5.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, winged on keel, winged narrowly, 3–5 -nerved. Lower glume apex muticous. Upper glume elliptic, 2.8–5.5 mm long, chartaceous, keeled, 1-keeled, winged on keel, 3–5 -nerved. Upper glume surface scabrous. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 25 % of length of spikelet, without keels. Lemma of upper sterile floret 1–1.4 mm long.

Fertile lemma 2–3.8 mm long, keeled, 5 -nerved. Lemma surface indumented. Palea 2 -nerved, without keels. Lodicules present. Anthers 3. Grain 1.4–1.6 mm long.

Continental Distribution: Africa, Australasia, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Drummond. **Queensland:** Moreton. **New South Wales:** North Coast, Central Coast, Southern Tablelands.

Notes. Vickery (1975) notes that it reportedly provides excellent winter feed when other grasses are growing only slowly.

One of a group of species indigenous to several areas in the Americas, (*P. lemmonii*) also in the group, has been recorded in Australia.

Introduced. Native to South America and southern North America. Wet sites and those susceptible to seasonal inundation. Vickery (1975) notes that it appears to be distributed by flooding on low-lying ground. Flowers Oct.-Nov. Fruits Nov.-Jan.

Phalaris aquatica* L. *Cent. Pl.* 1: 4 (1755). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Hasselquist s.n.*, Middle East (LINN-78.4). LT designated by Hubbard, *Fl Trop. E. Africa* 97 (1970).

Recent synonyms: *P. tuberosa*, *P. tuberosa* var. *stenoptera*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (as *P. tuberosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (427), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (239), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (337), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (147).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (24, Pl.4, as *P. tuberosa*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (240, Fig. 182), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (209), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (335), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Perennial. Rhizomes present, short. Culms 65–150 cm tall, 4–6 -noded. Ligule an eciliate membrane, entire. Leaf-blades 9.5–35 cm long, 3–15 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1.5–13.5 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 4.3–7.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, winged on keel, winged moderately, 3 -nerved. Lower glume apex muticous. Upper glume elliptic, 4.5–7.5 mm long, chartaceous, keeled, 1-keeled, winged on keel, 3 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret indurate. Lemma of upper sterile floret 0.2–2.2 mm long.

Fertile lemma 2.8–4.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Palea 2 -nerved, without keels. Anthers 3. Grain 2.2–2.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond. **South Australia:** Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Leichhardt, Darling Downs. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Grown as a pasture grass, extensively cultivated on the N.S.W. tablelands.

Introduced. Occurring in all states, but not N.T., also on Lord Howe Is. Native to the Mediterranean. Often along river and creek banks, in some areas on roadsides and waste areas. Flowers (July-)Oct.-May. Fruits Jan.-Mar.

Phalaris arundinacea* L. *Sp. Pl.* 55 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *arundinacea* 3, (LINN-78.7). LT (as holotype) ineffectively designated by Anderson, *Iowa St. Coll. J. Sci.* 36: 37 (1961); effectively designated by Baldini & Jarvis, *Taxon* 40: 47? (1991).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (26), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (428), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (239), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (338), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (146, 147 as var. *arundinacea*, var. *picta*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (24 & 25, Pl. 4 & 5), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (241, fig. 183 as var. *arundinacea* & 241, fig. 184 as var. *picta*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Annual or perennial. Rhizomes present, elongated. Culms erect, 50–188 cm tall, 6–9 -noded. Leaves cauline. Ligule an eciliate membrane, 6–10 mm long, entire or erose. Leaf-blades 10–44 cm long, 5–17 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, dense, 7–40 cm long, 1–4 cm wide.

Spikelets. Spikelets pedicelled. Basal sterile spikelets absent. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1(–2) fertile floret(s), without rachilla extension, ovate, laterally compressed, 3.5–7.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, wingless or winged on keel, winged narrowly, 3 -nerved. Upper glume elliptic, 3.5–7.5 mm long, chartaceous, keeled, 1-keeled, wingless or winged on keel, 3 -nerved. Upper glume surface asperulous. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 30–40 % of length of spikelet, membranous, without keels. Lemma of upper sterile floret 1.2–1.4 mm long.

Fertile lemma 2.7–4.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Wannon. **Tasmania:** King Island, Midlands.

Notes. Vickery (1975) notes that the species is somewhat useful for pasture in marshy soils, but is not widely cultivated in Australia.

Highly variable species, distinct from other species of the genus.

1(0). Leaves green, with a pale midrib, not striped **1a. var. arundinacea**

Leaves striped green and cream **1b. var. picta.**

Introduced. Southern Australia, all states except N.T. and Qld. Native to temperate regions throughout the Northern Hemisphere, now widely distributed, occurring in New Zealand, southern Africa, the Mediterranean, eastern Asia, the Pacific, North and South America. Often in wet situations, in marshes or beside water. Flowers Dec.-Feb.?

Phalaris arundinacea var. arundinacea

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338).

Notes. Southern Australia, all states except N.T. and Qld. Often in wet situations, in marshes or beside water. Flowers Nov.-Jan.

Phalaris arundinacea var. picta L. *Sp. Pl.* 1: 55 (1753).

Classification. Type of Basionym or Protologue Information: LT: *cult.*, *Herb. Burser* 1: 22, (UPS). LT designated by Baldini & Jarvis, *Taxon* 40: 481 (1991).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338).

Notes. Southern Australia, all states except N.T. and Qld. Often in wet situations, in marshes or beside water. Flowers Dec.-Feb.?

Phalaris canariensis* L. *Sp. Pl.* 1: 54 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Herb. Clifford* 23, *Phalaris n. 1*, *cult.*, (BM). CT proposed by Baldini & Jarvis, *Taxon* 40: 483 (1991); LT by Anderson, *Iowa St. J. Sci.* 36: 59 (1961), inval..

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (557), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (23), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (428), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (242), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (338), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (150).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (24, 25 & 27, Pl. 4,5 & 6), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (242, fig. 185), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (148, Fig.22).

Habit. Annual. Culms erect or geniculately ascending, 20–120 cm tall, 5–6 -noded. Leaves cauline. Ligule an eciliate membrane, 3–8 mm long, entire. Leaf-blades 5–31.5 cm long, 4–16 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1.5–6.3 cm long, 1.2–2.2 cm wide.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, winged on keel, winged broadly, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume elliptic, 6–10 mm long, chartaceous, keeled, 1-keeled, winged on keel, 3–5 -nerved. Upper glume surface asperulous, indumented. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 40–60 % of length of spikelet, membranous, without keels or 1-keeled. Lemma of upper sterile floret 2.5–3.4 mm long.

Fertile lemma 4.6–6 mm long, keeled, 5 -nerved. Lemma surface indumented. Palea 2 -nerved, without keels. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond. **South Australia:** Flinders Ranges, Northern Lofty, Southern Lofty. **Queensland:** Cook, Darling Downs, Moreton, Wide Bay. **New South Wales:** Central Coast, South Coast, Central Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** Gippsland Plain, Midlands, Murray Mallee, Volcanic Plain. **Tasmania:** Midlands, East Coast.

Notes. Cultivated for bird seed, also palatable to stock.

A species readily distinguished by its relatively large foliaceous sterile florets.

Introduced. All states and territories except the N.T., also on Lord Howe Is. Native to N Africa and the Canary Is., now introduced and naturalized in many countries. In dry habitats, on disturbed soils, often with a preference for sandy soils, often arising from the discarded cleanings from bird cages. Flowers Sept.-Mar. Fruits Sept.-Dec.

Phalaris coerulescens* Desf. *Fl. Atlant.* 1: 56 (1798). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Herb. Desf. s.n.*, Habitat in arvis Algeriae (P). LT designated by Kerguélen, *Lejeunia* 75: ? (1975).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (338), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (150).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (24 & 25, Pl. 4 & 5), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338).

Habit. Perennial. Culms 100–150 cm tall. Ligule an eciliate membrane. Leaf-blades 5–25 cm long, 1.5–4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or elliptic, 3–11 cm long, 1–2.3 cm wide.

Spikelets. Spikelets pedicelled, 1–2 in the cluster. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, obovate, 5.3–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, 3-nerved. Upper glume elliptic, 4.3–9 mm long, chartaceous, keeled, 1-keeled, 3-nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 2 or more.

Fertile lemma 2.7–4.4 mm long, keeled, 5-nerved. Palea 2-nerved, without keels. Grain 2.8–3.3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, New South Wales, Victoria.

Western Australia: Dale. **New South Wales:** Northern Tablelands. **Victoria:** Volcanic Plain.

Phalaris minor* Retz. *Obs. Bot* 3: 8 (1783). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: T: *Anon.*, Oriente (LD-89/31.1962). LT designated by Baldini, *Webbia* 47(1): ? (1993).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (556), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (23), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (428), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (242), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (339), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (149).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (24 & 25, Pl. 4 & 5), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (242, Fig. 186), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (339).

Habit. Annual. Culms erect or geniculately ascending, stature robust to moderate or slender to delicate, 5–103 cm tall, 3–10-noded. Ligule an eciliate membrane, 2–7.5 mm long, entire. Leaf-blades 4.8–27.5 cm long, 3–13 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1–9 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 4–6.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, chartaceous, keeled, 1-keeled, winged on keel, winged moderately, 3-nerved. Lower glume apex muticous. Upper glume elliptic, 4–6.5 mm long, chartaceous, keeled, 1-keeled, winged on keel, 3-nerved. **Florets.** Basal sterile florets 2 or more. Lemma of upper sterile floret 1–1.8 mm long.

Fertile lemma 2.4–4 mm long, keeled, 5-nerved. Lemma surface indumented. Palea 1–2-nerved, without keels. Anthers 3. Grain 2.3–2.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond. **South Australia:** Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Moreton, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, East Coast.

Notes. Grown for forage and seed, widespread as an escape from cultivation.

Introduced. All states and territories except N.T. Introduced and naturalised in many temperate regions, but native to the Mediterranean. A weed of cultivation and disturbed areas, often in moist habitats. Flowers Aug.-Jan. Fruits Oct.-Mar.

Phalaris paradoxa* L. *Sp. Pl.* ed. 2, 1: 87 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: paradoxa HU (LINN-78.6). LT designated by Baldini & Jarvis, *Taxon* 40: 483 (1991).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (26), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (243), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (339), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (151).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (24 & 25, Pl. 4 & 5), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (243, Fig. 187), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (338).

Habit. Annual. Culms erect or geniculately ascending, stature robust to moderate, 7–100 cm tall, 2–6 -noded. Ligule an eciliate membrane, 2–8 mm long, entire. Leaf-blades 3.3–28 cm long, 2–9 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or obovate, (20–)40–75(–100) cm long, 1.5–2.5 cm wide.

Spikelets. Spikelets pedicelled or sessile, 1 in the cluster. Companion spikelets pedicelled, 6 in the cluster. Involucre composed of imperfect spikelets. Companion spikelets developed, containing empty lemmas, 4–6 mm long. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, laterally compressed, 6.4–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume subulate or ovate, chartaceous, keeled, 1-keeled, winged on keel, winged moderately, 3(–7) -nerved. Lower glume apex muticous. Upper glume ovate, 6.4–8 mm long, chartaceous, keeled, 1-keeled, winged on keel, 3(–7) -nerved. **Florets.** Basal sterile florets 2 or more.

Fertile lemma 2.5–3.5 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved, without keels. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Eastern, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. Occasionally grown for fodder.

P. paradoxa is most closely allied to *P. coerulescens*.

Introduced. Southern and eastern mainland Australia - N.S.W., A.C.T., Vic., W.A., Qld and S.A. Introduced and naturalised in many countries, native to the Mediterranean. Usually in disturbed places, commonly a weed in irrigated and seasonally wet areas. Flowers Sept.-Feb. Fruits Oct.-Jan.

Pheidochloa gracilis S. T. Blake. *Proc. Roy. Soc. Queensland* 56: 20 (1944). **Classification.** (GPWG 2001) : Subfamily Micrairoideae. Tribe Nardeae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 13732*, 8 Apr 1938, Australia: Queensland: Cook Dist. (L, US-1868027).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature slender to delicate, 6–50 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple or branched. Ligule a fringe of hairs, 0.1–0.2 mm long. Leaf-blades filiform, convolute, 0.3–4 cm long, 0.2–0.4 mm wide. Leaf-blade surface papillose.

Inflorescence. Inflorescence solid, a panicle. Panicle elliptic, 1.5–3.2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, both fertile, comprising 2 fertile floret(s), without rachilla extension, lanceolate, laterally compressed, 5–13 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 5.1–11 mm long, membranous, without keels, 7 -nerved. Upper glume surface smooth, glabrous.

Florets. Fertile lemma 2.5–5 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex entire, awned, 1 -awned. Median (principal) awn 20–45 mm long overall. Palea 2 -nerved. Palea apex entire, muticous. Lodicules present. Anthers 2. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. N.T. and Qld. In damp sandy heaths, herbfields, eucalypt or *Melaleuca* woodlands. Flowers Apr.-Sept.

Phleum arenarium* L. *Sp. Pl.* 60: (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-81.6). LT designated by Dogan in Cafferty et al., *Taxon* 49(2): 254 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (429), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (244).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (241, Fig.34).

Habit. Annual. Culms erect or geniculately ascending, 1–15(–30) cm tall, 1–4 -noded. Leaves cauline. Ligule an eciliate membrane, 4–7 mm long. Leaf-blades 0.5–6 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or obovate, 0.5–5 cm long, 0.3–0.7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 3–4 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 2–3 -nerved. Lower glume apex muticous. Upper glume oblong, 3–4 mm long, membranous, keeled, 1-keeled, 2–3 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 1.5–2 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex entire, muticous. Palea without keels. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia.

Western Australia: Menzies.

Notes. Introduced. Known only in coastal heath in the Yallingup area, W.A. Along or near coasts of W Europe S from Sweden and in the Mediterranean.

Phleum pratense subsp. pratense* L. *Sp. Pl.* 59 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: Herb. Linn. no. 26 (Institut de France). LT designated by Humphries in Jarvis et al., *Regnum Veg.* 127: 75 (1993).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (146), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (429), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (244),

[2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (339), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (244 as spp. *pratense*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (148, Pl. 44), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (207), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (245, fig. 188 as subsp. *pratense*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (339), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (213, Fig. 29; 241, Fig.34).

Habit. Perennial. Culms erect or geniculately ascending, stature robust to moderate, 20–150 cm tall, 3–6 -noded. Leaves mostly basal. Ligule an eciliate membrane, 1–6 mm long. Leaf-blades 4–36 cm long, 3–10 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, (2–)6–15(–30) cm long, 0.6–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, (2–)3.4–4.3(–5.5) mm long.

Glumes. Glumes similar. Lower glume oblong, membranous or coriaceous, keeled, 1-keeled, 3 -nerved. Lower glume apex awned. Upper glume oblong, 3–4.3 mm long, membranous or coriaceous, keeled, 1-keeled, 3 -nerved. Upper glume apex awned.

Florets. Fertile lemma 1.4–2.3 mm long, without keel or keeled, 5–7 -nerved. Lemma surface indumented. Lemma apex erose or dentate, mucronate. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Eucla, Drummond, Warren. **South Australia:** Murray, Southern Lofty, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Otway Plain, Otway Range, Snowfields, Volcanic Plain. **Tasmania:** Central Highlands, Midlands, East Coast.

Notes. Previously valuable as a pasture and hay plant in cooler localities, planted as a soil stabiliser on road verges and works areas at higher altitudes in Vic.

Description agrees with subsp. *pratense* in Tutin (1980).

Introduced. Tas., N.S.W., Vic., W.A. and S.A. Native of the Mediterranean. Disturbed sites, usually at higher altitudes. Flowers Jan.–Mar.

Phleum subulatum* (Savi) Aschers. & Graebn. *Syn. Mitteleur. Fl.* 2: 154 (1899). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Phalaris subulata* Savi, *Fl. Pis.* 1: 57 (1798).

Type of Basionym or Protologue Information: LT: *Savi s.n.*, Italy: Monte Pisano (FI; ILT: PI). LT designated by Baldini & Jarvis (1991: 482), *Taxon* 40: 475–485..

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (241, Fig.34).

Habit. Annual. Culms geniculately ascending or decumbent, 7–42 cm tall, 1–6 -noded. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane, 2.5–5 mm long. Leaf-blades 1–15 cm long, 1–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–12 cm long, 0.3–0.9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with a barren rachilla extension, elliptic, laterally compressed, (1.5–)2–4 mm long.

Glumes. Glumes similar. Lower glume elliptic, membranous, much thinner on margins, keeled, 1-keeled, 3 -nerved. Lower glume apex mucronate. Upper glume elliptic, (1.5–)2–4 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous. Upper glume apex mucronate.

Florets. Fertile lemma 1.5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Pholiurus pannonicus* (Host) Trin. *Fund. Agrost.* 131 (1820). **Classification.** (GPWG 2001) : Subfamily Pooideae.

Basionym and/or Replacement Name: *Rottboellia pannonica* Host, *Icon. Descr. Gram. Austriac.*, 1: 19, t. 24 (1801).

Type of Basionym or Protologue Information: In salsis Pannoniae, *Waldstein & Kitaibel s.n.*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (141).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (142, fig. 95).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 10–30 cm tall. Ligule an eciliate membrane, 2.5–3 mm long, lacerate. Leaf-blades 4–6 cm long, 2–2.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, smoothly terete, 5–12 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 fertile floret(s), without rachilla extension, oblong, laterally compressed, 6–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 7 -nerved. Upper glume lanceolate, 6–7 mm long, coriaceous, without keels, 7 -nerved.

Florets. Fertile lemma 5.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Anthers 3.

Continental Distribution: Europe, Temperate Asia, and Australasia.

Australian Distribution: South Australia.

South Australia: Northern Lofty, Yorke Peninsula.

Phragmites australis (Cav.) Trin. ex Steud. *Nom. Bot.* ed. 2, 2: 324 (1841). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Arundineae.

Basionym and/or Replacement Name: *Arundo australis* Cav., *Anales Hist. Nat.* 1: 100 (1799).

Type of Basionym or Protologue Information: HT: *Anon.*, Australia (MA). HT discussed by Clayton, *Taxon* 17: 168 (1968).

Recent synonyms: *P. communis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (183 as *Arundo Phragmites*), [1878] G.Bentham, *Flora Australiensis* 7 (636 as *Phragmites communis*), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (438), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (309), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (340).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (213), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.1,A-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (310, fig. 242), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (340).

Habit. Perennial. Rhizomes present, elongated. Basal leaf sheaths absent. Culms erect, stature reed-like, 100–600 cm tall. Leaves cauline. Ligule a fringed membrane, a ciliate membrane. Leaf-blades 20–60 cm long, 8–32 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 20–50 cm long, 6–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–11), comprising 1 basal sterile florets, comprising 3–11 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 10–18 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 5–9 mm long, membranous, without keels, 3–5 -nerved. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 9–13 mm long, without keel, 1–3 -nerved. Lemma surface glabrous. Lemma apex muticous. Palea 2 -nerved. Lodicules present. Anthers 3 (2 in sterile floret). Grain 1.4 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Eyre. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Burnett, Cook, Darling Downs, Maranoa, Moreton, Port Curtis, Wide Bay, Burke, North Kennedy, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast, South West.

Notes. H.J.Conert (*Die Systematik und Anatomie der Arundineae* (1961) recognises a complex infraspecific taxonomy, W.D.Clayton (*Kew Bull.* 21: 114 (1967) upholds two subspecies. The variation patterns are exceedingly complex: here I recognise no subspecies. Distinct from *P. karka* by the longer glumes and longer

rhachilla hairs. Various authors use various other characters. Many collections from Northern Queensland are difficult to assign to either species.

Dominant or common clonal plant along rivers and streams in temperate zones of the planet; sometimes found in semi-salt water and tidal systems, and along saline springs. Flowers April to June.

Phragmites karka (Retz.) Trin. ex Steud. *Nom. Bot.* ed. 2, 2: 324 (1841). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe Arundineae.

Basionym and/or Replacement Name: *Arundo karka* Retz., *Observ. Bot.* 4: 21 (1786).

Type of Basionym or Protologue Information: India:, *Koenig s.n. herb. Retzius* (HT: LD).

Recent synonyms: *P. vallatoria* auct.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (133), [1980] M.Lazarides, *Tropical Grasses S.E.Asia* (438), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (311).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (132, Pl. 39), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (311, fig. 243).

Habit. Perennial. Rhizomes present, elongated. Basal leaf sheaths absent. Culms erect, stature reed-like, 100–1000 cm tall. Leaves cauline. Ligule a fringed membrane, a ciliate membrane. Leaf-blades 20–80 cm long, 10–40 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, dense, 30–50 cm long, 10–20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–11), comprising 1 basal sterile florets, comprising 3–11 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–14 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume elliptic, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 4–6 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–7 -nerved.

Fertile lemma 8.5–11 mm long, without keel, 1–3 -nerved. Lemma surface glabrous. Lemma apex muticous. Palea 2 -nerved. Lodicules present. Anthers 3 (2 in sterile floret). Grain 1.1 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Fortescue. **Northern Territory:** Darwin & Gulf. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, South Kennedy, North Kennedy.

Notes. This species is separated from *P. mauritanus* by only the shape of the upper glume, and that they possibly do not deserve specific rank (W.D. Clayton, *Flora of East Tropical Africa* 1: 120 (1970). *P. karka* sometimes has pungent leaves, which provide an additional way of separating the species.

Common aquatic reed, growing with the rhizomes in water.

Phyllostachys aurea* Rivière & C.Rivière. *Bull. Soc. Acclim.* Ser. 3, 5: 716 (1878). **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Type of Basionym or Protologue Information: T: *Anon. s.n.*, Africa: Tunis: Cultivated in "Jardim du Hamma" (P).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (53), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (341), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (358).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (215), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (52, fig.18; plate 1), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (341).

Habit. Perennial. Rhizomes present, elongated. Basal leaf sheaths absent. Culms erect, 200–800 cm tall, 20–30 mm diam., woody. Mid-culm internodes hollow, thin-walled, glabrous. Lateral branches dendroid. Leaves cauline. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliate membrane, 1 mm long. Leaf-blades lanceolate or oblong, flat, 5–15 cm long, 5–22 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence unknown.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 18–25 mm long.

Glumes. Upper glume oblong, chartaceous, without keels.

Florets. Fertile lemma 15 mm long, without keel. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: South Australia, Queensland, New South Wales.

South Australia: Southern Lofty. **Queensland:** Moreton. **New South Wales:** North Coast, Central Coast.

Notes. Naturalized in several areas on the central and north coasts, N.S.W. Native of China.

Phyllostachys bambusoides* Sieb. & Zucc. *Abh. Akad. Muench.* 3, 2 745. t. 5. f. 3 (1843). **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Type of Basionym or Protologue Information: T: *P.F. von Siebold s.n.*, Japan (US-2876340 (fragm. ex L)). T: Japan (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (358).

Habit. Perennial. Rhizomes present, elongated. Basal leaf sheaths absent. Culms erect, 300–400 cm tall, 12–20 mm diam., woody. Mid-culm internodes hollow, thin-walled, glabrous. Mid-culm nodes glabrous. Lateral branches dendroid. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule an eciliate membrane, obtuse. Leaf-blades lanceolate or oblong, flat, 7.5–10 cm long, 12–20 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence unknown.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 1–4 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 25–30 mm long.

Glumes. Upper glume oblong, 7–8 mm long, chartaceous, keeled, 1-keeled.

Florets. Fertile lemma 20 mm long, without keel, 11–13 -nerved. Palea apex with excurrent keel nerves. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Queensland.

Queensland: Moreton, North Kennedy.

Notes. Known from a few collections from Qld, possibly not naturalised. Native of China and Japan.

Phyllostachys nigra* (Lodd.) Munro. *Trans. Linn. Soc.* 26: 38 (1868). **Classification.** (GPWG 2001) : Subfamily Bambusoideae. Tribe Bambuseae.

Basionym and/or Replacement Name: *Bambusa nigra* Lodd. ex Lindl., *Penny Cyclop.* 3: 357 (1835).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (341), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (357).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (341), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (356, Fig. 48).

Habit. Perennial. Rhizomes present, elongated. Basal leaf sheaths absent. Culms erect, 300–700 cm tall, 10–40 mm diam., woody. Mid-culm internodes hollow, thin-walled, pubescent (when young) or pilose or glabrous. Lateral branches dendroid. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades lanceolate, flat, 6–12 cm long, 10–15 mm wide.

Inflorescence. Inflorescence unknown.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 1–4 fertile floret(s), with a barren rachilla extension, lanceolate, laterally compressed, 18–25 mm long.

Glumes. Upper glume oblong, chartaceous, without keels, 7–9 -nerved.

Florets. Fertile lemma 19 mm long, without keel, 9 -nerved. Lemma surface indumented. Palea 6 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, and South America.

Australian Distribution: New South Wales.

New South Wales: Central Coast.

Notes. Naturalised in several areas on the central coast, N.S.W. Native of China.

Piptatherum miliaceum* (L.) Coss. *Notes Pl. Crit.* 129 (1851). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Agrostis miliacea* L., *Sp. Pl.* 1: 61 (1753).

Type of Basionym or Protologue Information: HT: *van Royen s.n.*, Europe (L; T: LINN-84.2).

Recent synonyms: *Oryzopsis miliacea*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (183 as *Oryzopsis miliacea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler,

N.Marchant & M.Lewington, Flora of the South West (429), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (110), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (342), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (68).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (184, Pl.53 as *Oryzopsis miliacea*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (193), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (111, Fig. 72), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (342).

Habit. Perennial. Culms erect or geniculately ascending, 100–150 cm tall. Leaf-sheaths smooth. Ligule an eciliate membrane, 2–4 mm long, membranous, truncate or obtuse. Leaf-blades flat or convolute, 15–30 cm long, 5–10 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 15–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 3 -nerved. Upper glume elliptic, 3–3.5 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 2.5 mm long, without keel, 3 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 2–5 mm long overall, with a straight or slightly twisted column or with a twisted column. Palea 2 -nerved, without keels.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, Midlands, East Coast.

Notes. Widely distributed in the southern half of Australia; used to stabilise mine dumps in moist and semi-arid regions, and frequently spreading from such plantings.

Piptochaetium montevidense* (Spreng.) Parodi. *Revista Fac. Agron. Veterin.* 7: 163 (1930).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Stipeae.

Basionym and/or Replacement Name: *Caryochloa montevidensis* Spreng., *Syst. Veg.* 4(2): 30 (1827).

Type of Basionym or Protologue Information: HT: *F. Sellow s.n.*, no date, Uruguay: Montevideo (B; IT: MO-2097072, US-865749 (fragm. ex B)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (70).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (69, Fig 10).

Habit. Perennial. Culms 30–63 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane, 1.5–2 mm long, membranous, truncate. Leaf-blades filiform, conduplicate or involute or convolute, 5–15 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 2–10 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 3–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, hyaline, without keels, 5 -nerved. Upper glume lanceolate, 3–3.7 mm long, hyaline, without keels, 3 -nerved.

Florets. Fertile lemma 1.5–2 mm long, without keel. Lemma apex entire, awned, 1 -awned. Median (principal) awn 7–10 mm long overall. Palea 2 -nerved. Lodicules present. Grain 0.6–0.7 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: Victoria.

Victoria: Volcanic Plain, Gippsland Plain.

Notes. Known in Australia from a single, recently discovered occurrence at Altona, Victoria. In grassland with *Themeda* and *Stipa*. Flowers November.

Plagiosetum refractum (F. Muell.) R.D. Webster. *Austral. Paniceae* 148. 1987.

. **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Setaria refracta* F. Muell., *Fragm.* 3: 147 (1862).

Type of Basionym or Protologue Information: Australia]: "Ad rivum Cooper's Creek legit sub expeditionis Howittiana Dr. J. Murray.",.

Recent synonyms: *Plagiosetum refractum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (494 as *Plagiosetum refractum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (290 as *Plagiosetum refractum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (482 as *Plagiosetum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (467), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (342 as *Plagiosetum*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (291, Pl.85 as *Plagiosetum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (466, fig. 400), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (342 as *Plagiosetum*).

Habit. Annual. Culms erect or decumbent, 20–60 cm tall. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades convolute, 2–13 cm long, 2–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–15, deflexed or spreading, cuneate, 1–3.5 cm long, bearing 1–2 fertile spikelets on each. Central inflorescence axis 10–20 cm long. Rhachis deciduous from axis.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4.8–7.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 4.8–6.9 mm long, membranous, without keels, 13–19 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 13–19 -nerved.

Fertile lemma 4.1–6.1 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Canning. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges. **Queensland:** Gregory North, Gregory South, Mitchell, Warrego. **New South Wales:** North Far Western Plains.

Notes. Similar to *P. novae-hollandiae* except for the form of the primary branches. The bristle in *P. novae-hollandiae* is unmodified or a simple unbranched structure. In *P. refractum* the primary branch usually consists of 2 to 3 spikelets with each spikelet subtended by a branched bristle. In this species a single bristle consists of an elongated axis with secund alternating secondary bristles. On the upper part of the primary branch these compound bristles lack a subtending spikelet. The presence of a branched bristle is not unique to this species. The African genus, *Streptolophus*, appears to have a similar structure. In addition, if the axis of a compound bristle were reduced to a single point, the result may be similar to some species of *Setaria* where many bristles subtend a single spikelet.

In shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Common in red sandy soils and sand dune areas of arid central Australia. Flowers sporadically throughout the year.

Plinthanthesis paradoxa (R. Br.) S. T. Blake. *Contr. Qd Herb.* 14: 3 (1972). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia paradoxa* R. Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6230*, Australia (BM; IT: K, MEL).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia paradoxa*), [1878] G.Bentham, *Flora Australiensis* 7 (591as *Danthonia paradoxa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (343).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (219), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 5, A-F), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (343).

Habit. Perennial. Culms erect, 25–100 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaves mostly basal. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, convolute, 20–40 cm long, 2–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or pyramidal, 7–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 3–7 -nerved. Upper glume lanceolate, 4–6 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–4 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, mucronate or awned, 1 -awned. Median (principal) awn from a sinus, 0.5–1.5 mm long overall, with a straight or slightly twisted column. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Grampians, Lowan Mallee, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. There is some variation in this species in the development of the awn, which is also the critical key character distinguishing it from the other two species in the genus. Although *P. paradoxa* is morphologically close to *P. rodwayi*, there are no intermediate collections. The characters by which these two species are separated are given under *P. rodwayi*. However, there are some intermediate collections between *P. paradoxa* and *P. urvillei*. These are discussed under *P. urvillei*.

Extends from the Blue Mountains south to the Gippsland border, altitude 0–200 m, in marshy habitats on sandy or peaty soils, often along the coast in coastal heath over sandstone. Flowers Nov. to Dec.

Plinthanthesis rodwayi (C.E. Hubbard) S. T. Blake. *Contr. Qd Herb.* 14: 3 (1972). **Classification.** (GPWG 2001) : Subfamily Danthonioidae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia rodwayi* C.E. Hubb., *Hooker's Icon. Pl.* 35 t.: 3439 (1943).

Type of Basionym or Protologue Information: HT: *Rodway s.n.*, Australia (K; IT: FAR, NSW).

Recent synonyms: *Danthonia rodwayi*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (343).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 5, H), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (343).

Habit. Perennial. Culms decumbent, 20–60 cm tall, 2–3 -noded. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades curled, filiform, involute or convolute, 10–20 cm long, 1–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–8 cm long, 4–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), without rachilla extension or with a barren rachilla extension (when 2-flid), oblong, laterally compressed, 4.5–6.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 4.5–6.5 mm long, chartaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–4 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate, mucicous or mucronate. Median (principal) awn 0.5–1.5 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.4–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. *P. rodwayi* is close to *P. paradoxa*, and differs by the lemma awn being either completely lost, or if still present, then straight, and by the expanded leaf-blades. Although there is a strong superficial similarity between the two taxa, no intermediate specimens have been found, and they do not co-occur.

Restricted to the Mt Budawang in New South Wales., altitude 1100 m, Grassy heathland, local usually within shrubs of *Banksia* or *Leptospermum* growing to a height of 0.5–1 m, rarely in the open, apparently very heavily grazed, also along access track. Flowers Dec. or Jan.

Plinthanthesis urvillei Steud. *Syn. Pl. Gram.* 1: 14 (1854). **Classification.** (GPWG 2001) : Subfamily Danthonioidae. Tribe Danthonieae.

Type of Basionym or Protologue Information: Montes coerulei N. Holl., *Urville s.n.*

Recent synonyms: *Danthonia vickeryae*, *D. urvillei*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (344).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 5, G), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (344).

Habit. Perennial. Culms 30–80 cm tall, 2–3 -noded. Leaves mostly basal. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades flexuous, filiform, convolute, 20–30 cm long, 0.5–1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate or pyramidal, 5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), without rachilla extension, oblong, laterally compressed, 6–9 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 6–9 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1.8–4 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 3–4.5 mm long overall, with a straight or slightly twisted column. Column 1.2–1.6 mm long. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.3–1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast, Central Coast, Central Tablelands, North-Western Slopes.

Notes. This species is geographically rather restricted, and consequently shows little variation. *P. urvillei* can be immediately recognised in the genus by the awns which are exerted from the glumes. This has led to the suggestion that this species is intermediate to *Rytidosperma*.

Restricted to the Blue Mountains and the region around Sydney in New South Wales. Flowers Dec.

Poa affinis R. Br. *Prodr.* 179 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: apud Portum Jackson, inclusis ripis aestuarii Hunter's River vel Coal River, *R. Brown* 6287 (T: BM; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (347), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (330).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (347).

Habit. Perennial. Rhizomes absent or present. Stolons absent or present. Culms 40–120 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.4–1.1(–2) mm long, abaxially hairy, truncate or obtuse. Leaf-blades flat, 10–30 cm long, 1–5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–22.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((2–)3–5(–7)), comprising (2–)3–5(–7) fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 3.8–6 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, (1–)3 -nerved. Upper glume ovate, 1.5–2.5 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.6–2.7(–3.6) mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Coast, South Coast, Central Tablelands, Central-Western Slopes.

Notes. Endemic. N.S.W. Typically in dryish sandstone areas near Sydney. Flowers Nov.

Poa amplexicaulis C.M. Weiller & Stajsic. *Muelleria* 22: 11 (2005).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (325).

Poa annua L. *Sp. Pl.* 68 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-87.17 (right-hand plant)). LT designated by Soreng in Cafferty et al., *Taxon* 49(2): 254 (2000); same specimen indicated with uncertainty as HT by Veldkamp, *Blumea* 38: 421 (1994).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (654), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (106), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (431), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (430), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (145), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (347), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (309).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (145, Fig 96), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (347), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (308, Fig. 41).

Habit. Annual. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 2–46 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Lateral branches simple or sparsely branched. Leaves mostly basal or basal and cauline. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.9–3.4(–5) mm long, truncate or obtuse. Leaf-blades flat or conduplicate, 0.5–14 cm long, 1–5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal or ovate, 1–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4(–10)), comprising 3–4(–10) fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 3–10 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic or oblong, 2–3(–4) mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.5–4 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe, Macquarie, Heard.

Western Australia: Drummond. **Northern Territory:** Central Australia South. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Cook, Darling Downs, Moreton, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Introduced. Also on Lord Howe Is., Norfolk Is. and Macquarie Is. Native to the Mediterranean, now widely naturalized. Widespread in a range of habitats, common as a weed in gardens, pastures and disturbed sites such as roadsides. Flowers Sept.-Nov. Fruits Sept.-Nov.

Poa billardieriei (Spreng.) St.- Yves. *Candollea* 3: 284 (1927). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca littoralis* Labill. *Nov. Holl. Pl.* 1: 22, t. 27 (1804[1805]).

Type of Basionym or Protologue Information: T: *Labillardiere*, Tasmania: Capite Van-Diemen (FI).

Recent synonyms: *Austrofestuca triticoides* (Steud.) E.B.Alexeev, *Austrofestuca littoralis* (Labill.) E.B.Alexeev

Key references (books and floras): [1810]. R.Brown, *Prodromus* (178 as *Festuca littoralis*), [1878] G.Bentham, *Flora Australiensis* 7 (651), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (as *Festuca littoralis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Austrofestuca littoralis*), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (as *Austrofestuca littoralis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (112 as *Austrofestuca littoralis*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (348), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (275 as *Austrofestuca littoralis*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (93, Pl. 26 as *Festuca littoralis*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (143 as *Festuca littoralis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (113, Fig.73, as *Austrofestuca littoralis*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (348), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (273, Fig.36 as as *Austrofestuca littoralis*).

Derivation: *L. lit(t)us*, sea shore; *-ale*, pertaining to. Sand dune, salt marsh species or river-banks.

Habit. Perennial. Rhizomes present. Culms 8–75 cm tall. Ligule an eciliate membrane, 0.8–1.5 mm long, abaxially glabrous. Leaf-blades aciculate, involute, 8.5–50 cm long, 0.6–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate, 4–16 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 9.4–18 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume linear, coriaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume ovate, 9.3–14 mm long, coriaceous, keeled, 1-keeled, (3–)5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 8.5–12.8(–14.5) mm long, keeled, 5–8 -nerved. Lemma apex dentate, mucicous or mucronate. Median (principal) awn from a sinus. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Warren, Eyre. **South Australia:** Eyre Peninsula, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** East Gippsland, Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast.

Notes. Coastal regions of Tas., Vic., N.S.W. S from Grafton and W.A. Also N.Z. Flowers (July-)Sept.-Oct.(-Jan.). Fruits Dec.-Jan.

Poa bulbosa* L. *Sp. Pl.* 70 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Hasselquist s.n.*, (LINN-87.57). LT designated by Meikle, *Fl. Cyprus* 2: 1742, but specific sheet not indicated; specific sheet indicated by Soreng in Cafferty et al., *Taxon* 49(2): 255 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (107), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (146), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (348), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (310).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (146, Fig. 97as var. *bulbosa*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (348).

Habit. Perennial. Culms erect or geniculately ascending, 5–45 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth. Ligule an eciliate membrane, 1.5–6(–8) mm long, abaxially glabrous or abaxially hairy, obtuse or acute or acuminate. Leaf-blades flat or conduplicate, 1–11 cm long, 0.6–2.6 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense, 2–6 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 3–5.5 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 2–3.8 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.5–3.8 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Roe, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. Readily distinguished by the swollen, fleshy basal sheaths.

Introduced. Native to the Mediterranean, now widespread. Commonly in dry, disturbed sites, e.g. roadsides, wastelands or grasslands. Flowers Sept.-Feb. Fruits Nov.-?.

Poa cheelii Vickery. *Contr. New South Wales Natl. Herb.* 4: 195 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Blue Mts.: Between Mt. Victoria and Blackheath: 1 Jan 1958, *J. Vickery s.n.* (HT: NSW 43187).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (348), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (329).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (348).

Habit. Perennial. Rhizomes present, short. Culms 25–100 cm tall, 3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.9–1 mm long, abaxially hairy, truncate. Leaf-blades erect, straight or flexuous, flat or conduplicate or involute, 6–25 cm long, 0.6–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–25 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((2–)5–7), comprising (2–)5–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, (3.5–)5.5–9.4 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2–4.3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–4.5 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Port Curtis, Moreton. **New South Wales:** Central Coast, South Coast, Central Tablelands, North-Western Slopes.

Notes. Readily distinguished by the nature of the rhizome and its enveloping scales.

Endemic. N from Bega, N.S.W. Often on stony sites or poor soils in woodland. Flowers Dec.-Jan. Fruits Jan., Apr.

Poa clelandii Vickery. *Contr. New South Wales Natl Herb.* 4: 193 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: South Australia: National Park (near Adelaide): 17 Dec 1949, J.B. Cleland (HT: AD 95626093).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (146), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (326).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (147, fig. 98), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Rhizomes absent or present, short. Culms stature slender to delicate, 5–75 cm tall, 3–4 -noded. Mid-culm internodes glabrous or pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 0.25–1.75 mm long, abaxially hairy, truncate or obtuse. Leaf-blades erect, flat or conduplicate, 7.5–19.5(–25) cm long, 1–5 mm wide. Leaf-blade surface smooth or scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 9–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–6 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 1.5–2.8 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma (1.75–)3.2–3.4 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Wilsons Promontory, Wannon. **Tasmania:** North East, West Coast, Central Highlands, Midlands, East Coast, South West.

Notes. Distinguished by the glabrous honey-coloured ligule, usually compressed culm, broad, keeled, abruptly pointed leaf apex and purple colouration.

Endemic. Commonly in moist sites such as sandy swamplands and wet heathlands at low altitudes, also in rocky sites at higher altitudes in the Grampians, Vic. and Central Highlands of Tas. Flowers Sept.-Jan.(-Apr.). Fruits Dec.-Feb.(-Apr.).

Poa clivicola Vickery. *Contr. New South Wales Natl Herb.* 4: 213 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Kosciusko Plateau: jct. of Wragge's and Piper's Creeks: 9 Jan 1956, *J. Vickery & M. E. Phillips* (HT: NSW 46029).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (349), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (322).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (349).

Habit. Perennial. Culms stature slender to delicate, 15–60 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.4–1.5 mm long, abaxially glabrous or abaxially scaberulous, truncate. Leaf-blades erect, filiform, involute, 3–15 cm long, 0.2–0.4 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 2–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.8–8 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 2.6–3 mm long, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3–4 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Snowfields.

Notes. Endemic. S from Barrington Tops. Open eucalypt woodland, swampy plain, open grassland, frost hollows, apparently usually in wet sites. Flowers Dec.-Feb. Fruits Feb.-.

Poa compressa* L. *Sp. Pl.* 69 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: (LINN-87.41). LT designated by Soreng in Cafferty et al., *Taxon* 49(2): 255 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (349), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (310).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (349).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, stature slender to delicate, 10–60 cm tall, wiry, 4–6 -noded. Mid-culm internodes glabrous. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths smooth. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.4–1.3(–3) mm long, abaxially hairy, truncate or obtuse. Leaf-blades flat or conduplicate, 2–12 cm long, 1–4 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense or loose, 1.2–10 cm long, 0.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 3–8 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume ovate, 1.6–3 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales, Tasmania.

New South Wales: Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes. **Tasmania:** West Coast, East Coast.

Notes. Introduced. Widespread, native to Europe. Coloniser of waste lands and disturbed ground, often on shallow well-drained soils, also a weed of pasture.

Poa cookii

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Poa costiniana Vickery. *Contr. New South Wales Natl Herb.* 4: 214–215 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: IT: *R. Helms* 45793, Feb 1893, Australia: New South Wales, Kosciusko Mt, 1524 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (349), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (326).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (349).

Habit. Perennial. Culms erect, 15–80 cm tall, 1–2 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.6–2(–3) mm long, abaxially hairy, truncate or obtuse. Leaf-blades conduplicate or involute or convolute, (7–)10–22(–40) cm long, (0.3–)0.5–0.9(–1.75) mm wide. Leaf-blade surface smooth, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 4.7–10 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, (1–)3 -nerved. Upper glume oblong, 3–3.8 mm long, membranous, keeled, 1-keeled, 3(–5) -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3.5–5.5 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Snowfields. **Tasmania:** North East, Central Highlands, Ben Lomond, South West.

Notes. Populations from Mt Bogong and Mt Buffalo, Vic., differ from the typical form and warrant further examination.

Endemic. SE Australia. Characteristically found in alpine or subalpine bogs or relict bogs or bordering streams or in very wet alpine grassland and extending up into grassland especially at the higher altitudes where it is more stunted in growth. Flowers Feb.

Poa crassicaudex Vickery. *Contr. New South Wales Natl Herb.* 4: 233–234, t. XI (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: South Australia: Hindmarsh Tiers: 10 Nov 1950, J.B. Cleland (HT: AD 95626061).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (147), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (148, fig. 99).

Habit. Perennial. Culms 40–90 cm tall, 3 -noded. Mid-culm internodes pubescent (below nodes). Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.4–2(–3.5) mm long, abaxially hairy, truncate or obtuse or acute. Leaf-blades flat or conduplicate or involute, 9–30 cm long, 0.75–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 8–24 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–8 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume ovate, 2.6–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–4 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern.

Notes. Distinguishing characters include the relatively long thin ligule, glabrous nodes, elongated yellow swollen basal internodes; hairy leaves.

Endemic. In eucalypt woodlands. Flowers Oct.-Nov.

Poa drummondiana Nees. *Lond. J. Bot.* 2: 418 (1843). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: "Novae Hollandiae": ad flumen Cygnorum, *Drummond* (HT: CGE).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (653 as *Poa nodosa*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (107), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (430), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (148), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (313).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (109, Pl. 31), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (148, fig. 100), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (308, Fig. 41, 314, Fig. 42).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 18–91 cm tall, 2–3 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1.7–7.2 mm long, abaxially glabrous or abaxially scaberulous or abaxially hairy, truncate or obtuse or acute. Leaf-blades flat or conduplicate or involute, 8–30 cm long, 1.5–4.3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or pyramidal, 5–21 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((2-)4-9(-14)), comprising (2-)4-9(-14) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.4–7.4(-14.5) mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3(-5) -nerved. Upper glume oblong, 2.6–3.6(-7.7) mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 2.8–4.3(-7.2) mm long, keeled, 5(-7) -nerved. Lodicules present. Anthers 3. Grain 5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Drummond. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula. **Victoria:** Lowan Mallee, Murray Mallee.

Notes. Endemic. Across southern mainland Australia Dunes and margins of clay-pans in mallee-scrub and low woodland. Flowers Oct. Fruits Nov.

Poa ensiformis Vickery. *Contr. New South Wales Natl Herb.* 4: 188–189, t. IX, 1, t. X, 3 (1970).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: ridge above Happy Jacks township, ca. 12 miles s of Kiandra: 20 Jan 1958, *J. Vickery* (HT: NSW 43474).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (349), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (331).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (349).

Habit. Perennial. Rhizomes present, elongated. Culms 20–110 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.4–2 mm long, abaxially hairy, truncate or obtuse. Leaf-blades erect, flat or conduplicate, 5–18.5(-30) cm long, 2–5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–8), comprising 2–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–10 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.8–3.4 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3.2–4.3(–5) mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: South Coast, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Otway Range, Snowfields.

Notes. Endemic. SE mainland Australia - S from Brindabella Ra. In mountain forests or grasslands. Flowers Oct.-Mar.

Poa fawcettiae Vickery. *Contr. New South Wales Natl Herb.* 4: 232 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Victoria: Bogong High Plains: ca. 5500 ft: in subalpine grassland: 14 Jan 1959, *J. Vickery* (HT: NSW 51303).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (350), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (328).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (350).

Habit. Perennial. Culms 20–60 cm tall, 1–2 -noded. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.4–1.5 mm long, abaxially hairy, truncate or obtuse. Leaf-blades erect or ascending, conduplicate or involute, 1–35 cm long, 0.9–2 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 3–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 3.8–5 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume ovate, 2.1–2.6 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.7–3.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** North East, Central Highlands.

Notes. Endemic. S from Kosciusko area and in the NE and Central Highlands of Tasmania. At elevations over 1100 m in woodlands and subalpine meadows. Flowers Dec.-Feb.

Poa fax Willis & Court. *Muelleria* 1:45 (1955). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa lepida* F. Muell., *Fragm.* 8: 170 (1873).

Type of Basionym or Protologue Information: LT: *Burkitt s.n.*, Australia: between Darling and Lachlan Rivers (MEL). LT cited by Clayton, *Kew Bull.* 40: 728 (1985).

Recent synonyms: *P. lepida*, *Neuropoa fax*

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (654 as *Poa lepida*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (107 as *P. lepida*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (149), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (350), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (307).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (149, Fig. 101), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (350), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (308, Fig. 41).

Habit. Annual. Culms erect or decumbent, stature slender to delicate, 2–30(–45) cm tall, 2–3 -noded. Mid-culm internodes pubescent. Lateral branches simple. Leaves cauline. Ligule an eciliate membrane, 0.4–4.3 mm long, truncate or obtuse. Leaf-blades flat, 1–15 cm long, 0.9–3.4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 3–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–13), comprising 3–13 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 4.3–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume ovate, 2–5 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 2.6–4.5 mm long, keeled, (5–)9–11 -nerved. Lemma surface indumented. Palea 2 -nerved. Anthers 3. Grain 0.6–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Eyre. **South Australia:** Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North-Western Slopes, North-Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Otway Plain, Wannon, Wimmera.

Notes. The lemmas prominently nerved.

Endemic. Across southern Australia. Usually in samphire swamps, margins of salt lakes or sanddunes. Flowers Aug.-Nov. Fruits Nov.-?.

Poa foliosa

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Poa fordeana F. Muell. *Fragm.* 8:130 (1873). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Mrs. Forde*, Australia: Darling River [lower] (MEL; ILT: K).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (756 as *Glyceria fordeana*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (150), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (350), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (315).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (150, fig. 102), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (350), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (308, Fig. 41).

Habit. Perennial. Rhizomes present, elongated. Culms geniculately ascending, stature slender to delicate, 20–100 cm tall. Lateral branches simple or sparsely branched. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane, 1–5 mm long, abaxially hairy, truncate or obtuse. Leaf-blades flat or conduplicate, 5–20(–30) cm long, 1.5–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic or pyramidal, 6–24 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–12), comprising 3–12 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 5–12.4 mm long.

Glumes. Glumes similar. Lower glume ovate, herbaceous, much thinner on margins, keeled, 1-keeled, 2–3 -nerved. Upper glume ovate, 3–4.7 mm long, herbaceous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 3–5.1 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Darling Downs, Port Curtis. **New South Wales:** North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina, Wimmera.

Notes. Endemic. Low-lying inland areas of SE Australia. Commonly on heavy clay soils and sand-banks in wet situations. Flowers in response to rain and flooding, recorded (June-)Sept.-Dec. Fruits Nov.-Jan.

Poa gunnii Vickery. *Contr. New South Wales Natl Herb.* 4: 217–218 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Summit of Mt. Wellington: 7 Jan 1841, *Gunn 1466* (HT: K; IT: NSW 45698).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (327).

Habit. Perennial. Stolons absent or present. Culms stature slender to delicate, 5–40(–70) cm tall, 1–2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.2–1.5 mm long, abaxially

scaberulous or abaxially hairy, truncate or obtuse. Leaf-blades straight or curved, involute, 2–6.5(–30) cm long, 0.3–1 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 3–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 4.7–10 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 2.2–3.4 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.6–4.5 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: North East, Central Highlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. A variable species, closely related to *Poa costiniana*.

Poa gunnii is described for *Fl. Victoria* but no Victorian specimens examined are referable to this species. Endemic. At altitudes above 750 m in subalpine shrubbery or grasslands. Flowers Dec.-Apr. Fruits Feb.-?.

Poa halmaturina J. M. Black. *Trans. & Proc. Roy. Soc. S. Australia* 66: 248 (1942). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Rocky River, Kangaroo Isl: in burnt consolidated dunes: Dec 1940, J.B.Cleland (*Tate Soc. Exped.*) (HT: AD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (150), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (336).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (151, fig. 103).

Habit. Perennial. Rhizomes present, elongated. Culms erect, 5–12 cm tall. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.6 mm long, abaxially hairy, truncate. Leaf-blades erect, curved, acuminate, involute or terete, 2–25 cm long, 0.4–0.7 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 1.5–3 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.8–5.5 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.1–3.2 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3–3.6 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** Wannon. **Tasmania:** King Island, Furneaux Group, South West.

Notes. Seemingly differing from *Poa poiformis* in the long scaly rhizomes, smaller plant and spikelet parts.

Endemic. with few collections. Amongst sand dunes. Flowers Nov.-Feb.

Poa helmsii Vickery. *Contr. New South Wales Natl Herb.* 4: 205–206 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Mt. Kosciusko: Pretty Point: 5000 ft: Feb 1893, R. Helms (HT: NSW 44113).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (350), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (331).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (350).

Habit. Perennial. Culms 50–150 cm tall, 3–6 mm diam. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–2 mm long, abaxially hairy, truncate. Leaf-blades flat or conduplicate, (1.5–)19.5–28(–50) cm long, (3–)6.8–7.2(–8) mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 15–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.6–3.4 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma (2.75–)3.4–4 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: South Coast, North-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Snowfields.

Notes. Endemic. In the Australian Alps S from the Brindabella Ra. and in Vic. on the adjacent ranges. A robust tussock in wet sites along mountain streams or soakage areas mostly above 1000 m. Flowers Nov.-Mar.

Poa hiemata Vickery. *Contr. New South Wales Natl Herb.* 4: 230, t. IX, 3 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Mt. Kosciusko: 5000–7000 ft: Feb 1893, *R. Helms* (HT: NSW 39172).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (351), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (324).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (351).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, stature slender to delicate, 15–60 cm tall, 2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.5 mm long, abaxially glabrous or abaxially scaberulous, truncate. Leaf-blades conduplicate or involute, (5–)7–15(–25) cm long, 0.4–2 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 5–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 3.5–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.2–2.4 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma (2–)2.6–2.8(–3.5) mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Wilsons Promontory, Snowfields. **Tasmania:** Central Highlands, Ben Lomond.

Notes. Endemic. S from the Brindabella Ra. Alpine and subalpine heath and grasslands above 1500 m. Flowers Jan.-Feb. Fruits Feb.-Mar.

Poa homomalla Nees. *Pl. Preiss.* 2: 104 (1846). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: In solo sublimoso vallis Toodyay-valley: Mar 1840, *Hb. Preiss 1829* (IT: LE, MEL).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (651), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (110), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (430), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (312).

Habit. Perennial. Rhizomes present, short or elongated. Culms erect, 14–75 cm tall, 5–9 -noded. Mid-culm internodes pubescent. Lateral branches simple or sparsely branched. Leaves cauline. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.1–7 mm long, abaxially hairy or abaxially pilose, truncate or obtuse or acute. Leaf-blades flat or conduplicate, 6–20 cm long, 1.3–4 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 1.5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–5.5 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 1.9–3.5 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.2–4.5 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Endemic. Flowers Oct.-Nov.

Poa hookeri Vickery. *Contr. New South Wales Natl Herb.* 4: 222 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: M B, Kenmore: 19 Nov 1842, *Gunn 1469* (HT: NSW 9051; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (351), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (324).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (351), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Culms erect, stature slender to delicate, 10–50 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.2–2.1(–4.5) mm long, abaxially glabrous or abaxially scaberulous or abaxially hairy, truncate or obtuse or acute or acuminate. Leaf-blades filiform, conduplicate or involute, 2–15 cm long, 0.4–1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2.5–11.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 1.9–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 1.5–2.1(–2.8) mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 1.5–2.6(–3.4) mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria, Tasmania.

Victoria: East Gippsland, Eastern Highlands, Snowfields. **Tasmania:** Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. Endemic. Usually on dry lowland areas in open woodland. Flowers Nov.-Dec. Fruits ?.

Poa hothamensis Vickery. *Contr. New South Wales Natl Herb.* 4: 191, t. IX, 5 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Victoria: Mt. Buffalo: on granite: 4300 ft: 19 Jan 1913, *R.H.Cambage 3742* (HT: NSW 9059; IT: K, SYD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (318 & var. *hothamensis*, var. *parviflora*).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43 as var. *hothamensis*).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 15–90 cm tall, 3 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.4–2 mm long, abaxially hairy, truncate or obtuse. Leaf-blades flat or conduplicate, 6.5–30 cm long, 1.5–5.5 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 3–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.2–10 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 1.9–3.4 mm long, membranous, keeled, 1-keeled, 3(–5) -nerved.

Florets. Fertile lemma (1.5–)2.3–3.8 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: East Gippsland, Eastern Highlands, Snowfields.

Notes. Endemic.

Infra -specific taxa: var. **hothamensis**, var. **parviflora**.
Leaves $\pm$ velutinous **P. hothamensis** var. **parviflora**
Blades with fine hairs **P. hothamensis** var. **hothamensis**

Poa hothamensis var. **hothamensis**

Australian Distribution: Victoria.

Notes. Alpine and subalpine grasslands, or *Eucalyptus* woodlands, often in rocky sites. Flowers Dec.-Feb.

Poa hothamensis var. **parviflora** N.G. Walsh. *Muelleria* 7(4): 451 (1992).

Classification. Type of Basionym or Protologue Information: Australia, Brodribb R. East Gippsland: E.A.Chesterfield 677 (MEL holo, BRI, CANB, RSA).

Australian Distribution: Victoria.

Notes. Mostly in dryish, rocky sites. Flowers Nov.-Feb. Fruits Mar.

Poa induta Vickery. *Contr. New South Wales Natl Herb.* 4: 236–237, t. XII, 6–8 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Tooma Rd. above Tumut Pond: 3 Feb 1956, M.E. Phillips (HT: NSW 39543).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (351), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (316).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (351).

Habit. Perennial. Culms 28–90 cm tall, 1–2 -noded. Mid-culm internodes glabrous or pubescent or pilose. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–1 mm long, abaxially hairy, truncate or obtuse. Leaf-blades erect, straight or flexuous, filiform, conduplicate or involute, 5–35.5 cm long, 0.6–0.9 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or pyramidal, 4–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.8–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 2.6–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 2.1–3.4 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Central Tablelands, Southern Tablelands.

Notes. Endemic. Usually under eucalypt forest. Flowers Jan. Fruits Feb.

Poa infirma* H. B. & K. F.W.H.A. von Humboldt *et al.*, *Nov. Gen. Sp.* 1: 158 (1816). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: IST: *Humboldt Willd. hb.* 1974, plate 223, [Colombia]: Nova Granada (LE-TRIN-2638.01 (fragm., illustr.)). ST: *Humboldt & Bonpland* 134, Aug 1801, Colombia (P; IST: US-1851276 (fragm. ex P), US-2851277 (fragm. ex P-HUMB)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (151), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (352), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (309).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (151, Fig. 104), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (352).

Habit. Annual. Culms erect or geniculately ascending or decumbent, 1–25 cm tall, 1–3 -noded. Lateral branches simple or sparsely branched. Leaves mostly basal. Leaf-sheaths smooth. Ligule an eciliate membrane,

0.9–3 mm long, obtuse or acute. Leaf-blades flat or conduplicate, (0.5–)2–5.5(–8) cm long, 0.9–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, dense or loose, 0.5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 2–4 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic or oblong, 1.3–2.5 mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.8–2.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, South America, and Antarctica.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, South-eastern. **Victoria:** Gippsland Plain, Midlands, Murray Mallee, Otway Plain, Wilsons Promontory. **Tasmania:** North East, East Coast.

Notes. Introduced. Native to Europe, now widely naturalized. Occasional but widespread. Flowers Aug.–Nov. Fruits Sept.–Nov.

Poa kerguelensis

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Poa jugicola D.I.Morris. *Muelleria* 7: 167 (1990). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Quamby Bluff, 6 Mar 1986, A. Moscal 12591 (HT: HO-96575; IT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (330).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms erect or geniculately ascending, stature slender to delicate, 30–100 cm tall, 2 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–2 mm long, abaxially hairy, truncate or obtuse. Leaf-blades conduplicate or involute, 3.5–35 cm long, 0.3–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–10.2 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume lanceolate, 3–4.3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma (3.5–)4.3–5.1 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Central Highlands.

Notes. Endemic. Among boulders or on dolerite outcrops in subalpine *Nothofagus cunninghamii* forest on Quamby Bluff and the Western Tiers. Flowers (Dec.–)Jan.–Mar.

Poa labillardierei Steud. *Syn. Pl. Gram.* 1:262(1854). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: N. Holl., *Labillardier* (HT: ex herb. Labillardieri); HT: (IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (152), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (352), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (332, 333 as var. *labillardierei*, 334 as var. *acris*).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (221), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (152, Fig. 105 & plate 4 as var. *labillardieri*), [1984]

N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (221), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (352), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (332, Fig. 43 333 as var. *labillardieri*, Fig. 44 as var. *labillardieri*).

Habit. Perennial. Culms 30–120 cm tall. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long, abaxially hairy, truncate. Leaf-blades flat or involute, 15–61(–80) cm long, 0.6–5 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–26 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 3.2–4.3 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.5–4.7 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Moreton, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West, Mt Field, Mt Wellington.

Notes. Endemic. Southern and eastern Australia.

Infra -specific taxa: var. *labillardierei*, var. *acris* .

Leaves flat, typically at least half the length of the culms; sheath usually not pigmented **P.**

labillardieri var. *labillardieri*

Leaves inrolled, less than half the length of the culms; sheaths purplish **P.**

labillardieri var. *acris*.

Poa. labillardierei var. *labillardierei*

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

Notes. Southern and eastern Australia - Tas., N.S.W., Vic., Qld, and S.A. Common on river flats, open forest and margins of rainforest, preferring damp sites but occasionally on drier hillsides. Flowers Oct.-Feb.

Poa labillardierei var. *acris* Vickery. *Contr. New South Wales Natl. Herb.* 4: 205 (1970).

Classification. Type of Basionym or Protologue Information: Australia: Tasmania: at foot of Valentin's Peak: at level of "White Grass" plain, subalpine: 26 Jan 1962, *M.E. Phillips* 448 (HT: NSW; IT: CBG 003036).

Australian Distribution: Victoria, Tasmania.

Notes. Vic. and Tas. Flowers Jan.

Poa litorosa

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Poa lowanensis N.G. Walsh. *Muelleria* 7: 381 (1991). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Victoria: Wyperfeld National Park, NE corner of The Hump", 11 Nov 1968, *Beaughole & Finck* 29505 (HT: MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (334).

Habit. Perennial. Rhizomes absent or present, short. Culms erect, 30–90 cm tall. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.5–1.3 mm long, abaxially hairy, truncate. Leaf-blades erect, conduplicate or involute, 4.5–40 cm long, 0.4–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 12–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–8 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 3.6–4 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3.5–4.7 mm long, keeled, 5 -nerved. Lemma surface indumented. Lemma apex entire or erose. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: Murray Mallee, Lowan Mallee.

Notes. Distinguished by the broad, thin margin of the lemma, more or less contracted panicle and prominent hairiness of the lemma veins and copious web.

Endemic. Of restricted distribution in NW Vic. (Big Desert and Sunset Country). Grows in mallee vegetation on inland sand-dunes. Flowers Oct.-Nov. Fruits unknown.

Poa meionectes Vickery. *Contr. New South Wales Natl Herb.* 4: 250 (1972). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa exilis* Vickery, *Contr. New South Wales Natl. Herb.* 4: 212 (1970).

Type of Basionym or Protologue Information: Australia: New South Wales: Tantawanglo Mt.: on hill w of 6-mile Cr.: 7 Jan 1959, *J. Vickery* (HT: NSW 50163).

Recent synonyms: *P. exilis*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (153), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (352), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (322).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (153, fig. 106), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (352), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Culms 10–100 cm tall, 2 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberrulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.4–2 mm long, abaxially hairy, truncate. Leaf-blades flexuous, filiform, conduplicate or involute, 5–21 cm long, 0.2–0.5 mm wide. Leaf-blade surface scaberrulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 1–17 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4(-6)), comprising 2–4(-6) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.9–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 1.5–3 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2–3.5 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: South-eastern. **New South Wales:** South Coast, Southern Tablelands. **Victoria:** East Gippsland.

Notes. Close to *P. clivicola* but leaves finer and less rigid, and glumes smaller.

Endemic. . Usually in cool, open eucalypt woodland. Flowers Sept.-Feb. Fruits Mar.

Poa mollis Vickery. *Contr. New South Wales Natl Herb.* 4: 241, t. XII, 3 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Rocky cliffs at Cataract Gorge, S. Esk Rv., Launceston: 27 Oct 1943, *W.M. Curtis* 82 (HT: K; IT: HO).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (316).

Habit. Perennial. Culms erect, 25–80 cm tall, 1–3 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliate membrane, 0.4–0.9(-2) mm long, abaxially hairy, truncate. Leaf-blades conduplicate or involute, 4.5–20 cm long, 0.9–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, loose, 6.4–15.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.8–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 2.1–2.3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2.3–3.4 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: North West, Midlands.

Notes. Very close to *P. morrisii* Vickery, differing in the usually broadly keeled, blunt or very shortly pointed leaf tip, and the usually glabrous lemma internerves.

Endemic. Around Launceston and the Midlands aea of Tas. On dry open hillsides and cliffs. Flowers Nov.

Poa morrisii Vickery. *Contr. New South Wales Natl Herb.* 4: 239, t. XII, 1–2 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Victoria: Sandringham: 1934, *P. Morris* (HT: : MEL; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (154), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (317).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (154, fig. 107), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Rhizomes absent or present, elongated. Culms 45–95 cm tall, 2–3 -noded. Mid-culm internodes pubescent or pilose. Mid-culm nodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 1–1.5 mm long, abaxially hairy, truncate. Leaf-blades erect, flat or conduplicate or involute, 15–30 cm long, 0.6–1(–3.5) mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 9–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 3.8–6.8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface indumented. Upper glume oblong, 1.9–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.2–4 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: South-eastern. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Snowfields, Wannon, Wimmera.

Notes. Conspicuous features include the densely, softly long hairy, grey-green leaves; the dense, long white hairs fringing the ligule; the glume keel often scabrous to the base; the distinct cilia on the lemma margins and palea keels.

Endemic. Usually associated with dry grassy woodland on poor often rocky soils. Flowers Oct.-Nov.

Poa orba N.G. Walsh. *Muelleria* 22: 15 (2005).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (321).

Poa orthoclada

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (327).

Poa petrophila Vickery. *Contr. New South Wales Natl Herb.* 4: 238, t. XII, 4–5 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Barney's Cr, part Headwaters of Happy Jacks Rv., ca. 16 mi S of Kiandra: on rocky outcrop of slate on steep hillside: 21 Jan 1958, *J. Vickery* (HT: NSW 44267).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (352), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (317).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (352).

Habit. Perennial. Culms 20–70 cm tall, 1–2 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–1.7(–3) mm long, abaxially hairy, truncate. Leaf-blades filiform, involute, 5–25 cm long, 0.5–0.8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4.3–7.7 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.5–3.5 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous.

Florets. Fertile lemma 3–5.1 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Snowfields.

Notes. Endemic. S of Kosciusko region. At c. 1400 m on shallow stony soils in exposed sites. Flowers Nov.–Jan. Fruits Jan.–?.

Poa physoclinea N.G. Walsh. *Muelleria* 26 (2): 17 (2008).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (337).

Australian Distribution: Victoria.

Poa phillipsiana Vickery. *Contr. New South Wales Natl Herb.* 4: 220 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: New South Wales: Ridge above Happy Jacks township, beside creek, ca. 11 mi s of Kiandra: 20 Jan 1958, *J. Vickery* (HT: NSW 44381).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (353), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (328).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (353).

Habit. Perennial. Culms 35–100 cm tall, 1–2 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths antrorsely scabrous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.6 mm long, abaxially scaberulous, truncate. Leaf-blades erect, acuminate, involute, 4–25 cm long, 0.3–0.75 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 1.8–3.2 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous, indumented.

Florets. Fertile lemma 2.5–3.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Snowfields.

Notes. Very similar to *Poa sieberana* var. *sieberana* and often associated with this species, distinguished by the purple sheaths, bluish foliage and more rigid leaf blades ?, and shortly keeled tip.

Endemic. On drier alpina and subalpine grasslands and eucalypt woodlands, mostly at c. 1300–1700 m. Flowers Jan.-Mar. Fruits Jan.-Mar.

Poa poiformis (Labill.) Druce. *Bot. Soc. Exch. Club Brit. Isl. Suppl.* 2 640 (1917), as *poaeformis*.

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Arundo poiformis* Labill., *Nov. Holl. Pl.* 1: 27 (1804).

Type of Basionym or Protologue Information: Australia: *Labillardiere* (FI holo, K).

Recent synonyms: *P. australis*, *P. laevis*, *P. plebeia*

Key references (books and floras): [1810]. R.Brown, *Prodromus* (179 as *P. laevis*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (108 as *P. poaeformis*, *P. australis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (431), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (154), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (353), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (335, 336 as var. *poiformis* & var. *ramifer*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (155, fig. 108 as var. *poiformis*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (353), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43 as var. *poiformis*).

Habit. Perennial. Stolons absent or present. Culms erect, 6–90 cm tall. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.25–1.25 mm long, abaxially hairy, truncate or obtuse. Leaf-blades aciculate, flat or involute or convolute, 20–90 cm long, 0.4–2 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 5.5–30 cm long, 1–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6(–7)), comprising 2–6(–7) fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, (3.8–)4.3–10 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, (1–)3 -nerved. Upper glume oblong, 2.6–5.3 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.8–6 mm long, keeled, 5(–7) -nerved. Lodicules present. Anthers 3. Grain 1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** East Gippsland, Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** No region given.

Notes. Endemic. Also Lord Howe Is. Usually strictly coastal on ocean foreshores and estuaries, occasionally ascending the heights of coastal sand-dunes and cliffs, rarely from inland sites.

Infra -specific taxa: var. **poiformis**, var. **ramifer**.

Culm not branching from lower nodes; sheaths and internodes green

P. poiformis var. **poiformis**

Culm branching from lower nodes; sheaths and internodes often purple

P. poiformis var. **ramifer**

Poa poiformis var. **poiformis**

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Notes. Tas., N.S.W., Vic., W.A., S.A. and Lord Howe Is. Flowers Sept.-Jan. Fruits Dec.-?.

Poa poiformis var. **ramifer** D.I. Morris. *Muelleria* 7(2): 169–170, f. 16 (1989).

Classification. Type of Basionym or Protologue Information: Australia: Tasmania: Southport Island, NE of Southport Bluff, 3 Dec 1980, *N. Brothers s.n.* (HT: HO-36816; IT: MEL).

Australian Distribution: Western Australia, Victoria, Tasmania.

Notes. Tas., Vic., N.S.W. and W.A. Flowers Oct.-June. Fruits Dec.-?.

Poa porphyroclados Nees. J.G.C.Lehmann *Pl. Preiss.* 2: 105 (1846). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: "In Australia occidentali: Ad flumen Cygnorum, *Hb. Preiss 1820 (Drummond)* (LT: LE) Type said to be in herb. Lindl. by Nees; LT: *Hb. Preiss 1820*, Australia: Western Australia: Nova Hollandia (LE).

Recent synonyms: *P. serpentum*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (108 as *P. Maxwellii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (431 & 432 as *P. serpentum*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (334).

Habit. Perennial. Culms 40–120 cm tall, 1–2 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths scaberulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.4–0.6 mm long, abaxially scaberulous or abaxially hairy, truncate. Leaf-blades filiform, flat or involute, 8–47 cm long, 0.3–3.8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 7–32 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 2.3–3.4 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.6–3.75 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond.

Notes. Endemic. Flowers Oct.-Dec.

Poa pratensis* L. *Sp. Pl.* 67 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: CT: *N.N. Tzvelev [Cvelev] N-257*, 26 Jun 1997, Russia: Rossia, Prov. Sanct-Petersburg, 5 km australi-occi (BM; IT: B, C, CAN, CONC, H, K, KW, L, LE, LIV, MA, MO, MW, NSW, P, PE, PR, S, SI, TNS, US-3456252, W). CT: prop. 1391 *Taxon* 48(1): 157–159 (1998), recommended *Taxon* 49 (4): 802 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (107), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (431), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (156), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (353), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (311).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (109, Pl. 31), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (157, fig. 109), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (352), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (314, Fig. 42), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (308, Fig. 41).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 10–90 cm tall, 2–4 -noded. Lateral branches simple. Leaves mostly basal or cauline. Leaf-sheaths smooth. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.9–3 mm long, abaxially glabrous or abaxially hairy, truncate or obtuse. Leaf-blades flat, 5–19.5(–30) cm long, 1.7–5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or pyramidal or ovate, dense or loose, 2–20 cm long, 1–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, (2.5–)4.3–6 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic or ovate, (2–)2.6–3.4(–4) mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma (2–)3.1–4 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Menzies, Avon. **South Australia:** Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast, Northern

Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, East Coast, South West.

Notes. Introduced for lawns and pasture.

Variable grass including a number of races and strains. Treated here in the broad sense of Vickery (1970).

Introduced. Widespread in temperate regions, native to Europe and Asia. Often in disturbed, well watered sites. Flowers Oct.-Jan. Fruits Dec.-?.

Poa pubinervis (Vickery) S.W.L.Jacobs. *Telopea* 12 (2): 277 (2008).

Classification. Recent synonyms: *Festuca pubinervis* Vickery, *Austrofestuca pubinervis* (Vickery) B.K.Simon,.

Australian Distribution: Western Australia, South Australia (?), Victoria, Tasmania.

Poa rodwayi Vickery. *Contr. New South Wales Natl Herb.* 4: 235, t. XI, 8–11 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Tasmania: Domain (Hobart): 19 Nov 1929, *L. Rodway* (HT: HO H1175).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (157), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (319).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (157, fig. 110), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Culms stature slender to delicate, 25–75 cm tall, 1–2 -noded. Mid-culm internodes pubescent. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth, hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–2.1 mm long, abaxially scaberulous and abaxially hairy, truncate or obtuse. Leaf-blades filiform, conduplicate or involute, 4.5–19.5(–30) cm long, 0.3–0.75 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, (5–)12–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.4–8 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, (1–)3 -nerved. Upper glume oblong, 2.6–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 2.5–3.5 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** Gippsland Plain, Midlands, Otway Plain, Volcanic Plain. **Tasmania:** North East, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. Close to *Poa morrisii* and *P. sieberiana* var. *hirtella*.

Endemic. Commonly in dry, lowland, grasslands and under light eucalypt cover. Flowers Jan. Fruits July.

Poa sallacustris N.G. Walsh. *Muelleria* 7: 379 (1991). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Victoria: Lake Corangamite, SW of Causeway and Lake Martin, 11.5 km SW of Cressy, 27 km NNW of Colac P.O., 12 Sep 1977, *Beauglehole & Hirth 56460* (HT: MEL; IT: BRI, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (315).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 15–31 cm tall. Lateral branches simple. Leaves cauline. Ligule an eciliate membrane, 1–3.5 mm long, abaxially hairy, obtuse or acute. Leaf-blades conduplicate, 6–12 cm long, 0.5–2 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–10 cm long, 3–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4.3–8 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 3 -nerved. Upper glume lanceolate, 2.8–3.8 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 3–3.8 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: Volcanic Plain.

Notes. Closely related to *P. fordeana*.

Endemic. On the volcanic plain between Colac and Hamilton W of Melbourne, Vic. Grows on the margins of salt lakes. Flowers Sept.-Dec. Fruits Jan.-?.

Poa sieberiana Spreng. *Syst.Veg.Cur.Post.* 35(1827). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: "Nov. Holl. (P. australis Nees in Sieber agrost. n. 77)", Sieber 77; IT: (IT: BM, GOET-2401, K, MEL, MO).

Recent synonyms: *P. australis* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (158), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (354), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (319, 320&321 as var. *sieberiana*, var. *cyanophylla*, ana var. *hirtella*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (158, fig. 111 as var. *sieberiana*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43 as var. *sieberiana*, as var. *hirtella*).

Habit. Perennial. Stolons absent or present. Culms erect or geniculately ascending, 9–80 cm tall. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.1–2 mm long, abaxially glabrous or abaxially scaberulous or abaxially hairy, truncate. Leaf-blades straight or curved or flexuous, filiform, conduplicate or involute, 2.5–60 cm long, 0.2–0.7 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 1.5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 2.8–8 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 2–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma (1.8–)2.2–3.2 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, West Coast, Central Highlands, Ben Lomond, East Coast, South West.

Notes. Endemic.

Infra-specific taxa: var. *sieberiana*, var. *cyanophylla*, var. *hirtella*.

1.Spikelets 4.3–5.7 mm long, stiff

P. sieberiana var. *sieberiana*

Spikelets 3–3.4 mm long, not stiff

2

2.Leaf blades 25 mm long, adaxially glabrous

P. sieberiana var. *cyanophylla*

Leaf blades 80–340 mm long, adaxially puberulous

P. sieberiana var. *hirtella*

.

Poa sieberiana var. *sieberiana*

Classification. Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354).

Notes. Tas., N.S.W., A.C.T., Vic. and Qld ?. Flowers Oct.-Mar., June-July. Fruits Jan.-Feb.

Poa sieberiana var. cyanophylla Vickery. *Contr. New South Wales Natl. Herb.* 4: 227 (1970).

Classification. Type of Basionym or Protologue Information: Australia: New South Wales: near Penderiea, w of Jindabyne: 8 Jan 1959, *J. Vickery* (HT: NSW 50159).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354).

Notes. Vic., N.S.W. and A.C.T. Uncommon, usually above 1200 m in dry slopes, alpine grasslands, sclerophyll forest, eucalypt woodland. Flowers Nov.-Mar. Fruits Jan.-?.

Poa sieberiana var. hirtella Vickery. *Contr. New South Wales Natl. Herb.* 4: 228 (1970).

Classification. Type of Basionym or Protologue Information: Australia: New South Wales: Ardlathan: Dec 1917, *J.L. Boorman* (HT: NSW 57759).

Notes. Vic., N.S.W. and Qld. Flowers Oct.-Feb.

Poa sp. A (ligulata) Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *P. sp. A*).

Habit. Perennial. Stolons present. Culms stature slender to delicate, 14–40 cm tall. Lateral branches simple. Leaves mostly basal. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.8–2.6 mm long, abaxially hairy, truncate or obtuse. Leaf-blades conduplicate or involute, 4–11.5 cm long, 0.2–0.9(–1.3) mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 35–100 cm long.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 2–7 fertile floret(s), laterally compressed, 2.8–6.2 mm long.

Glumes. Lower glume 1–3 -nerved. Upper glume 1.7–2.8 mm long, 3 -nerved.

Florets. Fertile lemma 2.3–3 mm long, keeled, 5 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Notes. Most closely related to *Poa tenera* and *P. clelandii* differing from the first in the conspicuous pigmentation of the sheath, its tufted habit and smaller hairy lemma with ciliate margins. From *P. clelandii* it differs in the smaller more slender plant, fully connate sheath (compared with 2/3 connate), broad decurrent ligule (vs. narrow non decurrent), and variable hairiness of the lemma.

Endemic. Ballarat area and Brisbane Ra. Natl Park, Vic. Flowers Oct.-Nov. ?.

Poa sp. B (ramosus) Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *P. sp. B*).

Habit. Perennial. Stolons present. Culms erect or geniculately ascending, stature slender to delicate, 15–45(–65) cm tall. Mid-culm internodes pilose. Lateral branches branched. Leaves mostly basal. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.4 mm long, abaxially hairy, obtuse. Leaf-blades flat or involute, 3.5–8 cm long, 0.8–1.3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 16–30 cm long.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), laterally compressed, 3.6–4.5 mm long.

Glumes. Lower glume 3 -nerved. Upper glume 1.9–2.2 mm long, 3 -nerved.

Florets. Fertile lemma 2.3–2.6 mm long, 5 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

Notes. Endemic. Mt. Lofty region, S.A. Usually in dry sclerophyll, eucalpt association, in areas formerly heavily grazed. Flowers Nov.-Feb.

Poa sp. C Classification. (GPWG 2001) : Subfamily Pooideae.

Poa tenera F. Muell. ex Hook. f. *Fl. Tasman.* 2: 124, t. 164A (1958). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa saxicola* var. *effusa* Nees, *London J. Bot.* 2: 418 (1843).

Type of Basionym or Protologue Information: Australia: "Insula Van Diemen: 13 Dec 1837", *Gunn 1009* (HT: CGE).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (180 as *P. saxicola*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (159), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (325).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (159, fig. 112), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (323, Fig. 43).

Habit. Perennial. Stolons present. Culms erect or sprawling, stature reed-like or slender to delicate, 10–30 cm tall. Mid-culm internodes glabrous or pubescent or pilose. Lateral branches simple or branched. Leaves cauline. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane, 0.3–1.5 mm long, abaxially glabrous or abaxially scaberulous, truncate. Leaf-blades filiform or linear, flat or conduplicate or convolute, (5–)11.5–17(–20) cm long, 0.3–1.5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2–12 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3(–4)), comprising 2–3(–4) fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 2.6–6.4 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 1–1.6 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 2–3 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Eyre Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Snowfields, Volcanic Plain, Wannon. **Tasmania:** North East, West Coast, Central Highlands, Midlands, East Coast, South West.

Notes. Endemic. Shady and moist but well drained areas. Flowers Jan. Fruits Feb.

***Poa trivialis** L. Sp. Pl. 67 (1753). Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: NT: *Hudson 16*, (LINN-87.9). NT designated by Soreng in Cafferty et al., *Taxon* 49(2): 256 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (355), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (311).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354).

Habit. Perennial. Stolons present. Culms erect or geniculately ascending or decumbent, 20–101 cm tall, 3–5 -noded. Lateral branches simple. Leaves mostly basal or cauline. Leaf-sheaths antrorsely scabrous. Ligule an eciliate membrane, 3–7(–10) mm long, abaxially hairy, obtuse or acute. Leaf-blades flat, (3–)7.5–22 cm long, 1.5–5.2(–6) mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, dense or loose or effuse, 1.1–20 cm long, 1–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2.3–2.9(–3.5) mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.5–3.5 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, South America, and Antarctica.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Central Coast, Southern Tablelands, South-Western Slopes. **Victoria:** Eastern Highlands, Gippsland Highlands, Gippsland Plain, Midlands, Volcanic Plain, Wannon. **Tasmania:** North East, Midlands, East Coast, Mt Wellington.

Notes. One collection of subsp. *sylvicola* has been seen. This form is distinguished by the formation of a series of small globose nodules at the base of the culm.

Introduced. SE Australia. Widespread, native to the Mediterranean. An uncommon weed favouring damp shaded areas. Flowers Nov.-Jan. Fruits Dec.-?.

Poa umbricola Vickery. *Contr. New South Wales Natl Herb.* 4: 194–195 (1970). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: South Australia: Mt. Lofty Range: Morialta Falls, ca. 10.5 km. ENE of Adelaide, near top of first fall: 12 Oct 1957, *Hj. Eichler 14257* (HT: AD 95824051; IT: NSW 85459).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (160), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (329).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (160, fig. 113).

Habit. Perennial. Culms sprawling, 20–50 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.5 mm long, abaxially hairy, truncate. Leaf-blades flat or involute, 2–15 cm long, 1–2 mm wide. Leaf-blade surface scaberrulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 5–13.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets ((2-)3-4(-5)), comprising (2-)3-4(-5) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.9–4.3 mm long.

Glumes. Glumes similar. Lower glume oblong, membranous, much thinner on margins, keeled, 1-keeled, 1–3 -nerved. Upper glume oblong, 2.1–2.6 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.2–3 mm long, keeled, 5 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Southern Lofty.

Notes. Endemic. Often straggling among rocks. Flowers Oct.-Nov. Fruits Nov.-Dec.

Pogonatherum crinitum (Thunb.) Kunth. *Enum. Pl* 1: 478 (1833). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon crinitus* Thunb., *Fl. Jap.* 40, pl. 7 (1784).

Type of Basionym or Protologue Information: Japan: no loc. given,.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (355 as *P. paniceum*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (355 as *P. paniceum*).

Habit. Perennial. Culms prostrate, 10–50 cm tall, wiry. Mid-culm nodes pubescent. Lateral branches branched or fastigiate. Ligule a fringed membrane, a ciliolate membrane, 0.3 mm long. Leaf-blades 1–7 cm long, 1–3 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 1.3–2.8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, cartilaginous or coriaceous, without keels, 2 -nerved. Lower glume surface indumented. Upper glume elliptic, 1 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 1–2.3 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 8–22 mm long overall. Palea absent. Lodicules absent or vestigial. Anthers 1.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Growing in damp rocky situations from northern coastal Qld through SE Asia to Sri Lanka. Flowers Oct.--Nov.

Polypogon chilensis*

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (356), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (230).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (356).

Polypogon lutosus* (Poir.) Hitchc. *U.S.D.A Bull. (1915–23)* 772: 138 (1920). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Common name: Perennial Beardgrass.

Basionym and/or Replacement Name: *Polypogon littoralis* Smith nom superfl, *Comp. Fl. Brit.* ed. II. 13. (1816).

Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (181 as *x Agropogon littoralis*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (356 as *A. lutosus*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (233).

Illustrations: [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (182, fig. 130), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354 as *P. lutosus*), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32).

Derivation: from the Latin *lit(t)us* (sea shore) and *-ale* (pertaining to).

Habit. Perennial. Culms geniculately ascending or decumbent, stature slender to delicate, 8–70 cm tall. Lateral branches sparsely branched. Leaf-sheaths smooth. Ligule an eciliate membrane, 3–7 mm long, erose or lacerate, obtuse. Leaf-blades 3–20 cm long, 2–11 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong or ovate, 2–18 cm long, 0.6–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume elliptic or oblong or ovate, membranous, without keels or keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume elliptic or oblong or ovate, 2–3 mm long, membranous, without keels or keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex awned.

Florets. Fertile lemma 1–2 mm long, without keel, 5 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn subapical, 1–3 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: North Coast, Central Coast, Southern Tablelands. **Victoria:** Gippsland Plain, Riverina, Volcanic Plain, Wannon. **Tasmania:** East Coast.

Notes. Introduced. Native of Europe. Grows in wet disturbed areas. Flowers Dec.-Mar.

Polypogon maritimus var. subspatheus* Willd. *Neue Schriften Ges. Naturf. Freunde Berlin* 3: 442 (1801). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: T: Cult. from seed collected by Herrn Boupland from the coast of Rochella V: *Boupland*, Habitat in oceanii littoribus occidentalibus gallicae (B-WILLD; IT: US (fragm. ex B [Willd. hb, sheet 1, no. 23, in cover 68])).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (142), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (246), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (229 as var. *spatheaceus*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (246, fig. 189), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32 as var. *subspatheaceus*).

Habit. Annual. Culms erect or geniculately ascending, 4–30 cm tall. Lateral branches simple or branched. Ligule an eciliate membrane, entire or lacerate. Leaf-blades 2–5 cm long, 2–4 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 2–5 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, cuneate, laterally compressed, 1.7–2.6 mm long.

Glumes. Glumes similar, firmer than fertile lemma, shiny. Lower glume oblong or obovate, membranous, much thinner above, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume oblong or obovate, 2–2.5 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous. Upper glume apex lobed, awned.

Florets. Fertile lemma 0.8–1.25 mm long, without keel, 5 -nerved. Lemma apex entire, muticous. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and South America.

Australian Distribution: Western Australia, South Australia, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Flinders Ranges, Eyre Peninsula, Murray, Southern Lofty, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Wilsons Promontory, Wannon. **Tasmania:** Furneaux Group, North East.

Notes. Introduced. Native to the Mediterranean, widely naturalised. Damp, coastal areas. Flowers Nov. Fruits Nov.-Dec.

Polypogon monspeliensis* (L.) Desf. *Fl. Atlant.* 1: 67 (1798). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Alopecurus monspeliensis* L., *Sp. Pl.* 1: 61 (1753).

Type of Basionym or Protologue Information: LT: *Anon.*, Europe (LINN-82.6). LT designated by Hubbard, Fl. Trop. East Afr. Gramineae 1: 100 (1970), but specific sheet not indicated; specific sheet designated by Scholz in Cafferty et al., *Taxon* 49(2): 245 (2000).

ST: (LINN-82.7).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (546), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (142), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (436), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (432), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (247), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (230).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (141, Pl.42), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (323), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (248, fig. 190), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (356), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32).

Habit. Annual. Culms erect or decumbent, 3–96 cm tall. Lateral branches simple or branched. Ligule an eciliate membrane, 3–15 mm long, bilobed. Leaf-blades 1.5–32 cm long, 1.1–11 mm wide. Leaf-blade surface scaberulous or scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 0.6–16.5 cm long, 1–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 1.7–3 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblong or obovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex awned. Upper glume oblong or obovate, 1.8–2.6 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous or scabrous. Upper glume apex entire, awned.

Florets. Fertile lemma 0.9–1.5 mm long, without keel, 5 -nerved. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn subapical or from a sinus, 1–1.6(–3) mm long overall, without a column. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Western Australia: Drummond. **Northern Territory:** Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Maranoa, Moreton, Warrego, Wide Bay, Burnett. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, East Coast.

Notes. Introduced. Also on Lord Howe Is. Native to the Mediterranean, now widely naturalised. A weed of lowland, damp, disturbed sites, often close to water and occasionally submerged; widespread. Flowers Sept.-Feb. Fruits Oct.-Jan.

Polypogon tenellus R. Br. *Prodr.* 173 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia, Lewin Promontory: Coll?.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (175), [1878] G.Bentham, *Flora Australiensis* 7 (547), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (142), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (432), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (231).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (141, Pl.42), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (249, fig. 192), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (232, Fig.32).

Habit. Annual. Culms erect, stature slender to delicate, 10–50 cm tall. Lateral branches simple. Ligule an eciliate membrane, bilobed. Leaf-blades 3–15 cm long, 0.5–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 1.5–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.5–4.7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Lower glume apex awned. Upper glume lanceolate or ovate, 2.5–3.6 mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous, indumented. Upper glume apex entire, awned.

Florets. Fertile lemma 2–2.5 mm long, without keel, 5 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn dorsal, 16–25 mm long overall, with a twisted column. Palea 2 -nerved. Lodicules present. Anthers 1.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Drummond.

Notes. Endemic. Flowers Oct.

Polypogon viridis* Gouan. *Hortus Monsp.* 546 (1762). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Agrostis viridis* Gouan, *Hortus Monsp.* 546 (1762)

Type of Basionym or Protologue Information: T: *Anon.*, France (P).

Recent synonyms: *Agrostis semiverticillata*, *Polypogon viridis*, *Polypogon semiverticillatus*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (as *Agrostis semiverticillata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (249), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (111 as *Agrostis*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (165 as *Agrostis*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (249, fig. 192), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (111 as *Agrostis*).

Habit. Perennial. Stolons absent or present. Culms geniculate ascending or decumbent, (15–)30–100 cm tall. Lateral branches simple. Ligule an eciliate membrane, 2–4 mm long, lacerate. Leaf-blades 2–18 cm long, 2–7(–10) mm wide. Leaf-blade surface scabrous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 2–8(–11) cm long, 0.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 1.3–1.7(–3) mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume elliptic or oblong, membranous, keeled, 1-keeled, 1 -nerved. Lower glume apex muticous. Upper glume elliptic or oblong, 1.4–2 mm long, membranous, keeled, 1-keeled, 1(–3) -nerved. Upper glume surface scabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 1–1.5 mm long, without keel, 5 -nerved. Lemma apex erose or dentate, muticous. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Warren, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Southern Lofty, South-eastern. **New South Wales:** Central Coast, Southern Tablelands, South-Western Slopes, South Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Otway Range, Volcanic Plain, Wimmera. **Tasmania:** North West.

Notes. Often placed in *Agrostis*, but lacks the persistent pedicels and glumes, the unequal lemma and palea, the longer anthers and mode of spikelet disarticulation characteristic of this genus.

Introduced. Native of the Mediterranean, now widely established elsewhere. Weed of damp or wet sites, usually in or near water. Flowers Sept.-Mar.

Polytrias indica* (Houtt.) J.F. Veldkamp. *Blumea* 36: 180 (1991). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Phleum indicum* Houtt., *Nat. Hist.* 13: 198, pl. 90, f. 2 (1782).

Type of Basionym or Protologue Information: Indonesia: Java:, *Herb. Houtteyn s.n.* (HT: G).

Recent synonyms: *P. diversiflora*, *P. amaura*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 10–40 cm tall. Mid-culm nodes pubescent. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane, 0.2 mm long. Leaf-blades lanceolate, 2–7 cm long, 2–5 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 3 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate or oblong, cartilaginous or coriaceous, keeled, 2-keeled, 4–6 -nerved. Lower glume surface indumented. Upper glume oblong, 4–5 mm long, without keels, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1.

Fertile lemma 0.7–2 mm long, without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 8–12 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland.

Queensland: Cook, Burke.

Notes. Malaysia to Qld. The three Australian collections are from the South Johnson Research Station, Qld and it may be assumed they are naturalised introductions but for a note on one of the specimens which mentions that the grass has been seen on "more secluded areas of Palmerston". Pan-tropically introduced and escaping. Used as a drought resistant lawn grass. Flowers Apr.--Jun. & August.

Potamophila parviflora R. Br. *Prodr.* 211 (1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Oryzeae.

Type of Basionym or Protologue Information: Australia, Port Jackson: *Brown 5171* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (211), [1878] G.Bentham, *Flora Australiensis* 7 (550), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (357), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (369).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (357), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (363, Fig. 49).

Habit. Perennial. Rhizomes present, elongated. Culms aquatic, stature reed-like, 30–150 cm tall, 3–7 mm diam. Ligule an eciliate membrane, 4–15 mm long, lacerate, acute. Leaf-blades flat or involute, 20–50 cm long, 4–6 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 15–45 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 3–5.5 mm long.

Glumes. Upper glume 0.1 mm long. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret membranous, 0 -nerved. Fertile florets bisexual (or some unisexual).

Fertile lemma 3–5.5 mm long, without keel, 5 -nerved. Palea 3 -nerved, without keels. Lodicules present. Anthers 6.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North Coast.

Notes. Restricted to northern N.S.W. Grows in or beside riverbeds. Flowers summer, Nov.-Jan.

Psammagrostis wiseana C.A.Gardner & C.E.Hubb. *Hooker's Icon. Pl.* 34: t. 3361 (1938). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia, W Australia, Manberis Station: *Gardner 3035* (K holo).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (113), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (112, Pl. 32), [2005] K.Mallet (ed.), *Flora of Australia 44B: Poaceae 3* (Fig. 73F-J).

Habit. Annual or ephemeral. Culms geniculately ascending or decumbent or prostrate, 4–35 cm tall (long), 4–7(–12) -noded. Ligule a fringe of hairs, 0.2–0.5 mm long. Leaf-blades flat or involute, 0.3–5 cm long, 1–2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 1, 0.3–1 cm long, bearing 1–3 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–8.5 mm long.

Glumes. Glumes dissimilar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume ovate, 2.1–3 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.1–3.3 mm long, keeled, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex mucronate. Palea 2 -nerved. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Carnarvon.

Notes. Occurs on red sand dunes in the sublittoral areas of the Austin District between the Gascoyne and Minilya Rivers (N of Carnarvon) in the Eremaean region of W.A. With *Acacia aneura*, *Eremophila forrestii*, *Cassia desolata*, *Eriachne* sp., *Enteropogon ramosus*, *Diplopeltis* sp., *Pityrodia* and *Calothamnus*; flowers only after good winter rains, in average or better seasons; fruits in late winter.

Pseudochaetochloa arnhemica (australiensis) (Hitchcock) B.K.Simon, comb. nov. *Fl. Australia* .

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *W.V. Fitzgerald 600*, May 1905, Australia: Western Australia: collected at Devil's Pass, Napier Range, Kimberley Division, May 1905 (US-1172752).

Recent synonyms: *Pennisetum arnhemicum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (496 as *Pennisetum arnhemicum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (270), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (269, Pl. 77).

Habit. Perennial. Rhizomes present, short. Culms erect, 50–120 cm tall, 3–12 -noded. Mid-culm nodes pubescent. Ligule a fringe of hairs, 0.7–2.3 mm long. Leaf-blades flat or conduplicate or involute, 20–50 cm long, 1–5.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 7–20 cm long.

Spikelets. Spikelets sessile, 1 in the cluster. Male spikelets pedicelled. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–3 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 2.3–2.6 mm long, membranous, without keels, 3(–5) -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, muticous or mucronate. Fertile florets female.

Fertile lemma 3.4–3.8 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Hall. Canning. **Northern Territory:** Victoria River.

Notes. Widespread in the Kimberley region of W.A. and the N.T. In tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and arid hummock grasslands. A distinctive endemic. Flowers Mar.-Aug.

Pseudopogonatherum contortum (Brong.) A.Camus. *Ann. Soc. Linn. Lyon.* 68: 205 (1921).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Pogonatherum contortum* Brongn., *Voy. Monde* 2(2): 90, pl. 17 (1831).

Type of Basionym or Protologue Information: Molucca Islands: Bourou,.

Recent synonyms: *P. collinum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (525 as *Pollinia articulata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature slender to delicate, 20–110 cm tall. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringed membrane, a ciliolate membrane, 1 mm long. Leaf-blades filiform or linear, flat or involute, 10–30 cm long, 1.5–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes 3–20, 3–7 cm long. Rhachis tough or fragile at the nodes.

Spikelets. Spikelets pedicelled or sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 1.5–2.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume elliptic, membranous or chartaceous, much thinner above, keeled, 2-keeled, 2 -nerved. Upper glume lanceolate, chartaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume apex awned. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 1.5 mm long, without keel, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 15–30 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, Port Curtis.

Notes. Occurs sporadically in savanna and heath in northern Australia; also in Malesia, China, Burma and India. Flowers Feb.--July. Oct. & Dec.

Pseudopogonatherum irritans (R.Br.) A.Camus. *Ann. Soc. Linn. Lyon.* 68: 205 (1921). **Classification.**

(GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Saccharum irritans* R. Br., *Prodr.* 1: 203 (1810).

Type of Basionym or Protologue Information: (T.) Littora Novae Hollandiae intra tropicum,.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (203 as *Saccharum irritans*), [1878] G.Bentham, *Flora Australiensis* 7 (525 as *Pollinia irritans*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 50–150 cm tall, 6–8 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long. Leaf-blades filiform, involute, 15–50 cm long, 1–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence subdigitate, with racemose branches. Racemes numerous, 3–20, erect or ascending, 3–6 cm long. Central inflorescence axis 1–3 cm long. Rhachis tough or fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled or pedicelled (when tough), 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume linear or lanceolate or oblong, chartaceous, without keels or keeled, 2-keeled, 2 -nerved. Lower glume surface indumented. Upper glume oblong, keeled, 1-keeled, 1–3 -nerved. Upper glume surface indumented. Upper glume apex awned. **Florets.** Basal sterile florets 1.

Fertile lemma 1.5–2.5 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 30–50 mm long overall, with a twisted column. Palea absent. Anthers 3. Grain 2 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis.

Notes. Occurs sporadically in savanna and heath in northern Australia and extends to New Guinea, Malesia and Burma. Flowers Dec.--July.

Pseudoraphis jagoensis B.K. Simon ms. *Austrobaileya*. **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Inflorescence. Inflorescence compound, a panicle.

Australian Distribution: Queensland.

Queensland: Cook.

Pseudoraphis minuta (Mez) Pilger. *Notizbl. Bot. Gart. Berlin-Dahlem* 10: 210 (1928). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Chamaeraphis minuta* Mez, *Notizbl. Bot. Gart. Berlin-Dahlem* 7: 48 (1917).

Type of Basionym or Protologue Information: ST: *C.B. Clarke 17040*, no date, Vietnam: Bengalia inferior prope Daccar (B; IST: US-865690 (fragm. ex B)). ST: *B. Balansa 1593*, no date, Vietnam: Tonkin, prope Hanoi ad paludum margines (P; IST: US-865691 (fragm. ex P)). ST: *B. Balansa 1592*, no date, Vietnam: Tonkin, prope Hanoi ad paludum margines (P; IT: US-865692 (fragm. ex P)). ST: *B. Balansa 4779*, no date, Vietnam: Tonkin, prope Hanoi ad paludum margines (B(fragm., US-865693)). From Berlin. ST: *Kurz*, Burma ST: *Keenan*, Cachar.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms prostrate, 30–35 cm tall, 3–6 -noded. Mid-culm nodes pubescent. Ligule an eciliate membrane. Leaf-blades floating, 2.5–4 cm long, 3–4 mm wide.

Inflorescence. Inflorescence compound. Racemes numerous, spreading, 2–3 cm long, bearing 5–10 fertile spikelets on each. Central inflorescence axis 4.5–5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.5–4 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, hyaline, without keels, 0 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 50–66 % of length of spikelet, membranous, 7–9 -nerved.

Fertile lemma 1.2 mm long, without keel. Palea without keels. Anthers 3.

Continental Distribution: Tropical Asia, or Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** North Kennedy.

Pseudoraphis minuta var. minuta **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Pseudoraphis minuta var. laevis B.K. Simon. *Flora of Australia* xx: xx-xx. **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Pseudoraphis paradoxa (R.Br.) Pilger. *Notizbl. Bot. Gart. Berlin-Dahlem* 10: 210 (1928). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum paradoxum* R.Br., *Prod.* 193 (1810).

Type of Basionym or Protologue Information: Australia, Port Jackson: Brown (K iso).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (499 as *Chamaeraphis paradoxa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (358).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (225), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (358).

Habit. Perennial. Stolons present. Culms prostrate, 20–50 cm tall. Mid-culm nodes glabrous. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.8–1.5 mm long. Leaf-blades floating, 1–8 cm long, 2–6 mm wide. Leaf-blade surface smooth or scaberulous.

Inflorescence. Inflorescence solid, a panicle. Racemes appressed, 1–15 cm long, bearing 1(–2) fertile spikelets on each. Central inflorescence axis 3–8 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 7.5–11 mm long. Rachilla internodes elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, hyaline, without keels, 0 -nerved. Upper glume elliptic, 7.5–11 mm long, membranous, without keels, 13–19 -nerved. Upper glume surface

smooth or asperulous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 13–19 -nerved. Fertile florets female.

Fertile lemma 3.3–3.7 mm long, without keel, 5 -nerved. Palea without keels. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Moreton, North Kennedy, Port Curtis, Wide Bay, South Kennedy, Darling Downs. **New South Wales:** North Coast, Central Coast. **Victoria:** East Gippsland, Gippsland Plain.

Notes. The relationship between *P. paradoxa* and *P. spinescens* is not clearly understood, though the two seem to be distinct. In Ceylon, *P. spinescens* var. *depauperata* (Nees) Bor is applied to specimens with a contracted inflorescence.

In tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, and dry sclerophyll forests. Flowers Feb.-May.

Pseudoraphis spinescens (R. Br.) Vickery. *Proc. Roy. Soc. Queensland* 62: 69 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum spinescens* R. Br., *Prod.* 193 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown*, Australia: New South Wales: near Port Jackson (BM).

Recent synonyms: *P. aspera*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (498 as *Chamaerhaphis spinescens*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (240 as *P. abortiva*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (482), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (& as *P. abortiva*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (476), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (358).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (239, Pl.70), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (2252), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (475, Fig. 408), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (358).

Habit. Perennial. Stolons present. Culms prostrate or aquatic, 10–50 cm tall. Mid-culm nodes pubescent. Ligule a fringed membrane, a ciliate membrane, 1.2–4.1 mm long. Leaf-blades floating, straight or curled, filiform or linear, flat, 3–12 cm long, (1–)4(–7) mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 8–30, spreading, 1.5–7 cm long. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, (3–)3.3–8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, hyaline, without keels, 0 -nerved. Upper glume lanceolate, 3.3–7.9 mm long, membranous, without keels, 7–11 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 70 % of length of spikelet, membranous, 5–9 -nerved.

Fertile lemma 1.3–1.6 mm long, without keel, 5 -nerved. Palea without keels.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **South Australia:** Lake Eyre, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, Warrego, Wide Bay, South Kennedy, Leichhardt, Gregory South. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** Grampians, Midlands, Murray Mallee, Riverina, Wannon, Wimmera.

Notes. A morphologically diverse species. Contrasts with *P. brunoniana*, a species from Burma and Ceylon, are not clear.

In dry sclerophyll forests, tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, eucalypt shrublands, and coastal grasslands. Occurring over a wide area. Flowers throughout the year, depending on location.

Psilurus incurvus* (Gouan) Schinz & Thellung. *Vierteljahrsschr. Naturf. Ges. Zürich* 58: 40 (1913).

Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Nardus incurva* Gouan, *Hortus Monsp.* 33 (1762).

Type of Basionym or Protologue Information: LT: *J. Scheutzer, Agrostographia t. 1, fig. 7K (1719)*, LT designated by Stace & Jarvis, *Bot. J. Linn. Soc.* 91: 441 (1985).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (162), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (359), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (347).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (227), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (161, fig. 114), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (359), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (345, Fig. 46).

Habit. Annual. Culms erect, 7–45 cm tall. Ligule an eciliate membrane, 0.2–1 mm long. Leaf-blades filiform, convolute, 15–65 cm long, 0.3–3 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, straight or flexuous, smoothly terete, 3–35 cm long. Rhachis fragile at the nodes (tardily).

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with a barren rachilla extension or with diminished florets at the apex, linear, laterally compressed, 3.4–6.8 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 0.5–1.3 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 3.2–5 mm long, keeled, 3 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn apical or subapical, 2.3–5.5 mm long overall. Anthers 1. Grain 3–4.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Southern Lofty. **New South Wales:** Southern Tablelands, South-Western Slopes. **Victoria:** Grampians, Lowan Mallee, Midlands, Riverina, Wannon.

Notes. Native to the Mediterranean. Dry, open habitats, often on sandy or rocky soils. Flowers Oct.-Nov.

Puccinellia ciliata* Bor. Notes *Roy. Bot. Gard. Edinburgh* 28: 299 (1968). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Turkey: Bi Izmir: Kahic, 12 km from Menemen, N of Izmir, near the sea, 1951, *Miles & Donald s.n.* (HT: E; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (271).

Habit. Perennial. Culms erect, 35–80 cm tall. Ligule an eciliate membrane, 2–5.5 mm long, acute or acuminate. Leaf-blades aciculate, conduplicate or involute, 8–25 cm long, 0.5–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 11.5–25 cm long, 20 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–11(-13)), comprising 4–11(-13) fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 4.3–17 mm long.

Glumes. Glumes dissimilar. Lower glume elliptic, membranous, without keels, 1 -nerved. Upper glume elliptic, 2.1–3.5 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 2.4–3.4 mm long, without keel, 5 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Anthers 3.

Continental Distribution: Europe, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales.

Western Australia: Drummond. **South Australia:** Eyre Peninsula, Northern Lofty, Southern Lofty, South-eastern. **New South Wales:** Southern Tablelands, Central-Western Slopes.

Notes. Australian material differs from the type description in the much longer ligule, 3–4.3 mm cf. 1.5 mm.

Introduced. Recorded but not naturalised in Vic. Commonly in salt pan areas. Flowers Apr.-Nov. Fruits Nov.-Jan.

Puccinellia decumbens A.R. Williams. *Fl. Australia* 44A: 386 (2009).

Classification. **Key references (books and floras):** [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (270).

Australian Distribution: South Australia.

South Australia: Eyre Peninsula.

Puccinellia distans* (Jacq.) Parl. *Fl. Ital.* 1: 366 (1848). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa distans* Jacq., *Observ. Bot.* 1: 42 (1764).

Type of Basionym or Protologue Information: LT: *Herb. Jacquin fil. s.n.*, Austria: crescit in fossis aquosis et locis humidis per Austriam (W). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 255 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (163), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (272).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (163, fig. 115).

Habit. Perennial. Culms erect or decumbent or prostrate, 10–60 cm tall, 2–4 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.9–2 mm long, truncate or obtuse. Leaf-blades filiform or linear, involute, 2–10 cm long, 1.5–4 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 3–20 cm long, 2–14 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–9), comprising 3–9 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 3–7 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, without keels, 1 -nerved. Upper glume elliptic, 1.2–2 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 2–2.5 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex erose. Palea 2 -nerved. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: South Australia, Tasmania.

South Australia: Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **Tasmania:** Furneaux Group.

Notes. Introduced. Europe, eastern Asia, NW Africa and North America. In poorly drained saline areas in pastures. Flowers Nov.-Jan. Fruits Jan.-?.

Puccinellia fasciculata* (Torr.) E.P.Bickn. *Bull. Torrey Bot. Club* 35: 197 (1908). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa fasciculata* Torr., *Fl. N. Middle United States* 1: 107 (1823).

Type of Basionym or Protologue Information: HT: *J. Torrey*, USA: New York: salt marsh near New York (NY-TORR; IT: US- (fragm. ex NY-TORR & photo)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (164), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (272).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (164, fig. 116).

Habit. Perennial. Culms erect or geniculately ascending, 6–60 cm tall, 1–3 -noded. Leaf-sheaths smooth. Ligule an eciliate membrane, 1–3 mm long, obtuse or acute. Leaf-blades linear, flat or conduplicate, 2–16 cm long, 1.5–5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong or ovate, 2.5–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, elliptic or oblong or ovate, laterally compressed, 3.4–6.8 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, much thinner on margins, without keels or keeled, 1 -nerved. Upper glume ovate, 1.4–1.9 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 1.8–2.6 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex erose, mucronate. Palea 2 -nerved. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Europe, Africa, Australasia, and North America.

Australian Distribution: South Australia, Victoria.

South Australia: Murray, Yorke Peninsula, South-eastern. **Victoria:** Gippsland Plain, Midlands, Otway Plain, Volcanic Plain.

Notes. A number of specimens have a relatively long and acute ligule, unlike the ligule usually described for *P. fasciculata*. The specimens do not differ significantly in any other feature.

Introduced. Commonly in saline areas near water, e.g. salt marsh or stream, mostly near the coast. Flowers (Apr.-)Sept.-Feb. Fruits Nov.-Apr.

Puccinellia gigantea (Grossh.) Grossh. *Fl. Kavk.* 1: 114 (1928).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (271).

Puccinellia harcusiana A.R. Williams. *Fl. Australia* 44A: 386 (2009).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (270).

Australian Distribution: Tasmania.

Tasmania: North West.

Puccinellia longior A.R. Williams. *Nuytsia* 16 (2): 458 (2007).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (269).

Australian Distribution: Western Australia, South Australia.

Western Australia: Avon. **South Australia:** Northern Lofty.

Puccinellia macquariensis

Continental Distribution: Australasia.

Australian Distribution: Macquarie, Heard.

Puccinellia perlaxa (N.G.Walsh) N.G.Walsh & A.R.Williams. *Nuytsia* 16 (2): 464 (2007).

Classification. Type of Basionym or Protologue Information: Australia: Victoria: Altona, 3 km SE of Laverton, 4 km SSW of Altona PO, 25 Nov 1977, *Muir 5659* (HT: MEL).

Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (268).

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

Notes. Tas., N.S.W., Vic. S.A. Known from one locality in Tas. Commonly in saltmarsh communities fringing salt lakes, on heavy soils. Flowers Nov.-Feb. Fruits (July-)Dec.-Jan.

Puccinellia sp A Classification. (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Recent synonyms: *P. aff stricta*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 6–70 cm tall. Ligule an eciliate membrane, 0.9–3 mm long, obtuse or acute. Leaf-blades filiform, involute, 2.2–17 cm long, 0.5–3.4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle 4.5–24.5 cm long.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (6–12), comprising 6–12 fertile floret(s), ovate, laterally compressed, 5–10.3 mm long. Rhachilla internodes elongated between glumes.

Glumes. Lower glume linear, without keels or keeled, 1-keeled, 1(–3) -nerved. Upper glume 2.1–3.6 mm long.

Florets. Fertile lemma 2.3–3.2 mm long. Palea apex dentate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Menzies. **South Australia:** Eyre Peninsula, Northern Lofty, Southern Lofty, South-eastern. **Victoria:** Riverina.

Notes. Common in salt swamps. Flowers July-Dec. Fruits July-Apr.

Puccinellia sp. Swan Reach (R.Bates 21370)

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2.

Australian Distribution: South Australia.

South Australia: Murray.

Puccinellia stricta (Hook. f.) Blom. *Acta Horti Gothob.* 5: 89 (1930). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Glyceria stricta* Hook. f., *Fl. Nov.-Zel.* 304 (1853).

Type of Basionym or Protologue Information: LT: *Gunn* 1463, 24 Dec 1844, Australia: Tasmania: Launceston, marsh (K). LT designated by Allan & Jansen, *Trans. Roy. Soc. New Zealand* 69: 265 (1939).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (658 as *Glyceria stricta*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (100), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (433), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (164), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (359), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (267).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (101, Pl. 28), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (165, fig. 117 as var. *stricta*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (359), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (273, Fig.36).

Habit. Annual or perennial. Culms erect, stature slender to delicate, 9–78 cm tall. Ligule an eciliate membrane, 0.9–2.6 mm long, obtuse. Leaf-blades filiform, involute, 3–22 cm long, 0.5–4.3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 5–26.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–12), comprising 3–12 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 2.6–12 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, without keels or keeled, 1(–2) -nerved. Upper glume ovate, 1.9–3.4 mm long, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 2–3.6 mm long, without keel, 5 -nerved. Lemma apex erose. Palea 2 -nerved. Palea apex entire or divided to base. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Roe, Avon. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Southern Tablelands, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, Midlands, East Coast.

Notes. Also in N.Z. All states but N.T. and Qld. In Tas. recorded from saltmarshes and estuarine mud flats, saline lagoons and saline areas in agricultural land. In Vic., in coastal and sandy margins of salinated water bodies. Flowers Sept.-Jan. Fruits Oct.-Apr. Commonly in salty and often sandy areas near water. Flowers Sept.-Feb. Fruits (July-)Oct.-Apr.

Puccinellia vassica A.R. Williams. *Nuytsia* 16 (2): 460 (2007).

Classification. Key references (books and floras): [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (269).

Australian Distribution: Western Australia.

Western Australia: Menzies.

Rostraria cristata* (L.) Tsvelev. *Novosti Sist. Vyssh.Rast.* 7: 47 (1971). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca cristata* L., *Sp. Pl.* 1: 76 (1753).

Type of Basionym or Protologue Information: LT: Portugal (LINN-92.94). LT designated by Sherif & Siddiq, *Fl. Libya* 145: 167 (1988).

Recent synonyms: *Lophochloa cristata*, *L. phleoides*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (639 as *Koeleria phleoides*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (60 as *Koeleria phleoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (250), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (360), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (159).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (250, fig. 193), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (179), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (360), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (155, Fig.23).

Habit. Annual. Culms erect or decumbent, 5–45 cm tall. Leaves mostly basal. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat, 2.5–15 cm long, 1.5–8 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 1.5–10 cm long, 0.6–1.6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–7 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture, shiny. Lower glume lanceolate, membranous, without keels, 1 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, 3–4 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 3–4 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lemma apex mucronate or awned, 1 -awned. Median (principal) awn apical or subapical, 0–3 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Carnarvon, Austin. Eucla, Drummond, Dale, Avon, Coolgardie. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Range, Wilsons Promontory, Riverina, Wimmera. **Tasmania:** Furneaux Group, East Coast.

Notes. Corresponds to all material under *Koeleria phleoides* in CANB. Taxon with confused history, see notes by Watson in Grass database.

Introduced. Also on Lord Howe Is. Native to SW Europe, but widely naturalized elsewhere. Widespread in disturbed habitats, usually dry, open scrub. Flowers Oct.-Jan.

Rostraria pumila* (Desf) Tsvelev. *Novosti Sist. Vyssh. Rast.* 7: 48 (1971). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena pumila* Desf., *Fl. Atlant.* 1: 103 (1798.).

Type of Basionym or Protologue Information: LT: *Broussonet 296*, 1806, Morocco (LE). LT designated by ?; cited by Henderson & Schäfer, *Bot. J. Linn Soc.* 141: 130 (2003).

Recent synonyms: *Lophochloa pumila*, *Trisetum pumilum*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (62 as *Trisetum pumilum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (434 as *Lophochloa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (251), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (360), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (160).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (252, Fig. 194), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (360).

Habit. Annual. Culms erect or geniculately ascending, 5–35 cm tall, 1–4 -noded. Ligule an eciliate membrane, 1–1.5 mm long, obtuse. Leaf-blades 3–7 cm long, 1–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 1–6 cm long, 0.4–0.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered (4), comprising 4 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 2.5–3.5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume elliptic, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume elliptic, 2.5–3 mm long, membranous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous or indumented.

Florets. Fertile lemma 3–3.5 mm long, keeled, 5 -nerved. Lemma surface glabrous. Lemma apex dentate, awned, 1 -awned. Median (principal) awn dorsal, 2–3 mm long overall. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria.

Western Australia: Carnarvon, Austin. Eucla, Irwin, Avon, Coolgardie. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **New South Wales:** South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain, Murray Mallee.

Notes. Introduced. Native of Europe. Grows in disturbed areas, in sand, clay or loamy sites, in open woodland or shrubland, often in areas subject to flooding. Flowers (June-)Aug.-Oct. Fruits Sept.-Oct.

Rottboellia cochinchinensis* (Lour.) Clayton. *Kew Bull.* 35: 817 (1981). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Stegosia cochinchinensis* Lour., *Fl. Cochinch.* 51 (1790).

Type of Basionym or Protologue Information: Vietnam.

Recent synonyms: *R. exaltata*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (206 as *Rottboellia exaltata*), [1878] G.Bentham, *Flora Australiensis* 7 (513 as *Rottboellia exaltata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (361).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (361).

Habit. Annual. Culms erect, 30–300 cm tall. Mid-culm nodes glabrous. Lateral branches branched. Leaves cauline. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1–1.5 mm long, truncate. Leaf-blades 15–50 cm long, 5–30 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas, 3–5 mm long. Companion spikelet glumes muticous. Apical sterile spikelets barren. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, indurate, keeled, 2-keeled, winged on keel, 9–13 -nerved. Lower glume surface glabrous. Upper glume oblong or ovate, chartaceous or coriaceous, keeled, 1-keeled, winged on keel, 11–15 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 5 -nerved.

Fertile lemma 2.5–4.5 mm long, keeled, 1 -nerved. Palea 0 -nerved, without keels. Lodicules present. Anthers 3. Grain 3.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales, Christmas Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Leichhardt, Moreton, North Kennedy, Mitchell. **New South Wales:** Central Coast.

Notes. A pantropical species growing in wet sites, commonly as a weed. Found in Australia in tropical coastal Qld and N.T.; Lord Howe Is. One record from N.S.W. Flowers Jan.–Sept.

Rottboellia coelorachis*

Australian Distribution: Norfolk I.

Rytidosperma acerosum (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 331 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia acerosa* Vickery, *Contr. New South Wales Natl. Herb.* 1: 296 (1950).

Type of Basionym or Protologue Information: Western Australia: Woorooloo, Dec 1907, *Koch 1826* (HT: NSW-2596; IT: K).

Recent synonyms: *Notodanthonia acerosa* (Vickery) Veldkamp, *Austrodanthonia acerosa* (Vickery) H.P.Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (400).

Derivation: L. *acer*, sharp; -*osa*, abundance. Lemmas terminating in a sharp point.

Habit. Perennial. Culms erect, 30–70 cm tall, 4 -noded. Mid-culm nodes glabrous. Leaf-sheaths scaberulous. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 3–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 15–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 15–25 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 13–18 mm long overall, with a twisted column. Column 6 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.5–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Avon.

Notes. W.A. from Perth to Fitzgerald, on sandy hills or plains. Flowers Oct.

Rytidosperma alpicolum (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 331 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia alpicola* Vickery, *Contr. New South Wales Natl. Herb.* 1: 297 (1950).

Type of Basionym or Protologue Information: LT: *Mueller s.n.*, Australia: Victoria: Mt. Buller (MEL; ILT: K). LT designated by Vickery, *Contr. New South Wales Herb.* 1: 297 (1950).

Recent synonyms: *Danthonia semiannularis* var. *alpina* Benth., *Notodanthonia alpicola* (Vickery) Veldkamp, *Austrodanthonia alpicola* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (141).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (55, Pl.14 as *Danthonia semiannularis*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (141).

Derivation: *L. alpes*, high mountain; *-cola*, dweller. Growing on high mountains.

Habit. Perennial. Culms erect, 8–35 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades conduplicate or involute, 5–10 cm long, 2–4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 3–4 cm long, 2–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 11–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5 -nerved. Upper glume lanceolate, 12–17 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 2.3–3 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 10–17 mm long overall, with a twisted column. Column 2–3 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.7–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands. **Victoria:** East Gippsland, Snowfields.

Notes. This species, with its thick leaves, large white basal sheaths, and compact inflorescence, is very distinctive.

Ranging from the A.C.T. through the Australian Alps, with an outlier on the Furneaux Islands, altitude 1800–2100 m (in Victoria down to 1600 m), rock crevices, ledges and alpine grassland. Flowers Dec.

Rytidosperma auriculatum (J.M.Black) Connor & Edgar. *New Zealand J. Bot.* 17: 322 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia auriculata* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 53: 261 (1929).

Type of Basionym or Protologue Information: LT: *J.M. Black* 2, 11 Nov 1927, Australia: South Australia: Bundaleer Hills (K; ILT:: MEL). LT designated by Vickery, *Contr. New South Wales Herb.* 2: 309 (1956).

Recent synonyms: *Notodanthonia auriculata* (J.M.Black) Zotov, *Austrodanthonia auriculata* (J.M. Black) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (286), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (141).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *D. auriculata*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (287, Fig. 221), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (141).

Derivation: *L. auris*, ear; *-ula*, diminutive; *-ata*, possessing. The apex of the lemma two-lobed.

Habit. Perennial. Culms erect or geniculately ascending, 13–70 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or involute, 2–10 cm long, 2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, dense, 4 cm long, 2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 9–11 -nerved. Upper glume lanceolate, 9–16 mm long, membranous, without keels, 9–11 -nerved.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 11–13 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Northern Lofty, Murray, Southern Lofty. **New South Wales:** Central Coast, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Riverina, Volcanic Plain, Wimmera.

Notes. This species is distinct by auricles flanking the lemmas, the central awn approximately as long as the setae; the basal cluster of slender, rolled, densely villous leaves; small, almost capitate inflorescences, and the villous paleas. There are forms intermediate to *R. erianthum*, these are discussed under the latter species.

Along the western slopes from Dubbo to Adelaide, altitude 30–620 m, grassland in full sun. Flowers Oct. to Nov.

Rytidosperma australe (Petrie) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 25: 166 (1987).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Triodia australis* Petrie, *Trans. & Proc. New Zealand Inst.* 22: 442 (1890).

Type of Basionym or Protologue Information: HT: *D. Petrie s.n.*, New Zealand: Mount Ida Range, Maniototo Co., ca. 3500 ft (WELT-40330).

Recent synonyms: *Erythranthera australis*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (265 as *Erythranthera*).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 12, K-L), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (265 as *Erythranthera*).

Habit. Perennial. Culms geniculately ascending or decumbent, 10–45 cm tall. Ligule a fringe of hairs. Leaf-blades involute or convolute, 5–15 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 2.7–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 2.4–3.3 mm long, membranous, without keels, 5–7 -nerved.

Florets. Fertile lemma 1.6–2.5 mm long, without keel, 7 -nerved. Lemma surface glabrous. Lemma apex dentate, muticous or mucronate or awned. Median (principal) awn from a sinus, 0.4–0.6 mm long overall, without a column or with a straight or slightly twisted column. Lodicules present. Anthers 3. Grain 0.7–1 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** Central Highlands, Mt Field.

Notes. On Mt Kosciuszko and in Tasmania, also in New Zealand, altitude 1100–2000 m, fieldmark and in alpine herbfields on deeper soils, or flat peaty soils, often in hollows where the snow persists. Flowers Jan.

Rytidosperma bipartitum (Kunth) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* . **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Avena bipartita* Link, *Hortus Regius Botanicus Berolinensis* 1: 113. 1827.

Type of Basionym or Protologue Information: T: (B).

Recent synonyms: *Notodanthonia bipartita* (Link) Veldkamp, *Notodanthonia bipartita* (Link) Veldkamp var. *linkii*, *Rytidosperma linkii* (Kunth) Connor & Edgar var. *linkii*, *Danthonia linkii* Kunth, *Austrodanthonia bipartita* (Link) H.P. Linder.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae*, [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (142).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (103 as *D. linkii*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (142).

Derivation: *L. bis* (twice) and *partia* (divide). Lemma apex bifid.

Habit. Perennial. Culms erect, 15–80 cm tall, 1 mm diam., 4 -noded. Leaf-sheaths smooth. Ligule a fringe of hairs. Leaf-blades flat or involute, 20–30 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 4–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 5–7 -nerved. Upper glume elliptic, 8–13 mm long, membranous, without keels, 5–7 -nerved.

Florets. Fertile lemma 2.2–3.3 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 7–11 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.4–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Darling Downs, Maranoa, Moreton, Warrego. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. Very close to several species: from *R. richardsonii* it is separated by the more slender spikelets, and linear-lanceolate inflorescence; from *R. fulvum* by the weakly developed basal twisting of the awn-column.

Widespread on the Tablelands of New South Wales and in Victoria, altitude 100–1200 m, common on black soils, occasionally also in other soils, usually in sunny grassland.

Rytidosperma caespitosum (Gaud.) Connor & Edgar. *New Zealand J. Bot.* 17: 325 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia caespitosa* Gaudich., *Voy. Uranie* 4: 408 (1826).

Type of Basionym or Protologue Information: HT: *Guadichaud s.n.*, Australia: Western Australia: Shark's Bay (P; IT: BM, K).

Recent synonyms: *Notodanthonia caespitosa* (Gaud.) Zotov, *Austrodanthonia caespitosa* (Gaud.) H.P. Linder.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia semiannularis*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (439 as *Danthonia*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (401), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (286), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (142).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 10, K-L), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (288, Fig. 222), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (142).

Derivation: *L. caespes*, grass that has been cut; -*osa*, abundance. Habit tufted.

Habit. Perennial. Culms erect, 13–90 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades flat or involute, 15–35 cm long, 1–2(–4) mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 3–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–9), comprising 6–9 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 12.5–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 14–24 mm long, membranous, without keels, 5–7 -nerved.

Florets. Fertile lemma 2.3–5 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 15–25 mm long overall, with a twisted column. Column 2–7 mm long. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.2–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Eucla, Irwin, Drummond, Dale, Menzies, Eyre, Roe, Avon, Coolgardie. **South Australia:** North-western, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. This species may be confused with several other species: a) *R. erianthum*, from which it differs by the narrower, oblong lemmas, by the glabrous to scaberulous pedicels and the longer paleas; b) *R. setaceum*, from which it may be separated by the longer glumes and lemmas, the relatively longer palea, more villous leaves, the sparser inflorescences, and the lemma indumentum of usually not overlapping rows; c) *R. duttonianum*, from which it may be distinguished by the pale green to grey lemma backs, the inflorescence branches not being longer than the pedicels.

Widespread in Australia south of the 32nd latitude, generally restricted to sunny habitats, from grassland to desert to heathlands. Flowers Sep. to Nov.

Rytidosperma carphoides (F. Muell. ex Benth.) Connor & Edgar. *New Zealand J. Bot.* 17: 331 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia carphoides* F. Muell. ex Benth., *Fl. Austral.* 7: 592 (1878).

Type of Basionym or Protologue Information: LT: *Adamson* 195, 2 Nov 1853, Australia: Melbourne: Victoria (K). LT designated by Vickery, *Contr. N.S.W. Herb.* 2: 277 (1956).

Recent synonyms: *Danthonia carphoides* F. Muell. ex Benth. var. *angustior* Vickery, *Rytidosperma carphoides* (F. Muell. ex Benth.) Connor & Edgar var. *angustius* (Vickery) Connor & Edgar, *Notodanthonia carphoides* (F. Muell. ex Benth.) Zotov, *Austrodanthonia carphoides* (Benth.) H.P. Linder, *Telopea* 7: 271 (1997).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (592 as *Danthonia carphoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (289), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (142).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 10, A-B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (289, Fig. 223), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (142).

Derivation: Gk. *-oides*, resembling. Habit similar to that of *Carpha*.

Habit. Perennial. Culms erect or geniculately ascending, 10–50 cm tall, 3-noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades filiform, involute, 3–20 cm long, 1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1.5–4 cm long, 1.5–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–7), comprising 3–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 6–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, much thinner on margins, without keels, 5–9-nerved. Upper glume elliptic, 6–9 mm long, membranous, without keels, 5–9-nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 3–4.4 mm long, without keel, 9-nerved. Lemma surface indumented. Lemma apex lobed, awned, 1-awned. Median (principal) awn from a sinus, 3–6 mm long overall, with a straight or slightly twisted column. Lateral lemma awns absent. Lodicules present. Anthers 3. Grain 1.7–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Grampians, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. Ranging from the Queensland border to Adelaide and Tasmania, altitude 680–800 m, sclerophyll scrub and eucalypt woodlands, grassy hillsides, in heavy soils; frequently common where the grass is cut by grazing or mowing, not common in lank grass. Flowers Oct. to Dec.

Rytidosperma clelandii (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia clelandii* Vickery, *Contr. New South Wales Natl. Herb.* 1: 297 (1950).

Type of Basionym or Protologue Information: HT: *Cleland H262*, 30 Oct 1926, Australia: south Australia: Upper Waterfall Gully (NSW; IT: JBC).

Recent synonyms: *Notodanthonia clelandii*, *Rytidosperma clelandii*, *Joycea clelandii* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (301).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 6, G-H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (302, fig. 237).

Habit. Perennial. Culms 40–75 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, involute, 15–30 cm long, 0.75–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 8–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 16–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 5–9 -nerved. Upper glume lanceolate, 16–20 mm long, membranous, without keels, 7 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–9 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 13–18.5 mm long overall, with a twisted column. Column 5–7.5 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.5–2.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Yorke Peninsula, Southern Lofty.

Notes. Similar in appearance to *R. pallidum*.

Restricted to the Mt Lofty region at Adelaide, altitude 200–700 m, common in light shade in heathy understory under *Eucalyptus* woodland, on thin, skeletal, stony soils on steeper slopes. Flowers Nov.

Rytidosperma diemenicum (D.I. Morris) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* .

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia diemenica* D.I.Morris, *Muelleria* 7(2): 153–155, f. 5b, 6 (1989).

Type of Basionym or Protologue Information: Tasmania: Ouse River-Wild Dog Plains, 1160 m, streambanks-sandy alluvium till, erosion sites, 7 Jan 1983, A. Moscal 1292 (HT: HO-65782).

Recent synonyms: *Notodanthonia diemenica* (D.I. Morris) H.P.Linder, *Austrodanthonia diemenica* (D.F. Morris) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. *-ica*, belonging to. From Van Diemens Land, now Tasmania.

Habit. Perennial. Rhizomes absent or present, short. Culms 6–53 cm tall, 4–5 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 12–25 cm long, 2–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 3–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, (10–)12–15(–18) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 10–18 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 2.4–3.3 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 11 mm long overall, with a twisted column. Column 3–4 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.4–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: North East, Central Highlands, Ben Lomond, East Coast, South West, Mt Wellington.

Notes. Tasmanian endemic, altitude 900–1380 m, on rock slabs, in wet hollows in peat on till, dry rock ledges and crevices, in skeletal soils, feldmark. Flowers Dec. to Jan.

Rytidosperma dimidiatum (Vickery) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneieae.

Basionym and/or Replacement Name: *Danthonia dimidiata* Vickery, *Contr. New South Wales Natl. Herb.* 2: 322 (1956).

Type of Basionym or Protologue Information: HT: *Rodway s.n.*, Australia (HO).

Recent synonyms: *Notodanthonia dimidiata*, *Danthonia dimidiata*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 15–40 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades involute, 2–12 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 2–6 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 7 -nerved. Upper glume lanceolate, 5–11 mm long, membranous, without keels, 7 -nerved.

Florets. Fertile lemma 2.5–7 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 7.5–9.5 mm long overall, with a twisted column. Column 4 mm long. Lateral lemma awns absent. Lodicules present. Anthers 3. Grain 1.5–1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Victoria, Tasmania.

Victoria: Gippsland Plain. **Tasmania:** North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. *R. dimidiatum* is closely related to *R. fortuneae-hibernae* and *R. pauciflorum*. It differs from the former species by the laxer growth and larger spikelets; Morris (1992) separates it by a lax ring of lemma hairs compared to a dense ring directly below the sinus in *R. fortuneae-hibernae*. It is readily distinguished from *R. pauciflorum* by the much larger spikelets and the poorly developed upper row of lemma hairs.

Tasmania and the southern coast of Victoria, altitude 0–1150 m, various habitats, from moorland to dry grassland, in exposed places. Flowers Dec.

Rytidosperma duttonianum (Cashmore) Connor & Edgar. *New Zealand J. Bot.*, 17(3): 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneieae.

Basionym and/or Replacement Name: *Danthonia duttoniana* Cashmore, *Comm. Austr., C.S.I.R., Bull.* 69(app.): 72, f. 1932.

Type of Basionym or Protologue Information: LT: *Cashmore Ga-65*, 2 Dec 1932, Australia: South Australia: Werribee (AD; ILT: K, NSW-19682). LT designated by Vickery, *Contr. New South Wales Herb.* 2(3): 304 (1956).

Recent synonyms: *Notodanthonia duttoniana* (Cashmore) Veldkamp, *Austrodanthonia duttoniana* (Cashmore) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (289), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (143).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (290, Fig. 224), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (143).

Derivation: L. -ana, indicating connection. In honor of J. Dutton (1863-) field assistant, Bathurst Agricultural Station, Australia.

Habit. Perennial. Culms erect, 40–110 cm tall, 1–2 mm diam. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades conduplicate, 10–20 cm long, 2–3.5 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 4–12 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–10), comprising 5–10 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 11–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, much thinner on margins, without keels, 7 -nerved. Upper glume elliptic, 11–20 mm long, membranous, without keels, 7 -nerved.

Florets. Fertile lemma 2.8–4 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 11–15 mm long overall, with a twisted column. Column 4–6 mm long. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.6–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** Gippsland Plain, Grampians, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Most similar to *R. caespitosum*, from which it is best separated by the width of the florets, the shape of the palea, the lobed inflorescence and the shiny golden-brown lemmas. However, some collections from Victoria cannot be determined with confidence, as they may lack the gold-backed lemma character.

South-east Australia from Dubbo to Adelaide, altitude 150–600 m, swampy ground, waterlogged in rainy season, often on heavy clays, or in moist seepages, or on Tablelands often in only slightly damp habitats. Flowers Nov.

Rytidosperma erianthum (Lindl.) Connor & Edgar. *New Zealand J. Bot.* 17: 323 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia eriantha* Lindl., *Three Exped. Australia* 2: 304 (1838).

Type of Basionym or Protologue Information: HT: *Mitchell s.n.*, Australia: interior of New Holland, Major Mitchell's Expedition 1836, ex herb. Lindley (CGE(fragm., NSW-6960)).

Recent synonyms: *Notodanthonia eriantha* (Lindl.) Veldkamp, *Austrodanthonia eriantha* (Lindl.) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (290), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (143).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 11, G-H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (291, fig. 225).

Derivation: Gk. *erion*, wool; *anthos*, flower. With woolly glumes, lemmas or awns.

Habit. Perennial. Culms erect, 19–70 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades filiform, involute, 10–25 cm long, 1–2 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 2–7 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 11–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 11–13 -nerved. Upper glume lanceolate, 11–16 mm long, membranous, without keels, 11–13 -nerved.

Florets. Fertile lemma 2.5–4 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 13–15 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.6–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera.

Notes. Distinct from *R. caespitosum* by the ovate, broad palea and the generally broader spikelets, the smaller number of spikelets, and by the inflorescence becoming quite compact as the seed ripens. There is a series of collections from the SW slopes (e.g. *Dwyer in NSW 153311*; *Beaublehole 29668*), from Temora to the Grampians, which superficially look like *A. auriculata*, with subcapitate inflorescences, broad florets, dense and long upper lemma hairs, but they lack the lemma auricle and have glabrous palea backs, and the awns are twice as long as the lemma setae. They are included in *R. erianthum*, although they could be separated from this species and placed closer to *D. auriculatum*.

Common in south-eastern Australia, from the Queensland border to Adelaide, altitude 300–1000 m, often the dominant grass in the Southern Tablelands, replacing *A. caespitosa* from the lower areas, especially common on road verges. Flowers Oct. to Dec.

Rytidosperma fortunae-hibernae (Renvoize) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 17: 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia fortunae-hibernae* Renvoize, *Kew Bull.* 30(4): 596 (1975).

Type of Basionym or Protologue Information: Australia: Tasmania grown at Kew from a sod collected on Mount Read in Jan 1972 by Lord Talbot de Malahide, (HT: K).

Recent synonyms: *Danthonia fortuneae-hibernae*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 12, G-H).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 20–38 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades 6–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, 2–3.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 8–11 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1.4–8 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 5.4–10 mm long overall, with a twisted column. Lodicules present. Anthers 3. Grain 1.3–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, Central Highlands, South West, Mt Field.

Notes. *R. fortuneae-hibernae* is closely related to *R. pauciflorum* and *R. dimidiatum* by the relatively long rachilla internodes, the brown and purple glumes, and the short lemma setae. It differs from *R. pauciflorum* by the setae more or less as long as the lobes, and glumes more than 7 mm long; and from *R. dimidiatum* by the smaller spikelets, with more spikelets in a more compact inflorescence, and by the rachilla twice as long as the callus, and the sparser lower row of hairs.

Tasmanian endemic, altitude 1100–1300 m, rock crevices and stony road margins at high altitudes; recorded from forests, cliffs and heaths in the subalpine. Flowers Feb.

Rytidosperma fulvum (Vickery) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* . **Classification.** (GPWG 2001) : Subfamily Danthonioidae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia linkii* var. *fulva* Vickery, *Contr. New South Wales Natl. Herb.* 1: 299 (1950).

Type of Basionym or Protologue Information: Australia: New South Wales: Flemington, 31 Mar 1929, G.B. Vickery s.n. (HT: NSW-1573; IT: L).

Recent synonyms: *Rytidosperma linkii* (Kunth) Connor & Edgar var. *fulvum* (Vickery) Connor & Edgar, *Notodanthonia bipartita* (Link) Veldkamp var. *fulva* (Vickery) Veldkamp, *Austrodanthonia fulva* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (290), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (143).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (291, Fig. 226), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (143).

Derivation: L. brown, deep yellow. Usually a reference to spikelet colour.

Habit. Perennial. Culms erect, 30–115 cm tall, 1–3 -noded. Leaves mostly basal. Ligule a fringe of hairs.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s) (?), laterally compressed, 11.8–16 mm long.

Florets. Fertile lemma 2.5–3.5 mm long. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 7.5–13.5 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, South-eastern.

Victoria: Murray Mallee, Wimmera, Grampians, Riverina, Midlands, Volcanic Plain, Gippsland Plain, East Gippsland.

Notes. This species is very close to *R. bipartitum*, from which it differs by the purplish glumes and the brown, tightly corkscrewed awn columns. It is also superficially similar to *A. tenuius*, but can be distinguished by the longer palea, the broader inflorescence and the plants with more culms.

Most common in Victoria, rare on the Southern Tablelands, altitude 30–500 m, generally in open woodland or heath, occasionally open grassland. Flowers Nov. to March.

Rytidosperma geniculatum (J.M.Black) Connor & Edgar. *New Zealand J. Bot.* 17: 323 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia geniculata* J.M. Black, *Trans. & Proc. Roy. Soc. South Australia* 53: 261 (1929).

Type of Basionym or Protologue Information: LT: *J.M. Black* 1, 23 Nov 1917, Australia: South Australia: Keith (AD; IK, MEL, NSW-1377, NSW-1378). LT designated by Vickery, *Contr. New South Wales Natl. Herb.* 2: 279 (1956).

Recent synonyms: *Notodanthonia geniculata* (J.M.Black) Zotov, *Austrodanthonia geniculata* (J.M. Black) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (290).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 10, G-H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (292, fig. 227).

Derivation: L. *genus*, knee; *-ulus*, diminutive. *-ata*, possessing. Plants with bent culms or awns.

Habit. Perennial. Culms erect or geniculately ascending, stature slender to delicate, 8–45 cm tall, 3 -noded. Leaf-sheaths smooth. Ligule a fringe of hairs. Leaf-blades filiform, involute, 7–20 cm long, 1 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 6.7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7 -nerved. Upper glume oblong, 5–8 mm long, membranous, without keels, 7 -nerved.

Florets. Fertile lemma 1.5–2.4 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned or 3 -awned. Median (principal) awn from a sinus, 4–6 mm long overall, with a straight or slightly twisted column. Lateral lemma awns absent or present. Lodicules present. Anthers 3. Grain 1.2–1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North East, Midlands, East Coast.

Notes. Restricted to southern Australia, from Eyre Peninsula to Gippsland and Tasmania, altitude 10–600 m, widespread on sandy soils, associated with open woodland, sunny grassland or heathland. Flowers Oct.

Rytidosperma gracile (Hook.f.) Connor & Edgar. *New Zealand J. Bot.* 17: 330 (1979). **Classification.**

(GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia gracilis* Hook. f., *Fl. Nov.-Zel.* 1: 303, t. 69B (1853).

Type of Basionym or Protologue Information: LT: *D. Munro* 120, Feb 1851, New Zealand: Rotoiti Lake, Aglionby Plains (K). LT designated by Zotov, *New Zealand J. Bot.* 1: 123 (1963).

Recent synonyms: *Danthonia gracilis*, *Notodanthonia gracilis* (Hook. f.) Zotov.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons absent or present. Culms 25–60 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.2–1 mm long. Leaf-blades flat or involute, 10–25 cm long, 2–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle 5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4(–6)), comprising 3–4(–6) fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 8.5–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 7–12 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1.6–7.5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 4.5–9 mm long overall, with a straight or slightly twisted column. Column 0.5–1.2 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 0.9–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Tasmania.

New South Wales: South Coast. **Tasmania:** West Coast, Central Highlands, South West.

Notes. *R. gracile* is very close to *R. semiannulare*, but is readily separated by the extravaginal innovation buds, and by the long hairs on the leaf-sheaths. It also appears to occupy wetter habitats, and the two taxa are never found together.

Ranging from Tasmania to southern New South Wales, local along damp, mossy margins of rainforest; common and widespread in New Zealand. Flowers Jan.

Rytidosperma indutum (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia induta* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 298 (1950).

Type of Basionym or Protologue Information: HT: *Ingram s.n.*, Dec 1938, Australia: New South Wales: Armidale (NSW-1344; IT: K).

Recent synonyms: *Notodanthonia induta* (Vickery) Veldkamp, *Rytidosperma procerum* (Vickery) Connor & Edgar, *Danthonia procera* Vickery, *Notodanthonia procera* (Vickery) Veldkamp, *Austrodanthonia procera* (Vickery) S.W.L.Jacobs, *Austrodanthonia induta* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (292), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (144).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (292, Ffig. 228), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (144 and 146, as *A. procera*).

Derivation: *L. induo*, clothe. Glumes and/or lemmas densely hairy.

Habit. Perennial. Culms stature robust to moderate, 75–120 cm tall, 2.5–3.5 mm diam., 4-noded. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 15–30 cm long, 1.5–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear to elliptic, 9–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3), comprising 3 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 14–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 5–7-nerved. Upper glume lanceolate, 14–18 mm long, membranous, without keels, 5–7-nerved.

Florets. Fertile lemma 10–11 mm long, without keel, 9-nerved. Lemma surface indumented. Lemma apex lobed, awned, 3-awned. Median (principal) awn from a sinus, 13–18 mm long overall, with a twisted column. Column 4–6 mm long. Lateral lemma awns present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton. **New South Wales:** Northern Tablelands, Central Tablelands. **Victoria:** East Gippsland, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Riverina, Wannon. **Tasmania:** Midlands, East Coast.

Notes. This appears to be a very distinctive species, allied to *R. fulvum* by the long paleas, and relatively short setae, but distinct by the paleas almost as long as the lemma lobes, by the glabrous appearance of the plants, and by the size of the tussocks. It may also be confused with *R. tenuius*, which has much shorter paleas.

Ranging from southern Queensland to the South Australian border, altitude 40–1600 m, on steep or rocky hillsides and roadverges, often in *Eucalyptus* woodland. Flowers Nov. to April.

Rytidosperma laevis (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 325 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia laevis* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 299 (1950).

Type of Basionym or Protologue Information: Australian Capital Territory: Base of Mt. Stromlo, 26 Apr 1941, *Melvaine s.n.* (HT: NSW-3232).

Recent synonyms: *Notodanthonia laevis* (Vickery) Zotov, *Austrodanthonia laevis* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (293), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (144).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 11, A-B), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (293, Fig. 229), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (144).

Derivation: L. smooth. Lacking hairs or roughness, usually of leaf-blades or lemmas.

Habit. Perennial. Culms erect, 20–60 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades filiform, involute, 10–20 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 11–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 5–7 -nerved. Upper glume lanceolate, 11–18 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 3–4.5 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 11–28 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Southern Lofty. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Midlands, Otway Plain, Snowfields, Volcanic Plain, Wannon. **Tasmania:** North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. This is a very distinctive species that cannot be confused with any others, but superficially it may show some similarities to *R. erianthum* or *A. caespitosum*.

Widespread from the Queensland border to Adelaide and Tasmania, altitude 30–1500 m, ecologically variable, from alpine moorland to open grassland or light woodland, often in seasonally damp habitats.

Rytidosperma lepidopodum (N.G. Walsh) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.*.

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia lepidopoda* N.G. Walsh, *Muelleria* 7(3): 384 (1991).

Type of Basionym or Protologue Information: Australia: Victoria: South Belgrave, Bullens Land Courtneys Rd, immediately N of Ash Reserve, 37,56.40S 145.20.45E, 15 Jan 1987, *Walsh 1709* (HT: MEL; IT: BRI, NSW).

Recent synonyms: *Joycea lepidopoda* (N.G. Walsh) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms 25–70 cm tall. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades involute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or ovate, 5–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 10–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 8–14 mm long, membranous, without keels.

Florets. Fertile lemma 3.4–9 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned or 3 -awned. Median (principal) awn from a sinus, 10–15 mm long overall, with a twisted column. Column 2–3.5 mm long. Lateral lemma awns absent or present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Victoria.

Victoria: Eastern Highlands, Gippsland Plain, Grampians, Otway Plain, Otway Range.

Notes. Very distinctive due to its spreading rhizomes.

Restricted to a narrow belt from the Grampians to the coast west of Melbourne, Victoria, in heathland or lightly shaded woodland on sandy or gritty soils. Flowers Jan.

Rytidosperma longifolium (R. Br.) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia longifolia* R. Br., *Prodr.* 176 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6231*, Australia: New South Wales: Port Jackson (BM(fragm. PERTH); IT: K).

Recent synonyms: *Danthonia longifolia*, *Notodanthonia longifolia* (R. Br.) J.F. Veldkamp.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (176 as *Danthonia longifolia*), [1878] G.Bentham, *Flora Australiensis* 7 (593 as *Danthonia longifolia*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (307).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 9), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (307).

Habit. Perennial. Culms 30–75 cm tall. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades curled, filiform, involute, 15–35 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, without keels, 5 -nerved. Upper glume lanceolate, 10–11 mm long, scarious, without keels, 5 -nerved.

Florets. Fertile lemma 1.4–3 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 7–11 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.1–1.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Port Curtis, Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands.

Notes. *R. longifolium* appears to be rather constant in its morphology. This species is very close to *N. semiannulare*, and several collections discussed under the latter species appear to be intermediate between the two taxa. It is not easily confused with any other species.

Altitude 200–1000 m (near Armidale on edge of scarp), along the east coast from southern Queensland to the South Australian border, common in open woodland, in light shade; often recorded from rocky places. Flowers Nov. to Dec.

Rytidosperma monticola (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia monticola* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 299 (1950).

Type of Basionym or Protologue Information: HT: *Vickery s.n.*, 2 Jan 1936, Australia: New South Wales: Lithgow (NSW-1359; IT: K).

Recent synonyms: *Notodanthonia monticola* (Vickery) Veldkamp, *Austrodanthonia monticola* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (144).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (144).

Derivation: *L. mons*, mountain; *-cola*, dweller. Growing on mountains.

Habit. Perennial. Culms erect, 5–45 cm tall, 2–3 -noded. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades involute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 1–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–11 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9 -nerved. Upper glume lanceolate, 8–11 mm long, membranous, without keels, 9 -nerved.

Florets. Fertile lemma 1.2–2.6 mm long, without keel, 9 -nerved. Lemma surface glabrous. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 6–7 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.2–1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands.

Notes. *R. monticolum* could be confused with several species: a) from *R. tenuius* it is distinct by the formation of distinct little tussocks; b) from *R. setaceum* it differs by the setae being shorter than the lemma lobes, and from c) *R. geniculatum* it differs by the lemma awn being longer than the lemma lobe setae. It is most readily characterised by the caespitose habit, the fine leaves, and the small spikelets.

Tablelands from the Queensland border to Horsham in Victoria, altitude 60–1400 m, common in heathland, on shallow soils over sandstone, also in grassland on deeper, heavier soils. Flowers Nov. to Dec.

Rytidosperma nitens (D.I. Morris) H.P. Linder. *Telopea* 6: 614 (1996). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia nitens* D.I. Morris, *Muelleria* 7(2): 155–157, f. 7, 8a (1989).

Type of Basionym or Protologue Information: HT: *Fletcher s.n.*, 21 Jan 1979, Australia: Tasmania: Dublin Forest Block (HO-30982).

Recent synonyms: *Danthonia nitens*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 12, E-F).

Habit. Perennial. Culms 12–25 cm tall, 3-noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or involute, 4–9 cm long, 1–1.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 0.9–3.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5.5–7.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–7-nerved. Upper glume lanceolate, 6.5–7.5 mm long, membranous, without keels, 5(–7)-nerved.

Florets. Fertile lemma 1.6–5.25 mm long, without keel, 7-nerved. Lemma surface glabrous or indumented. Lemma apex lobed, awned, 1-awned. Median (principal) awn from a sinus, 2.1–5.25 mm long overall, with a straight or slightly twisted column or with a twisted column. Column 1 mm long. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.1–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Central Highlands, East Coast.

Notes. *R. nitens* is very close to *R. nivicola*, from which it can be separated by the shiny lemma, the more slender culms which are often drooping, and the occasionally expanded leaves.

Tasmanian endemic, altitude 900–1200 m, stream bank flats, detritus in open woodland, streambanks, roadsides and stony habitats, open windswept habitats. Flowers Jan. or Feb.

Rytidosperma nivicola (Vickery) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia nivicola* Vickery, *Contr. New South Wales Natl. Herb.* 1: 300 (1950).

Type of Basionym or Protologue Information: HT: *Vickery s.n.*, Australia (NSW; IT: CANB, K).

Recent synonyms: *Notodanthonia nivicola*, *Danthonia nivicola*, *Danthonia pulvinorum*, *Rytidosperma pulvinorum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *R. niviculum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (362).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 12, I-J), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (362).

Habit. Perennial. Rhizomes present, short. Culms erect, stature slender to delicate, 10–20 cm tall, 2–3-noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades filiform, involute, 5–10 cm long, 0.5–1 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–3 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 4.5–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, keeled, 1-keeled, 3–5 -nerved. Upper glume lanceolate, 8 mm long, membranous, keeled, 1-keeled, 3–5 -nerved.

Florets. Fertile lemma 1.3–4 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 1–2.7 mm long overall, without a column or with a straight or slightly twisted column. Lateral lemma awns absent. Lodicules present. Anthers 3. Grain 1.2–1.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** West Coast, Central Highlands, Ben Lomond, South West.

Notes. *R. nivicola* is related to *R. nitens*, from which it differs by its stiff inflorescence and the constant presence of lateral lemma tufts. *R. nivicola* also approaches *R. nudiflorum*, and although most specimens can be readily separated by the larger spikelets, longer lemma setae and straighter leaves which are persistent on the sheaths, there are some that appear to be intermediate (e.g. *Sonnenberg* in MEL602230).

Alpine areas from Mt Kosciuszko to Tasmania, altitude 850–1950 m, sphagnum bogs and wet alpine grasslands; or in sand or gravel among rocks along streams, rarely in dry alpine grassland; often associated with *R. nudiflorum* in sod tussock grassland. Flowers Jan.

Rytidosperma nudiflorum (P.F. Morris) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia nudiflora* P. Morris, *Victoria Naturalist* 52: 111, f. (1935).

Type of Basionym or Protologue Information: HT: *v. Mueller s.n.*, Australia (K).

Recent synonyms: *Notodanthonia nudiflora*, *Danthonia nudiflora*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (362).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (362).

Habit. Perennial. Rhizomes absent or present, short. Culms erect, 10–30 cm tall, 2 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades aciculate, involute, 2–10 cm long, 1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 3–7 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 8–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5 -nerved. Upper glume lanceolate, 8–13 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 2–5.5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 6.2–8.3 mm long overall, with a straight or slightly twisted column or with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Northern Tablelands, Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** West Coast, Central Highlands, Ben Lomond.

Notes. Near *R. nivicola* by the round, glabrous leaves, the frequent formation of cushion habit, and four lateral lemma tufts, but differs by the awns with a twisted base, well developed lateral setae and longer, acute glumes.

Altitude 800–1900 m, damp alpine grassland, in Tas. restricted to the subalpine belt, in seepages or damp grassland; dominant species of sod tussock grassland, tall alpine herbfields and fens. Flowers Jan. to March.

Rytidosperma occidentale (Vickery) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia occidentalis* Vickery, *Contr. New South Wales Natl. Herb.* 1(5): 300 (1950).

Type of Basionym or Protologue Information: HT: *Fitzgerald s.n.*, Nov 1900, Australia: Western Australia: Karakatta (NSW-4389; IT: K).

Recent synonyms: *Notodanthonia occidentalis* (Vickery) Veldkamp, *Austrodanthonia occidentalis* (Vickery) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (401).

Derivation: *L. occident*, west; *-ale*, pertaining to. From western Australia.

Habit. Perennial. Culms erect, 25–70 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth. Ligule a fringe of hairs. Leaf-blades involute, 5–30 cm long, 2–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 14.5–23 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 16–22 mm long, membranous, without keels, 5–7 -nerved.

Florets. Fertile lemma 2–2.6 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 12–17 mm long overall, with a twisted column. Column 4–6 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.7–2.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond, Menzies, Warren, Eyre, Avon.

Notes. Endemic to south-western Australia, from Geraldton to Albany, altitude 0–250 m, coastal sands or loamy sands, often in Jarrah-Banksia associations. Flowers Oct. to Nov.

Rytidosperma oreophilum H.P. Linder & N.G. Walsh. *Muelleria* 8: 283 (1995). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Rytidosperma oreophilum* H.P. Linder & N.G. Walsh, *Muelleria* 8(3): 283. 1995.

Type of Basionym or Protologue Information: Australia: Australian Capitol Territory: slopes of Mount Gingera, Bimberi Range, *Pullen 3041* (HT: CANB; IT: A, BO, K, L, MEL, NE, NSW).

Recent synonyms: *Austrodanthonia oreophila* (H.P. Linder & Walsh) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (145).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (145).

Derivation: Gk. *oros* (mountain) and *phileo* (love). Mountain species.

Habit. Perennial. Culms erect, 15–45 cm tall. Ligule a fringe of hairs.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s) (?), with diminished florets at the apex, laterally compressed, 12–17 mm long.

Glumes. Glumes similar.

Florets. Fertile lemma 2.4–3.7 mm long. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 7.5–10 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: Southern Tablelands.

Notes. *R. oreophilum* can be distinguished from *R. erianthum* by the setae much shorter than the very long lemma lobes, setae which are included in the glumes, often with scattered hairs on the backs of the lemmas; the setae are less than 3.5 mm long, compared to more than 3 mm for *R. erianthum*, and the awn columns are less than 3.6 mm, compared to more than 3.3 mm for *A. eriantha*. From *R. tenuius* it is distinct by the broad, obovate, hairy-backed paleas, the shiny lemmas. There may be a superficial resemblance to *R. alpicolum*, but the leaves are narrower, the paleas shorter, and the rachilla internodes shorter.

Australian alps between Canberra and Mt Buller, altitude 1300–1750 m, subalpine species, in grassy clearings in subalpine woodland, or in subalpine grassland, often associated with rocky outcrops; also in subalpine heath, sometimes in alpine moors. Flowers Jan. or Feb.

Rytidosperma pallidum (R. Br.) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Basionym and/or Replacement Name: *Danthonia pallida* R. Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6232*, Australia (BM; IT: K).

Recent synonyms: *Chionochloa pallida*, *Notodanthonia pallida*, *Joycea pallida* (R. Br.) H.P. Linder

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia pallida*), [1878] G.Bentham, *Flora Australiensis* 7 (592 as *Danthonia pallida*, 593 as *Danthonia robusta*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (57 as *Danthonia pallida*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (288).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (55, Pl.14 as *Danthonia*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 8, A-F), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (288).

Habit. Perennial. Culms 32–160 cm tall, 3–4 -noded. Ligule a fringe of hairs, 1–6 mm long. Leaf-blades filiform, involute, 20–40 cm long, 2–3 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 8–35 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 8–19 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, much thinner on margins, without keels, 1–5 -nerved. Upper glume lanceolate, 8–17 mm long, scarious, without keels, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 3–11 mm long, without keel, 11 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 7–11(–16) mm long overall, with a twisted column. Column 2–6 mm long. Lateral lemma awns absent. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2.2–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria.

New South Wales: North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Riverina, Snowfields, Volcanic Plain.

Notes. Extensive variability in the width of the leaves, the size of the tussocks, and the size of the spikelets.

Ranging from the New England tablelands to north-eastern Victoria, altitude 0–1000 m (rarely in the alpine or subalpine regions), often locally dominant on poor soils in woodland, also invasive on pastures in the southern Tablelands. Flowers Oct. to Dec.

Rytidosperma pauciflorum (R.Br.) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia pauciflora* R. Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: Insulam Van Diemen, cujus regiones Septentrionales et praecipue Australes visitair,.

Recent synonyms: *Notodanthonia pauciflora*, *Danthonia pauciflora*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia pauciflora*), [1878] G.Bentham, *Flora Australiensis* 7 (596 as *Danthonia pauciflora*), [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 12, A-D).

Habit. Perennial. Culms erect, 5–15 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades filiform, involute, 2–7 cm long, 0.5–1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1–2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 4–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, much thinner on margins, without keels, 3–5 -nerved. Upper glume elliptic, 4–7 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1–3.5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 4–7 mm long overall, with a straight or slightly twisted column. Lateral lemma awns absent. Lodicules present. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Central Highlands, Ben Lomond, South West, Mt Wellington.

Notes. *R. pauciflorum* is closely related to *R. fortuneae-hibernae* by the callus and rachilla structure, the shape of the lemmas and the colour of the glumes. It is distinct from *R. fortuneae-hibernae* by the glumes shorter

than 7 mm, and lemma lobe setae absent or shorter than the lobes; distinct from *R. dimidiatum* by the well developed lemma hairs at least as tall as the lobes. It is generally distinct by the small spikelets, and the inflorescence which does not close up after anthesis.

Tasmanian endemic, altitude 900–1400 m (rarely down to 450 m), grows up through cushion plants, in moors, alpine bogs, and generally in wet sites. Flowers Jan. to Feb.

Rytidosperma penicillatum (Labill.) Connor & Edgar. *New Zealand J. Bot.*, 17(3): 327 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Arundo penicillata* Labill., *Nov. Holl. Pl.* 1: 26, t. 34 (1804).

Type of Basionym or Protologue Information: HT: *Labillardière s.n.*, Australia: Tasmania (FI-W(photo, K)).

Recent synonyms: *Danthonia penicillata* (Labill.) P.Beauv., *Notodanthonia penicillata* (Labill.) Zotov, *Austrodanthonia penicillata* (Labill.) H.P.Linder.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (57 as *Danthonia penicillata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (145).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (55, Pl.14 as *Danthonia*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 11, C-D), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (145).

Derivation: *L. penicillus*, a small brush; *-ata*, possessing. With tufts of long hairs on the lemmas.

Habit. Perennial. Culms geniculately ascending or decumbent, stature slender to delicate, 12–75 cm tall, 3–4-noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades filiform or linear, flat or involute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9-nerved. Upper glume lanceolate, 10–12 mm long, membranous, without keels, 5-nerved.

Florets. Fertile lemma 2–3.6 mm long, without keel, 9-nerved. Lemma surface glabrous. Lemma apex lobed, awned, 3-awned. Median (principal) awn from a sinus, 11–12 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: South Coast, Central Tablelands, Southern Tablelands, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Riverina, Snowfields, Wannon. **Tasmania:** North West, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. Similar to *R. racemosum*, but glumes longer than the cluster of spikelets, and with callus hairs overtopping lower lemma hairs, and the callus being longer and more slender; however, there are intermediate specimens which cannot be placed with confidence. Plants from Papua New Guinea are coarser, often subrhizomatous, and the upper dorsal hair tufts are frequently missing. These forms show some similarity to alpine plants from NSW and Victoria.

New South Wales Tablelands, and south through Victoria into Tasmania, altitude 30–1720 m, subalpine woodland, marshes, and grassland, and at lower altitudes often in light shade. Flowers Jan.

Rytidosperma pilosum (R.Br.) Connor & Edgar. *New Zealand J. Bot.* 17(3): 326 (1979). **Classification.**

(GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia pilosa* R.Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: HT: *Brown 6234*, Australia: New South Wales: Port Jackson (BM; IT: K, MEL).

Recent synonyms: *Rytidosperma pilosum* (R.Br.) Connor & Edgar var. *paleaceum* (Vickery) Connor & Edgar, *Notodanthonia pilosa* (R.Br.) Zotov, *Notodanthonia pilosa* (R.Br.) Zotov var. *paleacea* (Vickery) Veldkamp, *Austrodanthonia pilosa* (R.Br.) H.P. Linder.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia pilosa*), [1878] G.Bentham, *Flora Australiensis* 7 (594 as *Danthonia pilosa*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (56 as *Danthonia pilosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (401), [2006] J.Jessop, G.R.M.Dashorst,

F.M.James, *Grasses of South Australia* (294), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (145).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (55, Pl.14 as *Danthonia*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.10, C-D), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (294, Fig. 230 & plate 10), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (145).

Derivation: *L. pilus*, a hair; *-osa*, abundance. The whole plant or any of its organs invested with long spreading hairs.

Habit. Perennial. Culms erect or geniculately ascending, 14–70 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades flat or involute, 6–12 cm long, 1–2 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 4–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–9), comprising 5–9 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–22 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, keeled, 1-keeled, 5–7 -nerved. Upper glume lanceolate, 9–13 mm long, membranous, keeled, 1-keeled, 5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2.8–4 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 11–18 mm long overall, with a twisted column. Column 4 mm long. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.6–1.8 mm long.

Continental Distribution: Tropical Asia, Australasia, Pacific, and North America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Eyre. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. *R. pilosum* is similar in appearance to *R. racemosum* and *R. penicillatum*, from which it can be distinguished by the intravaginal innovations, which lead to a more caespitose habit; the densely compacted inflorescences; the relatively longer awn-bases; and the paleas which are usually only marginally longer than the lemma sinusses. However, depauperate specimens, especially from the Northern Tablelands, can be difficult to place. There are also some specimens which appear to be intermediate to *A. caespitosum*.

Widespread south of the 32nd latitude, absent from the Nullabor Plain, altitude 10–1400 m, very common and often co-dominant with *A. caespitosa* in grassland and lightly shaded habitats. Flowers Nov. to Dec.

Rytidosperma popinensis (D.I. Morris) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* .

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia popinensis* D. I. Morris, *Muelleria* 7(2): 157–159, f. 8b, 9 (1989).

Type of Basionym or Protologue Information: HT: *Morris* 8556, Australia: Tasmania: 0.5 km N of Kempton (HO-92651; IT: AD, HO, NSW).

Recent synonyms: *Notodanthonia popinensis* (D.I.Morris) H.P.Linder, *Austrodanthonia popinensis* (D. Morris) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: *L. popina*, eating place; *-ensis*, denoting origin. First collected near a cafe.

Habit. Perennial. Culms 20–45 cm tall. Ligule a fringe of hairs. Leaf-blades flat or involute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 4–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 13–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 7 -nerved. Upper glume lanceolate, 13 mm long, membranous, without keels, 5 -nerved.

Florets. Fertile lemma 3.4–3.5 mm long, without keel, 7 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 12 mm long overall, with a twisted column.

Column 2.5 mm long. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: Midlands, East Coast.

Notes. This is closely related to the southern form of *R. bipartitum*.

Tasmanian endemic, altitude 200 m, roadside in mown lawn. Flowers Jan.

Rytidosperma pumilum (Kirk) H.E. Connor & E. Edgar. *New Zealand J. Bot.* 25: 166 (1987).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Atropis pumila* Kirk, *Trans. & Proc. New Zealand Inst.* 14: 379 (1882).

Type of Basionym or Protologue Information: LT: *Petrie* 920, New Zealand: Macraes, Otago, 1800 ft (WELT-39891). LT designated by Zotov, *New Zealand J. Bot.* 1: 125 (1963).

Recent synonyms: *Erythranthera pumila*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (265 as *Erythranthera*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (265 as *Erythranthera*).

Habit. Perennial. Culms 4–20 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades erect, filiform, involute, 1–5 cm long, 0.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (24), comprising 2–4 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Upper glume lanceolate, 5–7 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 2–5 mm long, without keel, 5–7 -nerved. Lemma surface indumented. Lemma apex dentate, muticous or mucronate. Median (principal) awn from a sinus. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Mt Kosciusko, also in South Island, New Zealand, altitude 2200 m, feldmark. Flowers Jan.

Rytidosperma racemosum (R.Br.) H.P. Linder. *New Zealand J. Bot.*, 17(3): 327 (1979). **Classification.**

(GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia racemosa* R. Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: HT: *Brown* 6235, Australia: New South Wales: Port Jackson (BM; IT: K(fragm., MEL, PERTH)).

Recent synonyms: *Notodanthonia racemosa* (R.Br.) Zotov, *Danthonia racemosa* R.Br. var. *obtusata* F.Muell. ex Benth., *Notodanthonia racemosa* (R.Br.) Zotov var. *obtusata* (F.Muell. ex Benth.) Veldkamp, *Austrodanthonia racemosa* (R.Br.) H.P. Linder.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (177 as *Danthonia racemosa*), [1878] G.Bentham, *Flora Australiensis* 7 (594 as *Danthonia racemosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (295), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (146).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 11, E-Fas var. *racemosa*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (295, fig. 231 as var. *racemosa*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (as *D. racemosa*).

Derivation: *L. racemus*, stalk of a cluster of grapes; *-osa*, abundance. The spikelets are borne in racemes or contracted panicles.

Habit. Perennial. Culms erect, 16–60 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.25 mm long. Leaf-blades involute, 5–15 cm long, 1–2 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–10), comprising 4–10 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7.5–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, much thinner on margins, without keels, 5–7 -nerved. Upper glume lanceolate, 7–16 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–3.5 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 1 -awned or 3 -awned. Median (principal) awn from a sinus, 14 mm long overall, with a twisted column. Column 4 mm long. Lateral lemma awns absent or present. Lodicules present. Anthers 3. Grain 1.6–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Dale, Menzies, Warren. **South Australia:** Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Moreton, Warrego. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, Midlands, Ben Lomond, East Coast, South West.

Notes. This species shares with *R. penicillatum* linear inflorescences and extravaginal innovations. It can be distinguished from *R. penicillatum* by the glumes as long as or shorter than the flowers, by the shorter callus hairs, and longer and more slender callus; however, some collections from the Victorian coast are difficult to determine with confidence.

Widespread in south-eastern Australia, from Rockhampton to Adelaide and Tasmania, altitude 0–1600 m, common on disturbed habitats, where it can be locally common, usually in lightly shaded habitats, often found under trees, occasionally in full sun. Flowers Oct. to Dec.

Infra -specific taxa: var. **racemosum**, var. **obtusatum** .

Lateral lobes with setae

R. racemosum var. **racemosum**

Lateral lobes with short points

R. racemosum var. **obtusatum**

Rytidosperma racemosum var. **racemosum**

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe.

Rytidosperma racemosum var. **obtusatum** (F. Muell. ex Benth.) Connor & Edgar. *New Zealand J. Bot.* 17 (3): 332 (1979).

Classification. Basionym and/or **Replacement Name:** *Danthonia racemosa* var. *obtusata* F. Muell. ex Benth., *Fl. Austral.* 7: 594 (1878)

Type of Basionym or Protologue Information: HT: *Stuart s.n.*, Australia: New South Wales: New England (K; IT: MEL).

Recent synonyms: *Rytidosperma racemosa* (R.Br.) Connor & Edgar var. *obtusatum* (F.Muell. ex Benth.) Connor & Edgar.

Australian Distribution: Queensland, New South Wales.

Notes. This morphological variant is given formal recognition, as it may well form a monophyletic group: it is geographically restricted to the northern part of NSW and the southern corner of Queensland, the plants investigated were all apomictic, and morphologically quite strikingly different. However, there are some intermediate forms (e.g. *Rupp* in NSW3388).

From Darling Downs district, Qld to N.S.W.

Rytidosperma remotum (D.I. Morris) A.M. Humphreys & H.P. Linder. *Ann. Mo. Bot. Gard.* .

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia remota* D. I. Morris, *Muelleria* 7(2): 160–162, f. 10, 11a (1989).

Type of Basionym or Protologue Information: Australia: Tasmania: summit of Hibbs Pyramid, 4 Feb 1984, A.M. Buchanan 2878 (HT: HO-91392).

Recent synonyms: *Notodanthonia remota* (D.I. Morris) H.P.Linder, *Austrodanthonia remota* (D.Morris) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: L. distant. From an isolated locality.

Habit. Perennial. Culms erect, stature slender to delicate, 6–20 cm tall. Leaf-sheaths smooth. Ligule a fringe of hairs, 1 mm long. Leaf-blades filiform, involute, 2–4 cm long, 1 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence solid, a panicle. Panicle ovate, 1.5–3 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 9–13 -nerved. Upper glume lanceolate, 9–12 mm long, membranous, without keels, 7 -nerved.

Florets. Fertile lemma 2.2–2.8 mm long, without keel. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 7.5–9 mm long overall, with a twisted column. Column 2.5 mm long. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3. Grain 1.6 mm long.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast.

Notes. Related to *R. pilosum*, but differs by the shorter awns, the longer setae, the shape of the lodicules, and several other minor differences.

Tasmanian endemic, altitude 70 m, localised on rock outcrop. Flowers Dec.

Rytidosperma richardsonii (Cashm.) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia richardsonii* Cashmore, *Comm. Austr., C.S.I.R., Bull.* 69(app.): 2 (1932).

Type of Basionym or Protologue Information: HT: *Cashmore Ga-63*, 2 Dec 1932, Australia: South Australia: Werribee (AD; IT: BM, K, NSW-4726, NSW-1204). HT originally at ADW.

Recent synonyms: *Notodanthonia richardsonii* (Cashm.) Veldkamp, *Austrodanthonia richardsonii* (Cashmore) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (295), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (146).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (296, Fig. 232), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (146).

Derivation: in honor of Arnold Edwin Victor Richardson (1883–1949). Australian agricultural scientist.

Habit. Perennial. Culms erect, 30–70 cm tall, 1 mm diam., 4 -noded. Leaf-sheaths smooth. Ligule a fringe of hairs. Leaf-blades flat or involute, 20–30 cm long, 1–2.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate or ovate, 4–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5), comprising 5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 8–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 5–7 -nerved. Upper glume elliptic, 8–13 mm long, membranous, without keels, 5–7 -nerved.

Florets. Fertile lemma 3–4.1 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 7–11 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 2–2.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Southern Lofty. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** Riverina, Volcanic Plain.

Notes. *R. richardsonii* is very similar to some forms of *R. bipartitum*, but it can be distinguished by the broader florets, particularly the glumes and paleas, and by the more compact inflorescences.

Widespread on the Tablelands and Western Slopes of New South Wales, reaching to near the South Australian border, altitude 300–1000 m. Flowers Nov.

Rytidosperma semiannulare (Labill.) Connor & Edgar. *New Zealand J. Bot.* 17: 332 (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Arundo semiannularis* Labill., *Nov. Holl. Pl.* 1: 26, t. 33 (1804).

Type of Basionym or Protologue Information: T: *Herb. Webb* 114, (K).

Recent synonyms: *Danthonia semiannularis*, *Notodanthonia semiannularis* (Labill.) Zotov.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (595 as *Danthonia semiannularis*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (57 as *Danthonia semiannularis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (306), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (308).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (305, Fig. 239), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (308).

Habit. Perennial. Culms erect, 20–45 cm tall, 3 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight, involute, 7–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle lanceolate, 5–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–16 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, chartaceous, much thinner on margins, without keels, 7 -nerved. Upper glume lanceolate, 7–11 mm long, chartaceous, without keels, 5 -nerved.

Florets. Fertile lemma 1.8–5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 6.5–11 mm long overall, with a twisted column. Column 2–3 mm long. Lateral lemma awns absent. Lodicules present. Anthers 3. Grain 1.2–1.8 mm long.

Continental Distribution: Australasia, Pacific, and North America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond, Menzies. **South Australia:** Northern Lofty, Southern Lofty, South-eastern. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes, South-Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain, Wannon. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, East Coast, South West.

Notes. There is substantial variation in the length of the lemma lobe setae, and the relative length of the awn column. Some of this variation appears to indicate a north-south cline along the east coast, but some may also indicate a relationship between *R. longifolium* and *R. gracile*. *R. semiannulare* is closely related to *R. gracile* and *R. longifolium* by the lemma back indumentum and the long paleas. *R. gracile* can be distinguished by the long-villous leaf-sheaths, and extravaginal branching. The distinction between *R. longifolium* and *R. semiannulare* is not that simple. Generally the species can be separated by the growth-habit, with *R. semiannulare* having basal leaves, while in *R. longifolium* they are cauline. In addition the leaves in *R. longifolium* tend to be long, more slender, and recurved, while in *R. gracile* they are broader and more straight. However, it may be difficult to separate plants from Gippsland (e.g. *Beaulehole* 66818, *Beaulehole* 29961). There are also some collections from the Blue Mountains (*Carne* NSW19670, *Mair* in NSW17811) which have the setae of *R. longifolium* and the habit of *R. semiannulare*. There are some collections which are intermediate to *R. setaceum* - these are discussed under the latter species.

Widespread in south-eastern Australia, from Sydney to Adelaide, in clearings in rain-forest, and generally in wet, often shady habitats; also in tall woodland. Flowers Nov. to Jan.

Rytidosperma setaceum (R.Br.) Connor & Edgar. *New Zealand J. Bot.*, 17(3): 332 (1979). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Danthonia setacea* R.Br., *Prodr.* 177 (1810).

Type of Basionym or Protologue Information: HT: *Brown* 6232, Australia: Western Australia: King George's Sound (BM; IT: BRI, K, MEL).

Recent synonyms: *Rytidosperma setaceum* (R.Br.) Connor & Edgar, *Danthonia setacea* R.Br. var. *breviseta* Vickery, *Notodanthonia setacea* (R.Br.) Veldkamp, *Austrodanthonia setacea* (R.Br.) H.P. Linder.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (77 as *Danthonia setacea*), [1878] G.Bentham, *Flora Australiensis* 7 (595 as *Danthonia setacea*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (57 as *Danthonia setacea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (402), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (296), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (147).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 10, E-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (296, Fig. 233), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (147).

Derivation: *L. seta*, bristle; *-acea*, indicating resemblance. With bristle-like leaf-blades.

Habit. Perennial. Culms erect, stature slender to delicate, 15–60 cm tall, 2–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades straight or curved, filiform, involute, 5–20 cm long, 1 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear to elliptic, 3–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–10), comprising 4–10 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or lanceolate, membranous, without keels, 3–5 -nerved. Upper glume linear or lanceolate, 8–14 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1.5–3.2 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 5–9 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1–1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Eucla, Irwin, Drummond, Dale, Warren, Eyre, Roe, Avon, Coolgardie. **South Australia:** Nullabor, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** Central Coast, Southern Tablelands, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North West, North East, West Coast, Central Highlands, Midlands, Ben Lomond, East Coast, South West.

Notes. This species approaches several other species closely: a) differs from *R. monticola* by the more compact, bushy inflorescence, and the setae longer than the lemma lobes; b) from *R. caespitosum* by the smaller spikelets, and by the much more slender lemma, and the shorter, broader palea, and the overlapping rows of lemma hairs (but many collections cannot be placed to either taxon with confidence).

Widespread south of 30 latitude, absent from the Nullabor Plain, altitude 0–650 m, widespread in semi-arid parts of country, often forming grassland with *A. caespitosa* and *A. eriantha*. Flowers Oct. to Dec.

Rytidosperma tenuius (Steud.) Erikson, Hansen & Sunding. *Fl. Macaronesia* ed.2, 1:93 [Jan.] (1979).

Classification. (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Plinthanthesis tenuior* Steud., *Syn. Pl. Glumac.* 1: 14 (1855 [1853]).

Type of Basionym or Protologue Information: HT: *D'Urville s.n.*, Australia: New South Wales: Port Jackson (P).

Recent synonyms: *Notodanthonia tenuior* (Steud.) S.T.Blake, *Danthonia tenuior* (Steud.) Conert, *Austrodanthonia tenuior* (Steud.) H.P. Linder.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (297), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (147).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 10, I-J), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (297, Fig. 234), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (147).

Derivation: *L.* more slender. More delicate than related species.

Habit. Perennial. Culms erect, 23–90 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades flat or involute, 10–20 cm long, 1–3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate or ovate, 5–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 9–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, membranous, without keels, 5 -nerved. Upper glume elliptic, 10–17 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface asperulous.

Florets. Fertile lemma 2–3.8 mm long, without keel, 9 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 9–12 mm long overall, with a twisted column. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 1.8–2.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Flinders Ranges, Eastern, Northern Lofty, Southern Lofty, South-eastern. **Queensland:** Port Curtis, Burnett, Darling Downs, Moreton, Maranoa. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain. **Tasmania:** North East, Midlands, East Coast.

Notes. *R. tenuius* intergrades with several species. It is close to *R. fulvum*, and differs from it by the glabrous to sparsely villous lemma back between the indumentum rows, and by the shorter paleas. However, in many specimens of *R. tenuius* there are scattered hairs between the rows, thus approaching the condition found in *R. fulvum*, and collections from Tasmania have longer paleas. It also approaches *R. erianthum* via a high-altitude form, which superficially looks like *R. tenuius*, but which has the glabrous palea-back of *R. erianthum*. *R. tenuius* may often be separated by the rather slender inflorescence.

Widespread from southern Queensland to Adelaide and Tasmania, altitude 5–750 m, on Tablelands usually in somewhat damp habitats, rarely dominant; along the coastal shelf a very common constituent of disturbed road verges. Flowers Nov. to Dec.

Rytidosperma unarede

Australian Distribution: Lord Howe.

Rytidosperma vickeryae M. Gray & H.P. Linder. *Austral. Syst. Bot.* 12: 744 (1999). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Type of Basionym or Protologue Information: Australia: New South Wales: Koseiuszko, between Perisher Gap and Charlottes Pass, ca. 100 m below Betts Creek Bridge, 9 Feb 1993, *Linder 5708* (HT: BOL; IT: CANB, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (362).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (362).

Habit. Perennial. Rhizomes absent or present. Ligule a fringe of hairs. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), laterally compressed, 5.5–7 mm long.

Florets. Fertile lemma 1.6–2.2 mm long. Lemma surface indumented. Lemma apex lobed, awned. Median (principal) awn 2.5–3.2 mm long overall, with a straight or slightly twisted column. Grain 1.2–1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: Southern Tablelands.

Notes. Endemic to Mt Kosciusko, altitude 1700–1800 m, along stream banks and margins of tarns in flat, sandy, sparsely vegetated habitats. Flowers Jan.

Saccharum officinarum* L. *Sp. Pl.* 54 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: LT: Sloane, Voy. Jamaica 1: pl. 66 (1707) LT designated by Reveal et al., *Taxon* 38: 98 (1989).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (363).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (363).

Habit. Perennial. Culms erect, stature robust to moderate, 200–600 cm tall. Mid-culm internodes solid, pruinose (below nodes). Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear or lanceolate, 70–150 cm long, 30–60 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle pyramidal, dense, 50–100 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.5–4 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous, much thinner above, keeled, 2-keeled, 2–4 -nerved. Upper glume lanceolate, membranous, without keels, 1–3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 3.5–5 mm long, 0 -nerved. Palea absent. Lodicules present. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales, Christmas Is.

Queensland: Cook, South Kennedy, Moreton.

Notes. Adjacent to sugar cane cultivation but does not persist.

Saccharum spontaneum L. *Mantissa* 2:183 (1771). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: T: *Koenig s.n.*, ST: *van Rogen s.n.*, (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms erect, stature robust to moderate, 100–400 cm tall. Mid-culm internodes solid. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringed membrane, a ciliate membrane, 4.5 mm long. Leaf-blades 50–200 cm long, 3–15(–40) mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle ovate, dense, 20–60 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 2–7 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, coriaceous or indurate, much thinner above. Upper glume linear or lanceolate, coriaceous, without keels, 1 -nerved. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 1–2 mm long, 0 -nerved. Palea absent. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Northern Territory, Queensland, Christmas Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. A widespread Old World species occurring from northern tropical Africa, through the eastern Mediterranean to India, China, Japan, SE Asia and Australia (N.T., Qld.) Flowers Jan. and Aug.

Sacciolepis indica (L.) Chase. *Proc. Biol. Soc. Wash.* 21: 8 (1908). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Aira indica* L., *Sp. Pl.* 1: 63, 1231, in errata after index (1753).

Type of Basionym or Protologue Information: NT: *Davidse* 7871, 22 Oct 1974, Sri Lanka: Sabaraganamuwa Province: Ratnagsura District (K; INT: MO, US). NT designated by Renvoize in Cafferty et al., *Taxon* 49(2): 244 (2000).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (189 as *Panicum phleoides*), [1878] G.Bentham, *Flora Australiensis* 7 (480 as *Panicum indicum*, *Panicum arcuatum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (264), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (364).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (233), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (364).

Habit. Annual. Culms geniculately ascending or decumbent, stature slender to delicate, 10–100 cm tall. Leaf-sheath auricles absent, or present. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.5 mm long. Leaf-blades 2–25 cm long, 1–7 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 1–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, laterally compressed, 2–3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 3–7 -nerved. Upper glume elliptic, 2.2–3.5 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1–2 mm long, without keel, 5 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Darling Downs, Moreton, North Kennedy, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands.

Notes. Highly variable in size, spikelet length and pubescence. A detailed taxonomic analysis at world level may show that subspecific categories should be recognized. Spikelet length and smooth pedicels can be used to quickly distinguish *S. indica* from the other Australian representative.

In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Widely distributed. Flowers sporadically throughout the year.

Sacciolepis myosuroides (R. Br.) A.Camus. *Lecompte, Fl.Gen. Indo-Chine* 7: 460 (1922). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum myosuroides* R. Br., *Prodr.* 189 (1810).

Type of Basionym or Protologue Information: "T" = *Littora novae Hollandiae intra tropicum.*", *Banks [collected on Cook's Journey by Banks]*4.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (189 as *Panicum myosuroides*), [1878] G.Bentham, *Flora Australiensis* 7 (480 as *Panicum myosuroides*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (264), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (263, Pl. 76).

Habit. Annual. Culms geniculately ascending or decumbent, 15–90 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.3–1 mm long. Leaf-blades 3–30 cm long, 1.2–4.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–12 cm long, 0.3–0.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, laterally compressed, 1.1–1.9 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 1.1–1.5 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 1–1.3 mm long, without keel, 5 -nerved. Anthers 3.

Continental Distribution: Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, North Kennedy.

Notes. Diagnostic features include spikelet length, dorsiventral compression of the spikelet, the lower part of the primary branch adnate to the main axis and the scabrous pedicels.

Native to the tropics of Asia and Australia. In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Commonly found in wet areas. Flowers Apr.-Sept.

Sarga angustum (S.T.Blake) Spangler. *Austral. Syst. Bot.* 16(3): 289 . (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sorghum angustum* S.T. Blake, *Pap. Dept. Bot. Univ. Queensland* 1(18): 21 (1941).

Type of Basionym or Protologue Information: HT: *S.T. Blake 13737*, 8 Apr 1938, Australia: Queensland: Cook District: about 40 miles north-west of Mungana (BRI; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 50–100 cm tall, 3–6 -noded. Mid-culm nodes bearded. Lateral branches branched. Leaves cauline. Ligule a fringed membrane, a ciliate membrane, 0.6–1 mm long. Leaf-blades 8–46 cm long, 2–5.6 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, loose, 9.5–20 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster or 2 in the cluster. Companion spikelets absent or represented by barren pedicels or rudimentary, 0.2 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or oblanceolate, dorsally compressed, 10.7–13 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, dull or shiny. Lower glume elliptic, coriaceous, without keels, 9–11 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, coriaceous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3.7–4.2 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 37–85(–114) mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 3.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. In north-eastern Qld and Arnhemland, N.T., where it grows in littoral zones and often on sandy soils in inland areas. Flowers Apr.–June, Sept. Map 16.

Sarga intrans (F.Muell. ex Benth.) Spangler. *Austral. Syst. Bot.* 16(3): 290 . (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sorghum intrans* F. Muell. ex Benth., *Fl. Austral.* 7: 541 (1878).

Type of Basionym or Protologue Information: LT: *Schultz* 31, Oct 1869, Australia: Northern Territory: Port Darwin, presented by R. Schomburgk (K). LT designated by Lazarides et al., *Austral. Syst. Bot.* 4: 618 (1991).

Recent synonyms: *Sorghum exstans*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (541 as *Sorghum intrans*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (319), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, 100–360 cm tall, 4–8 mm diam., 4–8 -noded. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple. Leaves cauline. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 2–4.5 mm long, erose. Leaf-blades 50 cm long, 10–15 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle linear or lanceolate, 14–40 cm long, 2.5–4 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Companion spikelets developed, containing empty lemmas, 9–24 mm long. Companion spikelet glumes muticous or awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong or obovate, dorsally compressed, (6–)10–15(–20) mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume oblong or ovate, coriaceous, keeled, 2-keeled, 9 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, coriaceous, without keels, 5–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3–5 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, (40–)75–110(–150) mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 4–6.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River.

Notes. *Sorghum exstans* was separated from *S. intrans* by a number of small morphological characters, but they show a lack of consistency on closer examination. I regard them as the sort of characters found in normal intra-specific variation.

Confined to the Kimberley, W.A. and north-western N.T. on a range of soil types general in alluvial situations. Flowers all year, but mainly in summer. Map 28.

Sarga leiocladum (Hack.) Spangler. *Austral. Syst. Bot.* 16(3): 290 . (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon australis* var. *leicoladus* Hack., *Monogr. Phan.*.

Type of Basionym or Protologue Information: HT: *C. Gaudichaud s.n.*, Feb 1825, Australia: New South Wales: Central Coast, Port Jackson (P; IT: BM, K).

Recent synonyms: *Sorghum leiocladum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (373 as *Sorghum*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (373 as *Sorghum*).

Habit. Perennial. Rhizomes absent or present, short. Culms 60–150 cm tall, 3–5 -noded. Mid-culm nodes bearded. Ligule an eciliate membrane, 1–1.3 mm long, abaxially glabrous. Leaf-blades curled, flat or involute, 10–70 cm long, 1.5–3.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate or oblong, 14.5–19 cm long, 2–4 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 5–8 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, dorsally compressed, 6–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, coriaceous, much thinner above, without keels, 7–11 -nerved. Lower glume surface indumented. Upper glume oblong or ovate, coriaceous, without keels, 7–11 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 2.5–4 mm long, 1 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 15–20 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 2.5–2.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales, Victoria.

Queensland: Burnett, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes. **Victoria:** East Gippsland.

Notes. Found east of 148°E in southern Qld, N.S.W. and northern Vic. on stony skeletal soils on hillslopes and granite outcrops but also on flat to undulating ground. Flowers Sept.–Apr. Map 19.

Sarga plumosum (R.Br.) Spangler. *Austral. Syst. Bot.* 16(3): 291 . (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus plumosus* R. Br., *Prodr.* 200 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown* 6192, 19 Nov 1802, Australia: Queensland: Burke District: Gulf of Carpentaria, Allen Island (Wellesley Group) (BM; IT: K).

Recent synonyms: *Sorghum grande*, *S. interjectum*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (200 as *Holcus plumosus*), [1878] G.Bentham, *Flora Australiensis* 7 (540 as *Sorghum plumosum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (317 as *Sorghum plumosum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (491 as *Sorghum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (315, Pl.93 as *Sorghum*).

Habit. Perennial. Rhizomes absent or present, short. Culms erect, stature robust to moderate, 100–300 cm tall, 3–7 mm diam., 4–7 -noded. Mid-culm internodes pruinose or glabrous. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 1.5–3.7 mm long. Leaf-blades flat or conduplicate or terete, 15–40 cm long, 4–16 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle linear or lanceolate, dense, 12.5–45 cm long, 2–5 cm wide.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 713 mm long. Companion spikelet glumes muticous.

Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 6–18 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, cartilaginous or coriaceous, much thinner above, without keels, 5–9 -nerved. Lower glume surface indumented. Upper glume ovate, cartilaginous or coriaceous, without keels, 5–9 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 2–3 mm long, 1 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn 25–100 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 3.3–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier, Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Cook, Burke, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Wide Bay, Gregory North, Mitchell, Warrego.

Notes. Leaf lamina flat or loosely folded, 4–12 mm wide, herbaceous **19a. var. plumosum**

Leaf lamina terete, 1–2 mm wide, indurated **19b. var. teretifolium**

There are two varieties in tropical Australia, one widespread and the other only collected once.

S. plumosum (R.Br.) P.Beauv. var. **plumosum**

Widespread in tropical Australia with a few records from the subtropics. Flowers Jan.--Sept.

S. plumosum var. **teretifolium**

This variety has thus far only been collected from the type locality.

Sarga timorensis (Kunth) Spangler. *Austral. Syst. Bot.* 16(3): 292. (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or **Replacement Name:** *Andropogon tropicus* var. *timorensis* Kunth, *Revis. Gramin.* 1: 367, t. 97 (1829).

Type of Basionym or Protologue Information: var "B" in insula Timor.,.

Recent synonyms: *Sorghum amplum*, *S. brachypodum*, *S. bulbosum*, *S. ecarinatum*, *S. matarankense*, *S. stipoides*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (318 as *Sorghum stipoides*, 319), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 30–400 cm tall, 2.6–13 mm diam., 3–9 -noded. Mid-culm internodes pruinose or glabrous. Mid-culm nodes glabrous or pubescent or bearded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 1.3–5.8 mm long, abaxially glabrous or abaxially scaberrulous or abaxially hairy. Leaf-blades straight or curled, 30–60 cm long, 5–70 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle dense or loose, 11–40 cm long, 4–6 cm wide. Rhachis evident or obsolete, tough or fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster or 2 in the cluster. Companion spikelets developed, containing empty lemmas or male, 4.5–18 mm long. Companion spikelet glumes mucous or mucronate or awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate or elliptic or oblong or obovate, dorsally compressed, 6–18 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, dull or shiny. Lower glume ovate, cartilaginous or coriaceous or indurate, much thinner above, without keels or keeled, 2-keeled, 7–11 -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucous or mucronate. Upper glume ovate, cartilaginous or coriaceous or indurate, without keels, 5–9 -nerved. Upper glume surface asperulous, glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 1 -nerved. Lemma apex dentate or lobed, awned, 1 -awned. Median (principal) awn from a sinus, 30–155 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 2–6 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Cook, Burke.

Saxipoa saxicola R. Br. *Prodr.* 180 (1810). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa saxicola* R. Br., *Prodr.* 180 (1810).

Type of Basionym or Protologue Information: HT: *Brown* 6286, Mar 1804, Australia: Tasmania: Table Mountain (i.e. Mt. Wellington) (BM).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (654), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (354), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (337).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (354).

Habit. Perennial. Culms erect, 13–105 cm tall, 1–2 -noded. Lateral branches simple. Leaves mostly basal. Leaf-sheaths smooth or scaberulous, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 0.9–4.5 mm long, abaxially glabrous or abaxially scaberulous or abaxially hairy, erose, truncate or obtuse or acute or acuminate. Leaf-blades straight or curved, flat or conduplicate, 4–25 cm long, 2–5 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 4.5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 4.5–7 mm long.

Glumes. Glumes similar. Lower glume ovate, membranous, keeled, 1-keeled, 3(–5) -nerved. Upper glume ovate, 4.3–6 mm long, membranous, keeled, 1-keeled, 3(–5) -nerved.

Florets. Fertile lemma 3.8–5.5 mm long, keeled, 5–7 -nerved. Lodicules present. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: New South Wales, Victoria, Tasmania.

New South Wales: Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** West Coast, Central Highlands, Mt Field, Mt Wellington.

Notes. Unusual in the genus with the midnerve of the lemma extended as a mucro or short awn to 0.5 mm long.

Endemic. From the W coast, Central Highlands, Mt Field and Mt. Wellington in Tas., rare in the Australian Alps, Vic., S from the Brindabella Ra., N.S.W., and on Bimberi Ra., A.C.T. Usually in rocky subalpine meadows, herbfields and eucalypt woodlands from 700–1500 m. Flowers Nov.-Mar. Fruits Feb.-Mar.

Schismus arabicus* Nees. *Fl. Afr. Austr.* 422 (1841). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneae.

Type of Basionym or Protologue Information: Egypt: Arabia petraea, Chabba, in valle Hamme, 21 March 1835, *Schimper* 391 (HT: W; IT: L, M).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (60), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (440), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (312).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (312, fig. 244).

Habit. Annual. Culms decumbent, 3–20 cm tall. Ligule a fringe of hairs. Leaf-blades filiform or aciculate, flat or convolute, 1.5–15 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic or ovate, 1–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–8), comprising 5–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–7 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 5–7 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1.6–3.3 mm long, without keel, 7–9 -nerved. Lemma surface indumented. Lemma apex lobed, muticous or mucronate. Median (principal) awn from a sinus. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 0.8–0.9 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia.

Western Australia: Carnarvon, Austin. Coolgardie. **South Australia:** Lake Eyre, Nullabor, Flinders Ranges, Eyre Peninsula.

Notes. *S. arabicus* is introduced from North Africa, and is very similar to *S. barbatus*, but differs by a lemma deeply divided into two acuminate lobes.

Flowers Sep. (Australia).

Schismus barbatus* (L.) Thell. *Bull. Herb. Boiss.* ser. 2, 7:391 (1907). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Festuca barbata* L., *Demonstr. Pl.* 3 (1753).

Type of Basionym or Protologue Information: LT: (LINN-92.26). LT designated by Scholz in Cafferty et al., *Taxon* 49(2): 250 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (58), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (312), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (364).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (59, Pl.15), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (234), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 4, E-G), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (313, Fig. 245), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (364).

Habit. Annual. Culms decumbent, 3–30 cm tall. Ligule a fringe of hairs. Leaf-blades filiform or aciculate, flat or convolute, 1–10 cm long, 0.5–1.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or elliptic or oblong, 1–6 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–10), comprising 4–10 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–7 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate, 2.75–6 mm long, membranous, without keels, 3–5 -nerved.

Florets. Fertile lemma 1.25–2.5 mm long, without keel, 7–9 -nerved. Lemma surface indumented. Lemma apex lobed, muticous or mucronate. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 0.52–0.8 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, New South Wales, Victoria.

Northern Territory: Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** North Coast, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Lowan Mallee, Midlands, Murray Mallee, Riverina, Wimmera.

Notes. Introduced from South Africa.

Various soils, from sands to cracking clays. Flowers Oct.

Schizachyrium crinizonatum S. T. Blake. *Contr. Queensland Herb.* 17: 22 (1974). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 17477*, 26 Apr 1947, Australia: Northern Territory: near (NW of) Katherine, wet sandy margins of small streams, alt. ca. 150–160 m, green to reddish annual with solitary or tufted, more or less spreading culms to 60 cm (BRI-106885; IT: L, MO-3748787, US-2959130).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 20–40 cm tall, 0.35–0.6 mm diam., 6–9 -noded. Mid-culm internodes glabrous or pubescent. Lateral branches branched. Leaf-sheaths scaberulous. Ligule an eciliate membrane, 0.3–0.5 mm long. Leaf-blades conduplicate or convolute, 2–5.5 cm long, 0.9–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 0.8–2 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, laterally compressed, 4.5–6.7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, wingless. Lower glume surface glabrous. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous. Upper glume apex dentate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 75 % of length of spikelet, hyaline.

Fertile lemma 4–5 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 16–23 mm long overall, with a twisted column. Column 5–8.5 mm long. Palea absent. Grain 2.5–3.4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. A fairly rare annual usually growing with other *Schizachyrium* species in sandy soils of tropical Australia. Flowers Mar.--July.

Schizachyrium dolosum S. T. Blake. *Contr. Queensland Herb.* 17: 26 (1974). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 19617*, 18 Jul 1954, Australia: Queensland, Burke, Esmeralda, 13 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 50–100 cm tall, 0.35–0.8 mm diam., 7–11 -noded. Lateral branches sparsely branched or branched. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.2–1 mm long. Leaf-blades conduplicate or convolute, 2–6 cm long, 0.8–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 1–1.5 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, laterally compressed, 4.3–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, keeled, 2-keeled, wingless. Lower glume surface glabrous or indumented. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 12–18 mm long overall, with a twisted column. Column 5–8 mm long. Palea absent. Grain 2.3–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Cook.

Notes. An annual found in sandy soils of northern Qld usually associated with other *Schizachyrium* species. Flowers Mar.--Apr. and July.

Schizachyrium fragile (R.Br.) A.Camus. *Ann. Soc. Linn. Lyon* 70: 87 (1924). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon fragilis* R. Br., *Prodr.* 202 (1810).

Type of Basionym or Protologue Information: Australia: Queensland: Endeavour River, *Banks & Solander s.n.* (HT: BM (photo, BRI); IT: BRI (fragm.), NSW) "(T) Littora Novae Hollandiae intra tropicum".

Recent synonyms: *S. obliqueberbe*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (202 as *Andropogon fragilis*), [1878] G.Bentham, *Flora Australiensis* 7 (535 as *Andropogon fragilis*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (334 as *S. brevifolium*, 336 as *S. obliqueberbe*), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (490), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (365).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (335, Pl.98 as *S. brevifolium*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (237), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (365).

Habit. Annual. Culms erect, stature slender to delicate, 10–75 cm tall, 0.8–1.1 mm diam. Lateral branches simple or sparsely branched. Leaves basal and cauline. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.6 mm long. Leaf-blades flat or conduplicate, 2–10 cm long, 1–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes, 1–3.5 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong or ovate, dorsally compressed, 5–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, winged on keel, winged broadly or moderately or narrowly, 3–5 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, chartaceous, keeled, 1-keeled, winged on keel, 1–3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret membranous, 0 -nerved.

Fertile lemma 3–4 mm long, without keel. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 9–15 mm long overall, with a twisted column. Column 5 mm long. Palea absent. Anthers 3. Grain 2.1–4 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, North-Western Plains.

Notes. A fairly common annual on sandy soils from the savanna regions of tropical Australia and extending to sub-tropical Qld and N.S.W. where it is not so common. Occurs also in S China, the Marianas, Caroline and Aru Is. and New Caledonia. Flowers Jan.–Nov.

Schizachyrium microstachyum*

Australian Distribution: Queensland.

Queensland: Moreton.

Schizachyrium mitchelliana B.K.Simon. *Austrobaileya* 3: 90 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Western Australia: Mitchell River Station, Admiralty Gulf, Nov/Dec 1973, *T. Kubicki* 53 (HT: PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 50–100 cm tall. Lateral branches branched. Ligule an eciliate membrane, 3 mm long. Leaf-blades 1.5–10 cm long, 0.8–3 mm wide.

Inflorescence. Inflorescence compound, composed of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 2 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong or ovate, dorsally compressed, 4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, keeled, 2-keeled, winged on keel, winged narrowly. Lower glume surface glabrous. Upper glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 7–20 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. The habitat is unknown and the species is restricted to the type. Flowers Jun.

Schizachyrium occultum S. T. Blake. *Contr. Queensland Herb.* 17: 24 (1974). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S.T. Blake* 21283, 22 May 1962, Australia: Queensland: Cook District: Cooktown, damp sandy ground in Eucalyptus forest, green to reddish tufts (BRI; IT: L, MO-3748788).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms stature slender to delicate, 10–30 cm tall, 0.3–0.5 mm diam., 8–12 -noded. Lateral branches branched. Leaf-sheaths smooth. Ligule an eciliate membrane, 0.15–0.25 mm long. Leaf-blades conduplicate or convolute, 1.5–3.5 cm long, 0.6–2 mm wide.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 0.9–1.2 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, laterally compressed, 3.75–5.1 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, wingless. Lower glume surface indumented. Upper glume lanceolate, membranous, keeled, 1-keeled.

Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma 3–3.5 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 9–13 mm long overall, with a twisted column. Column 4–5 mm long. Palea absent. Grain 2.6–3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. An annual found in sandy soils of northern Qld and one record from Maria Is., N.T., usually associated with other *Schizachyrium* species. Flowers Mar.--Aug.

Schizachyrium pachyarthron C.A.Gardner. *Fl. Western Austral.* 1: 336 (1952). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *Holmes s.n.*, May 1943, Australia: Western Australia: Northern Province: Kunmunya Mission, Camden Sound (PERTH; IT: BRI).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (336), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (335, Pl. 98).

Habit. Annual. Culms 50–100 cm tall, 0.5–2 mm diam., 5–13 -noded. Lateral branches branched. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.2–0.6 mm long. Leaf-blades conduplicate, 1.5–10 cm long, 0.8–3 mm wide.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 1.5–3 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, keeled, 2-keeled, winged on keel, winged narrowly. Lower glume surface glabrous or indumented. Upper glume lanceolate, membranous, keeled, 1-keeled, wingless or winged on keel. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 75–100 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 4–6 mm long, without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 19–30 mm long overall, with a twisted column. Column 8.5–11 mm long. Palea absent. Grain 2.3–3.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North. **Queensland:** Burke, Cook, North Kennedy, Port Curtis, Gregory North.

Notes. Fairly widespread annual on sandy soils in tropical Australia and subtropical coastal Qld. Flowers Mar.--Sept.

Schizachyrium perplexum S. T. Blake. *Contr. Queensland Herb.* 17: 14 (1974). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook District: Mt. Mulligan, Apr 1939, *Pedler* 6 (BRI-047910).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 10–20 cm tall, 0.4 mm diam., 5–8 -noded. Mid-culm internodes with pubescent line. Lateral branches branched. Ligule an eciliate membrane, 0.7–0.8 mm long. Leaf-blades conduplicate, 1.7–2.7 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid or compound, a rame, a panicle of rames. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 0.6–0.7 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.5–4.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, keeled, 2-keeled, winged on keel, winged narrowly, 3–5 -nerved. Lower glume surface indumented. Upper glume

lanceolate, membranous, keeled, 1-keeled, 1 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 75 % of length of spikelet, hyaline, 0 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 16–21 mm long overall, with a twisted column. Column 6–7 mm long. Palea absent. Grain 1.6–2.2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, Gregory North.

Notes. A rather rare annual on sandy soils and sandstone hills from a few localities in northern Qld and N.T. Flowers Mar.--May.

Schizachyrium pseudeulalia (Hosokawa) S. T. Blake. *Proc. Roy. Soc. Queensland* 80: 77 (1969).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Microstegium pseudeulalia* Hosok., *Trans. Nat. Hist. Soc. Taiwan* 28: 151 (1938).

Type of Basionym or Protologue Information: HT: *T. Hosokawa* 9189, 4 Sep 1937, Federated States of Micronesia: Caroline Islands: Palau (?; IT: A, US-2078215).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (490), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 40–90 cm tall, 0.2–0.35 mm diam., 7–12 -noded. Mid-culm internodes glabrous or with pubescent line. Lateral branches branched. Leaf-sheaths smooth or scaberulous. Ligule an eciliate membrane, 0.2–1.3 mm long. Leaf-blades flat or conduplicate, 0.8–9 cm long, 0.8–5.5 mm wide.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets rudimentary, comprising 2 unequal glumes without lemmas, 1–1.7 mm long. Companion spikelet glumes awned. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, dorsally compressed, 4–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate, coriaceous, keeled, 2-keeled, wingless. Lower glume surface glabrous or indumented. Upper glume lanceolate, membranous, keeled, 1-keeled. Upper glume surface scabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–80 % of length of spikelet, hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 11–30 mm long overall, with a twisted column. Column 4.5–9 mm long. Palea absent. Grain 2–3 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. A fairly common annual on sandy soil in tropical Australia and subtropical coastal Qld. Occurs also in Malasia, Melanesia and the Caroline Is.. Flowers Feb.--Sept.

Sclerochloa dura* (L.) Beauv. *Agrost.* 98. (1812). **Classification.** (GPWG 2001) : Subfamily Pooideae.

Tribe Poeae.

Basionym and/or Replacement Name: *Cynosurus durus* L., *Sp. Pl.* 1: 72 (1753).

Type of Basionym or Protologue Information: LT: *Gramen arvense, polypodii panicula crassiore*, in Barrelier, Pl. per Galliam, Hispaniam et Italiam observ. 1213, t.50 (1714), LT designated by Stace & Jarvis, *Bot. J. Linn. Soc.* 91: 438 (1985).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (166), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (365), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (297).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (167, fig. 118), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (365), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (298, Fig. 40).

Habit. Annual. Culms 4–10(–18) cm tall. Ligule an eciliate membrane, 1–2.1 mm long, acute. Leaf-blades flat or conduplicate, 2–7 cm long, 1–3.4 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, oblong, 1–4 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5.6–11 mm long. Rhachilla internodes elongated between glumes (and swollen).

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, herbaceous, much thinner on margins, keeled, 1-keeled, 3 -nerved. Upper glume oblong, 3–5.1 mm long, herbaceous, keeled, 1-keeled, 5–9 -nerved.

Florets. Fertile lemma 4–6.4 mm long, keeled, 5–7 -nerved.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: Northern Lofty, Yorke Peninsula. **New South Wales:** Southern Tablelands. **Victoria:** Riverina, Volcanic Plain, Wimmera. **Tasmania:** Midlands.

Notes. Native to the Mediterranean. Flowers Oct.-Nov.

Scrotochloa tararaensis (P. Jansen) E.J.Judziewicz. *Phytologia* 56: 300 (1984). **Classification.** (GPWG 2001) : Subfamily Pharoideae.

Basionym and/or Replacement Name: *Leptaspis tararaensis* Jansen, *Reinwardtia* 2(2): 304 (1953).

Type of Basionym or Protologue Information: IT: *L.J. Brass* 8587, Jan 1937, Papua New Guinea: New Guinea I., Western Div. (US-1723653).

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (120 as *Scrotochloa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (7).

Habit. Perennial. Rhizomes present, short. Culms erect, 40–45 cm tall. Mid-culm internodes hollow or solid, thin-walled. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades linear, 10–40 cm long, 4–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–10 cm long. Racemes 2–7, spreading, straight, 4–8 cm long. Central inflorescence axis 3–5 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Male spikelets pedicelled, 1 in a cluster. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, scarious, without keels, 1 -nerved. Lower glume surface indumented. Upper glume ovate, 4 mm long, scarious, without keels, 1 -nerved. Upper glume surface indumented. **Florets.** Fertile florets female.

Fertile lemma 4 mm long, without keel. Lemma surface indumented. Lodicules absent or vestigial. Anthers 6.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Known only from 1 collection in northern Qld. Also rare in New Guinea. Flowers recorded for Apr.

Scrotochloa urceolata (Roxburgh) E.J.Judziewicz. *Phytologia* 56: 300 (1984). **Classification.** (GPWG 2001) : Subfamily Pharoideae.

Basionym and/or Replacement Name: *Pharus urceolatus* Roxb., *Fl. Ind.* 3: 611–612 (1832).

Type of Basionym or Protologue Information: HT: *Anon.*, Malaysia: Pulo Pinang (BM). Herb. Roxburgh.

Recent synonyms: *Leptaspis urceolata*.

Key references (books and floras): [1969] E.E.Henty, *Manual Grasses New Guinea* (120 as *Scrotochloa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (9).

Illustrations: [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (8, Fig.1A-B).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending or decumbent, 20–50 cm tall. Mid-culm internodes hollow, thin-walled. Ligule a fringed membrane, a ciliolate membrane, 0.5 mm long, abaxially hairy. Leaf-blades elliptic, 15–25 cm long, 40–60 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–12 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled, 1 in the cluster. Male spikelets pedicelled, 1 in a cluster. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, obovate, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume obovate, scarious, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume obovate, 4–6 mm long, scarious, keeled, 2-keeled, 7 -nerved. Upper glume surface indumented. **Florets.** Fertile florets female.

Fertile lemma 4–8 mm long, without keel, 5–7(–13) -nerved. Lemma surface indumented. Lodicules absent or vestigial. Anthers 6.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Known from few collections in far N Qld. Sri Lanka and southern India to Vietnam, Indonesia, New Guinea, Australia and the Solomon Is. In vine forest and rainforest. Flowers recorded in Oct.

Secale cereale* L. *Sp. Pl.* 84 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: LT: (LINN-102.1). LT designated by Bowden, *Canad. J. Bot.* 40: 1704 (1962).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (197), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia*, [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (273), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (366), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (105).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (196, Pl. 58), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (274, fig. 213), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (239), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (366), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (106, Fig.15; 109, Fig.16).

Habit. Annual. Culms erect, 60–150 cm tall, 6–7 -noded. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–2 mm long, hyaline, truncate. Leaf-blades flat, 10–22 cm long, 6–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 5–15 cm long, bearing 40–50 fertile spikelets on each. Rhachis tough.

Spikelets. Spikelets sessile. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 2 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 12–15 mm long.

Glumes. Glumes similar. Lower glume linear or oblong, coriaceous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume linear, 10–12 mm long, coriaceous, keeled, 1-keeled, 1 -nerved. Upper glume apex mucronate.

Florets. Fertile lemma 14–16(–18) mm long, keeled, 3–5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 20–50 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 8–10 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Gairdner-Torrens Basin, Murray, Yorke Peninsula, Southern Lofty. **New South Wales:** Southern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains. **Victoria:** Gippsland Plain, Lowan Mallee, Murray Mallee, Volcanic Plain, Wimmera. **Tasmania:** No region given.

Notes. Cultivated for grain and forage. An intergeneric hybrid between *Secale cereale* and *Triticum aestivum*, *x Triticosecale* or 'Triticale' is grown in some regions for grain and feed. It occasionally occurs as an escape and is intermediate to the parents.

Usually appearing as an escape and not persisting, sometimes planted as a sand-binder or fodder crop.

Sehima nervosum (Rottler) Stapf. *Fl. Trop. Afr.* 9: 36 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon nervosus* Rottler ex Roem. & Schult., *Syst. Veg.* 2: 812 (1817).

Type of Basionym or Protologue Information: Philippine Islands: Luzon: July 1918, *M. Ramos Bur. of Sci.* 32946 (HT: ?; IT: US-1263212).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (205 as *Ischaemum laxum*, 201 as *Andropogon striatus*), [1878] G.Bentham, *Flora Australiensis* 7 (522 as *Ischaemum laxum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (301), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (366).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (303, Pl. 88), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (366).

Habit. Perennial. Culms erect, 30–100 cm tall, wiry. Mid-culm nodes glabrous or bearded. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades 5–40 cm long, 2–7 mm wide.

Inflorescence. Inflorescence solid, a raceme. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 6–10 mm long. Companion spikelet glumes mucous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 6–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic, cartilaginous or coriaceous, much thinner above, keeled, 2-keeled, wingless or winged on keel, winged narrowly, 6 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume elliptic, 6 mm long, membranous or chartaceous, keeled, 1-keeled, winged on keel, 3–5 -nerved. Upper glume surface scabrous. Upper glume apex awned.

Florets. Basal sterile florets 1, male, with palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 5 mm long, without keel, 3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 20–40 mm long overall, with a twisted column. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy. **New South Wales:** North-Western Slopes.

Notes. Common in savanna country throughout subtropical and tropical Australia. Extends through New Guinea and SE Asia to India and tropical Africa. Poor quality fodder. Flowers all year.

Setaria apiculata (Scribn. & Merr.) K. Schum. *Just's Bot. Jahresber.* 28: 417 (1902). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Chaetochloa apiculata* Scribn. & Merr., *Bull. Div. Agrostol., U.S.D.A.* 21: 9 (1900).

Type of Basionym or Protologue Information: IT: *F.J.H. von Mueller s.n.*, 18??, Australia: Queensland: Victoria River (US-978059).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 25–80 cm tall, firm or wiry. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths smooth or scaberulous. Ligule a fringe of hairs. Leaf-blades flat, 8–24 cm long, 2–6 mm wide. Leaf-blade surface smooth or scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–5 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 3–3.4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic or ovate, 2.3–3.8 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.5–4 mm long, without keel, 5 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy.

Notes. Differs from *S. surgens* in spikelet size.

In tropical and subtropical sub-humid woodlands, coastal grasslands, and tropical sub-humid grasslands. Flowers Feb.-July.

Setaria australiensis (Scribn. & Merrill) Vickery. *Contr. New South Wales Natl. Herb.* 1: 335 (1950).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Chaetochloa australiensis* Scribn. & Merr., *Bull. Div. Agrostol., U.S.D.A.* 21: 29 (1900).

Type of Basionym or Protologue Information: HT: *S.M. Tracy s.n.*, 1889, Australia (US-978063).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (368).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (368).

Habit. Perennial. Rhizomes present, short. Culms erect, 60–210 cm tall, 3–6 mm diam., 6 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades lanceolate, flat, 10–35 cm long, 5–23 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or lanceolate, 6–20 cm long, 1.5–2 cm wide.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 3–4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 2.5–3.1 mm long, membranous, without keels, 7–11 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved. Fertile lemma 3–4 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 2.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. In tropical heaths, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Mar.-Sept.

Setaria barbata* (Lam.) Kunth. *Rev. Gram.* 1: 47 (1829). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum barbatum* Lam., *Tabl. Encycl.* 1: 171 (1791).

Type of Basionym or Protologue Information: HT: *P. Commerson s.n.*, no date, Mauritius (P; IT: US-80482 (fragm. ex P-LA)). IT: *P. Commerson 136*, Mauritius (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Rhizomes absent. Culms decumbent, 10–150(–200) cm tall. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, flat or plicate, 5–30 cm long, 5–20(–30) mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 3–25 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–3.2 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 1.5–2.1 mm long, membranous, without keels, 5–9 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2–3 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Queensland.

Queensland: South Kennedy.

Notes. Introduced; Qld. In tropical and subtropical rain forests. Flowers July.

Setaria clivalis

Continental Distribution: Tropical Asia.

Australian Distribution: Christmas Is.

Setaria dielsii Herrm. *Beitr. Biol. Pflanzen.* 10: 52 (1910). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: ST: *Koch 170*, May 1898, Australia: South Australia: am Mt. Lindhurst (B, US-2435844 (fragm.)). ST: *Diels 3664*, Australia: West-Australien, Gascogne bei Carmarvon (US). ST: *A. Cunningham s.n.*, Australia: Nordwest-Australien, ohne Standortsangabe (B).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (267), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (481), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (480).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (269, Pl. 77), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (480, Fig. 412).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms erect or geniculately ascending or decumbent, 40–80 cm tall, 3–6 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.5–1.3 mm long. Leaf-blades flat, 5–28 cm long, 3.5–11 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 2.5–17 cm long, contracted about primary branches.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.1–2.8 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume elliptic, 2.1–2.8 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.1–2.8 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Dampier. Warren. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern. **Queensland:** North Kennedy, South Kennedy, Leichhardt.

Notes. The primary branches of the inflorescence are well developed and a single bristle subtends the terminal and basal spikelets. This bristle to spikelet relationship is identical to that of the genus *Paspalidium* and intermediate between the very compacted or reduced form represented by *S. geniculata* and the open form represented by *S. palmifolia*.

Setaria dielsii seems to be very similar to some North American species of *Setaria* (e.g. *S. grisebachii*) and more critical study of Australian species is needed.

In Brigalow forests, acacia shrublands, and arid hummock grasslands. Flowers sporadically throughout the year.

Setaria incrassata* (Hochst.) Hack. *Abh. Konigl. Akad. Wiss. Berlin* 2: 122 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum incrassatum* Hochst., *Flora* 38: 197 (1855).

Type of Basionym or Protologue Information: HT: *Schimper 1211*, Africa: Ethiopia: Gandoma (STR; IT: P).

Recent synonyms: *S. porphyrantha*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (368).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (368).

Habit. Perennial. Rhizomes present, short. Culms 20–200 cm tall. Mid-culm nodes pubescent or glabrous (rarely). Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–60 cm long, 1–15 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–30 cm long.

Spikelets. Spikelets 1–3 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate or orbicular, laterally compressed, 2–3(–4) mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Upper glume ovate, membranous, without keels, (5–)7–9(–11) -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.5–3.5 mm long, without keel.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Central Australia South. **Queensland:** Port Curtis, Wide Bay, Warrego.

Notes. Introduced pasture species for back soils.

Setaria italica* (L.) Beauv. *Ess. Agrost.* 51, 170, 178 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum italicum* L., *Sp.Pl.* 1: 56 (1753).

Type of Basionym or Protologue Information: LT: *Herb A van Royen*, (L-912.356–242). LT designated by Veldkamp in Cafferty et al., *Taxon* 49(2): 253 (2000). LT: India (LINN-80.14). LT designated by Sherif &

Siddiqui, Fl. Libya 145: 298 (1988), but this lectotypification is ineffective because the cited specimen is not original material [fide Cafferty et al., Taxon 49(2): 250 (2000)].

Key references (books and floras): [1810]. R.Brown, *Prodromus* (195 as *Pennisetum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (267), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (480), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (369).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (481, fig. 413), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (369).

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending, stature robust to moderate, 30–150 cm tall, 5–7 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades flat, 8–45 cm long, 5–20 mm wide. Leaf-blade surface scaberulous or scabrous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or oblong, 5–30 cm long, 0.8–2.4 cm wide.

Spikelets. Spikelets sessile and pedicelled, 2–4 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–3 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, hyaline or membranous, without keels, 1–3 -nerved. Upper glume elliptic, 2.1–2.8 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner. Fortescue. Drummond, Dale, Menzies, Avon. **Northern Territory:** Central Australia South. **South Australia:** North-western, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton, North Kennedy, Wide Bay, Leichhardt. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Gippsland Plain, Midlands, Riverina, Volcanic Plain. **Tasmania:** Midlands, East Coast.

Notes. Although recognized as a species, *S. italica* seems to be a cultivated form of *S. viridis*. The point of disarticulation (below the glumes in *S. viridis* and above in *S. italica*) is used to separate the species.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Jan.-May.

Setaria oplismenoides Herrm. *Beitr. Biol. Pflanzen*. 10: 53 (1910). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australien: Nord-Küste, ohne Standortsangabe, Schomburgh (HT: US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, short or elongated. Culms erect, 60–130 cm tall, 4–8 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades flat, 10–32 cm long, 4–10.5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 18–37 cm long.

Spikelets. Spikelets sessile, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.3–2.7 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 2–2.6 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.2–2.7 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Maranoa.

Notes. Closely related to *S. dielsii* but differing in possessing a much longer inflorescence, the shorter upper glume and the spikelets turgid and oblique on the pedicels.

Specimens from Qld have a shorter main axis and spikelets in tighter clusters; otherwise, they are identical to the coastal form.

In tropical and subtropical sub-humid woodlands, acacia shrublands, and arid tussock grasslands. Flowers Feb.-June.

Setaria palmifolia* (Koenig) Stapf. *J. Linn. Soc., Bot.* 42: 186 (1914). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum palmifolium* J. König, *Naturforscher* 23: 208 (1788).

Type of Basionym or Protologue Information: T: *Ex Herb. Desfont. s.n.*, no date, Unknown: (US-978043 (fragm. ex FI)). HT: *Koenig s.n.*, Thailand? (BM).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (433), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (482), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (369).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (482, Fig. 415), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (369).

Habit. Perennial. Rhizomes present. Culms erect or geniculately ascending, stature robust to moderate, 70–300 cm tall. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades linear or elliptic, plicate, 5–80 cm long, 15–80 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 40–80 cm long, 20–40 cm wide.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.5–3.9 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume oblong, 1.6–2.5 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–3.7 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Norfolk I, Lord Howe.

Western Australia: Drummond. **Northern Territory:** Darwin & Gulf. **South Australia:** Southern Lofty, South-eastern. **Queensland:** Port Curtis, Leichhardt, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes.

Notes. *Setaria palmifolia* belongs to a complex of closely related species that are characterized by a perennial habit and plicate leaves. Relationships among the species of this complex are poorly understood and their placement in *Setaria* needs critical re-evaluation.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Mar.-June.

Setaria parviflora (Poiret) M. Kerguelen. *Lejeunia* 120: 161 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Cenchrus parviflorus* Poir., *Encycl.* 6: 52 (1804).

Type of Basionym or Protologue Information: Puerto Rico:, *M. Ventenat s.n.* (HT: P).

Recent synonyms: *S. geniculata* var. *geniculata*, *S. geniculata* var. *pauciseta*, *S. gracilis* var. *gracilis*, *S. gracilis* var. *pauciseta*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (265 as *S. geniculata*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (482), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (369).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (241 as *S. geniculata*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (483, fig. 416), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (369).

Habit. Perennial. Rhizomes absent or present, short. Culms erect or geniculately ascending, 30–110 cm tall. Mid-culm internodes hollow, thin-walled. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.4–1.2 mm long. Leaf-blades 10–30 cm long, 2–7 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–6 cm long, 0.8–1.4 cm wide.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 2.2–2.8 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 1.3–1.8 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–2.6 mm long, without keel. Anthers 3. Grain 1.7 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner. Drummond, Menzies. **South Australia:** Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Murray Mallee, Riverina. **Tasmania:** Furneaux Group, East Coast.

Notes. Very similar to *S. pumila*, the only diagnostic difference is that *S. parviflora* is a perennial with a short rhizome whereas *S. pumila* is an annual. Incomplete specimens are frequently impossible to identify. *Setaria parviflora* is also easy to confuse with *S. sphacelata*.

In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, temperate wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, arid tussock grasslands, coastal grasslands, and tropical sub-humid grasslands. Flowers Jan.-Apr.

Formerly separated into varieties var. *gracilis* and var. *pauciseta* under a previous name *S. gracilis*, but these are now thought not worth maintaining.

Setaria paspalidioides Vickery. *Telopea* 1: 42 (1975). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: New South Wales: Western Plains: Gulargambone, 27 Apr 1936, *E.C. Mathes s.n.* (HT: NSW-9027).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (370).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (370).

Habit. Perennial. Rhizomes absent. Culms erect, 30–100 cm tall. Mid-culm nodes glabrous or pubescent. Leaf-sheaths antrorsely scabrous, hairy. Ligule a fringe of hairs, 1.5 mm long. Leaf-blades flat or conduplicate, 4.5–30 cm long, 4–9 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 2.8–3.1 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5 -nerved. Upper glume elliptic or orbicular, 2.3–3 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.8–3.1 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Leichhardt, Mitchell, Warrego, Maranoa. **New South Wales:** North-Western Plains.

Notes. The morphological features of the inflorescence of this species are similar to *Paspalidium*. *Setaria paspalidioides* is closely related to *S. australiensis*, but differs in having smaller spikelets, a sparse inflorescence and a scabrous main axis.

In Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Jan.-Sept.

Setaria pumila* (Poir.) Roem. & Schult. *Syst. Veg.* 2: 891 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pumilum* Poir., *Encycl., Suppl.* 4: 273 (1816).

Type of Basionym or Protologue Information: HT: *Herb. Desfontaines s.n.*, (FI; IT: P).

Recent synonyms: *S. glauca*, *S. lutescens*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (492 as *Setaria glauca*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (266 as *S. lutescens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (433 as *S. gracilis*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (483), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (370).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (483, Fig. 417 as subsp. *pumila*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (370).

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending, 5–130 cm tall. Mid-culm nodes glabrous. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane. Leaf-blades flat or conduplicate, 3–30 cm long, 2–10 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–10(–20) cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles, free throughout. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 1.5–3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume orbicular, membranous, without keels, 3 -nerved. Upper glume ovate, 1.4–2 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.5–3.5 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Drummond. **Northern Territory:** Darwin & Gulf. **South Australia:** Flinders Ranges, Northern Lofty, Murray, Southern Lofty. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes. **Victoria:** Murray Mallee, Riverina, Eastern Highlands, Gippsland Plain, East Gippsland.

Notes. Introduced. Widespread, esp. in eastern Australia. Flowers Jan.-June.

Although ssp. *pumila* differs from ssp. *subtesselata* in its larger spikelets, Clayton (1977) gives evidence of continuous variation between the two forms and are recognised by him as synonyms of *S. pumila*. Other commonly used names now placed in synonymy, *S. glauca* and *S. lutescens*, are both based on *Panicum glaucum* which is a species of *Pennisetum*.

The absence of a short knotty rhizome is the only character that distinguishes this species from *S. gracilis*.

Introduced; tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Jan.-June.

Infra -specific taxa: subsp. *pumila*, subsp. *pallide-fusca*.

Spikelets less than 2.5 mm long **S. pumila** subsp. *subtesselata*

Spikelets c. 3 mm long **S. pumila** subsp. *pumila* .

Setaria pumila subsp. *pumila* **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Setaria pumila subsp. *subtesselata* (Buse) B.K. Simon. *Flora of Australia* xx:xx (20xx). **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Basionym and/or Replacement Name: *Setaria glauca* subsp. *subtesselata* Buse, *Pl. Jungh.* 3:369 (1854).

Type of Basionym or Protologue Information: lecto: *Junghuhn s.n.*: L , fide J.F.Veldkamp, *Blumea* 39: 380 (1994).

Recent synonyms: *S. pumila* subsp. *pallide-fusca* (Scumach.) B.K.Simon.

Australian Distribution: Northern Territory, Queensland, New South Wales, Norfolk I.

Setaria queenslandica Domin. *Biblioth. Bot.* 85: 330 (1915). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: [Australia]: "Nord-Queensland: in den Eucalyptus-Waldern zwischen Chillagoe und dem Walsh River ...", *Domain, I.* 1910.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms geniculately ascending, 30–45 cm tall. Lateral branches simple. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades flat or involute, 7–15 cm long, 2–4 mm wide. Leaf-blade surface scaberrulous, indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, loose, 3–4 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles, free throughout. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume ovate, membranous, without keels, 5 -nerved. Upper glume surface scabrous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.5 mm long, without keel. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Barkly Tableland. **Queensland:** Cook, Burke.

Notes. Placed by Webster (1987) in synonymy with *S. apiculata*, but it has larger spikelets than this species. Northern Australia.

Setaria sphacelata* (Schumach.) Stapf & C.E.Hubb. ex Moss. *Kew Bull.* 1929:195 (1929). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum sphacelatum* Schumach., *Beskr. Guin. Pl.* 58–59 (1827).

Type of Basionym or Protologue Information: HT: *Thonning s.n.*, Ghana (C).

Recent synonyms: *S. anceps* (syn. of var. *sericea*).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (266), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (370).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (370).

Habit. Perennial. Rhizomes present, short or elongated. Culms erect, 20–300 cm tall. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades flat or convolute, 10–50 cm long, 2–17 mm wide. Leaf-blade surface smooth or scabrous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–50 cm long.

Spikelets. Spikelets sessile, 1–4 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.5–3.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3(–5) -nerved. Upper glume ovate, 0.9–1.8 mm long, membranous, without keels, 3–5 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1–3 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Gardner. Drummond. **Queensland:** Burke, Cook, Darling Downs, Moreton, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South-Western Plains.

Notes. Introduced; tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Dec.-July.

Infra -specific taxa: var. *sericea*, var. *splendida*.

Inflorescence 7–25 cm long; leaf blades 3–10 mm wide **S. sphacelata** var. *sericea*

Inflorescence 20–50 cm long; leaf blades 10–17 mm wide **S. sphacelata** var. **splendida**

Setaria spacelata var. **anceps** * (Stapf) Veldkamp. *Blumea* 39 (1–2): 382 (1994).

Classification. Basionym and/or Replacement Name: *Setaria anceps* Stapf, *Fl. Trop. Afr.* 9 (5): 793–794 (1930).

Type of Basionym or Protologue Information: LT: Howes 983, Ghana: Takoradi (K). LT designated by Veldkamp, *Blumea* 39: 382 (1994).

Australian Distribution: Western Australia, Queensland, New South Wales.

Setaria sphacelata var. **splendida** * (Stapf) Clayton. *Kew Bulletin* 33(3): 506 (1979).

Classification. Basionym and/or Replacement Name: *Setaria splendida* Stapf, *Fl. Trop. Afr.* 9: 799 (1930).

Type of Basionym or Protologue Information: ST: Cartwright 18, Sudan Republic: Kagula swamp (K).

Australian Distribution: Queensland.

Setaria surgens Stapf. *Bull. Misc. Inform.* 265 (1909). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: Versteeg 1907, 08 Nov 1907, Netherlands New Guinea (K; IT: BO, L).

Recent synonyms: *S. brownii*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (266), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (481), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (371).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (371).

Habit. Annual. Rhizomes absent. Culms erect or geniculate ascending or decumbent, 20–60 cm tall, 5–6 -noded. Mid-culm nodes glabrous. Lateral branches fastigiate. Ligule a fringe of hairs. Leaf-blades flat or involute, 3.5–20 cm long, 1–5 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–5 cm long.

Spikelets. Spikelets pedicelled, 1 in the cluster. Involucre composed of bristles, free throughout. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 2.5–2.9 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 1.6–2.5 mm long, membranous, without keels, 5 -nerved. Upper glume surface scabrous.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.2–3 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North-Western Plains.

Notes. *Setaria surgens* resembles *S. apiculata*, but spikelet length distinguishes them. In addition, *S. surgens* commonly has a relatively longer lower glume and the rugosity is usually more pronounced. *Setaria apiculata* tends to inhabit more tropical areas.

In tropical and subtropical sub-humid woodlands, acacia shrublands, and arid hummock grasslands. Distributed in the arid areas of Australia. Flowers mostly Jan.-July.

Setaria verticillata* (L.) Beauv. *Ess.Agrost.* 51, 171, 178 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum verticillatum* L., *Sp. Pl. (ed. 2)* 1: 82 (1762).

Type of Basionym or Protologue Information: LT: Europe (LINN-80.7). LT designated by Belo-Correia & Costa, *Revista Biol. (Lisbon)* 13: 117–143 (1986); also cited in Sherif & Siddiqi, *Fl. Libya* 145: 296 (1988).

Recent synonyms: *S. adhaerens*, *S. carnei*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (268 as *S. carnei*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (434), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (484), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (371).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (485, fig. 419), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (371).

Habit. Annual. Rhizomes absent. Culms erect or decumbent, 10–100 cm tall. Mid-culm nodes glabrous. Ligule a fringed membrane, a ciliate membrane. Leaf-blades flat, 5–30 cm long, 3–16 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–15 cm long.

Spikelets. Spikelets 1–3 in the cluster. Involucre composed of bristles. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 1.5–2.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 1–3 -nerved. Upper glume ovate, 1.6–2.3 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1–2.3 mm long, without keel. Lemma apex mucronate.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Fortescue, Ashburton, Carnarvon, Austin. Irwin, Drummond, Dale, Menzies, Warren, Avon. **Northern Territory:** Victoria River, Central Australia South. **South Australia:** Lake Eyre, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Darling Downs, Moreton, Port Curtis, North Kennedy, Burnett. **New South Wales:** Central Tablelands, Southern Tablelands, South-Western Slopes, North-Western Plains, South-Western Plains, South Far Western Plains. **Victoria:** Gippsland Plain, Midlands, Murray Mallee, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North East, Midlands, East Coast.

Notes. Retrorsely scabrid bristles make this species easily recognisable and unique. *S. verticillata* var. *ambigua*, native to Europe, has antrorse bristles, suggesting that a minor genetic change may be responsible for the antrorse versus retrorse condition.

Spikelet length and presence or absence of cilia on the sheath margins has been used to distinguish between *S. verticillata* and *S. adhaerens*, however, these characters cannot be applied consistently.

Introduced; in tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, eucalypt shrublands, arid tussock grasslands, arid hummock grasslands, and coastal grasslands. Flowers mostly Mar.-Oct.

Setaria viridis* (L.) Beauv. *Ess. Agrost.* 51, 178 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum viride* L., *Syst. Nat.* (ed. 10) 2: 870 (1759).

Type of Basionym or Protologue Information: LT: Europe (LINN-80.12). LT cited by Sherif & Siddiqui, *Fl. Libya* 145: 296 (1885).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (267), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (481), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (485), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (371).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (485, Fig. 420), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (370).

Habit. Annual. Rhizomes absent. Culms erect or geniculately ascending or decumbent, 80–230 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades flat, 3–30 cm long, 2–10 mm wide. Leaf-blade surface scaberrulous or scabrous, glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 1–10 cm long, 0.4–1 cm wide.

Spikelets. Spikelets pedicelled, 2–6 in the cluster. Involucre composed of bristles, free throughout. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2–3 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels, 1–3 -nerved. Upper glume elliptic, 1.9–2.2 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile

florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 1.9–3 mm long, without keel. Lemma apex muticous. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: North-western, Northern Lofty, Murray, Southern Lofty, South-eastern. **Queensland:** Moreton. **New South Wales:** North Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, Central-Western Slopes, North Far Western Plains. **Victoria:** East Gippsland, Gippsland Plain, Midlands, Volcanic Plain, Wimmera. **Tasmania:** Midlands, East Coast.

Notes. Introduced; flowers Dec.

Sorghastrum nutans* (L.) Nash. *Fl. Southeast. U.S.* 66 (1903). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon nutans* L., *Sp. Pl.* 2: 1045 (1753).

Type of Basionym or Protologue Information: LT: *Kalm s.n.*, USA (LINN-1211.3; ILT: US-76596 (fragm. ex LINN)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 125 (1908); also see Veldkamp, *Taxon* 33: 95–97 (1984) for a discussion of the type.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present, elongated. Culms erect, 50–230 cm tall, 1.5–4.5 mm diam. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles present. Ligule an eciliate membrane, 2–5 mm long. Leaf-blades 10–50 cm long, 1–10 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle oblong, dense, 10–35 cm long, 5 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster or 2 in the cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or lanceolate, dorsally compressed, 5–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, chartaceous or coriaceous, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume oblong, coriaceous, without keels, 5–7 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 3–5.5 mm long, without keel, 3 -nerved. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 10–22 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 2.3 mm long.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Western Australia.

Western Australia: Eyre.

Notes. Naturalised in one locality of south-western W.A. Flowers Mar.

Sorghum arundinaceum* (Desv.) Stapf. *Fl. Trop. Afr.* 9: 116 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Rhaphis arundinacea* Desv., *Mem. Soc. Agric. Angers* 1: 173 (1831); *Andropogon arundinaceus* Willd. *Sp. Pl.* 4: 906 (1806), non Bergius (1767).

Type of Basionym or Protologue Information: HT: *Iseri s.n.*, Ghana (B-W-18639).

Recent synonyms: *S. bicolor* subsp. *arundinaceum*, *S. verticilliflorum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Rhizomes absent. Culms erect, 30–400 cm tall, 2–15 mm diam. Mid-culm internodes hollow, thin-walled. Mid-culm nodes glabrous or pubescent. Lateral branches simple. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 2–3 mm long, abaxially glabrous, entire, truncate. Leaf-blades 5–85 cm long, 5–70 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle linear or lanceolate or ovate, 10–60 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes or developed, comprising 2 subequal glumes without lemmas or male, 3–8 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely

male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate to ovate, dorsally compressed, 4–9 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume ovate, coriaceous, much thinner above, without keels, 9–13 -nerved. Lower glume surface indumented. Upper glume ovate, coriaceous, without keels, 7–8 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 1–5 mm long, 1 -nerved. Lemma apex dentate, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 0–30 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 2–3.5 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland, Norfolk I.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. Widespread weed in the coastal areas of Qld and northern N.S.W. Flowers Mar.–May. Map 26.

Sorghum bicolor* (L.) Moench. *Meth. Pl.* 207 (1794). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus bicolor* L., *Mant. Pl.* 2: 301 (1771).

Type of Basionym or Protologue Information: LT: *Herbium Cliffordianum* 468. *Holcus* 1, (BM). LT designated by Davidse in Cafferty et al., *Taxon* 49(2): 251 (2000).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (317 as *S. vulgare*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (531), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (372).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (531, Fig. 453), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (372).

Habit. Annual. Rhizomes absent. Culms erect, stature robust to moderate, 100–600 cm tall, 50–300 mm diam., 5 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves cauline. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 1–3 mm long. Leaf-blades 30–100 cm long, 5–70 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle lanceolate or ovate or globose, 4–50 cm long, 2–20 cm wide. Rhachis tough.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate or obovate or orbicular, dorsally compressed, 3–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, chartaceous or coriaceous, keeled, 2-keeled, 5–11 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, chartaceous or coriaceous, keeled, 1-keeled, 3–7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire or dentate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2–5 -nerved.

Fertile lemma 1–3 mm long, 1–3 -nerved. Lemma apex entire or dentate, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 13 mm long overall, with a twisted column. Palea present. Lodicules present. Grain 6–8 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Christmas Is.

Western Australia: Drummond. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Nullabor, Flinders Ranges, Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Gregory North. **New South Wales:** North Coast, Central Tablelands.

Notes. Widespread in Australia, wherever this species has been cultivated. Following early diversification in Ethiopia this species spread throughout tropical Africa and Asia. It was introduced into the New World with the slave trade and has been cultivated in Australia since white settlement. In disturbed sites but usually does not persist. Flowers all year.

Sorghum halepense* (L.) Pers. *Syn.* i. 101 (1805). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus halepensis* L., *Sp. Pl.* 2: 1047–1048 (1753).

Type of Basionym or Protologue Information: Syria.; (HT: ?; ST: LINN-1212.7).

Recent synonyms: *Sorghum miliaceum*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (540), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (317), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (434), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (533), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (373).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (243), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (532, fig. 454), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (373).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending or decumbent, 50–300 cm tall, 5–10 mm diam. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaves cauline. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane, 5 mm long, abaxially glabrous. Leaf-blades linear or lanceolate, 20–90 cm long, 5–40 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate or ovate or pyramidal, 10–55 cm long, 3–25 cm wide.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, containing empty lemmas or male, 4.5–6.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 4–6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic or ovate, coriaceous, of similar consistency above or much thinner above, without keels or keeled, 2-keeled, 7–12 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, coriaceous, without keels, 7 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 2–4 mm long, 1–3 -nerved. Lemma apex entire or dentate, muticous or awned, 1 -awned. Median (principal) awn from a sinus, 10–16 mm long overall, with a twisted column. Palea present or absent. Lodicules present. Anthers 3. Grain 2.5–3 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Drummond. **South Australia:** Lake Eyre, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Burke, North Kennedy, South Kennedy, Port Curtis, Burnett, Wide Bay, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South Far Western Plains. **Victoria:** Murray Mallee, Wimmera, Riverina, Volcanic Plain, Eastern Highlands, Gippsland Plain.

Notes. The forms with awned and unawned spikelets have been formally recognised by some authors but as awned and unawned spikelets are commonly found in the same inflorescence, formal recognition is not followed.

Widespread in both tropical and temperate Australia. Introduced early to Australia as a fodder grass, but has become an aggressive agricultural weed. Flowers Nov.–May. Map 24.

Sorghum nitidum (Vahl) Pers. *Syn. Pl.* 1: 101 (1805). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Holcus nitidus* Vahl, *Symb. Bot.* 2: 102 (1791).

Type of Basionym or Protologue Information: HT: Hab. in India orientalis (C?).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (199 as *Holcus fulvus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Culms erect, 100–200 cm tall, wiry, 4–6 -noded. Mid-culm nodes bearded. Lateral branches simple or sparsely branched. Ligule an eciliate membrane or a fringed membrane, 2 mm long. Leaf-blades 30–60 cm long, 4–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle lanceolate, dense or loose, 10–30 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, comprising 2 subequal glumes without lemmas or male, 3–6 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising

1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or ovate, dorsally compressed, 3–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume ovate, coriaceous, much thinner above, without keels. Lower glume surface indumented. Upper glume ovate, coriaceous, without keels. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2-nerved.

Fertile lemma 3 mm long, 1-nerved. Lemma apex dentate or lobed, muticous or awned, 1-awned. Median (principal) awn from a sinus, 7–17 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 2.3 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Burnett, Cook, Leichhardt, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. There are two forms. The awned and awnless forms are recognised as separate taxa as the spikelets are usually uniformly awned or unawned in the same inflorescence. There are only two records of specimens of spikelets having awned and awnless spikelets in the same panicle.

Found in eastern Qld on grey and brown loams and sands and in disturbed habitats. Also in tropical Asia and Japan. Flowers Dec.–July.

Infra-specific taxa: f. **nitidum**, f. **aristatum**.

Spikelets awnless **S. nitidum** forma **nitidum** (QLD)

Spikelets awned **S. nitidum** forma **aristatum**

Sorghum nitidum f. nitidum

Australian Distribution: Queensland.

Notes. Found in northern coastal Queensland.

Sorghum nitidum f. aristatum

Australian Distribution: Queensland.

Notes. Found in central and northern coastal Queensland.

Sorghum x alnum* L. Parodi. *Revista Argent. Agron.* 10: 361 (1943). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (530), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (as *S. bicolor* subsp. *xalnum*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (531, fig. 452), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (372).

Habit. Perennial. Rhizomes present, short. Culms erect, 200–320 cm tall, 6–10 mm diam., 8–10-noded. Mid-culm internodes solid, glabrous. Mid-culm nodes pubescent. Lateral branches simple. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliolate membrane or a ciliate membrane, 2.5–5.5 mm long. Leaf-blades 30–100 cm long, 25–40 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle pyramidal, 20–60 cm long, 8–25 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or ovate, dorsally compressed, 5.5–6.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, coriaceous, keeled, 2-keeled, winged on keel, 9–11-nerved. Lower glume surface indumented. Upper glume ovate, coriaceous, without keels. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2-nerved.

Fertile lemma 1-nerved. Lemma apex entire or dentate, muticous or awned, 1-awned. Median (principal) awn from a sinus, 8–10 mm long overall, with a twisted column. Anthers 3. Grain 3–3.8 mm long.

Continental Distribution: Australasia and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner. Roe, Coolgardie. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia South. **South Australia:** North-western, Gairdner-Torrens Basin. **Queensland:** Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy. **New South Wales:** North Coast, Central Coast, South Coast.

Notes. Cultivated widely as a forage grass, but has the tendency to escape and become weedy. Flowers Dec.-July.

Sorghum x drummondii* (Steud.) Millsp. & Chase. *Publ. Field Columb. Mus.Bot.* 3: 21 (1903).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon drummondii* Nees ex Steud., *Syn. Pl. Glumac.* 1: 393 (1854).

Type of Basionym or Protologue Information: HT: *Drummond* 588, USA: Louisiana: near New Orleans and St. Louis (P?; IT: BM, K).

Recent synonyms: *S. bicolor* subsp. *drummondii*, *S. sudanense*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (317 as *S. sudanense*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (as *S. bicolor* subsp. *drummondii*).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (372).

Habit. Annual. Rhizomes absent. Culms erect, 150–300 cm tall, 3–6 mm diam., 6–9 -noded. Mid-culm nodes pubescent. Lateral branches simple. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane, 2 mm long. Leaf-blades 15–50 cm long, 8–12 mm wide.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle ovate or pyramidal, 15–30 cm long, 8–15 cm wide. Rhachis tough.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets developed, male, 5.5–8 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong, dorsally compressed, 6–7.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume elliptic, coriaceous, much thinner above, without keels, 11–15 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, coriaceous, without keels, 7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 3.5–4.5 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 10–16 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 3.5–4.5 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Queensland, New South Wales.

Western Australia: Dampier. **Queensland:** Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Moreton, South Kennedy, Warrego, Wide Bay, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains.

Notes. A forage grass introduced to Australia from the U.S.A. but originally from the Sudan. Flowers Feb.--Apr.

Sorghum propinquum

Australian Distribution: Christmas Is.

Spartina anglica* C.E.Hubb. *J. Linn. Soc., Bot.* 76: 364 (1978). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: England: W. Sussex: Bosham, fringing shore on mud-flats and muddy shingle, extending into water of Chichester Harbour, forming extensive masses, 17 Aug 1868, *C.E. Hubbard D17868A* (HT: K; IT: L, US-2907471).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 55A-C).

Habit. Perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect, 30–130 cm tall. Ligule a fringe of hairs, 2–3 mm long. Leaf-blades flat or convolute, 10–45 cm long, 6–15 mm wide.

Inflorescence. Inflorescence compound, a panicle, a panicle of spikes. Central inflorescence axis 0–15 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1(–2) fertile floret(s), without rachilla extension, oblong, laterally compressed, 13–21 mm long.

Glumes. Glumes dissimilar. Lower glume linear, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume lanceolate, 14–21 mm long, herbaceous, keeled, 1-keeled, 3–6 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 14–21 mm long, keeled, 1–3 -nerved. Lemma surface indumented. Palea 2 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe, Temperate Asia, and Australasia.

Australian Distribution: Victoria, Tasmania.

Victoria: Gippsland Plain, Otway Plain, Wilsons Promontory. **Tasmania:** North West, North East, Midlands.

Notes. *S. anglica* (under the name *S. townsendii*) was first introduced into Australia in the 1930's to reclaim low lying saline areas and was later seen as useful in stabilising mudflats and protecting estuarine streambanks, seawalls and other structures from wave action and erosion. It spreads rapidly in favourable environments, being rhizomatous and a profuse seeder, with seeds widely dispersed by water, and is now considered a weed.

S. anglica is an amphidiploid (or allotetraploid) derived from the doubling of chromosomes in the hybrid diploid *S. x townsendii*. Backcrosses and polyhaploids have also emerged.

Estuaries, inlets and lagoons in southern Gippsland, Vic., northern and southern Tas.; native to southern England and northern France, introduced elsewhere. Tidal mud-flats and swampy river flood plains, forming marshland; it has occupied previously unvegetated mudflats in some areas, and replaced the native white mangrove (*Avicennia marina* var. *resinifera*) as the pioneer species on the intertidal flats. It promotes sediment accretion.

Spartina x townsendii* H. & J. Groves. *Bot. Exch. Club Brit. Isles Rep.* 1880: 37 (1881). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: OM: [*H. Groves {on US-878793}*], 1 Sep 1879, Great Britain: England: South Hampshire, St. G., mud flats near Hythe (W (ex hb. Groves), US-1127161 (fragm. ex W), US-878793 (ex hb. Groves)). [presumably an iso or syn type].

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (393).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (394, fig. 326).

Habit. Perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect, 30–130 cm tall. Ligule a fringe of hairs, 1–2 mm long. Leaf-blades flat or convolute, 6–30 cm long, 4–12 mm wide.

Inflorescence. Inflorescence solid, a panicle. Central inflorescence axis 0–10 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, laterally compressed, 12–19 mm long.

Glumes. Glumes dissimilar. Lower glume linear, membranous, keeled, 1-keeled, 1 -nerved. Lower glume surface indumented. Upper glume lanceolate, 12–18 mm long, herbaceous, keeled, 1-keeled, 1–3 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 12–18 mm long, keeled, 1–3 -nerved. Lemma surface indumented. Palea 2 -nerved. Lodicules absent or vestigial. Anthers 3.

Continental Distribution: Europe.

Australian Distribution: South Australia, Victoria.

South Australia: Southern Lofty. **Victoria:** Gippsland Plain.

Notes. Introduced into Australia to reclaim salt lagoons and coastal areas, but did not persist in most areas. Less effective than *S. anglica* in promoting sediment accretion, as it spreads only slowly, by rhizomes and fragments.

Tidal mud-flats and mangrove swamps at Two Wells and Port Gawler in S.A., Currambene Ck, N.S.W., possibly some estuaries and inlets of the S Gippsland coast in Vic., although it is now believed that the main species in S Gippsland is the fertile, more vigorously spreading *S. anglica*; endemic to southern England, spread to other parts of the British and Irish coast, France and Denmark; introduced elsewhere for coastal land reclamation.

Spartochloa scirpoidea (Steud.) C.E.Hubb. *Kew Bull.* 7: 308 (1952). **Classification.** (GPWG 2001) : Subfamily Arundinoideae. Tribe 'Spartochloae'. Spartochloae.

Basionym and/or Replacement Name: *Brizopyrum scirpoideum* Steud., *Syn. Pl. Glumac.* 1: 282 (1854).

Type of Basionym or Protologue Information: New Holl., *Drummond IV.* 102.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (as *Festuca scirpoidea*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (93, Pl.26 as *Festuca*).

Habit. Perennial. Culms erect, 50–70 cm tall, wiry. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades triangular to linear, 0.5–3 cm long, 0.5–1 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 3–23 cm long, 0.8–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–8), comprising 4–8 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Upper glume ovate, membranous, without keels, 3 -nerved.

Florets. Fertile lemma 3.5–4.5 mm long, without keel, 5–7 -nerved. Lemma surface glabrous. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 1.51 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Menzies, Eyre, Roe, Avon, Coolgardie.

Notes. Restricted to the semi-arid southern margins of W.A., edges of *Casuarina* thickets on flat brown clays. Flowers Sep. to Oct.

Spathia neurosa Ewart & Archer. *Fl.Northern Terr.* 26 (1917). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: 30 miles S.E. of Newcastle Waters, ... 9/8/11, *G.F. Hill* 504.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (494), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 10–80 cm tall. Mid-culm nodes pubescent. Lateral branches branched. Ligule a fringed membrane, a ciliolate membrane, 0.7–2.5 mm long. Leaf-blades 4.5–15 cm long, 1–6 mm wide. Leaf-blade surface scaberrulous.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 2 in number. Companion spikelets developed, comprising 2 unequal glumes without lemmas, 5 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 4–6.2 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume lanceolate or elliptic or oblong, coriaceous, without keels, 6–9 -nerved. Lower glume surface indumented. Upper glume lanceolate, 5.5–6.2 mm long, coriaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma 1.8–4 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn 19–33 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 1.5–2.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Barkly Tableland, Central Australia North. **Queensland:** Burke, Gregory North.

Notes. Endemic to the black soils of NW Qld and central eastern N.T. Flowers Apr.-Aug.

Sphenopus divaricatus* (Gouan) Reichb. *Fl. Germ. Excurs.* 45 (1830). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Poa divaricata* Gouan, *Ill. Observ. Bot.* 3: 4, t. 2, f. 1 (1773).

Type of Basionym or Protologue Information: LT: Gouan, *Obs. Bot.* t. 2, f. 1 (1773) LT designated by ?.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (168), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (339).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (169, fig. 119), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (341, Fig. 45).

Habit. Annual. Culms erect or decumbent, 2.5–30 cm tall. Ligule an eciliate membrane, 0.6–4 mm long, obtuse or acute. Leaf-blades filiform, convolute, 0.8–5 cm long, 0.3–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1.5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–5), comprising 2–5 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 1.9–3 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate or orbicular, hyaline, without keels, 0 -nerved. Upper glume oblong, 0.5–1 mm long, hyaline, keeled, 1-keeled, (0–)1 -nerved.

Florets. Fertile lemma 1.2–2 mm long, keeled, 3 -nerved. Lemma apex muticous. Anthers 3. Grain 0.75–1.25 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: South Australia.

South Australia: Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty.

Notes. Salt swamps and lakes and sandy soils. Flowers (May)-Oct.

Spinifex hirsutus Labill. *Nov. Holl. Pl.* 2: 81, t. 230, 231 (1806–1807). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: LT: *Labillardiere s.n.*, Australia: Esperance Bay (FI). LT designated by Craig, *Nuytsia* 5: 70 (1984).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (198 as *S. hirsutis*), [1878] G.Bentham, *Flora Australiensis* 7 (503), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (252), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (435), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (486).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (487, fig. 421), [1984] N.T.Burbidge, rev. S.W.L.Jacobs, *Australian Grasses* (245).

Habit. Perennial. Stolons present. Culms 30–90 cm tall, woody. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs, 1.8–7 mm long. Leaf-blades flat or involute, 20–40 cm long, 5–17 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 1, radiating, 7–15(–19) cm long.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 12–18 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, chartaceous, without keels, 7–9 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 12–20 mm long, chartaceous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5–9 -nerved. Fertile florets female.

Fertile lemma 11–15 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia.

Western Australia: Irwin, Drummond, Warren, Eyre, Coolgardie. **South Australia:** Nullabor, Eyre Peninsula.

Notes. Size of the culms and leaf blades distinguish *S.hirsutus* from *S. sericeus*, however, further collections from southern S.A. may show that these intergrade.

The male inflorescence is a raceme of c. 20 spikelets.

In SW and southern coastal areas of W.A., extending across the Nullabor to the Eyre Penin., S.A. In temperate heaths, mallee heaths, temperate wet sclerophyll forests, dry sclerophyll forests, shrub steppe shrublands, and eucalypt shrublands. Flowers Nov.-Jan.

Spinifex littoreus

Continental Distribution: Tropical Asia.

Australian Distribution: Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Spinifex longifolius R. Br. *Prodr.* 198 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Baudin.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (198 & as *Spinifex fragilis*), [1878] G.Bentham, *Flora Australiensis* 7 (504), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (252),

[2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (435), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (488).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (251, Pl. 74), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (488, Fig. 422).

Habit. Perennial. Stolons present. Culms 30–80 cm tall, woody. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 2.5–3.2 mm long. Leaf-blades flat or involute, 15–35 cm long, 1.5–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 1, radiating, 4–12 cm long.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 6–6.5 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate or elliptic, chartaceous, without keels, 7–9 -nerved. Lower glume surface glabrous. Upper glume lanceolate or elliptic, 5.5–6.5 mm long, chartaceous, without keels, 5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5 -nerved. Fertile florets bisexual or female.

Fertile lemma 5.6–6.3 mm long, without keel. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Carnarvon. Drummond. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook.

Notes. *Spinifex longifolius* evidently hybridizes with *S. hirsutus* and produces the hybrid, *S. x alterniflorus*.

The male inflorescence is a raceme with biseriate spikelets; the bristle is relatively short (c. 15–20 mm long) and scabrous; the spikelet are distinctly pedicellate, glabrous to scabrous, with the glumes much smaller than the florets.

Occurs over a large coastal distance from SW W.A., through the N.T. into the Cook District of Qld. In temperate heaths, tropical and subtropical rain forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, acacia shrublands, arid hummock grasslands, and coastal grasslands. Flowers May–Nov.

Spinifex sericeus R. Br. *Prodr.* 198 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *Brown s.n.*, 10 Sep 1802, Australia: Broad Sound (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (198), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms decumbent, 30–90 cm tall, 2–4 mm diam., woody, 5–20 -noded. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs, 1.8–6 mm long. Leaf-blades flat or involute, 20–40 cm long, 4–17 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence digitate, with racemose branches. Racemes 1, radiating, 12–17 cm long.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 12–18 mm long.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume lanceolate, membranous or chartaceous, without keels, 7–11 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 12–18 mm long, membranous or chartaceous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous or cartilaginous, 5–9 -nerved. Fertile florets female.

Fertile lemma 7–15 mm long, without keel.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

South Australia: Nullabor, Northern Lofty, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast. **Victoria:** East Gippsland, Gippsland Plain, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** King Island, Furneaux Group, North West, North East, East Coast.

Notes. *Spinifex sericeus* is morphologically similar to *S. hirsutus* and the taxonomic relationship between these taxa is unclear.

The male inflorescence of this species is similar to that of *S. hirsutus*.

On coastal areas from tropical Qld to the Adelaide region of S.A., and in Tas. Also in New Zealand. In tropical heaths, mallee heaths, tropical and subtropical rain forests, temperate wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Flowers Nov.-Jan. in SE Australia and June-Aug. in Qld (Craig, 1984).

Spinifex x alterniflorus Nees. *Pl. Preiss.* 2: 96 (1846). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Swan River, *Preiss 1883* (IT: MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (435).

Habit. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 4–7 mm long. Leaf-blades 25–43 cm long, 1.5–3 mm wide.

Inflorescence. Inflorescence digitate, with racemose branches.

Spikelets. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), 9–10 mm long.

Glumes. Lower glume ovate or cuneate, 5–7 -nerved. Lower glume surface glabrous. Upper glume 7.5–8.5 mm long, 7 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1. Lemma of lower sterile floret 5 -nerved. Fertile florets bisexual or female.

Fertile lemma 8.5–9.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Warren.

Notes. A naturally occurring hybrid between *S. longifolius* and *S. hirsutus*.

Reported only from City Beach and Floreat Beach near Perth and at Kwinana, Woodman Point, Warnbro, Preston Beach and Leschenault Peninsula. Flowers Sept.-Oct.

Sporobolus actinocladus (F.Muell.) F. Muell. *Fragm.* 8: 140 (1873). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Vilfa actinoclada* F. Muell., *Fragm.* 6: 84 (1867).

Type of Basionym or Protologue Information: HT: *F. Mueller s.n.*, Australia: Sturts Creek (MEL (photo, BRI); IT: K (photo, BRI)).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (623), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (163), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (468), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (396), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (375).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl. 48), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (396, Fig. 327), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (375).

Habit. Annual or perennial. Culms erect, 15–80 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades linear or lanceolate, flat, 1.5–20 cm long, 3–6 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 5–18 cm long, 2.5–8 cm wide, contracted about primary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1–2 mm long.

Glumes. Lower glume lanceolate or ovate, membranous, without keels, 0 -nerved. Upper glume lanceolate or ovate, 0.5–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–2 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.75–0.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Kearthland, Fortescue, Ashburton, Austin. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula,

Northern Lofty. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Darling Downs, Gregory South. **New South Wales:** North-Western Plains, South Far Western Plains.

Notes. A distinctive species with spikelets aggregated towards the apices of inflorescence branches. A number of specimens from Central Australia have short, broad, dense false spikes with the secondary branches twisted and divergent rather than straight and appressed (*P.K. Latz 6842A, Leach 1407, Barritt 449, Mitchell 816*). They have not been grouped into a separate taxon as there is considerable variation within the species.

Endemic; widely distributed in the summer rainfall dominated arid regions of all mainland States except Vic. Most specimens have been collected along waterways; flowers all year, in response to rain.

Sporobolus africanus* (Poir.) Robyns & Tournay. *Bull. Jard. Bot. Brux.* 25: 242 (1955). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Agrostis africana* Poir., *Encycl., Suppl.* 1: 254 (1810).

Type of Basionym or Protologue Information: HT: *Thunberg s.n.*, South Africa: Cape Province (UPS).

Recent synonyms: *S. capensis*, *S. indicus* var. *africanus*, *S. indicus* var. *capensis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (162 as *S. capensis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (436), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (396), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (376).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl.48 as *S. capensis*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (247), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (397, fig. 328), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (376).

Habit. Perennial. Culms erect, 15–110 cm tall, 1.5–3 mm diam. Lateral branches branched. Ligule a fringed membrane or a fringe of hairs, 0.3 mm long. Leaf-blades linear, flat or involute or convolute, 6–40 cm long, 1–4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 6–35 cm long, contracted about primary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, (1.5–)2.1–2.8 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate or elliptic or oblong, hyaline, without keels, 0–1 -nerved. Upper glume lanceolate or ovate, 1–1.5 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma (1.5–)2.1–2.8 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 1.1–1.3 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond, Dale, Warren, Eyre. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** Murray, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Darling Downs, Moreton, Wide Bay, Burke, Burnett. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Otway Plain, Otway Range, Riverina, Volcanic Plain, Wannon. **Tasmania:** Furneaux Group, North West, North East, Midlands, East Coast.

Notes. Differs from *S. indicus* by its narrow, denser inflorescence and larger spikelets. *S. africanus* also differs from *S. fertilis* by larger spikelets and by the inflorescence branches being more appressed at the base.

Introduced; mainly coastal distribution from Brisbane, Qld to Adelaide, S.A.. Also in Tas. and coastal areas around Perth, W.A.; New Zealand, southern Africa, and the Pacific region. Of African origin, is weedy in Australia, growing in lawns, sports grounds and along roadsides and forms wiry tufts when mown. Widespread in stressed areas of farms (yards, gateways etc). It poses a minor problem to pastoralists in subtropical coastal eastern Australia; flowers all year, but mostly spring to autumn.

Sporobolus australasicus Domin. *Repert. Spec. Nov. Regni Veg.* 9: 553 (1911). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *F. Mueller s.n.*, Australia: Northern Territory: Upper Victoria River (K (photo, BRI)). LT designated by Simon, *Fl. Austral.* 44B: 459 (2005). LT: *Domin s.n.*, Mar 1910, Australia: Queensland: Hyghendon [Hyghenden], Rolling Downs (PR; IT: K, NSW). LT designated by

Baaijens & Veldkamp, *Blumea* 35: 451 (1991), but this is not original material and, therefore, is ineligible for lectotypification. See Simon, *Fl. Austral.* 44B 459 (2005).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (162), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (467), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (397).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (161, Pl. 48), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (397, fig. 329).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 20–40 cm tall, 3–5 -noded. Mid-culm nodes glabrous. Lateral branches simple or branched. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades linear, flat, 3–6 cm long, 4–8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or pyramidal, 5–13 cm long, 4–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, orbicular, terete, 1–1.4 mm long.

Glumes. Lower glume ovate, membranous, much thinner on margins, without keels, 1 -nerved. Upper glume lanceolate or ovate, 1–1.4 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1–1.4 mm long, without keel, 1 -nerved. Palea 2 -nerved. Anthers 3. Grain 0.6–0.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Northern Territory: Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **South Australia:** Lake Eyre. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy, Warrego, Port Curtis, Gregory South.

Notes. A number of specimens in the northern region of Western Australia (*Lazarides* 8485, *Gardner* 7199, *Burbidge* 1378, *Burbidge* 755, *George* 14760) are rather atypical. The grains are not globose but rather ovoid and flat, the spikelets are slightly larger and less convex than usual and the panicle branches sometimes naked in the lower section rather than spiculate almost to the base. However, these specimens otherwise match typical *S. australasicus*, with subcordate leaves having spinose margins peculiar to the species, the comparatively long ciliate ligules and the purple spikelets with the lower glume 1-nerved and half the length of the upper glume. Therefore no attempt has been made to separate them from *S. australasicus*.

Endemic; widely distributed in tropical and subtropical Australia. Collections tend to highlight the road systems. Flowers all year in response to rain.

Sporobolus blakei B.K.Simon. *Austrobaileya* 4: 57 (1993). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *P.K. Latz* 2483, 20 Apr 1972, Australia: Northern Territory: Central Southern Div.: Redbank Gorge (BRI; IT: AD, CANB, DNA).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (622 as *Sporobolus indicus* p.p.), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (398), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (376).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 62), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (398, fig. 330), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (376).

Habit. Perennial. Culms erect, 40–80 cm tall, 2–3 -noded. Mid-culm internodes glabrous or pubescent. Lateral branches simple. Ligule an eciliate membrane, 0.3 mm long. Leaf-blades linear, flat or convolute, 15–30 cm long, 2–3 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 15–32 cm long, 1–2 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 1.5–1.8 mm long.

Glumes. Lower glume oblong or ovate, membranous, without keels, 0 -nerved. Upper glume elliptic or ovate, 0.9–1.1 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 0.9–1.8 mm long, keeled, 1 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 3. Grain 0.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Fitzgerald. Giles, Helms, Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Warrego. **New South Wales:** North Far Western Plains.

Notes. Morphologically similar to *S. elongatus*, differing by its distinctly fibrous base.

Endemic; fairly widely distributed in the arid regions, mainly in central Australia. Found in or near places of accumulated moisture, creek beds, moisture depressions and watercourses. It is a resurrection grass, reviving after dehydration (Lazarides (1992) as *Sporobolus* species undescribed; flowers all year, in response to rain.

Sporobolus caroli Mez. *Repert. Spec. Nov. Regni Veg* 17: 299 (1921). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *ANONYMOUS*, Australia: New South Wales: Liverpool Plains (B (photo, BRI); ILT: BRI, NSW). LT designated by Simon & Jacobs, *Austral. Syst. Bot.* 12: 388 (1999).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (162), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (468), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (398), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (376).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (398, Fig. 331), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (376).

Habit. Annual or perennial or ephemeral. Culms erect, stature slender to delicate, 20–75 cm tall, 3–5 - noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched or branched. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades linear or lanceolate, flat or convolute, 3–20 cm long, 3–5 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, effuse, 8–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1–2 mm long.

Glumes. Lower glume oblong or ovate, membranous, much thinner on margins, without keels, 0 -nerved. Upper glume lanceolate or ovate, 1–1.5 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 1–1.6 mm long, keeled, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.5–0.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Carnarvon, Austin. Roe, Coolgardie. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** Central Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee, Riverina, Wannon, Wimmera.

Notes. A distinctive species with a very open panicle and lowest inflorescence branches whorled.

Endemic; widespread in the eastern half of Australia, and a few isolated collections elsewhere. Widespread in better soils of the inland. It is a colonising species, often collected on roadsides but also grows in open grasslands and moist situations and over a large range of soil types; flowers all year, in response to rain.

Sporobolus contiguus S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 1 (18): 6 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 10577*, 28 Feb 1936, Australia: Queensland, Maranoa Dist.: Noondo (BRI; IT: BRI, CANB, L, MEL, US-1819270).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (468), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (377).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 58A-F), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (377).

Habit. Perennial. Culms erect or geniculately ascending, 30–70 cm tall, 2–4 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.7 mm long. Leaf-blades flexuous, filiform, flat or convolute, 3–17 cm long, 2–4 mm wide. Leaf-blade surface papillose, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 9–22 cm long, contracted about secondary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblong, terete, 1.5–2 mm long.

Glumes. Lower glume linear or lanceolate, hyaline, without keels, 0 -nerved. Lower glume surface indumented. Upper glume linear or lanceolate, 1.2–2 mm long, hyaline, without keels, 1 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1.5–2 mm long, without keel or keeled, 1 -nerved. Lemma surface indumented. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.65–0.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Plains, South-Western Plains, South Far Western Plains.

Notes. Previously these specimens have been identified as *S.lenticularis*, *S. pulchellus*, *S. australasicus*, *S. carolii* and *S. scabridus*, from which they all differ by features noted in the key.

Endemic; distributed in a belt from Charters Towers, Qld southwards to Wentworth, NSW. Found growing in a varied range of conditions and soils. Usually associated with Brigalow *Acacia harpophylla* in the northern part of its range; flowers in response to rain.

Sporobolus coromandelianus* (Retz) Kunth. *Rev. Gram.* 1: 68 (1829). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Agrostis coromandeliana* Retz., *Observ. Bot.* 4: 19 (1786).

Type of Basionym or Protologue Information: India: Malabar: Naguhr, prope Sammelliota (?), 1782, C.D.E. Koenig s.n. (HT: LD; IT: BM, BRI, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 58G-L).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 7–30 cm tall. Lateral branches simple or sparsely branched. Ligule a fringe of hairs, 0.35–1 mm long. Leaf-blades linear, flat, 2–11 cm long, 2–5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 2–8 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1–1.6 mm long.

Glumes. Glumes dissimilar. Lower glume elliptic or ovate, hyaline, without keels, 0 -nerved. Upper glume lanceolate or oblong, 1–1.6 mm long, membranous, without keels, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 1–1.6 mm long, without keel, 1–3 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.7–0.9 mm long.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Darling Downs, Gregory North, Maranoa, North Kennedy, Port Curtis, South Kennedy.

Notes. Superficially close to *S. australasicus*, differing by the spikelets being arranged towards the apices of the panicle branches.

Introduced; isolated occurrence in subtropical and tropical Australia; New Guinea, southern Africa, Eastern Asia, and the Pacific region. Mostly collected as a weed of gardens and roadsides and appears to be spreading; flowers Jan.–June, Aug., Oct., Dec.

Sporobolus creber DeNardi. *Contr. N.S.W.Natl. Herb.* 4: 406 (1973). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: W.J.F. McDonald NSW-121997, 20 May 1971, Australia: New South Wales: Warrumbungle Range, c. 30 mi E of Gulargambone (NSW-121997; IT: BRI, K, L, NSW, US-2884167, US-2892244).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (377).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (377).

Habit. Perennial. Rhizomes present, short. Culms erect, 14–140 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.2–0.5 mm long. Leaf-blades linear, flat or conduplicate or convolute, 7–45 cm long, 2–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 18–60 cm long, with spikelets clumped along branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.25–1.75 mm long.

Glumes. Lower glume elliptic or oblong or ovate, hyaline, without keels, 0–1 -nerved. Upper glume lanceolate or ovate, 0.6–1.2 mm long, hyaline, without keels, 0 -nerved.

Florets. Fertile lemma 1.2–1.75 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 2. Grain 0.5–0.85 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Dale. **South Australia:** South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains. **Victoria:** East Gippsland, Midlands, Riverina.

Notes. Has inflorescence branches shorter than adjacent internodes, contrasting with *S. elongatus* where the inflorescence branches are as long or longer than the adjacent internodes. Despite the reasons given for separation from *S. elongatus* (De Nardi 1973), there are some herbarium specimens that appear to be intergrades. Examples of intergrades are *Hubbard 8043* and *Hubbard 8281*.

Native; found along the eastern half of Qld, N.S.W. and Vic., and N to S from Cooktown to mid Vict.; isolated occurrences in S.A. and W.A. Grows in most situations but probably more common in cleared land. Woodland and native grassland; flowers all year.

Sporobolus disjunctus B.K.Simon. *Austrobaileya* 4: 59 (1993). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: South Kennedy Distr.: 9 mi [14.4 km] N of Avon Downs Station, 13 Jul 1964, *L. Adams 1060* (HT: CANB-143738; IT: BRI-288512).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (378).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 61), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 40–80 cm tall, 2–5 -noded. Lateral branches sparsely branched or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.7 mm long. Leaf-blades linear, flat or involute, 10–25 cm long, 4–8 mm wide. Leaf-blade surface scaberulous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–25 cm long, 0.4–0.8 cm wide, gathered into fascicles.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1(–2) fertile floret(s), without rachilla extension, lanceolate, terete, 1–2.3 mm long.

Glumes. Lower glume lanceolate or ovate, membranous, without keels, 1 -nerved. Upper glume elliptic or ovate, 1.8–2 mm long, membranous, without keels, 1 -nerved. Upper glume surface smooth or asperulous.

Florets. Fertile lemma 2–2.3 mm long, keeled, 1 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 2–3. Grain 0.7–0.9 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Leichhardt, Maranoa, South Kennedy, Burke, Darling Downs.

Notes. A few of the specimens cited in the protologue are *Thellungia advena* Stapf ex Probst: *Thompson HUG203* & Henderson, Warrian 890, Ross AQ542465, Crane AQ506149.

Endemic; restricted to black cracking clay soils from central Qld to the Darling Downs. Flowers Jan.-Feb., Apr.-July, Nov.

Sporobolus elongatus R. Br. *Prodr.* 170 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *Brown 6207*, 8 Jan 1803, Australia: New South Wales: Port Jackson (BM (photo, BRI); ILT: K, US (fragm.)). LT designated by Baaijens & Veldkamp, *Blumea* 35: 451 (1991).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170), [1878] G.Bentham, *Flora Australiensis* 7 (622 as *Sporobolus indicus* p.p.), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (399), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (378).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (399, fig. 332), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 50–100 cm tall, 3–4 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.5 mm long. Leaf-blades linear, flat or conduplicate or convolute, 4–50 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–30 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.5–2.3 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, hyaline, without keels, 0–1 -nerved. Upper glume lanceolate or oblong, 0.7–1.4 mm long, hyaline, without keels, 0 -nerved.

Florets. Fertile lemma 1.3–2.2 mm long, without keel, 1–3 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 2. Grain 0.5–1 mm long.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Western Australia: Drummond, Menzies. **South Australia:** Lake Eyre. **Queensland:** Burnett, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Cook. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. Differs from *S. creber* by inflorescence branches being longer than adjacent internodes.

Endemic; found mainly along or near eastern coast and a few other scattered localities; New Guinea and the Pacific region. A fairly widespread native taxon in woodland and native grassland. It can also become weedy; flowers all year.

Sporobolus fertilis* (Steud.) Clayton. *Kew Bull.* 19: 291(1965). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Agrostis fertilis* Steud., *Syn. Pl. Glumac.* 1: 170 (1854).

Type of Basionym or Protologue Information: LT: *Burger s.n.*, Japan (L-908.97–171; ILT: K, P, L). LT designated by Baaijens & Veldkamp, *Blumea* 35: 437 (1991).

Recent synonyms: *S. indicus* var. *fertilis*, *S. indicus* var. *major*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (378).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 80–160 cm tall, 2–5 mm diam. Lateral branches branched. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades linear, flat or conduplicate or convolute, 14–50 cm long, 1.5–5 mm wide.

Inflorescence. Inflorescence solid or compound, a panicle, a panicle. Panicle linear, 15–50 cm long, 1–2 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.6–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, without keels, 0 -nerved. Upper glume lanceolate or oblong, 0.8–1.3 mm long, hyaline, without keels, 1 -nerved.

Florets. Fertile lemma 1.6–2 mm long, without keel, 1–3 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 2–3. Grain 0.8–1 mm long.

Continental Distribution: Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, New South Wales, Victoria, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook, Darling Downs, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, North-Western Slopes. **Victoria:** Wimmera.

Notes. A serious weed of pastures and roadsides.

Differs from *S. africanus* by the smaller spikelets and by the inflorescence branches being less appressed at the base. Although recently documented as being native to Australia (Simon 1993), it is likely that it has been introduced here, as well as to Japan and Taiwan (Jacobs & McClay 1992). It was reported as being the weedy *Sporobolus* in France (Jovet & Guédès 1968) (as *S. indicus* var. *fertilis*) but Veldkamp (1990b) states this to be a misidentification and that the entity in southern France is really *S. indicus* (as *S. indicus* var. *indicus*).

Introduced; mainly from Mossman, Qld to central coastal N.S.W.; of tropical Asian origin, New Guinea and the Pacific region. Flowers spring to autumn.

Sporobolus jacquemontii* Kunth. *Rev.Gram.* 427, t.127 (1831). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *V. Jacquemont*, 1827, Santo Domingo (P; IT: L, LE-TRIN-1712.01).

Recent synonyms: *S. pyramidalis* var. *jacquemontii*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 50–75 cm tall, 1–5 mm diam. Lateral branches simple. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades filiform, flat or conduplicate or convolute, 40 cm long (to), 2.5–3.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 8–25 cm long, 0.5–3 cm wide, contracted about primary branches to evenly furnished.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.5–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or elliptic or oblong, without keels, 0 -nerved. Upper glume lanceolate or oblong, 0.5–0.8 mm long, hyaline, without keels, 1 -nerved.

Florets. Fertile lemma 1.7–2 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.8–1 mm long.

Continental Distribution: Africa, Australasia, North America, and South America.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Leichhardt, Moreton, Port Curtis, South Kennedy, Wide Bay, North Kennedy.

Notes. Spikelet morphology is essentially similar to *S. pyramidalis* but the plant is much shorter. *S. jacquemontii* has been placed as a synonym of *S. pyramidalis* by Baaijens & Veldkamp (1991) and as a variety of *S. pyramidalis* by Jovet & M.Guédès (1968, 1973), as there is almost no difference in the size and shape of the spikelet or of its component parts. However as there appears to be a difference in the relative culm heights in the two entities, and the two have been observed growing adjacent to each other in the field by the senior author, we are taking the position of retaining the rank of species for each entity.

Introduced; Mainly from Cape York to SE Qld.; Africa, the Pacific region, North America, S America, Central America, and West Indies. Of tropical American origin it has been established in Australia for a long time and has even been suggested as being native (Simon 1982, Jacobs & McClay 1992) due to its being collected in relatively undisturbed areas. Although not as serious a weed problem as *S. pyramidalis* and *S. natalensis* its presence in pastures indicates a depletion of pasture quality; flowers all year.

Sporobolus latzii B.K.Simon. *Austral. Syst. Bot.* 12: 399 (1999). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Soudan, Wakaya Desert, 18 May 1993, *P.K. Latz 13144* (HT: BRI; IT: CANB, DNA, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes present. Culms erect, 95 cm tall. Lateral branches simple. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades linear, flat, 16 cm long, 3.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 11–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2–2.3 mm long.

Glumes. Lower glume lanceolate, 0 -nerved. Upper glume lanceolate, 1.8 mm long.

Florets. Fertile lemma 2.3 mm long, without keel, 1 -nerved. Palea apex entire. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia North.

Notes. The lower glume is more than half the spikelet length, which, together with the short rhizome, are unique features in Australian species. It has a similarity to the African species *S. consimilis* Fresen., which grows in a similar climate and habitat in arid regions of Namibia, Botswana, Zimbabwe and S Africa. The latter species is much more robust, however, and has both glumes as long as the spikelets, compared to *S. latzi* with a lower glume slightly more than half the spikelet length and the upper glume being slightly less than the spikelet length. Both species are reed-like and rhizomatous. The species is named for Peter Latz, prolific plant collector from the N.T.

Endemic; only collected from type locality. In swamp with *Psoralea cinerea* and *Leptochloa parviflora*; flowers May.

Sporobolus laxus B.K.Simon. *Austrobaileya* 1: 459 (1982). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: near Eagle Heights, 9 Mar 1976, Simon, Sharpe & Standley 2927 (HT: BRI-228827; IT: CANB, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (378).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 52A-F), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 60–150 cm tall, 2–3 -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths hairy. Ligule a fringed membrane or a fringe of hairs, 0.1 mm long. Leaf-blades linear, flat or conduplicate or involute, 1–50 cm long, 0.8–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 15–45 cm long, 4–6 cm wide, with spikelets clustered towards branch tips.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.2–1.6 mm long.

Glumes. Lower glume lanceolate or elliptic or ovate, hyaline, without keels, 0 -nerved. Upper glume lanceolate or ovate, 0.5–1 mm long, hyaline, without keels, 0 -nerved.

Florets. Fertile lemma 2 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Cook, Leichhardt, Moreton, Port Curtis, Wide Bay, North Kennedy. **New South Wales:** North Coast, Central Coast.

Notes. A native grass formerly placed with the Asian *S. diandrus* but differing from that species by the base of the panicle branches being naked for a greater distance.

Endemic; from Cairns, Qld to central coastal N.S.W. Roadsides, native grassland and woodland. It can also show weed potential; flowers all year.

Sporobolus lenticularis S. T. Blake. *Univ. Qld Pap. Dept. Biol.* 1(18): 3 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 13384*, 25 Mar 1938, Australia: Queensland, Cook Dist.: near Mareeba (BRI; IT: BRI, DNA, MEL, US-1819364).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 57H-M).

Habit. Annual or ephemeral. Culms erect or geniculately ascending, 20–60 cm tall, 3–7 -noded. Lateral branches simple or sparsely branched or branched. Leaves mostly basal. Ligule an eciliate membrane or a fringe of hairs, 0.5–1 mm long. Leaf-blades linear or lanceolate, flat or conduplicate or involute, 5–17 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong or ovate, 3–17 cm long, 3–4 cm wide, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 1.5–1.9 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate or ovate, membranous, without keels, 0 -nerved. Upper glume lanceolate or ovate, 1.4–1.9 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1.5–1.9 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. An attractive rare species with whorled inflorescence branches and reddish spikelets. Similar to *S. pulchellus* from which it differs by having larger spikelets and the grain being lenticular.

Endemic; mainly coastal tropical Qld and N.T. Collections indicate that it is found mainly on sand dune coastal woodland, but also in the highlands on red-brown earths; flowers Feb.-Aug.

Sporobolus mitchellii (Trin.) C.E.Hubb. *Bull. Misc. Inf.* 26 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Vilfa mitchellii* Trin., *Mem. Acad. Imp. Sci. Saint-Petersbourg, Ser. 6, Sci. Math., Seconde Pt. Sci. Nat.* 6,4(1–2): 53 (1840).

Type of Basionym or Protologue Information: HT: *Mitchell s.n.*, Australia: interior of New Holland (LE-TRIN-1719.01 (photo, BRI, L)).

Recent synonyms: *S. benthamii*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (162), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (468), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (390), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (379).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl.48 as *S benthamii*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (400, Fig. 333), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Rhizomes present, elongated. Stolons present. Culms erect or geniculate ascending or decumbent, 22–70 cm tall, wiry, 4–10 -noded. Lateral branches simple or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.4–0.5 mm long. Leaf-blades filiform, flat, 1–6(–12) cm long, 2–3 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 6–15 cm long, 0.4–0.7 cm wide, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.75–2(–2.5) mm long.

Glumes. Lower glume linear or lanceolate or ovate, membranous, without keels, 1 -nerved. Upper glume linear or ovate, 1.25–1.5 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1.5–2 mm long, without keel, 1–3 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.8–1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Hall. Fortescue, Ashburton, Carnarvon. Irwin, Avon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Murray, Southern Lofty, South-eastern. **Queensland:** Burke, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Port Curtis, Warrego, South Kennedy, Gregory South. **New South Wales:** North Coast, Central Coast, South Coast, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Midlands, Murray Mallee, Riverina, Wannon, Wimmera.

Notes. Similar to *S. virginicus* but with smaller spikelets and stoloniferous.

Endemic; widespread in arid regions. In clayey soils of flood plains, muddy flats, waterlogged areas or depressions subject to submersion in rainy season; flowers all year, in response to rain.

Sporobolus natalensis* (Steud.) Th. Dur. & Schinz. *Consp. Fl. Afr.* 5: 822 (1894). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Vilfa natalensis* Steud., *Syn. Pl. Glumac.* 1: 154 (1854).

Type of Basionym or Protologue Information: HT: *Drège s.n.*, South Africa: Natal: Umzinkulu to Umlomass rivers (P; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (379).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 60–150 cm tall. Lateral branches simple. Ligule a fringe of hairs, 0.4 mm long. Leaf-blades linear, flat or conduplicate or convolute, 25–50 cm long, 2–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 20–30 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.6–2.3 mm long.

Glumes. Glumes dissimilar. Lower glume oblong, hyaline, without keels, 0–1 -nerved. Upper glume lanceolate or ovate, 0.8–1.3 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1.6–2.3 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.7–0.8 mm long.

Continental Distribution: Africa, Temperate Asia, and Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Darling Downs, Moreton, Port Curtis, Wide Bay. **New South Wales:** North Coast, Southern Tablelands, North-Western Slopes.

Notes. Together with *S. pyramidalis* comprises the pasture grass weed Giant Ratstail Grass.

Differs from *S. pyramidalis* by the upper glume being at least half the spikelet length and pointed.

Introduced; mainly from Rockhamton, Qld to Port Macquarie, N.S.W.; a few other records elsewhere; Southern and central Africa and the Pacific region. Flowers Jan.-July, Oct.-Dec.

Sporobolus pamela B.K.Simon. *Austrobaileya* 4: 61 (1993). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *E.J. Thompson & B.K. Simon GAL-001*, 1 Apr 1992, Australia: Queensland: South Kennedy Distr.: Cattle Creek moundspring, 3 km S of Doongmabulla Station, 22°05'39"S, 146°14'23"E (BRI; IT: AD, B, BRI, CANB, K, L, MEL, MO-4616122, NSW, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 60).

Habit. Perennial. Culms erect, 80–120 cm tall, 2–4 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades filiform, involute, 14–35 cm long, 1–1.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 3–40 cm long, 3–12 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 2.5–3 mm long.

Glumes. Lower glume oblong or ovate, membranous, without keels, 0 -nerved. Upper glume oblong, 1.5–3 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 2.5–3 mm long, without keel, 3 -nerved. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 3. Grain 1.3–1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Mitchell, South Kennedy, Warrego.

Notes. A distinctive grass with very open panicles and inflorescence branches not whorled.

Endemic; Known from moundsprings of the Qld artesian basin; flowers Nov.-Apr.

Sporobolus partimpatens B.K.Simon. *Austrobaileya* 4: 64 (1993). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Australia: Queensland: South Kennedy Distr.: sandy flat adjacent to Cattle Creek, 3 km S of Doongmabulla Station, 22.05.39S 146.14.23E, 1 Apr 1992, *E.J. Thompson & B.K. Simon GAL-002* (HR: BRI; IT: AD, BRI, CANB, K, L, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 59).

Habit. Perennial. Culms erect, 30–60 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or branched. Leaf-sheaths glabrous on surface. Ligule a fringed membrane or a fringe of hairs, 0.7–0.9 mm long. Leaf-blades linear, flat, 1.5–12 cm long, 4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 8–20 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 2–2.5 mm long.

Glumes. Lower glume oblong or ovate, membranous, without keels, 0 -nerved. Upper glume lanceolate or ovate, 2–2.5 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 2–2.5 mm long, without keel, 1 -nerved. Lemma surface indumented. Palea 2 -nerved. Palea apex entire. Lodicules present. Anthers 3. Grain 1.1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Mitchell, South Kennedy, Burke.

Notes. A rare, distinctive species with the upper glume being as long as the spikelets, the lowest inflorescence node whorled and the upper inflorescence branches appressed.

Endemic; from a restricted zone around L. Galilee, central Qld. Found on clay pans and low dunes; flowers Mar.-July.

Sporobolus pulchellus R. Br. *Prodr.* 170 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: LT: *Brown 6206*, 1803, Australia: North Coast, Arnhem Bay [Bay 3] (BM (specimen with '3, Lysispora pulchella B minor, North Coast' in handwriting of R. Br.); ILT: BRI, NEW (photo, BARI), MEL). LT designated by Baaijens & Veldkamp, *Blumea* 35: 452 (1991).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 57N-S).

Habit. Annual or ephemeral. Culms erect, 4–40 cm tall. Lateral branches simple or branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.1 mm long. Leaf-blades linear, conduplicate or involute, 1–10 cm long, 0.5–2.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose or effuse, 1–12 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 0.7–1.5 mm long.

Glumes. Lower glume lanceolate or elliptic, membranous, without keels, 0 -nerved. Upper glume lanceolate or elliptic, 1.2–1.5 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 0.7–1.5 mm long, without keel, 1 -nerved. Palea 2 -nerved. Anthers 3. Grain 0.6–0.8 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Similar to *S. lenticularis* from which it differs by having smaller spikelets and by the grain usually being quadrangular as opposed to lenticular.

Endemic; mainly in northern N.T., a few collections from elsewhere. Grows in open forest (*Eucalyptus* woodland), roadsides, on deep sands, sandstone, sandy ironstone and rocky hillsides; flowers Feb.-Nov.

Sporobolus pyramidalis* Beauv. *Fl.Oware* 2: 36, t.80 (1816). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *Palisot de Beauvois s.n.*, Nigeria (G (photo, BRI, K); IT: P?).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (379).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 90–170 cm tall, 2–5 mm diam. Lateral branches simple. Ligule a fringed membrane or a fringe of hairs, 0.2–0.3 mm long. Leaf-blades filiform or linear, flat or convolute, 20–70 cm long, 3–10 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle pyramidal, 20–45 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.7–2.2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, without keels, 0 -nerved. Upper glume lanceolate or oblong, 0.5–0.8 mm long, hyaline, without keels, 1 -nerved.

Florets. Fertile lemma 1.7–2 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex lobed. Anthers 3. Grain 0.8–1 mm long.

Continental Distribution: Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Central Australia South. **Queensland:** Moreton, Wide Bay, Cook, North Kennedy, South Kennedy, Port Curtis, Leichhardt, Burnett. **New South Wales:** North Coast.

Notes. Together with *S. natalensis* comprises the pasture grass weed Giant Ratstail Grass.

Differs from *S. natalensis* by the upper glume being at about a third the spikelet length and truncate to erose.

Introduced; mainly from Cooktown to central coastal N.S.W.; Africa and the Pacific region. Flowers all year.

Sporobolus scabridus S. T. Blake. *Pap. Dep. Biol. Univ. Qld* 1 (18): 5 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 5861*, 9 May 1934, Australia: Queensland: Darling Downs Dist.: Palardo (BRI; IT: BRI, CANB, L, US-1819191).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (468), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 57A-G).

Habit. Perennial. Culms erect or geniculately ascending, 20–60 cm tall, 3–4 -noded. Lateral branches simple or sparsely branched. Leaf-sheaths scaberulous, glabrous on surface. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, linear, flat, 6–14 cm long, 2–6 mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, loose, 4–16 cm long, contracted about secondary branches.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.1–2.2 mm long.

Glumes. Lower glume linear or lanceolate or elliptic, hyaline, without keels, 0 -nerved. Upper glume lanceolate or ovate, 1–1.4 mm long, hyaline, without keels, 1 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 1–1.4 mm long, without keel, 1 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Palea apex entire. Anthers 3. Grain 0.55–0.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs, Gregory North, Leichhardt, Maranoa, North Kennedy, Port Curtis, South Kennedy, Moreton, Gregory South, Warrego.

Notes. Differs from *S. contiguus*, *S. actinocladus* and *S. partimpatens* by the inflorescence being somewhat open as opposed to having the spikelets arranged in false spikes.

Endemic; fairly widespread in subtropical Qld. Grows in clay and loamy soil, particularly common in Brigalow (*Acacia harpophylla*) vegetation; flowers all year except Aug.

Sporobolus sessilis B.K.Simon. *Austral. Syst. Bot.* 12: 408 (1999). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Indonesia: Java: Yogyakarta, 11 Sep 1992, *B.K. Simon* 4236 (HT: BRI; IT: BO, L, K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (379).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (378).

Habit. Perennial. Culms erect, 30–100 cm tall. Lateral branches simple. Ligule a fringed membrane or a fringe of hairs, 0.4 mm long. Leaf-blades filiform or linear, flat or convolute, 7–25 cm long, 0.5–4 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–30 cm long, 2–4 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.2–2 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, without keels, 0 -nerved. Upper glume lanceolate or oblong, 1.5 mm long, hyaline, without keels, 1 -nerved.

Florets. Fertile lemma 1.5–2.2 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex entire. Anthers 2–3. Grain 0.8–1 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, and Wide Bay. **New South Wales:** North Coast and Central Coast.

Notes. Differs from *S. diandrus* by there being no naked zone at the base of the inflorescence branches, and from *S. laxus*, by the naked zone of the inflorescence branches being shorter. There are usually 2 anthers, rarely 3 (Lazarides 3645A).

Mainly coastal Qld and N.S.W.; extends to Malesia. A fairly widespread native species in woodland and native grassland; flowers all year.

Sporobolus sp. A Kimberley Flora (G.J. Keighery 9070) Classification. (GPWG 2001) : Subfamily Chloridoideae.

Australian Distribution: Western Australia.

Sporobolus virginicus (L.) Kunth. *Rev. Gram.* 1:67 (1829). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Agrostis virginica* L., *Sp. Pl.* 1: 63 (1753).

Type of Basionym or Protologue Information: LT: *J. Clayton* 507, USA: habitat in Virginia (LINN-84.30; ILT: BM, US-76294 (fragm. ex BM)). LT designated by Hitchcock, *Contr. U.S. Natl. Herb.* 12: 119 (1908).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (170 as *Agristis virginica*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (160), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (469), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (436), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (401), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (380).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (161, Pl. 48), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (401, Fig. 334), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (380).

Habit. Perennial. Rhizomes present, elongated. Stolons absent or present. Culms erect or decumbent, 10–50 cm tall, 1–2 mm diam. Lateral branches branched. Ligule a fringe of hairs, 0.25 mm long. Leaf-blades linear, flat or convolute, 2–13 cm long, 1–4 mm wide.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 2–15 cm long, (0.3–)0.6–0.8(–1) cm wide, evenly furnished.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 1.7–4 mm long.

Glumes. Glumes similar. Lower glume linear or lanceolate, membranous, without keels, 1–2 -nerved. Upper glume lanceolate or ovate, 1.7–3.6 mm long, membranous, without keels, 1 -nerved.

Florets. Fertile lemma 1.7–3.6 mm long, without keel, 1 -nerved. Palea 2 -nerved. Palea apex lobed. Anthers 3. Grain 0.7–0.9 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Lord Howe, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Fitzgerald, Dampier. Canning, Fortescue, Carnarvon, Austin. Irwin, Drummond, Menzies, Warren, Eyre, Avon. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burke, Cook, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay, Leichhardt, Burnett, Mitchell. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Otway Plain, Otway Range, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, East Coast.

Notes. A halophytic polymorphic species with several different ploidy levels, distributed world wide. Smith-White (1988, 1990) recognised 4 main morphological types which have a loose association with the level of ploidy, but he refrained from giving them formal names due to the large number of intermediates. In general ploidy levels are higher in tropical regions.

A narrow leaved form (var. *minor*) and a broad leaved form (var. *virginicus*) have been described previously and maintained in recent floras (Jacobs & MaClay 1993). A form along the coast of southern Australia has small dark compact ovoid panicles and has been given a manuscript name susp. *australis* (R. Mills ms) but it is probably not worth recognition for similar reasons to those stated by Smith-White. The species differs from *S. mitchelli* by having longer spikelets, by the leaf sheaths usually being longer than the internodes, and by being rhizomatous as opposed to stoloniferous.

All coastal regions and also many inland regions with saline influence; Eastern Asia, Africa, and the Pacific region. Mainly restricted to maritime habitats with some records also from saline localities areas from inland and central Australia; flowers all year, but mainly during the warm months.

Steinchisma hians* (Elliott) Nash. *Flora of the Southeastern United States* 105 (1903.). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum hians* Elliott, *Sketch Bot. S. Carolina* 1(2): 118 (1816).

Type of Basionym or Protologue Information: HT: *S. Elliott s.n.*, Aug-Oct, USA: South Carolina: Charleston Co.: Hab. in pinetis humidis (CHARL; IT: US-80696 (fragm. ex CHARL & photo)). Cited as coming from Virginia by Zuloaga et al., *Ann. Missouri Bot. Gard.* 85(4): 647 (1998).

Recent synonyms: *Fasciculochloa sparshottiorum*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, 30–60 cm tall, spongy, 3–4 -noded. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth, glabrous on surface. Ligule a fringed membrane, a ciliate membrane, 0.4 mm long. Leaf-blades 10–20 cm long, 2–3.5 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Panicle ovate, 15 cm long, contracted about secondary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed or terete, 2.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume oblong, membranous, 3 -nerved. Lower glume surface glabrous. Upper glume elliptic, 1.7 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5 -nerved.

Fertile lemma 2.2 mm long, without keel, 2 -nerved. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Moreton.

Notes. Occupies a very restricted site in SE Qld, 9 km SSE of Logan village. Qld. Flowers Jan.-Feb.

Steinchisma laxa* (Sw.) Zuloaga. *Amer. J. Bot.* 90:817 (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum laxum* Sw., *Prodr.* 23 (1788).

Type of Basionym or Protologue Information: HT: *Swartz s.n.*, Jamaica (S; IT: US (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Cliffordiochloa parvispicula*).

Habit. Perennial. Culms erect, 60–80 cm tall, 4–6 -noded. Lateral branches sparsely branched. Ligule an eciliate membrane, 0.5 mm long. Leaf-blades 5–15 cm long, 2–3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 10–20 cm long, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 1.5 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, 1 -nerved. Upper glume elliptic, 1.5 mm long, membranous, without keels, 3(–5) -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 1.2 mm long, without keel. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Recorded only from one locality in the Cook District, Qld.

Stenotaphrum micranthum (Desv.) C.E.Hubb. *Grass. Maurit.* 73 (1940). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Ophiurinella micrantha* Desv., *Mem. Soc. Agric. Angers* 1: 179, pl. 8, f. 4 (1831).

Type of Basionym or Protologue Information: Crescit in insula Borboniae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual or perennial. Rhizomes absent. Stolons present. Culms decumbent, 9–30 cm tall. Ligule a fringe of hairs, 0.2–0.7 mm long. Leaf-blades linear or lanceolate, flat, 3–12 cm long, 4–15 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes sunken, 0.4–1.2 cm long, bearing 2–6 fertile spikelets on each. Central inflorescence axis 5–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.1–3.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels. Upper glume ovate, 0.3–0.6 mm long, membranous, without keels, 0 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 2-keeled, 3–5 -nerved.

Fertile lemma 2–3 mm long, without keel, 5 -nerved.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook, Port Curtis.

Notes. The biseriate inflorescence and leaf shape easily distinguishes it from the other Australian species.

Native. Collected on the islands off the Qld coast, but not on mainland Australia. Common on islands of the Indian and Pacific Oceans. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. *Stenotaphrum micranthum* is reported to be a good pasture and lawn grass. Flowers June–Nov.

Stenotaphrum secundatum* (Walt.) Kuntze. *Rev. Gen. Pl.* 2: 794 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Ischaemum secundatum* Walter, *Fl. Carol.* 249 (1788).

Type of Basionym or Protologue Information: USA: South Carolina, *Walter s.n.* (HT: BM).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (500 as *Stenotaphrum americanum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (245), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (436), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (490), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (380).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (249), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (489, fig. 423), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (380).

Habit. Perennial. Rhizomes present. Stolons present. Culms prostrate, 10–40 cm tall. Ligule a fringe of hairs, 0.4–0.6 mm long. Leaf-blades linear, conduplicate, 2–15 cm long, 4–15 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes sunken, 0.5–1 cm long, bearing 1–3 fertile spikelets on each. Central inflorescence axis 2–10 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 4–5.1 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels. Upper glume ovate, 4–5 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 7–9 -nerved.

Fertile lemma 3.8–4.5 mm long, without keel, 5 -nerved.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Dampier. Drummond, Menzies. **Northern Territory:** Central Australia South. **South Australia:** Eyre Peninsula, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Cook, Darling Downs, Moreton, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, South-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North West, North East, West Coast, Midlands, East Coast.

Notes. Commonly associated with coastal areas where the mode of disarticulation assists with dispersal.

Introduced; in tropical heaths, tropical and subtropical rain forests, temperate rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, tropical and subtropical sub-humid woodlands, and temperate sub-humid woodlands. Cultivated as a lawn grass in the tropics and warm temperate regions of the world. Flowers throughout the year.

Sylvipoa queenslandica C.E.Hubb. *Bull. Misc. Inform.* 449 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: Australia: Queensland: ... Spring Cr., near Killarney, on mt. slope, in rain forest, at foot of water-fall amongst basaltic boulders: Mar 1931, *Hubbard* 5783 (HT: K; II: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (353), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (332).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (353), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (333, Fig. 44).

Habit. Perennial. Culms erect or genicately ascending, 40–150 cm tall, 5–9 -noded. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaves cauline. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 2–4.5 mm long, abaxially glabrous or abaxially hairy, entire or lacerate, truncate. Leaf-blades flat, 16–40 cm long, 4–17 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 12–35 cm long, 8–16 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 1–6 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed, 3–6.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume ovate, 1.7–2.7 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 2.3–3.2 mm long, keeled, 5 -nerved. Lemma surface indumented. Lodicules present. Anthers 3. Grain 1.8 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Southern Tablelands.

Notes. Endemic. N from Nadgee, N.S.W. and Qld. Found in and on the margins of rainforests, at altitudes usually above 1000 m. Flowers Feb.-Aug. Fruits Mar.-Oct.?

Symplectrodia gracilis M. Lazarides. *Nuytsia* 5: 276 (1985). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District; c. 7.5 miles SE of Mt. Gilruth; 133.09°E, 13.07°S; 28 Feb 1973, *Lazarides* 7919 (HT: CANB; IT: BRI, DNA, K, L, MO, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 39E-O).

Habit. Perennial. Rhizomes absent. Culms stature slender to delicate, 25–105 cm tall, 3 -noded. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades conduplicate, 7–15 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, dense or loose, 7–17 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 13–15 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, cartilaginous, without keels, 1–3 -nerved. Lower glume apex awned. Upper glume lanceolate, 10–15 mm long, cartilaginous, without keels, 3–5 -nerved. Upper glume apex awned.

Florets. Fertile lemma 10–12 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn 5–8 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 4–4.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Plants can be greyish from a dense cover of hairs on leaves, or vary from sparsely hairy to glabrous; distinguished from *S. lanosa* by its slender habit, smaller dimensions, and mostly glabrous longer awned lemma of the fertile floret.

Known only from a small area on the sandstone plateau of Arnhem Land, N.T. In the type locality, it is codominant with *Eriachne* on open margins of *Acacia* thickets on sandstone plateau, and also in semi-scalded patches, with stony shaly soil, associated with *Micraira* and scattered low shrubs.

Symplectrodia lanosa M. Lazarides. *Nuytsia* 5: 275–276 (1985). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District; Mt. Gilruth area; 12.58°S, 133.10°E; 2 Jun 1978, *Dunlop 4874* (HT: NT; IT: BRI, CANB, DNA, K, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 39A-D).

Habit. Perennial. Rhizomes present, short. Culms stature robust to moderate, 61–300 cm tall. Mid-culm nodes pubescent or bearded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.8–1 mm long. Leaf-blades conduplicate, 60–90 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, dense or loose, 44–54 cm long, 4–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 11–15 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume lanceolate, cartilaginous, without keels, 3–5 -nerved. Lower glume apex mucicous or awned. Upper glume lanceolate, 10–13 mm long, cartilaginous, without keels, 3–5 -nerved. Upper glume apex mucicous or mucronate.

Florets. Fertile lemma 10 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 0.5–3 mm long overall. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 4 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. The extremely dense cover of woolly hairs on the basal foliage is a striking feature of some plants but is completely absent in others of the species. However, the unusually robust, rhizomatous, clump-forming habit, high colouring, great dimensions of leaves and panicles, and hirsute lemma of the fertile florets are consistent distinguishing characters. At maturity the rachilla and awns are about twice the length of the glumes, compared to several times the length in *S. gracilis*.

On the western margins of the Arnhem Land Plateau, N.T. In rugged, sandstone habitats such as steep rocky slopes and massive outcrops, and sometimes on deep white sand on the escarpment.

Taeniatherum caput-medusae* (L.) Nevski. *Trudy Sredne-Aziatsk. Gosud. Univ., Ser. 8b, Bot.* 17: 34 (1934). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Elymus caput-medusae* L., *Sp. Pl.* 1: 84 (1753).

Type of Basionym or Protologue Information: LT: (LINN-100.6). LT designated [as 106.6] by Humphries in *Bot. J. Linn. Soc.* 76: 342 (1978).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (275), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (118).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (276, fig. 214), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (117, Fig.18).

Habit. Annual. Culms erect or decumbent, 5–55 cm tall. Leaf-sheath auricles present. Ligule an eciliate membrane, hyaline, obtuse. Leaf-blades flat or convolute, 3–12 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, oblong, 3–7 cm long, bearing 35–45 fertile spikelets on each.

Spikelets. Spikelets sessile, 2 in the cluster. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), with diminished florets at the apex, linear, dorsally compressed, 8–14 mm long.

Glumes. Glumes similar. Lower glume subulate, cartilaginous or coriaceous. Upper glume subulate, 17–27 mm long. Upper glume surface scabrous.

Florets. Fertile lemma 8–13 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn (50–)62–120 mm long overall. Palea 2 -nerved.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: South Australia.

South Australia: Northern Lofty.

Notes. Native to Europe, and apparently naturalised in S.A. where it is not well represented and may not persist. Flowering specimens of naturalized individuals not available.

Tetrarrhena acuminata R. Br. *Prodr.* 210 (1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Tasmania: *Brown 6167* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210), [1878] G.Bentham, *Flora Australiensis* 7 (554), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (60), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (377).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (60, fig. 24).

Habit. Perennial. Rhizomes present. Stolons present. Culms erect or geniculately ascending, stature slender to delicate, 6–60 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.3–0.5 mm long, membranous, abaxially glabrous, erose. Leaf-blades flat, 1–12 cm long, 1–4 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 0.5–5 cm long, bearing 2–10 fertile spikelets on each.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 5–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblate, hyaline, without keels or keeled, 1 -nerved. Upper glume ovate, 1–1.7 mm long, hyaline, without keels, 1 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 75 % of length of spikelet, coriaceous, 1-keeled, 5 -nerved, mucronate. Lemma of upper sterile floret 6–10 mm long, mucronate.

Fertile lemma 4.8–7.3 mm long, keeled, 7(–9) -nerved. Lemma surface glabrous. Palea 1 -nerved. Lodicules present. Anthers 4.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** Furneaux Group, West Coast, Central Highlands, Ben Lomond, South West.

Notes. Often in damp sites. Flowers Dec.-Jan.

Tetrarrhena distichophylla (Labill.) R. Br. *Prodr.* 210 (1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Tasmania: *Webb* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210), [1878] G.Bentham, *Flora Australiensis* 7 (553), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop,

G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (61), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (379).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (62, fig. 25).

Habit. Perennial. Stolons present. Culms decumbent, 10–40 cm tall, wiry. Mid-culm internodes pubescent or pilose or hirsute. Mid-culm nodes pubescent. Lateral branches branched. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.2–0.5 mm long, membranous. Leaf-blades flat or involute, 1–4.5 cm long, 1–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 0.4–7 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 3.3–5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels or keeled, 3–5 -nerved. Upper glume ovate, 1–1.7 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 50 % of length of spikelet, chartaceous, 1-keeled, 5 -nerved, muticous or mucronate. Lemma of upper sterile floret 3–4.7 mm long, muticous or mucronate.

Fertile lemma 2.8–4.1 mm long, keeled, 7 -nerved. Lemma surface indumented. Palea 1 -nerved. Lodicules present. Anthers 4.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: South-eastern. **Victoria:** East Gippsland, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain, Wannon. **Tasmania:** King Island, North East, West Coast, Midlands, East Coast.

Notes. Variable in habitat, from swamps or damp sites to sand. Flowers Dec.-Jan.

Tetrarrhena juncea R. Br. *Prodr.* 210(1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Australia, Lewin to Wilson promontories: *Brown 6168* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210), [1878] G.Bentham, *Flora Australiensis* 7 (554), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (61), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (381), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (379).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (61, fig. 26), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (253), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (381), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (378, Fig. 51).

Habit. Perennial. Stolons present. Culms decumbent or sprawling, 50–400 cm tall, wiry. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane or a ciliate membrane, 0.1–0.2 mm long, membranous. Leaf-blades flat or involute, 1–13 cm long, 1–7 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 2–5 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 3–6 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels or keeled, 3–5 -nerved. Upper glume ovate, 2–3.3 mm long, membranous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 1-keeled, 7 -nerved, muticous. Lemma of upper sterile floret 4–5.4 mm long, muticous.

Fertile lemma 3.8–5.2 mm long, keeled, 7 -nerved. Lemma surface glabrous. Palea 1 -nerved, 1-keeled. Lodicules present. Anthers 4.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

South Australia: Southern Lofty. **Queensland:** Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Wannon. **Tasmania:** North West, West Coast.

Notes. Usually climbing over other vegetation in eucalyt forests. Flowers Oct.-Jan.

Tetrarrhena laevis R. Br. *Prodr.* 210(1810). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Australia, Lewin & Wilson promontories: *Brown* 6169 (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (210), [1878] G.Bentham, *Flora Australiensis* 7 (554), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (21), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (437), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (380).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (17 & 20, Pl. 3), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (372, Fig. 50).

Habit. Perennial. Rhizomes present, short. Stolons absent or present. Culms erect, 25–70 cm tall, wiry. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.1–0.3 mm long, membranous. Leaf-blades flat, 6–20 cm long, 2–8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid, a raceme or a panicle. Panicle linear, 2.4–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong or ovate, laterally compressed, 7–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, chartaceous, without keels, 5–9 -nerved. Upper glume oblong, 3.4–4.8 mm long, chartaceous, without keels, 5–7 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 1-keeled, 5 -nerved, muticous. Lemma of upper sterile floret 4.7–6.7 mm long, muticous.

Fertile lemma 4.5–6 mm long, keeled, 9 -nerved. Lemma surface glabrous. Palea 1 -nerved, 1-keeled. Lodicules present. Anthers 4–6.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Dale, Menzies, Warren, Eyre.

Notes. Recorded from organic sandy loam soils or on granite in open eucalypt forest or in scrub. Flowers Sept.-Jan.

Tetrarrhena oreophila D.I.Morris. *Rec. Queen Vic. Mus.* 55: 4 (1977). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Tasmania: *Morris* (K iso).

Recent synonyms: *Ehrharta oreophila*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (376, 377 as var. *oreophila*, & var. *minor*).

Habit. Perennial. Rhizomes present. Stolons present. Culms erect or decumbent, stature slender to delicate, 5–30 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane, 0.2–1.2 mm long, membranous, lacerate. Leaf-blades filiform, flat or involute, 1–8 cm long, 0.5–1.7 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid or compound, a raceme. Panicle 0.7–3 cm long. Racemes 1, 1.5–3 cm long, bearing 6–10 fertile spikelets on each.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4–6.5 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, hyaline, without keels, 1 -nerved. Upper glume oblong, 1.4–2.4 mm long, hyaline, without keels, 1–3 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, coriaceous, 1-keeled, 5 -nerved, mucronate. Lemma of upper sterile floret 5 mm long, mucronate.

Fertile lemma 2.7–4 mm long, keeled, 3–5 -nerved. Palea 1 -nerved. Lodicules present. Anthers 2.

Continental Distribution: Australasia.

Australian Distribution: Tasmania.

Tasmania: West Coast, Central Highlands, South West, Mt Field.

Notes. Tasmanian endemic.

Infra-specific taxa: var. *oreophila*, var. *minor*.

Leaf blades inrolled; lower glume 1.3–1.8 mm long, acute; bisexual lemma 3.5–3.8 mm long **T. oreophylla** var. *oreophylla*

Leaf blades flat; lower glume 0.7–0.9 mm long, obtuse; bisexual lemma 2.7–3.3 mm long **T. oreophylla** var. *minor*

Tetrarrhena oreophila var. oreophila Classification. (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Australian Distribution: Tasmania.

Tetrarrhena oreophila var. minor D.I. Morris. *Rec. Queen Victoria Mus., n.s.*, 55: 4 (1977).

Classification. (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Basionym and/or Replacement Name: *Tetrarrhena oreophila* D.I. Morris,.

Type of Basionym or Protologue Information: Tasmania, L. Dobson, Mt. Field N.P., *W.M.Curtis 118* (HO holo; K iso).

Australian Distribution: Tasmania.

Tetrarrhena turfosa N.G. Walsh. *Muelleria* 7: 95 (1989). **Classification.** (GPWG 2001) : Subfamily Ehrhartoideae. Tribe Ehrharteae.

Type of Basionym or Protologue Information: Australia, Victoria, Hall's Gap: Beaglehole 30309 (MEL holo, AD, BRI, CANB, HO, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (63), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (381), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (378).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (63, fig. 27), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (381).

Habit. Perennial. Rhizomes present, short. Culms erect or geniculately ascending, 6–60(–130) cm tall. Mid-culm internodes glabrous. Lateral branches sparsely branched. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.5 mm long, membranous. Leaf-blades erect, involute, 2–7 cm long, 0.3–0.8 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 0.5–3 cm long, bearing 3–10 fertile spikelets on each.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 2 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4.6–6 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, membranous, without keels or keeled, 1–3 -nerved. Upper glume ovate, 1.1–2 mm long, membranous, without keels, 3 -nerved. **Florets.** Basal sterile florets 2 or more, barren, without significant palea. Lemma of lower sterile floret 66 % of length of spikelet, coriaceous, without keels, 5–7 -nerved, muticous or mucronate or awned. Lemma of upper sterile floret 3.4–6.8 mm long, muticous or mucronate or awned.

Fertile lemma 4.8–6.8 mm long, keeled, 5–7 -nerved. Palea 1 -nerved. Lodicules present. Anthers 4.

Continental Distribution: Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: South-eastern. **New South Wales:** Central Coast, Northern Tablelands, Central Tablelands, Southern Tablelands. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Snowfields.

Notes. Usually associated with heath and sedge-rich vegetation in swamps and watercourses from near sea-level in eastern Vic. to subalpine situations in both Vic. and N.S.W. Soils typically wet and peaty, mainly derived from or formed upon sandstone, but also on granite and basalt. Flowers and fruits Nov.-Feb.

Thaumastochloa brassii C.E.Hubb. *Hooker's Icon. Pl.* t.3313–14:3(1936). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *Brass* 370, Jun 1923, Australia: Queensland: Burke Distr.: Settlement Cr., 18.00S 138.07E (K; IT: BRI).

Key references (books and floras): [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia*.

Habit. Annual. Culms 7–35 cm tall, 10–16 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades linear, flat or involute, 1–3 cm long, 3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis tough or fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 2–2.7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, indurate, keeled, 2-keeled, 7 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. Wet sandy soils of savanna forest and heath of northern N.T. and Qld. Flowers Apr.--Oct.

Thaumastochloa x heteromorpha B.K.Simon. *Austrobaileya* 3: 90 (1989). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: Cabbage Tree Creek on road from Laura to Cooktown, Lakefield National Park, Cape York Peninsula, 5 May 1987, *Clarkson & B.K. Simon 6940* (HT: BRI; IT: K, L, MBA, NSW, PERTH, QRS).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 20–55 cm tall, 6–9 -noded. Lateral branches branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane. Leaf-blades straight or curved, linear, flat or involute, 1.5–8 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.5–3 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, indurate, keeled, 2-keeled, 5–7 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. Sandy soils of *Eucalyptus* savanna area in the southern part of Cape York Peninsula, Qld. Flowers Apr.--May.

Thaumastochloa major S. T. Blake. *Univ. Queensland Dept. Biol. Pap.* 1(18): 20 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *S.T. Blake 13360*, 24 Mar 1938, Australia: Queensland: Cook Distr.: Cairns, 16°55'S 145°46'E, 1.5 m (BRI; IT: L, US-1819361).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms geniculately ascending or decumbent, 15–35 cm tall, 6–10 -noded. Mid-culm nodes bearded. Ligule a fringed membrane, a ciliolate membrane, 0.3 mm long. Leaf-blades linear, flat or involute, 2–12 cm long, 1.5–5.5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.3–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, indurate, keeled, 2-keeled, 9–10 -nerved. Upper glume elliptic, coriaceous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 2 -nerved.

Fertile lemma 2.2–2.7 mm long, without keel, 0–2 -nerved. Palea 0–2 -nerved, without keels. Anthers 3. Grain 2.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, Burke, North Kennedy.

Notes. Sandy soils in damp situations in northern Australia extending to Malesia (Aru Is.). Flowers Feb.--Oct.

Thaumastochloa monilifera M.S.M. Sosef & R. de Koning. *Gard. Bull. Sing.* 36: 153 (1983).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *L.J. Brass 19712*, 27 Jul 1948, Australia: Queensland, Wenlock, Batavia river, 150 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 35–70 cm tall, 5–9 -noded. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear, flat, 4–11 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 1.6–3.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled, 7 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 0 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook.

Notes. Dry sandy banks of gullies and roads in savanna. From coastal NE N.T. and Cape York Peninsular, Qld. Flowers Apr.--July.

Thaumastochloa pubescens (Benth.) C.E.Hubb. *Hooker's Icon. Pl.* t.3312–14:2(1936). **Classification.**

(GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Ophiuros corymbosus* var. *pubescens* Benth., *Fl. Austral.* 7: 512 (1878).

Type of Basionym or Protologue Information: HT: *F. von Mueller s.n.*, Australia: Hooker's Creek.

Recent synonyms: *T. constricta*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (309), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (311, Pl. 91).

Habit. Annual. Culms 12–30 cm tall, 5–9 -noded. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear, flat, 2–9 cm long, 1.5–4 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2–3 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong or ovate, indurate, keeled, 2-keeled, 7–9 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Mitchell, North Kennedy, South Kennedy, Cook.

Notes. Low lying damp sandy places in open savanna forests and in disturbed places in northern Australia, extending to New Guinea. Flowers Jan.--Aug.

Thaumastochloa rariflora (F. M. Bailey) C.E.Hubb. *Hooker's Icon. Pl.* t.3313–14:4(1936).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Rottboellia rariflora* F.M. Bailey, *Queensland Dep. Agric. Bot. Bull.* 8: 86 (1893.).

Type of Basionym or Protologue Information: HT: *Bailey 15*, Jun 1897, Australia: Queensland: Cook Distr.: Somerset, 10.45S 142.35E (BRI; IT: K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (310), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (311, Pl. 91).

Habit. Annual. Culms 10–60 cm tall, (4–)8–12 -noded. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear, flat or involute, 2–10 cm long, 2–4 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis tough.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2–3 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, indurate, keeled, 2-keeled, 9 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 0–3 -nerved. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Queensland: Cook, North Kennedy.

Notes. Sandy patches and clearings in savanna woodland in northern Qld (mainly Cape York), extending to southern New Guinea. Flowers Mar.–June and Sept.–Oct.

Thaumastochloa rubra M.S.M. Sosef & R. de Koning. *Gard. Bull. Singapore* 36: 157 (1983).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 17636*, 04 May 1947, Australia: Northern Territory, 198 m (L).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 20–45 cm tall, 4–6 -noded. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane. Leaf-blades linear, flat or involute, 1.5–5 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 3–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, indurate, keeled, 2-keeled, 7 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Sandy soils sometimes with *Eucalyptus dichromophloia* or *E. tetradonta*; a few localities in northern N.T. Flowers May–June.

Thaumastochloa striata M.S.M. Sosef & R. de Koning. *Gard. Bull. Singapore* 36: 156 (1983).

Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: HT: *M. Lazarides & L.G. Adams 10*, 03 Mar 1965, Australia: Northern Territory, Maranboy (L; IT: CANB, K, NT, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms 15–25 cm tall, 5–8 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliate membrane. Leaf-blades involute, 2–6 cm long, 1.5–3.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 3–4 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, indurate, keeled, 2-keeled, 7 -nerved. Upper glume elliptic, coriaceous, without keels. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Sandy soil in open *Eucalyptus tetradonta* forest with *Triodia bitextura*. The species is restricted to the type from northern N.T. Flowers Mar.

Thaumastochloa sp. A (Morehead R., Clarkson 8086) Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *T. sp. A*).

Habit. Annual. Culms geniculately ascending, 15–55 cm tall, 8–12 -noded. Mid-culm nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 0.2 mm long. Leaf-blades flat or involute, 2–3.5 cm long, 1–1.8 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame (spicate). Rhachis fragile but the lowest internode fused to peduncle.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Apical sterile spikelets rudimentary. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s).

Glumes. Glumes dissimilar. Lower glume oblong, indurate, keeled, 2-keeled, 7 -nerved (very faintly). Upper glume elliptic, herbaceous, without keels, 5 -nerved (faintly). **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 2 -nerved. Grain 1.2 mm long (young).

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Thedachloa annua S.W.L. Jacobs. *Telopea* 10:635 (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae.

Type of Basionym or Protologue Information: N of Kalumburu, Pago rd, *S.Jacobs 8061*; holo: NSW; iso: B, PERTH, US.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Thelepogon australiensis B.K.Simon. *Austrobaileya* 4: 57 (1993). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Australia: Queensland: Cook Distr.: 62 km N of Archer R. on Coen to Weipa road, 19 Apr 1991, *J.R. Clarkson & V.J. Nelder 8981* (HT: BRI(AQ570010, 2 sheets); IT: K, MBA, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Basal leaf sheaths present. Culms erect, 70–140 cm tall. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliolate membrane, 1 mm long. Leaf-blades lanceolate, 5–12 cm long, 6–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a rame. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by barren pedicels. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), lanceolate or elliptic, dorsally compressed, 6–7 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume elliptic or ovate, indurate, without keels, 7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 7 mm long, chartaceous or coriaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, without significant palea. Lemma of lower sterile floret hyaline or membranous.

Fertile lemma 4 mm long, without keel. Lemma apex lobed, awned. Median (principal) awn from a sinus, 12–16 mm long overall, with a twisted column. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Thus far restricted to the type locality on Cape York Peninsula, where it is found in *Piliostigma malabaricum* low open woodland. Flowers Apr.

Thellungia advena Stapf. *Mitt. Naturf. Ges. Solothurn* 7 (1920). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: HT: *R. Probst s.n.*, 1918, Switzerland: Solothurn [introduced from Australia] (K; IT: US-2947408).

Recent synonyms: *Eragrostis advena*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (463), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (382).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 64 as *Eragrostis advena*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (382).

Habit. Perennial. Culms erect or geniculately ascending, 60–150 cm tall. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane, 0.4–0.5 mm long. Leaf-blades straight, flat or involute, 10–30 cm long, 2–5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence solid, a panicle. Panicle linear, 20–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 1–5 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 4–5.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate, 1.8–3 mm long, membranous, keeled, 1-keeled, 1 -nerved.

Florets. Fertile lemma 2.5–3 mm long, keeled, 1–3 -nerved. Lemma apex muticous or pungent. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. Distinguishing characters include cleistogamous spikelets; florets falling entire; rachilla disarticulating above glumes, persistent between florets; persistent or subpersistent glumes; unequal, 1–3-nerved lemmas; palea with broad flaps; caryopsis often exerted from free pericarp, glossy.

Endemic; occurs from around Einasleigh in NE Qld, S to near Deniliquin, N.S.W. On heavy clay soils in association with grasslands and brigalow scrub, in swamps and disturbed alluvial flats.; flowers Jan.-July, Sept.-Nov. or all seasons; fruits Jan.-July, Sept.-Nov. or all seasons.

Themeda arguens (L.) Hack. *DC. Monog. Phan.* 6: 657 (1889). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Stipa arguens* L., *Sp. Pl. (ed. 2)* 117 (1762).

Type of Basionym or Protologue Information: India: Coll?.

Recent synonyms: *T. frondosa*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (200 as *Anthistiria frondosa*), [1878] G.Bentham, *Flora Australiensis* 7 (542 as *Anthistiria frondosa*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (342), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 20–300 cm tall. Leaves mostly basal. Ligule an eciliate membrane, 1 mm long. Leaf-blades flat or conduplicate, 5–30 cm long, 4–7 mm wide.

Inflorescence. Inflorescence compound, of pedicelled spikelet clusters. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets represented by a single scale, 4 in number. Companion spikelets developed, comprising 2 subequal glumes without lemmas, 6–10 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the

upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 8–11 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels, 7 -nerved. Lower glume surface indumented. Upper glume oblong, coriaceous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma 3 mm long, without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 50–90 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, North Kennedy.

Notes. A fairly widespread tropical species from northern regions of Australia and extending through SE Asia to the Andaman Is.. Flowers Feb.--Sept.

Themeda avenacea (F. Muell.) Dur. & Jacks. *Census New South Wales Pl.* 15 (1916). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Anthistiria avenacea* F. Muell., *Fragm.* 5: 206 (1866).

Type of Basionym or Protologue Information: Australia, Peak Downs: Mueller (K iso).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (543 as *Anthistiria avenacea*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (344), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (493), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (533), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (38).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (534, fig. 455), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (3823).

Habit. Perennial. Culms erect, stature robust to moderate, 100–200 cm tall, 2–4 mm diam., 2–3 -noded. Mid-culm nodes glabrous or pubescent. Ligule an eciliate membrane, 2–7 mm long. Leaf-blades conduplicate, 15–100 cm long, 1–1.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, of pedicelled spikelet clusters. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster or 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, containing empty lemmas, symmetrical or asymmetrical, 20–30 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, terete, 13–17 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, cartilaginous, much thinner on margins, without keels, 11 -nerved. Lower glume surface indumented. Upper glume oblong, cartilaginous, 3 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 1 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 40–100 mm long overall, with a twisted column. Palea absent. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Dampier. Kertland, Carnegie, Fortescue, Ashburton, Austin. **Northern Territory:** Victoria River, Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, North Far Western Plains. **Victoria:** Riverina.

Notes. An endemic species growing in the drier regions of all mainland states. Flowers Nov.--Sept.

Themeda intermedia (Hack.) Bor. *Indian For. Rec. (Bot.)* 1(3):96(1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Themeda gigantea* var. *intermedia* Hack. in DC., *Monogr. Phan.* 6:675 (1889).

Type of Basionym or Protologue Information: India, Khasia Hills: *Hooker & Thomson* (K iso).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms erect, stature robust to moderate, 300–500 cm tall, 10–15 mm diam. Mid-culm internodes solid, glabrous. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 1–2 mm long. Leaf-blades flat, 40–100 cm long, 4–15 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, of pedicelled spikelet clusters. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 2–3 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 10–15 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 7–10 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, without keels. Lower glume surface indumented. Upper glume oblong, coriaceous, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, muticous or awned. Median (principal) awn 5–8 mm long overall. Palea absent. Anthers 3.

Continental Distribution: Tropical Asia, Australasia, and Pacific.

Australian Distribution: Queensland.

Queensland: Cook, North Kennedy.

Notes. North Kennedy and Torres St (Moa Island) to New Guinea, Malesia and Burma. Flowers Apr.

Themeda quadrivalvis* (L.) Kuntze. *Rev. Gen. Pl.* 2: 794 (1891). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Andropogon quadrivalvis* L., *Syst. Veg.* (ed. 13) 758 (1774).

Type of Basionym or Protologue Information: LT: (LINN-1211.5). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 246 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (384).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (384).

Habit. Annual. Basal leaf sheaths present. Culms erect or geniculately ascending, 30–200 cm tall, 4–6 mm diam., 5–7 -noded. Mid-culm nodes glabrous. Ligule an eciliate membrane, 1–2.5 mm long. Leaf-blades conduplicate, 7–60 cm long, 1–6 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, of pedicelled spikelet clusters. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, comprising 2 subequal glumes without lemmas, 4–6 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 4.5–5.5 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, coriaceous, much thinner above, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume oblong, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 1 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 10–45 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Hall, Dampier. **Northern Territory:** Darwin & Gulf. **Queensland:** Burnett, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. From India and Burma, now fairly widespread in areas to the east and west of the Indian subcontinent. Naturalised in Australia mostly in subtropical and tropical coastal Qld with a few records from N.T. and W.A. Flowers Feb.--Oct.

Themeda triandra Forsk. *Fl. Aegypt.-Arab.* 178 (1775). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Type of Basionym or Protologue Information: Yemen: Al Hadiyah, 1763, *Forsskål s.n.* (HT: C (destroyed)).

Recent synonyms: *T. australis*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (200 as *Anthistiria australis*), [1878] G.Bentham, *Flora Australiensis* 7 (542 as *Anthistiria ciliata*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (344 as *T. australis*), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (493 as *T.*

australis), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (437), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (534), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (282 as *T. australis*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (343, Pl.100 as *T. triandra*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (535, fig. 456), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (255 as *T. australis*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (387 as *T. australis*).

Habit. Perennial. Basal leaf sheaths present. Culms erect, 30–200 cm tall. Ligule a fringed membrane, a ciliate membrane. Leaf-blades flat, 10–30 cm long, 1–8 mm wide.

Inflorescence. Inflorescence compound, of pedicelled spikelet clusters. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 2 in the cluster. Basal sterile spikelets well-developed, 4 in number. Companion spikelets developed, male, 6–14 mm long. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, terete, 6–11 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume oblong, coriaceous, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume oblong, 3 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret hyaline, 0 -nerved.

Fertile lemma without keel, 1 -nerved. Lemma apex entire, awned, 1 -awned. Median (principal) awn apical, 25–70 mm long overall, with a twisted column. Palea absent.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** North West, North East, Ben Lomond, East Coast, South West.

Notes. A very widespread species, "perhaps the most widespread grass in Australia", *vide* J.C.Tothill & J.B.Hacker 1983, but it recently has become scarce as a result of overgrazing. Extends throughout the subtropics and tropics of the Old World. Flowers all year.

Themeda sp. Hammersley Station (M.E.Trudgen 11431)

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Themeda sp. (Mt Barricade 2471)

Australian Distribution: Western Australia.

Western Australia: Kertland, Fortescue.

Thinopyrum distichum* (Thunb.) Á.Löve. Feddes *Repert.* 95: 476 (1984). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Triticum distichum* Thunb., *Prodr. Pl. Cap.* 23 (1794).

Type of Basionym or Protologue Information: South Africa, Cape: *Thunberg*.

Recent synonyms: *Agropyron distichum* (Thunb.) P.Beauv.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (104).

Habit. Perennial. Rhizomes present. Culms stature robust to moderate, 40–60 cm tall. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades flat or involute, 20–40 cm long, 5–7 mm wide.

Inflorescence. Racemes 1, erect, linear or oblong, 6–25 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets comprising 5–11 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, (16–)28–40 mm long.

Glumes. Glumes similar. Lower glume oblong, coriaceous, without keels, 9–11 -nerved. Upper glume oblong, coriaceous, without keels, 9–11 -nerved.

Florets. Fertile lemma 15–19 mm long, without keel, 7–11 -nerved. Lemma apex dentate. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 10 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond.

Thinopyrum junceiforme* (A. Love & D. Love) Á.Löve. *Taxon* 29: 351 (1980). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Elytrigia junceiformis* Á. Löve & D. Löve, *Rit Landbunaoard. Atvinnud. Haskolans, B* 3: 106 (1948); *Agropyron junceum* subsp. *boreali-atlanticum* Simonet ex Guin., *Bull. Soc. Bot. France* 85: 176 (1938).

Recent synonyms: *Agropyron junceiforme* Á.Löve & D.Löve, *A. junceum* auct. non. (L.) P.Beauv.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (277), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (103).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (278, fig. 216).

Habit. Perennial. Rhizomes absent or present, elongated. Culms erect, 20–75 cm tall. Leaves cauline. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.5–1.25 mm long, hyaline or membranous, truncate. Leaf-blades flat or involute, 10–38.5 cm long, 1.5–6 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, erect, 4–20 cm long, bearing 9–11 fertile spikelets on each. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 15–28 mm long.

Glumes. Glumes similar. Lower glume elliptic or oblong or ovate, cartilaginous or coriaceous, without keels or keeled, 1-keeled, 7–12 -nerved. Upper glume oblong, 9–20 mm long, coriaceous, keeled, 1-keeled, 7–13 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 11–20 mm long, keeled, 5 -nerved. Lemma apex mucronate. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, and North America.

Australian Distribution: South Australia, Victoria, Tasmania.

South Australia: Southern Lofty, South-eastern. **Victoria:** Gippsland Plain, Otway Plain, Wilsons Promontory. **Tasmania:** Furneaux Group, North West.

Notes. Introduced for sand dune stabilisation.

The morphologically variable species *Thinopyrum junceum* and *T. junceiforme* are widely recorded as being introduced into Australia, there being a number of collections under both names in Australian herbaria. However, according to Melderis' (1980) treatment, these taxa are unequivocally distinguishable only by differences in anther length and somatic chromosome number (anthers 10–12 mm long and 2n=42 or 56 in *Elymus farctus* subsp. *farctus* (= *T. junceum*) vs. anthers 6–8 mm long and 2n= 28 in *E. farctus* subsp. *boreali-atlanticus* (= *T. junceiforme*). All Australian material examined to date possess anthers of 6–8 mm, thus, it is likely that if *T. junceum* is present in Australia it is of very restricted distribution and not present in any national herbaria.

Native to the Mediterranean, introduced into North America. Commonly located just above the high tide zone. Flowers Nov.-Dec.

Thinopyrum ponticum* (Podp.)Z.W.Liu & R.C.Wang. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Basionym and/or Replacement Name: *Triticum elongatum* Host, *Icon. Descr. Gram. Austriac.* 2: 18, t. 23 (1802).

Type of Basionym or Protologue Information: Jugoslavia, Ssaule: Coll? (W holo).

Recent synonyms: *Lophopyrum elongatum* (Host) Á.Löve, *Agropyrum elongatum* (Host) P.Beauv., *Elymus elongatus* (Host) Runemark, *Thinopyrum elongatum* (Host) D.R.Dewey

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *T. elongatum*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (277 as *T. elongatum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (384), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (103 as *T. elongatum*).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (277, fig. 215), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (384), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (117, Fig.18 as *T. elongatum*).

Habit. Culms erect, 96–120 cm tall. Leaf-sheath auricles present. Ligule an eciliate membrane, 0.75 mm long, membranous or scarious, truncate. Leaf-blades involute, 245 cm long, 1.5–2 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 49–61 cm long, bearing 11–12 fertile spikelets on each.

Spikelets. Fertile spikelets many flowered, with at least 2 fertile florets (8–10), comprising 8–10 fertile floret(s), 15–21 mm long.

Glumes. Lower glume oblong, cartilaginous or coriaceous, 8 -nerved. Upper glume 8–10 -nerved.

Florets. Fertile lemma 10–10.5 mm long.

Continental Distribution: Europe, or Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Eyre Peninsula, Northern Lofty, Yorke Peninsula, Southern Lofty, South-eastern. **New South Wales:** Northern Tablelands, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, South-Western Plains. **Victoria:** Murray Mallee, Riverina, Midlands, Volcanic Plain, Gippsland Plain.

Notes. Introduced for land stabilisation and revegetation of saline areas, McPhie (1973) recommended cv. 'Largo' for these purposes.

Introduced. Flowers Nov.–Mar.

Thuarea involuta (G. Forst.) R. Br. ex Smith. *Syst. Veg.* 2: 808 (1817). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Ischaemum involutum* G. Forst., *Fl. Ins. Austr.* 73 (1786).

Type of Basionym or Protologue Information: Societatis insule et passim intra tropicos.,

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197 as *T. latifolia*, *T. media*), [1878] G.Bentham, *Flora Australiensis* 7 (as *T. sarmentosa*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms prostrate, 2.5–25 cm tall. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades lanceolate, 1.5–7 cm long, 3–10 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, erect, lanceolate, 1–3 cm long, bearing 1(–2) fertile spikelets on each.

Spikelets. Spikelets sessile. Apical sterile spikelets male (deciduous). Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4–5.4 mm long.

Glumes. Glumes thinner than fertile lemma. Upper glume ovate, 4–5.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 90 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 4–5.4 mm long, without keel, 5 -nerved. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. In tropical heaths, tropical and subtropical rain forests, and coastal grasslands. A widespread species restricted to sandy coastal areas where it forms extensive stolons. Flowers Sept.–May. The upper spikelets of the second raceme are male whereas the lower 1–2 spikelets are bisexual or female. At maturity the upper spikelets disarticulate and the axis bends to enclose the lower spikelets to produce a nut-like structure which fall as a dispersal unit, which is able to float and penetrate sand.

Thuarea is a monotypic genus from the coastal regions of tropical Asia and Australia.

Thyridolepis mitchelliana (Nees) S. T. Blake. *Contr. Queensland Herb.* 13 :27 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Basionym and/or Replacement Name: *Neurachne mitchelliana* Nees, *Hooker's J. Bot. Kew Gard. Misc.* 2: 410 (1843).

Type of Basionym or Protologue Information: T: *Mitchell* 46, 1836, Australia: interior of New Holland [Lachlan River?] (CGE).

Recent synonyms: *Neurachne mitchelliana*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (508 as *Neurachne mitchelliana*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (273 as *Neurachne mitchelliana*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (485), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (504), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (385).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (272, Pl.78 as *Neurachne*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (505, 3/fig. 433 & plate 18), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (385).

Habit. Perennial. Culms erect, 20–60 cm tall. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades 1–6 cm long, 3–5 mm wide.

Inflorescence. Inflorescence solid, a raceme. Panicle linear, 2–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 5–7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, coriaceous, without keels, 3–5 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, 4.5–6.5 mm long, coriaceous, without keels, 5–7 -nerved. Upper glume surface tuberculate, glabrous or indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, herbaceous, 5 -nerved.

Fertile lemma 4 mm long, without keel, 3 -nerved. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Darling Downs, Gregory North, Leichhardt, Maranoa, Warrego, North Kennedy, South Kennedy, Gregory South. **New South Wales:** North-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains.

Notes. The association of long villous hairs with setaceous hairs on the submargins of the upper glume distinguishes this species. However, only spikelets on the upper part of the inflorescence should be used, as drastic spikelet dimorphism in a single inflorescence occurs. Additional important characters include spikelet length, main axis length and length of the submarginal hairs.

In semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, eucalypt shrublands, arid tussock grasslands, arid hummock grasslands, and coastal grasslands. Flowers mostly Mar.-Sept., but sporadically throughout the year.

Thyridolepis multiculmis (Pilger) S. T. Blake. *Contr. Queensland Herb.* 13: 32 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Basionym and/or Replacement Name: *Neurachne multiculmis* Pilg., *Bot. Jahrb. Syst.* 35: 68 (1904).

Type of Basionym or Protologue Information: HT: *Diels* 4217, Australia: Western Australia: Irwin District: near Greenough River along the road to Mullewa (B (destroyed)).

Recent synonyms: *Neurachne multiculmis*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (485), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (504).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (506, fig. 434).

Habit. Perennial. Culms erect or geniculately ascending, 15–70 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.8–1.2 mm long. Leaf-blades flat or involute, 2–10 cm long, 2.5–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a raceme. Panicle linear, 4.5–10 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, linear or oblong, dorsally compressed, 5.6–8 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, cartilaginous, without keels, 7 -nerved. Lower glume surface indumented. Upper glume lanceolate or oblong, 5.1–7.5 mm long, coriaceous,

without keels, 9 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–70 % of length of spikelet, chartaceous, 5 -nerved.

Fertile lemma 4.1–4.9 mm long, without keel. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Austin. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin.

Notes. Diagnostic features of this distinctive species include the pubescent to villous lower glume, spikelet length, and shape of the setae. The setae are relatively short, broad and few in number. On the upper glume the setae are typically 1.5–2.4 mm long, occur in a discontinuous row on the submargins and are not interspersed with long villous hairs as in *T. mitchelliana*.

In shrub steppe shrublands, acacia shrublands, and arid hummock grasslands. Flowers sporadically throughout the year.

Thyridolepis xerophila (Domin) S. T Blake. *Contr. Queensland Herb.* 13: 33 (1972). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Neurachneae.

Basionym and/or Replacement Name: *Neurachne xerophila* Domin, *Biblioth. Bot.* 85: 284 (1915).

Type of Basionym or Protologue Information: Australia, Jericho: *Domin* (PR holotype).

Recent synonyms: *Neurachne xerophila*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (485), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (506), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (386).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (506, Fig. 435), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (386).

Habit. Perennial. Culms erect or geniculately ascending, 15–70 cm tall, 5–9 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Ligule a fringe of hairs, 0.3–0.6 mm long. Leaf-blades flat or involute, 1.5–9 cm long, 1–4 mm wide.

Inflorescence. Inflorescence solid, a raceme. Panicle linear or oblong, 1.5–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.9–5.3 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong or ovate, cartilaginous, without keels, 7–9 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 3.4–4.9 mm long, chartaceous or cartilaginous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire or dentate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 60–70 % of length of spikelet, membranous or chartaceous, 5 -nerved.

Fertile lemma 2.9–4 mm long, without keel. Palea 2 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Helms. **Northern Territory:** Central Australia South. **South Australia:** North-western. **Queensland:** Darling Downs, Gregory South, Leichhardt, Maranoa, Mitchell, South Kennedy, Warrego. **New South Wales:** Central-Western Slopes, North-Western Plains.

Notes. In dry sclerophyll forests, temperate sub-humid woodlands, semi-arid shrub woodlands, acacia shrublands, and arid hummock grasslands. Flowers sporadically throughout the year.

Tragus australianus S. T. Blake. *Univ. Queensland Dept. Biol. Pap* 1: 12 (1941). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: Queensland--Maranoa District...Noondoo, near Dirranbandi, on sand in Callitris forest, also on heavier soils, ca. 550 ft., *Blake 10660*.

Recent synonyms: *Tragus heptaneron*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (506 as *Lappago racemosa*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (185), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (470), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (403), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (386).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (187, Pl.54), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (259), [2005] K.Mallet (ed.), *Flora of Australia* 44B:

Poaceae 3 (Fig. 40A-F), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (402, Fig. 335), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (386).

Habit. Annual or ephemeral. Culms erect or geniculately ascending or decumbent, 20–43 cm tall, 2–4-noded. Ligule a fringed membrane or a fringe of hairs, a ciliolate membrane, 0.5–1 mm long. Leaf-blades flat, 2–6 cm long, 2.5–6 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes numerous, spreading, oblong, 0.4–0.5 cm long, bearing 2 fertile spikelets on each. Central inflorescence axis 5–11 cm long. Rhachis obsolete, deciduous from axis.

Spikelets. Spikelets sessile. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate, terete, 5 mm long.

Glumes. Glumes firmer than fertile lemma. Lower glume lanceolate, hyaline, 0-nerved. Upper glume lanceolate or ovate, 2.9–4.5 mm long, membranous, without keels, 5-nerved. Upper glume surface with hooked spines, glabrous or indumented.

Florets. Fertile lemma 2.6–4 mm long, without keel, 3-nerved. Lemma surface glabrous or indumented. Palea 2-nerved, without keels. Lodicules present. Anthers 3. Grain 1.2–2.1 mm long.

Continental Distribution: Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Fitzgerald, Dampier, Carnegie, Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin, Roe, Avon, Coolgardie. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North Coast, Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** Murray Mallee, Riverina, Volcanic Plain.

Notes. Widespread throughout the arid and semi-arid areas of mainland Australia, and near coastal in southern Qld and central W.A. A summer ephemeral occurring on soils of various textures, but mostly on red sandy soils; in bare open spaces and disturbed areas, in sparse to dense woodland with such species as Poplar box (*Eucalyptus populnea*), Mulga (*Acacia aneura*), Brigalow (*Acacia harpophylla*), Belah (*Casuarina cristata*), or *Callitris* spp., or other *Eucalyptus* or *Acacia* species, or in herb- or grass-lands dominated by *Bassia* spp., *Astrebla* spp. or *Aristida* spp.

Tribolium acutiflorum* (Nees) S.A. Renvoize. *Kew Bull.* 40: 798 (1985). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoniaceae.

Basionym and/or Replacement Name: *Brizopyrum acutiflorum* Nees, *Fl. Afr. Austral. Ill.* 371 (1841).

Type of Basionym or Protologue Information: LT: *Drège s.n.*, South Africa: Cape Prov.: in dumetis ad Ebenzar et in Groenvalley ad montem Piquetberg (K(fragm., PRE); ILT: BM, K, LE). LT designated by Linder & Davidse, *Bot. Jahr. Syst.* 119: 477 (1998).

Recent synonyms: *Desmaziera acutiflora*, *Plagiochloa acutiflora*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (314).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 7), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (315, fig. 246).

Habit. Perennial. Culms geniculately ascending or decumbent, 10–40 cm tall. Ligule a fringe of hairs. Leaf-blades 50–120 cm long, 2–3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear or oblong, 1–2.5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (4–9), comprising 4–9 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–6.5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume ovate, coriaceous, keeled, 1-keeled, 5-nerved. Lower glume surface glabrous. Upper glume ovate, 3.5 mm long, coriaceous, keeled, 1-keeled, 5-nerved. Upper glume surface glabrous.

Florets. Fertile lemma 2.5–3.5 mm long, without keel, 7-nerved. Lemma surface glabrous or indumented. Palea 2-nerved.

Continental Distribution: Africa and Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Northern Lofty, Southern Lofty, South-eastern. **Victoria:** Gippsland Plain, Grampians, Midlands, Otway Plain, Volcanic Plain, Wannon, Wimmera.

Notes. Related to *T. oblitterum* by the glabrous glumes, but distinct by the three rows of hairs on the lemma, with the keel hairs strongly clavate, as well as the axillary inflorescences.

Introduced from South Africa, a weed of disturbed ground in temperate Australia, but also invading undisturbed vegetation. Flowers Sep. to Dec.

Tribolium echinatum* (Thunb.) S.A. Renvoize. *Kew Bull.* 40: 798 (1985). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Alopecurus echinatus* Thunb., *Prodr. Pl. Cap.* 19 (1794).

Type of Basionym or Protologue Information: ST: *Thunberg 1711*, South Africa (UPS). ST: *Thunberg 1712*, South Africa (UPS).

Recent synonyms: *Lasiochloa echinata*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms decumbent, 7–30 cm tall. Ligule a fringe of hairs. Leaf-blades 7–15 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or ovate, effuse, 1–5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets ((2-)3(-4)), comprising (2-)3(-4) fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3.5–5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume ovate, chartaceous, keeled, 1-keeled, 5 -nerved. Lower glume surface indumented. Upper glume ovate, 3.5–4 mm long, membranous, keeled, 1-keeled, 5 -nerved. Upper glume surface indumented.

Florets. Fertile lemma 2.5–4 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Grain 1.2 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia.

Western Australia: Drummond, Avon.

Notes. Distinct from *T. hispidum* by the annual growth and the long-acuminate glumes; from *T. utriculosum* by the slender glume-bristles, the larger spikelets and the taller growth, as well as the glabrous lemma backs.

Introduced from South Africa, a weed of disturbed areas. Flowers Sep. to Oct.

Tribolium oblitterum* (Hemsl.) S.A. Renvoize. *Kew Bull.* 40: 798 (1985). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthonieae.

Basionym and/or Replacement Name: *Desmazeria oblittera* Hemsl., *Rep. Challenger, Bot.* 1(2): 90, t. 51, f. 1–8 (1885).

Type of Basionym or Protologue Information: HT: *Burchell 59*, St. Helena (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (316).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (316, fig. 247).

Habit. Perennial. Stolons absent or present. Culms geniculately ascending or decumbent, 10–35 cm tall. Ligule a fringe of hairs. Leaf-blades filiform, involute, 2–15 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence solid, a panicle. Panicle oblong or obovate, effuse, 1–5 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 3.5–5 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume ovate, coriaceous, keeled, 1-keeled, 5 -nerved. Lower glume surface glabrous. Upper glume ovate, 4–5 mm long, coriaceous, keeled, 1-keeled, 5 -nerved. Upper glume surface glabrous.

Florets. Fertile lemma 2–5 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Grain 0.7–1 mm long.

Continental Distribution: Africa.

Australian Distribution: Western Australia, South Australia, Victoria.

Western Australia: Menzies. **South Australia:** Southern Lofty, South-eastern.

Notes. Close to *T. obtusifolium*, distinct by the glabrous glumes, the florets exerted from the glumes, the smaller anthers.

Very common from Mt Lofty to Melbourne, apparently widely established as a weed, often in light shade in woodland. Introduced from the Western Cape of South Africa. Flowers Sep. to Nov.

Tribolium uniolae* (L.f.) S.A. Renvoize. *Kew Bull.* 40: 797 (1985). **Classification.** (GPWG 2001) : Subfamily Danthonioideae. Tribe Danthoneieae.

Basionym and/or Replacement Name: *Cynosurus uniolae* L. f., *Suppl. Pl.* 110 (1781) [1782].

Type of Basionym or Protologue Information: T: *Sparrman s.n.*, South Africa: Cape Province (LINN-91.22).

Recent synonyms: *Plagiochloa uniolae*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (438).

Habit. Perennial. Culms erect, 15–60 cm tall. Leaves mostly basal. Ligule a fringe of hairs. Leaf-blades involute, 3–20 cm long, 1–3 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, linear, 0.8–7 cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (3–14), comprising 3–14 fertile floret(s), with diminished florets at the apex, ovate to orbicular, laterally compressed, 5–10 mm long.

Glumes. Glumes similar, similar to fertile lemma in texture. Lower glume ovate, coriaceous, keeled, 1-keeled, 5 -nerved. Lower glume surface glabrous. Upper glume ovate, coriaceous, keeled, 1-keeled, 5 -nerved. Upper glume surface glabrous.

Florets. Fertile lemma 4–6 mm long, without keel, 7 -nerved. Lemma surface glabrous or indumented. Palea 2 -nerved. Lodicules present. Grain 1.2–1.7 mm long.

Continental Distribution: Africa and Australasia.

Australian Distribution: Western Australia, Victoria.

Western Australia: Drummond, Eyre, Roe. **Victoria:** Gippsland Plain.

Notes. Weedy in Western Australia and Victoria, often on disturbed ground or under light woodland, introduced from the Western Cape of South Africa. Flowers Oct. to Dec.

Triodia acutispicula M. Lazarides, nom nov. *Austral. Syst. Bot.* 10: 400 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne caroliniana* S.W.L. Jacobs, *Nuytsia* 8(2): 221 (1992).

Type of Basionym or Protologue Information: Western Australia: Northern Province: Drysdale River, 50 miles (80 km) NNW of Gibb River homestead, 30.viii.1954., *M. Lazarides 4916* (HT: NSW; IT: AD, BRI, CANB, DNA, K, MEL, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. L-O).

Habit. Perennial. Culms 50–70 cm tall. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.5–2.3 mm long. Leaf-blades curved or flexuous, conduplicate, 20–40 cm long, 0.7–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, dense or loose, 12–25 cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, lanceolate, terete, 8–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, without keels, 3–5(–9) -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 9–18 mm long, scarious, without keels, 3–5(–9) -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 5–9 mm long, without keel or keeled, 9 -nerved. Lemma surface glabrous. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 9–12 mm long overall. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner, Fitzgerald, Dampier. Fortescue.

Notes. Distinguishing characters include bitextured, glabrous lemma with transverse demarcation; bitextured glabrous palea; long pungent callus; terete spikelet. Similar in spikelet morphology to *P. schinzii* but has smaller spikelet dimensions (except callus), a longer lemma body, fewer nerved glumes and non-resinous foliage.

NW Northern Province, W.A. In sandy soils on Pindan plains and river levees; flowers Jan.-Apr. (summer and autumn), persisting until Aug. (winter); fruits Jan.-Apr. (summer and autumn), persisting until Aug. (winter).

Triodia aerea M. Lazarides. *Austral. Syst. Bot.* 10: 400 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; Mt. House, Lat 17°05' S. Long. 125°46' E, 5.v.1983., P.A. Fryxell & L.A. Craven 3962 (HT: CANB; IT: CANB, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 36S-U).

Habit. Perennial. Stolons present. Culms erect, 10–50 cm tall, 1–2 -noded. Lateral branches fastigiate. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.7–1 mm long. Leaf-blades spreading or recurved, filiform, conduplicate, 2–7(–10) cm long, 0.7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 7–15 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed or terete, 9 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious or cartilaginous, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex mucous. Upper glume lanceolate, 7–9 mm long, scarious or cartilaginous, without keels, 3(–5) -nerved. Upper glume surface smooth or scabrous, glabrous.

Florets. Fertile lemma 4 mm long, without keel or keeled, 3 -nerved. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 5–8 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner, Fitzgerald.

Notes. Distinguishing characters include the reduced, raceme-like, sparse, simple panicle; deeply lobed lemmas; long palea relative to the lemma; much branched fastigiate culms; the production of aerial roots on the culms and stolons.

Restricted to the Mt. House area of W.A. Fine skeletal soils on shales on exposed lower hillslopes or scree slopes; flowers most probably in Feb.-March after summer rains.

Triodia angusta N. T. Burbidge. *J. Roy. Soc. W. Australia* 30: 26, (1946). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Coongan Station, *Anderson (Burbidge 452)*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (77), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (71, Pl. 21).

Habit. Perennial. Stolons present. Culms 50–200 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight or flexuous, aciculate, conduplicate, 8–20 cm long, 1.2–1.8 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, 2–3 cm long. Central inflorescence axis 10–41 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed or terete, 4–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or scarious, without keels, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 3–5 mm long, hyaline or scarious, without keels, 1–3 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 2.5–4 mm long, without keel or keeled, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Mueller, Canning, Fortescue, Ashburton, Carnarvon.

Notes. Allied to *T. secunda*, but lacks the fringed auricles and hirsute lemmas of that species. Diagnostic characters include the spiciform racemose inflorescence with secund, biseriate spikelets; unequal mucronate glumes c. 1/2 as long as the spikelet; shortly 3-lobed, almost glabrous, 3-nerved lemmas; long scabrous-pubescent paleas; stoloniferous often bluish habit. Foliage indumentum is variable, the sheaths either glabrous or woolly-hairy, with the hairs sometimes extending to the blade, and the orifice varying from woolly, shortly pubescent or long-bearded.

N of the Tropic of Capricorn in the Eremaen Province on mainland and coastal islands, W.A. On the banks of rivers and creeks; stony watercourses; margins of salt flats, salt lakes and samphire marshes; coastal shell mounds; calcareous drainage floors; cracking clay plains and flats; shaley creekbeds; beach sands; sandy and sandy loam, often red soils; stony gorge hills, valleys and lowlands; in association with limestone, quartzite and sandstone; flowers all seasons.

Triodia aristiglumis (Lazarides) M. Lazarides. *Nuytsia* 5: 278 (1984). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne aristiglumis* Lazarides, *Nuytsia* 5(2): 278 (1984) [1985].

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District; Magela Creek, 12.40'S, 133.03'E; 25 Feb 1973, *Dunlop 3371* (HT: CANB; IT: BRI, DNA, K, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 34J-K).

Habit. Perennial. Culms erect, 60 cm tall, 3–4 -noded. Mid-culm internodes glabrous or pilose. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades flexuous, conduplicate, 10–25 cm long, 2–3 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 11–13 cm long, 3–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 11–13 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous or cartilaginous, without keels, 3 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume lanceolate, 3–8 mm long, membranous or cartilaginous, without keels, 3 -nerved. Upper glume surface asperulous, glabrous or indumented. Upper glume apex lobed, awned.

Florets. Fertile lemma 6 mm long, without keel, 3–9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn from a sinus, 12 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Known only from the type locality.

Characterised by its 2-lobed, unequally 3-awned and hairy glumes and lemmas; the spikelets with many close florets exerted above the body of the glumes at maturity; and the sparse, loose panicle.

Known only from the type locality in the N.T. Exposed ledges on sandstone escarpments; flowers February (summer).

Triodia aurita M. Lazarides. *Austral. Syst. Bot.* 10: 405 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Darwin and Gulf District; Lat 13°33' S, Long. 132°17' E, 7.xii.79., *C.R. Dunlop 4214* (HT: CANB; IT: BRI, DNA, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 37A-E).

Habit. Perennial. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles present. Ligule a fringe of hairs, 1–1.3 mm long. Leaf-blades straight, filiform, conduplicate, 12–25 cm long, 1.2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, effuse, 25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–9), comprising 7–9 fertile floret(s), with diminished florets at the apex, lanceolate, terete, 9–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, cartilaginous, without keels or keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume elliptic or oblong, 4–5 mm long, cartilaginous, without keels or keeled, 1-keeled, 1–3 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 5–6 mm long, without keel, 5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, mucronate. Median (principal) awn from a sinus, 1.2 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Only known from two collections.

Distinguished by the lanceolate, terete, closely flowered spikelets; mucronate overlapping glumes; small, unequal lobes of lemma; auricled leaf sheaths; open panicle of distant long-pedicelled spikelets; relatively broad, few-nerved glumes and lemmas. The extremely long-haired callus is a particularly prominent character.

T. aurita shares a number of distinctive features with *T. plectrachnoides*, viz. auricled leaf sheaths, mucronate glumes, long-bearded callus and similarly lobed lemma. However, the spikelets of the two species differ markedly in morphology, dimensions and indumentum, and their auricles in indumentum.

Known only from the type locality, N.T. Sandstone hills; flowers May.

Triodia basedowii E.Pritzel. *Repert. Spec. Regni Veg.* 15: 356 (1918). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: ST: *H. Basedow* 315, 1903, Northern Territory; Central Australia; Elder Exploring Expedition, Arkaringa Creek. ST: *H. Basedow* 425, 1903, Northern Territory; Central Australia; Elder Exploring Expedition, Arkaringa Creek. (K, NSW).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (67), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (444), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (410), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (387).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (69, Pl. 19), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (411, fig. 339), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (387).

Habit. Perennial. Stolons present. Culms 15–130 cm tall. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, (2–)5–25 cm long, 0.7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, (3–)6–13(–16) cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 7–18 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious, without keels, 7–13 -nerved. Lower glume apex muticous or mucronate. Upper glume oblong, (4–)6–10 mm long, scarious, without keels, 7–13 -nerved. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 5.5–9 mm long, without keel or keeled, 9–15 -nerved. Lemma surface indumented. Lemma apex lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Canning, Kertland, Carnegie, Helms, Fortescue, Ashburton, Carnarvon, Austin. Eucla. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Flinders Ranges. **Queensland:** Burke, Gregory North, Gregory South, Mitchell. **New South Wales:** North Far Western Plains.

Notes. The deeply lobed bitextured lemma; bitextured mostly glabrous, long palea; many-nerved scarious usually glabrous glumes long relative to spikelet; linear usually short and dense panicle, and usually woolly indumentum are diagnostic features.

Between 19°S and 30°S in W.A., S of 18°S in N.T., northern S.A., NW N.S.W., and western and central Qld. Chiefly on flat to gently sloping and undulating sandplains, dunefields, dune swales and sandhills in deep, red or reddish-yellow, siliceous sands and sandy loams; less commonly in shallow, rocky or pebbly or gravelly soils, clayey loams or clayey sands, on small hills, lateritic rises and in association with limestone; also in skeletal soil on quartzite hills and outcrops, sandy valleys in quartzite ranges, creek frontages, and on sand dune on edge of salt lake; flowers all seasons.

Triodia biflora M. Lazarides. *Austral. Syst. Bot.* 10: 412 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province, Hamersley Range, Knox Gorge, Karijini National Park, Lat. 22°23' S, Long. 11 18' E, 22.vii.1992., *B.Rice* 4445 (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 38I-K).

Habit. Perennial. Stolons absent or present. Culms 30–60 cm tall. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1.5–2 mm long. Leaf-blades straight, conduplicate or involute, 25–30 cm long, 0.5–1.2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 20–25 cm long, 5–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2), comprising 2 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3.3–4 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, chartaceous or scarious, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic or oblong, 2.5–3.5 mm long, chartaceous or scarious, without keels, 3 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire.

Florets. Fertile lemma 3–3.8 mm long, without keel, 3–5 -nerved. Lemma surface glabrous. Lemma apex entire (or minutely 3-dentate) or dentate or lobed, muticous. Palea apex entire or dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Notes. Known from only 2 collections.

Diagnostic characters include the spikelet of two sessile closely appressed similar, adjacent fertile florets and a third vestigial floret terminal on a long, filiform internode of the rachilla. Also the glumes are scarious and slightly shorter than the florets; the lemmas bitextured, 3-nerved, with thickly 3–5-nerved apex; the palea is partly scaberulous, with winged keels; the callus minute and thickened; and the foliage highly resinous.

Known only from the Hamersley Ra., W.A. Steep rocky walls and ledges of gorges; flowers July–Aug.

Triodia bitextura M. Lazarides, nom nov. *Aust. Syst. Bot.* 10: 412 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triraphis pungens* R. Br., *Prodr.* 1: 185 (1810).

Type of Basionym or Protologue Information: Queensland: Burke District; Islands of Gulf of Carpentaria, R. Brown [6247] (HT: BM; IT: K, PERTH, E, B).

Recent synonyms: *Plectrachne pungens*, *P. pungens* var. *callosum*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (185 as *Triraphis pungens*), [1878] G.Bentham, *Flora Australiensis* 7 (604 as *Triraphis pungens*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (83 as *Plectrachne pungens*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (446 as *Plectrachne pungens* var. *pungens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (84, Pl. 23 as *Plectrachne pungens*), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 35L–P).

Habit. Perennial. Culms erect or geniculately ascending, 50–200 cm tall, 2–4 -noded. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curled or flexuous, conduplicate or involute, 10–45 cm long, 0.5–0.7 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle. Panicle lanceolate or oblong, 10–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–6), comprising 2–6 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed or terete, 8–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or scarious, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate or awned. Upper glume lanceolate, 7–15 mm long, membranous or scarious, without keels, 3 -nerved. Upper glume surface glabrous. Upper glume apex entire or lobed, mucronate or awned.

Florets. Fertile lemma 7–10 mm long, without keel, 3–9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1–3 -awned. Median (principal) awn 7–15 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Palea apex dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Keartland, Fortescue, Ashburton. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook, Gregory South, North Kennedy, South Kennedy, Mitchell.

Notes. Distinguishing characters include the bitextured lemma and palea; appressed lemma pubescence; few-nerved glumes subequal to body of the spikelet; markedly unequal awns; short keels relative to the palea. Similar to *P. schinzii* in spikelet morphology, but dissimilar in its smaller spikelet, fewer-nerved, shorter glumes

relative to the spikelet, shorter blunter callus, often hairy palea and curled-flexuose blades. Often the hyaline part of the palea is longer relative to the lower indurated part.

On the mainland and coastal islands N of lat. 23°S in W.A., on the mainland and coastal islands N of lat. 21°S in the N.T., and in the Burke, Mitchell, Gregory S and S Kennedy Districts of Qld. In deep sandy soils or silty sands on plains and dunes, and in shallow or skeletal, often stony or gravelly soils on hillslopes, scree slopes, tablelands, outcrops, ridges, mesas, ranges, and plateaux of sandstone, quartzite, laterite, and calcareous or volcanic rocks; also in or near watercourses and floodplains; occasionally on heavy clay, clay soils, and in saline depressions and saline sand over alkaline clay in interdune corridors; flowers mainly Oct.-Feb., but persisting in all seasons; fruits mainly Oct.-Feb., but persisting in all seasons.

Triodia brizoides N. T. Burbidge. *Austral. J. Bot.* 1:161 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Gorge Range, between Shaw and Coogan Rivers, *N.T. Burbidge* 792 (HT: CAN; IT: BRI, PERTH).

Recent synonyms: *Triodia burkensis*, *Triodia clelandii*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (75), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445 as *T. clelandii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (70, Pl. 20).

Habit. Perennial. Stolons present. Culms 30–150 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 3–20 cm long, 0.6–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic, effuse, 5–17 cm long. Racemes 1.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–10), comprising 7–10 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 8–22 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or cartilaginous or indurate, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume oblong, 4–10 mm long, scarious or cartilaginous or indurate, without keels, 3–5 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 4.5–7(–10) mm long, without keel or keeled, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Hall. Canning, Fortescue. **Northern Territory:** Central Australia North, Central Australia South. **Queensland:** Burke, Gregory North, Mitchell.

Notes. *T. brizoides* is treated in the broader sense, including the more recently described *T. burkensis* and *T. clelandii*, as the characters used to distinguish the taxa have been found to be variable.

Occurs disjunctly between 17°S and 26°S in W.A., N.T. and Qld, and from the W.A. coast to 141°04'E. Predominantly in skeletal, rocky or stony soils on hills, ranges, foothills, ridges, scree slopes and outcrops in association chiefly with quartzite, sandstone, laterite and limestone, but also with shale, basalt and metamorphic rocks; less frequently on sand plains, sandy river channels and banks, deep red earths and clays, and sandy loams; flowers all seasons; fruits all seasons.

Triodia bromoides (F. Muell.) M. Lazarides. *Austral. Syst. Bot.* 10: 417 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triraphis bromoides* F. Muell., *Fragm.* 8: 108 (1873).

Type of Basionym or Protologue Information: Western Australia: South-West Province; Geographe Bay, *A. Oldfield s.n.* (HT: MEL, IT: K, PERTH).

Recent synonyms: *Plectrachne bromoides*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (604 as *Triraphis bromoides*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (80 as *Plectrachne bromoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 33A-C).

Habit. Perennial. Culms erect, 50–150 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs.

Leaf-blades flexuous, aciculate, conduplicate, 15–23(–60) cm long, 0.8–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or oblong, 14–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 12–22 mm long.

Glumes. Glumes similar. Lower glume linear, scarious or cartilaginous, without keels, 1–3(–5) -nerved. Lower glume surface glabrous. Lower glume apex awned. Upper glume linear, 17–30 mm long, scarious or cartilaginous, without keels, 1–3(–5) -nerved. Upper glume surface glabrous. Upper glume apex entire or dentate, awned.

Florets. Fertile lemma 6 mm long, without keel or keeled, wingless to winged on margins, 8–15 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 20–35 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Austin. Irwin.

Notes. Similar to *P. drummondii*. *P. bromoides* is distinguished by its long-awned glumes and lemmas; hairy submargins and midnerve on the lemma; glumes much longer than the spikelet; hairy palea; sparsely hairy glume internode; indumentum on foliage and basal culm internodes; large anthers; few and loosely flowered spikelet.

On the mainland and coastal islands of the northern South-West Province of W.A. On sand plains and dunes, and stony rises, in red, grey and calcareous sands; flowers July–Oct. (winter and spring); fruits July–Oct. (winter and spring).

Triodia bunglensis (S.W.L. Jacobs) M. Lazarides. *Austral. Syst. Bot.* 10: 418–419 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne bunglensis* S.W.L. Jacobs, *Nuytsia* 8(2): 222 (1992).

Type of Basionym or Protologue Information: Western Australia: Northern Province; Bungle Bungle Range, Lat. 17°27' S, Long. 128°25' E, 4.vi.1985., *M.I. Blackwell BB60* (HT: PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 33J–M).

Habit. Perennial. Culms 150 cm tall. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 3 mm long. Leaf-blades straight or curved or flexuous, filiform, conduplicate, 12–30 cm long, 0.8 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid or compound, a raceme, a panicle. Panicle linear, 95–200 cm long, 1.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret (1–2), comprising 1–2 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or lanceolate, scarious, keeled, 1-keeled, 1–3 -nerved. Lower glume surface glabrous. Lower glume apex muticous or awned. Upper glume linear or lanceolate, 4–7 mm long, scarious, keeled, 1-keeled, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire or dentate or lobed, muticous or awned.

Florets. Fertile lemma 2–3 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 10–20 mm long overall. Lateral lemma awns present. Palea apex entire or dentate. Lodicules present. Anthers 3. Grain 1.6–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Dampier.

Notes. Similar to *P. bynoei* in spikelet morphology, but differing chiefly in its spiciform (not racemose) panicle, and usually larger lemmas with longer awns.

Recorded only from Bungle Bungle Natl Park, W.A. Found on sandstone cliffs, gorges and domes; flowers recorded in Nov., Apr., June and July (spring, autumn and winter); fruits recorded in Nov., Apr., June and July (spring, autumn and winter).

Triodia bunicola (S.W.L. Jacobs) M. Lazarides. *Austral. Syst. Bot.* 10: 419–420 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triodia scariosa* subsp. *bunicola* S.W.L. Jacobs, *Telopea* 4(4): 654 (1992).

Type of Basionym or Protologue Information: South Australia: Flinders Range District; Flinders Ranges north of Hawker, 19.viii.1966., S.W.L. Jacobs s.n. (HT: SYD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (411).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 34P-Q), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (411, fig. 340).

Habit. Perennial. Culms 30–100 cm tall. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades straight, filiform, conduplicate, 11–30 cm long, 0.7–1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense, (9–)15–18(–27) cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–8), comprising 5–8 fertile floret(s), with diminished florets at the apex, elliptic or oblong, laterally compressed, 13–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or cartilaginous, keeled, 1-keeled, 5–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume oblong, 8.5–14 mm long, scarious or cartilaginous, keeled, 1-keeled, 3–9 -nerved. Upper glume surface scabrous, glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 7–10 mm long, without keel or keeled, 9–11 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate or lobed, muticous or mucronate. Median (principal) awn from a sinus, 0.8–0.9 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Victoria.

South Australia: Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula. **Victoria:** Murray Mallee, Lowan Mallee.

Notes. Distinguished by its narrow, dense panicle; flattened, closely flowered spikelet; mostly cartilaginous glumes, lemmas and paleas; 3–7 nerved glumes, 1/2–3/4 as long as the spikelet; lanceolate, partly hirsute, minutely 2-lobed, usually muticous lemma with the 3 midveins forming a keel towards the apex; partly hairy 2-textured palea, long relative to the lemma.

SE S.A. and western Vic. Stony hillslopes with skeletal soils, floodplains, sandhills, brown sands and loams deep sands, interdunes; flowers May-Dec.

Triodia burbidgeana S.W.L. Jacobs. *Nuytsia* 8: 219 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; Mitchell Plateau, Lat. 14°49' S, Long. 125°42' E, 31.v.1988., S.W.L. Jacobs 5812 & P.G. Wilson (HT: NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (71, Pl. 21), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 35A-C).

Habit. Perennial. Stolons present. Culms 60–150 cm tall. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 2 mm long. Leaf-blades appressed or recurved, curved or flexuous, conduplicate, 30–60 cm long, 1.3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, 14–53 cm long, 3–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–8), comprising 4–8 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed or terete, 4–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, scarious or cartilaginous, without keels or keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume ovate, 3.5–5 mm long, scarious or cartilaginous, without keels or keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire.

Florets. Fertile lemma 3–4 mm long, without keel or keeled, 9 -nerved. Lemma surface indumented. Lemma apex lobed. Palea apex entire. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Hall. **Northern Territory:** Darwin & Gulf.

Notes. Distinguishing characters include the cartilaginous, glabrous, mostly smooth glumes and lemmas; usually loose panicle of pedicelled distant spikelets; small broad, subequal lemma lobes; cartilaginous, glabrous, smooth, relatively long paleas.

Northern areas of W.A. and N.T. Sandstone ranges and gorges, often in crevices and among outcrops, or in coarse sand near perennial streams; flowers Dec.-Feb., June-Sept. and Nov.

Triodia bynoei (C.E. Hubb.) M. Lazarides. *Austral. Syst. Bot.* 10: 422–423 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne bynoei* C.E. Hubb., *Bull. Misc. Inform. Kew* 1941: 30 (1941).

Type of Basionym or Protologue Information: HT: *Bynoe s.n.*, Australia: Western Australia: Northern Province: (K(fragm. PERTH)). North-west coast.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (83 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 37F-H).

Habit. Perennial. Culms erect or geniculately ascending, 30–165 cm tall, 3–4 -noded. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curled or flexuous, conduplicate, 30–45 cm long. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle 30–57.5 cm long, 4–5 cm wide. Racemes numerous, 5–11 cm long. Central inflorescence axis 30–50 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 4–8(–10) mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous, without keels, 1–3 -nerved. Lower glume apex muticous or mucronate. Upper glume lanceolate, 3.3–7 mm long, membranous, without keels, 1–3 -nerved. Upper glume apex entire or dentate or lobed, muticous or mucronate.

Florets. Fertile lemma 1.6–2.3(–5) mm long, without keel or keeled, 3–5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned or 3 -awned. Median (principal) awn 3.5–6 mm long overall. Lateral lemma awns absent or present. Palea 2 -nerved. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. Fortescue. **Northern Territory:** Victoria River.

Notes. Distinguished by the large racemose panicle, relatively small spikelets and unequally awned lemmas.

Mainland and coastal islands of NW W.A. (N of 23°S), and N of 16°S in the N.T. Commonly in sandy, shallow or skeletal soils on sandstone ranges, plateaux and scree slopes, often in fissures, pockets and among boulders; also on hillslopes of quartzite, shales and laterite, and in seasonally wet sites; flowers mainly Jan.-May (summer and autumn), persisting until September; fruits mainly Jan.-May (summer and autumn), persisting until September.

Triodia claytonii Lazarides. *Fl. Austral.* 43:375 (2002). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne mollis* Lazarides, *Nuytsia* 5(2): 279 (1984) [1985].

Type of Basionym or Protologue Information: Australia: Northern Province: 19 km N of Mitchell Plateau mining camp on track to Port Warrender; 14.42°S;125.47°E; 7 Dec 1982, *Kenneally* 8656 (HT:CANB; IT:PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 38A-C).

Habit. Perennial. Stolons present. Culms erect, 40–100 cm tall, 2–3 -noded. Lateral branches branched. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.2 mm long. Leaf-blades filiform, conduplicate, 10–40 cm long, 0.5–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 9–15 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 1 or more flowered, with 1 fertile floret, comprising 1 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 3–7.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or scarious, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume lanceolate, 4.5–7.5 mm long, membranous or scarious, without keels, 3(–5) -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 2.3–2.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 6–9 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Palea apex with excurrent keel nerves. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Queensland.

Western Australia: Gardner. **Queensland:** Cook.

Notes. Distinguishing characters include the small spikelet with one hermaphrodite floret; glumes longer than the spikelet; lemma with transverse demarcation and usually inner thickening; palea bitextured, pubescent, slightly longer than the body of its lemma; non-resinous slender foliage and few-noded culms branched from the mid-culm nodes.

Recorded from the NW Northern Province of W.A., and from the N.T. Associated with laterite, sandstone and basalt in shallow or skeletal soil, sandy pockets, and rocky sites near waterfalls, waterholes and in gorges; flowers Dec., Jan.

Triodia compacta (N.T. Burbidge) S.W.L. Jacobs. *Telopea* 4: 653 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triodia irritans* var. *compacta* N.T. Burb., *Austral. J. Bot.* 1(1): 169, f. 15a (1953).

Type of Basionym or Protologue Information: LT: *J.H. Willis s.n.*, 26 Aug 1947, South Australia: Eyre Peninsula District; Elliston Beach, Grimwade Expedition 1947 (CANB; ILT: MEL). LT designated by Lazarides, *Aust. Syst. Bot.* 10(3): 424 (1997).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (412).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 38)-R), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (412, fig. 341).

Habit. Perennial. Stolons present. Culms 30–120 cm tall. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.2–0.3 mm long. Leaf-blades erect or ascending or recurved, filiform, conduplicate, 3.5–13(–19) cm long, 0.8–1.3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong or ovate, dense, 3.9–26 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–13), comprising 6–13 fertile floret(s), with diminished florets at the apex, lanceolate or elliptic or oblong or ovate, laterally compressed, 11–24 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or ovate, coriaceous, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume linear or ovate, 8.5–13(–16) mm long, coriaceous, keeled, 1-keeled, 3–5 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 7–11 mm long, keeled, 9 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate or lobed, muticous or mucronate. Median (principal) awn from a sinus. Lodicules present. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty.

Notes. Diagnostic characters include the simple relatively small, often partly enclosed or shortly exerted panicle with glabrous, often smooth and flattened axis and divisions; closely flowered spikelet with thickened rachilla internode with cupular apex; 609, usually coriaceous glumes, lemmas and paleas; minutely 2-lobed, emucronate or mucronulate lemma with appressed silky pubescence in the lower 1/2 or glabrous; glabrous or sparsely pubescent palea with scabrid wingless keels; relatively short long-pungent blades; strongly branched culms with many short internodes covered by overlapping sheaths.

On Eyre and Yorke Peninsulas and Southern Lofty District, S.A. Usually coastal, on sand dunes, limestone cliffs, sea shores, saline and wet flats, sand hills, rocky hills, brown sandy loam slopes, and skeletal ridge summits; flowers Aug.-Feb.

Triodia concinna N. T. Burbidge. *Austral. J. Bot.* 8: 387 (1960). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: IT: *N.H. Speck 1482*, 18 Sep 1958, Australia: Western Australia, Eremean Prov., S. of Railway Line & 30 mi W of Wiluna (US-3286052). IT: *N.H. Speck s.n.*, 18 Sep 1958, Australia: Western Australia (L).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 40–80 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 2–7 cm long, 0.7–3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 4–8 cm long, 1–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed or terete, 8–15 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, scarious or cartilaginous, without keels, 5–9 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume lanceolate or ovate, 3–5.5 mm long, scarious or cartilaginous, without keels, 5–9 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 4.5–5 mm long, without keel or keeled, 3–5(–9) -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Kertland, Carnegie, Austin.

Notes. Diagnostic characters include the relatively broad, dark purple, tightly flowered often plump spikelets; cartilaginous glumes, lemmas and paleas; glabrous, thickly nerved relatively short glumes; minutely subequal sometimes incurved lemma lobes; relatively long palea with broad exposed irregularly emarginate keel wings; simple prominently exerted panicles; indurated sheaths and short finely long-pungent blades with very short petioles.

Between 25°S and 28°S in central W.A. Sandplain, red loam and lateritic soils; flowers July, Sept.

Triodia contorta (Lazarides) M. Lazarides. *Austral. Syst. Bot.* 10: 426(1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne contorta* Lazarides, *Nuytsia* 5(2): 278 (1984) [1985].

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District: c. 7.5 miles SE of Mt. Gilruth, 13.07°S, 133.09°E; 28 Feb 1973, *Lazarides* 7924 (HT:CANB; IT:BRI, DNA, K, L, MO, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 34G-I).

Habit. Perennial. Culms erect, 15–105 cm tall, 2–3 -noded. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.8–1 mm long. Leaf-blades conduplicate, 5–15 cm long, 0.8–3 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 10–21 cm long, 3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–7), comprising 6–7 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 8–9 mm long.

Glumes. Glumes dissimilar. Lower glume lanceolate, membranous or indurate, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex awned. Upper glume lanceolate, 5–6 mm long, membranous or indurate, keeled, 1-keeled, 3(–5) -nerved. Upper glume surface asperulous, glabrous or indumented. Upper glume apex lobed, awned.

Florets. Fertile lemma 5.2–5.5 mm long, without keel or keeled, 5 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 8–12 mm long overall. Lateral lemma awns absent. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguishing characters include the exerted florets; 2-lobed and 1-awned glumes and lemmas; relatively short, partly hirsute palea; twisted lemma awns. *P. uniaristata* is the only other species with exclusively 1-awned lemmas, but *P. contorta* differs markedly from this species in spikelet morphology, dimensions and indumentum.

Localised between lat 12 and 13 S, and between long. 132 and 133 E in the N.T. Inhabits sandstone plateaux, gorges and escarpments, on exposed outcrops, ledges and in massive pavement cracks or fissures; flowers Feb.-March (summer).

Triodia cunninghamii Benth. *Fl. Austral.* 7: 606 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: LT: *A. Cunningham 510*, Sep 1819, Western Australia: East Gardner Region; Cambridge Gulf, North West coast (K (5 sheets, one label different)). LT designated by Lazarides, *Aust. Syst. Bot.* 10(3): 426 (1997).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (606), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (73), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (71, Pl. 21).

Habit. Perennial. Stolons absent or present. Culms 100–130 cm tall. Ligule a fringe of hairs. Leaf-blades curved or flexuous, aciculate, flat or conduplicate, 60 cm long, 2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle 15–43 cm long, 1.5–3 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, scarious, without keels, 3–5 -nerved. Lower glume surface glabrous. Upper glume elliptic, 4–5.5 mm long, scarious, without keels, 3 -nerved. Upper glume surface asperulous, glabrous.

Florets. Fertile lemma 2.5–5.2 mm long, without keel or keeled, 9 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Known from only 2 collections.

Distinguished by its resinous leaves; usually flat long blades; large racemose panicle; small tightly few-flowered spikelet with hairy rachilla; firm mucronulate glumes almost as long as the spikelet; hirsute, widely spaced 9-nerved lemma with 3 bristle-like lobes, long relative to the lemma; mostly glabrous palea with ciliate, wingless keels and scaberulous flaps.

Known only from the Cambridge Gulf, W.A. Near seasonal creek in small valley of low sandstone hills near tidal flats of estuary; flowers Mar. and Sept.

Triodia danthonioides (F. Muell.) M. Lazarides. *Austral. Syst. Bot.* 10: 427–428 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triraphis danthonioides* F. Muell., *Fragm.* 8: 125 (1873).

Type of Basionym or Protologue Information: Western Australia: South-West Province; Swan River, *J. Drummond* 345 (HT: MEL, 3 sheets; IT: K, Perth(photo)).

Recent synonyms: *Plectrachne danthonioides*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (604 as *Triraphis*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (81 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 38L-N).

Habit. Perennial. Culms erect, 60–200 cm tall. Mid-culm internodes woolly. Lateral branches simple. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades recurved, curved or flexuous, aciculate, conduplicate, 25–60 cm long, 1.3–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–60 cm long, 3–11 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 9–20 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous or scarious, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 10–18.5 mm long, membranous or scarious, without keels, 3(–5) -nerved. Upper glume surface glabrous. Upper glume apex entire or with a unilateral tooth or lobed, muticous or mucronate.

Florets. Fertile lemma 8–9 mm long, without keel, 3–15 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 15 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Carnarvon. Irwin, Drummond, Avon.

Notes. Diagnostic characters include the retrorsely scabrous palea keels; lemmas with usually 5 linear series of hairs; robust habit with extremely long panicle and blades; dense woolly indumentum on culms and foliage; hairy, usually bifid palea.

Northern South-West Province and adjacent areas in the Eremaean Province, W.A. In red, yellow or brown, often deep sands and sandy loams on plains and dunes, with heath and shrublands; also an lunette around salt lake; flowers July-Nov. (winter and spring).

Triodia desertorum (C.E. Hubb.) M. Lazarides. *Austral. Syst. Bot.* 10: 429 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne desertorum* C.E. Hubb., *Bull. Misc. Inform. Kew* 1941: 28 (1941).

Type of Basionym or Protologue Information: Australia: Western Australia: Victoria Desert, 16 Sep 1891, *Helms s.n.* (HT: K; IT: PERTH(photo), MEL, NSW (2 sheets), BRI (fragm. & photo)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (82 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 33N-Q).

Habit. Perennial. Culms erect, stature slender to delicate, 40–100 cm tall. Mid-culm internodes glabrous. Lateral branches simple. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades spreading, aciculate, conduplicate, 2–10(–13) cm long, 2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, 7.5–15 cm long, 2–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–5), comprising 3–5 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 15–22 mm long.

Glumes. Glumes similar. Lower glume lanceolate or elliptic, chartaceous or scarious or cartilaginous, without keels, 9–13 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate or elliptic, 11–15 mm long, chartaceous or scarious or cartilaginous, without keels, 8–9 -nerved. Upper glume surface glabrous. Upper glume apex entire or with a unilateral tooth or dentate, mucronate.

Florets. Fertile lemma 4–7 mm long, without keel, 11–13 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 11–16 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Austin. Coolgardie.

Notes. Distinguished by the exerted usually closely imbricate florets of the spikelet; palea densely hairy on most parts; sparse, simple panicle; compact pin-cushion habit with rigid short blades and many-noded strongly branched culms. Similar to *P. rigidissima*.

Central Eremaean Province of W.A. Inhabiting deep red or yellow sands; flowers Sept.-Dec.

Triodia dielsii (C.E. Hubb.) M. Lazarides. *Austral. Syst. Bot.* 10: 431 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne dielsii* C.E. Hubb., *Bull. Misc. Inform. Kew*, 1941: 27 (1941).

Type of Basionym or Protologue Information: Australia: Western Australia: Avon District: Tammin, in dry open sandy thickets, 250 m, 25 Oct 1901, *Diels 5085* (HT: B; IT: K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (81 as *Plectrachne dielsii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 33F-I).

Habit. Perennial. Culms erect, 60–250 cm tall. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 15–50 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 24–30 cm long, 4–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 10–15 mm long.

Glumes. Glumes similar. Lower glume elliptic, chartaceous or scarious, without keels, 3–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume elliptic, 6–14 mm long,

chartaceous or scarious, without keels, 3–9 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire.

Florets. Fertile lemma 5–11 mm long, without keel, 3–11 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 8–10 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Avon.

Notes. Distinguished by its extremely robust habit; large spreading panicle; loosely few-flowered spikelet with shorter glumes; shortly awned lemmas with five linear series of long white hairs; hairy paleas with horizontal and antrorse scaberrula on the keels. *P. dielsii* resembles *P. danthonioides* in habit, panicle, and indumentum of lemma and palea, but lacks the foliage indumentum of that species and has much shorter lemma awns.

Northern South-West Province of W.A. On sandplains and near gorges, in white or grey sand over sandstone or with lateritic gravel; flowers July–Sept.

Triodia epactia S.W.L. Jacobs. *Nuytsia* 8: 220 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; southern end of 80 mile beach, 3.viii.1970., *R.C. Carolin* 7581 (HT: NSW; IT: SYD).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (fig. 35Q–S).

Habit. Perennial. Stolons absent or present. Culms 60–200 cm tall. Lateral branches fastigiate. Leaf-sheaths smooth, glabrous on surface. Ligule a fringe of hairs, 0.5–1.3 mm long. Leaf-blades straight or curved or curled or flexuous, flat or conduplicate, 15–35 cm long, 0.7–2 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong, dense, 10–51 cm long, 1.5–3.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–9), comprising 5–9 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed or terete, (7–)9–12(–16) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5(–7) -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, (3–)4.5–11 mm long, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5(–7) -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 4–10 mm long, without keel or keeled, 9–15 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Mueller, Canning, Kearthland, Giles, Fortescue, Ashburton, Carnarvon. **Northern Territory:** Victoria River, Central Australia North, Central Australia South.

Notes. Distinguished by its narrow, dense panicle; closely flowered spikelet; bitextured, broadly winged lemmas with an abrupt junction between the thickened yellow body and thin wings; prominent lemma lobes terminated with a bristle, which are subequal to the lemma body in length; bitextured, beaked paleas with winged keels.

Mainland and coastal islands of W.A. N of 26°S and in nearby areas of the N.T. Chiefly in deep, red or white or pink-brown, sandy soils on sandplains, sandhills, swales, pindan and coastal calcareous dunes, in association with granite, basalt, quartzite, sandstone, shales, limestone and laterite; also on river frontages, clay pans, rocky hills, gravelly rises, black gravelly sandy loam, and red earths; flowers all seasons, but not recorded in Dec.

Triodia fissura R.L. Barrett, G.B. Wells & M. Dixon. *Flora of Australia* 44B: 458–459, 207–208, f. 32. 2005. **Classification.** (GPWG 2001) : Subfamily Chloridoideae.

Type of Basionym or Protologue Information: Australia: Western Australia: on E side, Great Northern Hwy., 71 km N from Argyle Diamond Mine turnoff and 46 km S from Wyndham-Kununurra Junction, 16°13'36"S, 128°21'04"E, 17 Jan 2003, *R.L. Barrett & M.D. Barrett* 2550 (HT: PERTH; IT: AD, BRI, CANB, DNA, K, KPBG, NT, PERTH).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 32).

Australian Distribution: Western Australia.

Western Australia: Gardner.

Triodia fitzgeraldii C.A.Gardner ex N.T.Burbidge. *J. Roy. Soc. Western Australia* 30: 25 (1946).

Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Dillon Springs, East Kimberly, Oct 1903, W.V. Fitzgeralds 1643 (HT: PERTH; IT: NSW (3 sheets)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (75), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (71, Pl. 21).

Habit. Perennial. Stolons present. Culms 60 cm tall. Mid-culm internodes glabrous. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight or flexuous, aciculate, conduplicate, 9–20 cm long, 0.9–1.3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, 25–30 cm long, 0.5 cm wide. Racemes appressed, 3–6 cm long. Central inflorescence axis 20–30 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, membranous or scarious, without keels, 1 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume lanceolate or oblong, 2.5–3.5 mm long, membranous or scarious, without keels, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 2.5–4 mm long, without keel or keeled, 3 -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Poorly collected.

Distinguished by the spiciform racemose panicle; long-ciliate margins of leaf-sheaths and orifice; scarious glumes, lemmas and paleas; ovate, few-flowered spikelets; unequally and shortly lobed lemmas; hairy leaf sheaths; filiform flexuose panicle branches.

Known only from Dillon Springs, East Gardner District, Kimberley Region, W.A. Rocky skeletal slopes of sandstone hills; flowers Oct.

Triodia helmsii (C.E. Hubb.) M. Lazarides. *Aust. Syst. Bot.* 10: 434 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne helmsii* C.E. Hubb., *Bull. Misc. Inform. Kew* 1941: 29 (1941).

Type of Basionym or Protologue Information: Australia: South Australia: Everard Range, 8 Jun 1891, *Helms s.n.* (HT: K; IT: AD, BRI (fragm. & photo), MEL, NSW (2 sheets), PERTH (& photo of HT)).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (446 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (412).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 35G-I), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (413, fig. 342).

Habit. Perennial. Culms erect, 50–130 cm tall, 2 -noded. Lateral branches simple. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 6.5–23 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 10–17 cm long, 1.5–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 11–15 mm long.

Glumes. Glumes similar. Lower glume lanceolate, chartaceous or scarious, much thinner on margins, without keels, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 12–21 mm long, chartaceous or scarious, without keels, 5–7 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 4.5–5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn pseudo-articulate across body of lemma, 8–12 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Giles, Helms. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre.

Notes. Distinguishing characters include the loosely flowered spikelet with 3–4 fertile florets; two-textured lemma with long callus and usually appressed pubescence; glabrous one-textured palea subequal to the body of its lemma; relatively wide lemma lobes; subequal glumes somewhat longer than the spikelet; and pubescent rachilla internodes. *P. helmsii* is similar to *P. pungens* and *P. schinzii* in the bitextured, pubescent lemma, but differs by its uniformly textured palea and smaller spikelet. The prominent spur on the internode between the lower and upper glumes, which characterizes the type, has not been observed on the other specimens examined.

In the vicinity of the border junction of W.A., S.A. and the N.T. On skeletal rocky hillslopes; also on sand dunes and plains in red sands and sandy loams; flowers June-Oct.

Triodia hubbardii N. T. Burbidge. *Austral. J. Bot.* 8: 381 (1960). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Central Australia; Standley Chasm, MacDonnell Range, 18.xi.1955., *N.T. Burbidge & M. Gray 4153* (HT: CANB; IT: K, L, NSW, NT).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 45–160 cm tall. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades ascending or drooping, curved or flexuous, acuminate, flat or conduplicate, 15–45 cm long, 1–3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle elliptic, 25–60 cm long, 3–6 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–11), comprising 5–11 fertile floret(s), with diminished florets at the apex, linear, laterally compressed or terete, 8–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or scarious or cartilaginous, keeled, 1-keeled, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 5–8 mm long, membranous or scarious or cartilaginous, keeled, 1-keeled, 3(–5) -nerved. Upper glume surface scabrous, glabrous. Upper glume apex with a unilateral tooth or dentate, muticous or mucronate.

Florets. Fertile lemma 5 mm long, without keel, 9–11 -nerved. Lemma surface indumented. Lemma apex lobed. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia North, Central Australia South.

Notes. Diagnostic characters include the highly resinous leaves; large racemose panicles; linear spikelets with distant florets; bitextured mostly glabrous and smooth lemmas and paleas; sparsely hairy 3-lobed 9-nerved lemmas; blunt, ribbed, laterally bearded callus; flattened, ribbed rachilla internodes. Allied to *T. pungens* and *T. mitchellii*, but differs in the morphology and indumentum of the spikelets.

Central Australia, N.T. On skeletal soil on rocky hills and gorges of sandstone, quartzite and sometimes granite; occasionally in white sandy creek bed near hills and near inland lakes; flowers Apr., July-Jan.

Triodia inaequiloba N. T. Burbidge. *Austral. J. Bot.* 8: 391 (1960). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; 1 mile east of Mt. Amherst homestead, 15.vii.1959, *M. Lazarides 6343* (HT: CANB, IT: AD, BRI, DNA, MEL, NSW, PERTH, K, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 50–1300 cm tall. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, 4–24 cm long, 1–1.7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or ovate, 10–18 cm long, 2.5–4.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–6), comprising 4–6 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 7–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, chartaceous or scarious, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume ovate, 5–7 mm long, chartaceous or scarious, without keels, 3 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 6–7 mm long, without keel or keeled, 9 -nerved. Lemma surface indumented. Lemma apex lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fitzgerald, Dampier. Canning.

Notes. Distinguishing characters include a large dense panicle; ovate spikelets at least 1/2 as wide as long; mucronate broad glumes almost as long as the spikelet; hirsute lemma with a mucronate mid-lobe distinctly longer than the lateral lobes; glabrous relatively long palea; coarse habit and extremely rigid and pungent blades; woolly orifice margins and lamina petioles. *Aplin s.n.* differs from the type specimens in having longer spikelets with relatively short glumes, the palea long-hairy on the keel in the lower half, mostly ciliate ligule and short blades.

Kimberley Region, Dampier and Fitzgerald Districts of W.A. Granite slopes of range; fine-textured shallow soil on laterite; flowers July, August, September.

Triodia integra M. Lazarides. *Austral. Syst. Bot.* 10: 436–437 (1997). **Classification.** (GPWG 2001) :

Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Central Australia South; Valley of Eagles, MacDonnell Ranges, 23°36' S, 134°20' E, 2.vi.1974, A.C. Beauglehole 44942 (HT: BRI; IT: DNA).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 36P-R).

Habit. Perennial. Leaf-sheaths smooth or scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1–1.3 mm long. Leaf-blades straight, filiform or linear, flat or conduplicate, 9–15 cm long, 1–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense, 14–19 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (11–18), comprising 11–18 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 17–25 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, cartilaginous, keeled, 1-keeled, 5–7 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume orbicular to oblate, 7–9 mm long, scarious or cartilaginous, keeled, 1-keeled, 5–7 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire, mucicous or mucronate.

Florets. Fertile lemma 7–8 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, mucronate. Median (principal) awn from a sinus, 1 mm long overall. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Central Australia South.

Notes. Known from only two collections.

Distinguishing characters include the lanceolate, closely flowered, long spikelet distinctively tapered to the apex; almost entire, shiny lemma with unequal lobes; dense, linear panicle; partly hairy, relatively short palea with broadly winged keels and broad flaps; usually long bearded mouth and hairy blades, and non-resinous foliage.

Southern Central Australia. In mountain ranges; flowers May-June.

Triodia intermedia Cheel. *Kongl. Svenska Vetenskapsakad Handl.* 52: 4 (1916). **Classification.** (GPWG

2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Noonkanbah, West Kimberley, Dec 1910, *Mjoberg's Swedish Sci. Exped.* 18 (HT: S; IT: PERTH).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (77), [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (70, Pl. 20).

Habit. Perennial. Stolons present. Culms 22–160 cm tall. Mid-culm internodes glabrous. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 7–12(–20) cm long, 0.7–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, (5–)8–12(–25) cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–10), comprising 5–10 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed or terete, 8–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma, dull or shiny. Lower glume lanceolate or oblong, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, 4–7.5 mm long, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5 -nerved. Upper glume surface glabrous. Upper glume apex entire or lobed, muticous or mucronate.

Florets. Fertile lemma 3–6 mm long, without keel or keeled, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Fitzgerald, Hall, Dampier. Canning. **Northern Territory:** Victoria River, Central Australia North.

Notes. Distinguished by its paniculate inflorescence; closely flowered often purple spikelets; subequal mucronate 3-nerved glumes shorter than spikelet; broadly ovate, equally 3-lobed, 9-nerved lemmas; ovate-orbicular relatively long paleas with extremely broad, prominently exposed wings on the keels; trigonous, strongly curved thickened caryopsis.

Between 16°S and 22°S, and E to 135°E in W.A. and N.T. Skeletal soils on granite, limestone, sandstone, quartzite, slate and laterite; sandy pindann; rocky and gravelly scree and hill slopes, cliffs, ridges, outcrops, gorges and mesas; red calcareous soils; flowers Dec.-Feb., Apr.-Sept.; fruits Dec.-Feb., Apr.-Sept.

Triodia inutilis N. T. Burbidge. *Austral. J. Bot.* 1: 163 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Northern Territory: 13 mi SW of Wave Hill Station, 21 Jun 1949, R.A. Perry 2199 (HT: CANB; IT: BRI, CANB, DNA, K, MEL, NSW, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 30–130 cm tall. Mid-culm nodes pubescent. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 5–21(–35) cm long, 0.7–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic or ovate, 9.5–26 cm long, 2–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–9), comprising 7–9 fertile floret(s), with diminished florets at the apex, oblong or ovate, laterally compressed, 6–10(–13) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, scarious or cartilaginous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, 3.5–6 mm long, scarious or cartilaginous, without keels, 3–5 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 4–5(–7) mm long, without keel, 5–9 -nerved. Lemma surface indumented. Lemma apex lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Fitzgerald, Hall. **Northern Territory:** Victoria River, Barkly Tableland.

Notes. Distinguished by the dense panicle; subequal, mucronate usually 3-nerved glumes usually 1/2–2/5 as long as spikelet; partly hirsute lemmas with subequal acuminate lobes 1/3–3/5 as long; divergent or recurved lateral lemma lobes in mature spikelets; usually glabrous and smooth paleas almost as wide as long, with prominent keel wings visible *in situ*; indumentum of woolly, tangled hairs on orifice margins and often on leaf sheaths.

Between 15°S and 18°S, and 127°E and 136°E in W.A. and N.T. On crests and slopes of hills, mesas, plateaux, gorges, domes, ridges and outcrops; in skeletal or shallow, sandy often rocky or stony, undulating soils; in association with sandstone, limestone, laterite, shale and volcanic rocks; flowers Mar.-Aug., Dec. and Feb.

Triodia irritans R. Br. *Prodr.* 182 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: HT: *Robert Brown* 6258, 7 Feb 1802, Australia: South Coast Id. 4, St Peter's Isle, off Denial Bay (BM).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (182), [1878] G.Bentham, *Flora Australiensis* 7 (607), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (76), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (413).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (71, Pl. 21), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (413, fig. 343 & plate 15), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (261 as *T. irritans* var. *laxispicata*).

Habit. Perennial. Culms 30–100 cm tall. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 5–25 cm long, 0.5–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or elliptic or oblong, 5–12(–19) cm long, 1.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–10), comprising 5–10 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed or terete, 11–30 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious or cartilaginous, keeled (slightly), 1-keeled, 3–5(–7) -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 9–26 mm long, scarious or cartilaginous, keeled (slightly), 1-keeled, 3–5(–7) -nerved. Upper glume surface glabrous. Upper glume apex entire or lobed, mucicous or mucronate.

Florets. Fertile lemma 6–12 mm long, without keel or keeled, 3(–9) -nerved. Lemma surface indumented. Lemma apex dentate or lobed, mucronate, 1 -awned. Median (principal) awn from a sinus, 0.5–6 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Roe, Coolgardie. **Northern Territory:** Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Southern Lofty.

Notes. Distinguished by the usually dense relatively wide often partly exerted panicle; often cuneate and closely flowered spikelets; scarious or cartilaginous, lanceolate acuminate, often mucronate relatively long glumes which usually determine the length and shape of the spikelet; scarious or cartilaginous, often sparsely hairy, 2-lobed, mucronate or shortly awned lemmas; scarious or cartilaginous, relatively short usually glabrous palea with wingless keels thickened and smooth in the lower part, and acute and scabrous upwards, and partly scabrous-hairy flaps; often compact rounded tussocks.

Often confused with *T. scariosa*, but distinguished by the usually broader, denser, shorter partly exerted panicle, differently shaped and closer flowered spikelets, longer narrower glumes, less hairy usually 2-lobed and awned lemmas, and relatively short often glabrous paleas.

S of 26°S in W.A., S of 24°S in N.T. and S.A. Chiefly in skeletal or shallow, stony or rocky soils on quartzite and granite hills and ranges, often in creeks, rock crevices, gullies and valleys; also limestone soils, saline flats, coastal dunes above a high cliff, sandplains, flats in red sandy loam; flowers all seasons.

Triodia lanata J. M. Black. *Trans. Roy. Soc. South Australia* 40: 57 (1916). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Eyre Peninsula; in scrub at Minnipa, 11 Nov 1915, *J.M. Black s.n.* (HT: AD; IT: AD, MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (414).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (414, fig. 344).

Habit. Perennial. Culms 50–70 cm tall. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 5–16 cm long, 0.6–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 6–17 cm long, 2–5(–8) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 8–19 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous or chartaceous or scarious, without keels, 1–3(–5) -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate, 6.8–12 mm long, membranous or chartaceous or scarious, without keels, 1–3(–5) -nerved. Upper glume surface indumented. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 6–9 mm long, without keel or keeled, 5–9 -nerved. Lemma surface indumented. Lemma apex entire or lobed, muticous or mucronate. Median (principal) awn from a sinus. Palea apex dentate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia.

South Australia: Nullabor, Gairdner-Torrens Basin, Eyre Peninsula.

Notes. Distinguished by its loose, few-spikeleted panicle; dense, woolly indumentum; scarious or membranous glumes, lemmas and paleas; mostly hirsute lemmas with 2 very small lobes and minute or absent mucro in the sinus; usually glabrous paleas with scabrous keels; densely scabrous, often hirsute glumes separated by a distinct internode; loosely flowered spikelets; and pincushion habit.

In S.A., between 30°S and 34°S, and 132°E and 136°E. Slopes and crests of sand ridges and dunes, and on flats and swales; sandplains, roadside sand, white sand, on granite outcrops; flowers Aug.-Nov.

Triodia lanigera Domin. *J. Linn. Soc., Bot.* 41: 278 (1912). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Eremaean Province; between the Ashburton and Yule rivers, *Dr E. Clement s.n.* (HT: K; IT: K, Perth (photos)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (73), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (69, Pl. 19).

Habit. Perennial. Culms 30–100 cm tall. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, (1.5–)9–21 cm long, 0.8–1 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle (3.5–)6–13 cm long, 1–2(–3) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–19(–25) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, scarious, without keels, 7–9(–15) -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucronate. Upper glume lanceolate or oblong, 6–11(–14) mm long, scarious, without keels, 7–9(–15) -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire or lobed, mucronate.

Florets. Fertile lemma 6–14 mm long, without keel, 9–19 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner, Dampier. Fortescue, Ashburton, Carnarvon, Austin.

Notes. Distinguished by its deeply lobed bitextured lemmas, the lobes dissimilar in size, shape, nervation and indumentum; subequal, scarious many-nerved glumes, long relative to spikelet; bitextured, mostly glabrous and smooth palea with thickened curved keels; relatively long-hairy, curved, pointed callus; loosely flowered spikelet; narrow, dense, simple panicle; plano-convex pallid caryopsis with prominent embryo; woolly indumentum on foliage.

NW W.A., between 17°S and 28°S and W of 124°E. Red siliceous sandplain, gravel plain with red-brown sandy loam over clay, clay soil, near water, rocky outcrops of acid rocks, colluvial flat in dunefield, granite and skeletal stony red earths, seasonally flooded plains, pindan, calcrete mesa; flowers Jan.-Oct.

Triodia latzii M. Lazarides. *Austral. Syst. Bot.* 10: 444 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Victoria River District; Lat. 19°22' S, Long. 129°01' E, Jellbra Rockhole, 3.iv.81, *P.K. Latz* 8629 (HT: NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 36K-O).

Habit. Perennial. Culms 40–130 cm tall. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1.5 mm long. Leaf-blades flexuous, flat or conduplicate, 30–40(–60) cm long, 1.3–3.3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, dense, 30–40 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (9), comprising 9 fertile floret(s), with diminished florets at the apex, linear, laterally compressed or terete, 10–13 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, cartilaginous, much thinner on margins, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume lanceolate, 4–5 mm long, cartilaginous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 5–6.5 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex lobed, muticous. Palea apex entire. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf, Victoria River.

Notes. Distinguishing characters include the terete, linear, closely flowered spikelets; bitextured, mostly indurated lemma and palea; relatively long, equal, acuminate lemma lobes; glabrous palea long relative to its lemma; elongated, dense, racemose panicle; long, resinous leaves. *T. latzii* has similarities with *T. microstachya* R.Br., but differs in the dimensions, morphology, indumentum and shape of its spikelets.

N of 19°S, N.T. On rocky hills in association with quartzite, conglomerate, sandstone, laterite and limestone, in gravel, sand, rock fissures and among boulders; flowers probably Dec.–Apr., persisting until June.

Triodia longiceps J. M. Black. *Trans. & Proc. Roy. Soc. South Australia* 54:59(1930). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: 17 Aug 1929, Finke Gorge, Hermannsberg, Central Australia, *J.B. Cleland* (HT: MEL).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (76), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (414).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (70, Pl. 20), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (414, fig. 345).

Habit. Perennial. Stolons absent or present. Culms 60–250 cm tall. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, 10–25 cm long, 0.9–1.3 mm wide.

Inflorescence. Inflorescence compound, a panicle or a panicle of racemes. Panicle linear or lanceolate, 20–61 cm long, 1–2(–4) cm wide, evenly furnished or contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–21), comprising 6–21 fertile floret(s), with diminished florets at the apex, linear, laterally compressed, 8–15(–20) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or ovate, chartaceous or scarious or indurate, keeled, 1-keeled, 1(–3) -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume lanceolate or ovate, 3.5–6 mm long, chartaceous or scarious or indurate, keeled, 1-keeled, 1(–3) -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire or lobed, muticous or mucronate.

Florets. Fertile lemma 4–6 mm long, without keel or keeled, 1–3 -nerved. Lemma surface glabrous or indumented. Lemma apex entire or dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Canning, Carnegie, Fortescue, Ashburton, Austin. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burke, South Kennedy, Gregory North, Mitchell, Warrego.

Notes. Distinguished by its robust habit; spiciform panicle; linear often blunt spikelets; minutely lobed mostly glabrous abruptly lanceolate lemmas; short blunt stout callus; winged exposed palea keels; bluish colouring; finely long-pungent blades.

Distributed latitudinally in a central belt in central W.A., southern N.T., northern S.A., and central and NW Qld. Seasonally flooded banks, beds and watercourses; sand plains with claypans; swamps, valley floors, flats, and low-lying fine silty sandplains; low stony rises; rocky hillslopes and ridges; shallow or skeletal, gravelly, pebbly or stony soils in association with sandstone, granite, quartzite, laterite, and commonly limestone rocks; also in deeper sands, sandy red earths, podsoles, sandy loams and calcareous soils; flowers in all seasons.

Triodia longiloba M. Lazarides. *Austral. Syst. Bot.* 10: 446, 448 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Darwin and Gulf District; near Mt. Eliza, Lat. 15°07' S, Long. 134°29' E, 17 Jan 1989, *P.K. Latz 11165* (HT: CANB; IT: DNA, NT).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig.36G-J).

Habit. Perennial. Culms 40–200 cm tall. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 2 mm long. Leaf-blades curved or curled or flexuous, conduplicate, 21–45 cm long, 0.8–1.5 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence solid or compound, a raceme, a panicle of racemes. Panicle linear, 20–50 cm long, 1.5–2.5 cm wide. Racemes 1, 20–50 cm long, 15–25 mm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–13), comprising 5–13 fertile floret(s), with diminished florets at the apex, linear, terete, (10–)14–18 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic or oblong, cartilaginous, much thinner above, much thinner on margins, without keels, 5(–9) -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume elliptic or oblong, 5–6 mm long, cartilaginous, without keels, 5(–9) -nerved. Upper glume surface glabrous. Upper glume apex entire or dentate or lobed, muticous.

Florets. Fertile lemma 6–8.5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf.

Notes. Distinguished by its deeply lobed lemmas (the only species with lemma lobes longer than the body); linear panicle partly reduced to a raceme; extremely resinous culms, foliage and spikelets.

N of 17°S in W.A. and N.T. Skeletal soil over sandstone on ridges and escarpment, and riverine sand in gorge; flowers Dec. and Jan., May.

Triodia longipalea M. Lazarides, nom nov. *Austral. Syst. Bot.* 10: 448–449 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne drummondii* C.E. Hubb., *Bull. Misc. Inform. Kew* 1941: 26 (1941).

Type of Basionym or Protologue Information: Australia: Western Australia: South-Western Province; Swan River, without precise locality, *Drummond 128* (HT: K).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (81 as *Plectrachne drummondii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 37Q-R).

Habit. Perennial. Culms erect, 100–250 cm tall. Lateral branches simple. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curved, aciculate, conduplicate, 25–54 cm long, 1–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong, 28–60 cm long, 2.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 15–21 mm long.

Glumes. Glumes similar. Lower glume lanceolate, scarious, without keels, 3–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate, 10–16 mm long, scarious, without keels, 3–9 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 6–10 mm long, without keel, 3–15 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 11–13 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Irwin, Drummond, Avon.

Notes. Distinguishing characters include the robust habit; long, narrow panicle; glumes scarious, shorter than spikelet, brown; spikelet loosely 6–10-flowered; lemma sparsely hairy along midnerve and submargins; palea longer than the body of its lemma; anthers large; caryopsis concavo-convex, much longer than wide, with prominent embryo. Similar to *P. dielsii* but *P. dielsii* has a spreading panicle and a lemma which is hirsute also along the lateral nerves as well as on the midnerve and submargins.

Central South-West Province of W.A. On sand plains and ridges often in white sand, near salt flats and on limestone pavements; associated with heath, scrub and woodland; flowers Sept.-Feb., but not recorded in Dec.; fruits Sept.-Feb., but not recorded in Dec.

Triodia marginata N. T. Burbidge. *Austral. J. Bot.* 1:151 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Queensland: southwest Queensland, Cunnamulla, 18 Oct 1949, *K.C. Baker* 865 (HT: CANB).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 100–150 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades curved or flexuous, aciculate, flat or conduplicate, 25 cm long, 2.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5.5–18 cm long, 4–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–11), comprising 5–11 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed or terete, 5–20 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, chartaceous or scarious or cartilaginous, without keels, 3(–7) -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume oblong, (3–)6–8 mm long, chartaceous or scarious or cartilaginous, without keels, 3(–7) -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire or lobed, muticous.

Florets. Fertile lemma 4.5–7 mm long, without keel or keeled, 9–12 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Maranoa, Warrego, Wide Bay, Mitchell. **New South Wales:** North-Western Slopes.

Notes. Distinguished by its highly resinous foliage and panicle; closely flowered rather turgid and broad spikelets; bitextured strongly marginate and often woolly lemmas with prominent sometimes ciliate lobes; and long paleas relative to the lemmas.

Closely allied to *T. mitchellii*, but differing chiefly in the morphology and shape of the spikelet.

Central southern Qld to the North Western Slopes of N.S.W. Deep or shallow, sandy-clay-loam soils on mountain ranges, hillslopes, plains, tablelands, flats, dunes, ridges, stony rises and disturbed sites; flowers all seasons.

Triodia melvillei (C.E.Hubb.)Lazarides. *Austral. Syst. Bot.* 10: 451 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne melvillei* C.E. Hubb., *Bull. Misc. Inform. Kew* 1941: 28 (1941).

Type of Basionym or Protologue Information: LT: *Melville s.n.*, Jul 1937, Australia: Western Australia: Wiluna Distr.: Eremaean Province, mostly associated with Mulga (CANB; ILT: K (4 sheets), PERT (2 sheets)). LT designated by Lazarides, Fl. Austral. 44B: 459 (2005).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (82 as *Plectrachne*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (446 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (415).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 38D-H), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (415, fig. 346).

Habit. Perennial. Culms erect, 10–200 cm tall. Lateral branches simple. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curved or flexuous, aciculate, conduplicate, 15–34 cm long, 0.8–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 8–28(–45) cm long, 2–4(–6) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–8), comprising 3–8 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed or terete, 8–20 mm long.

Glumes. Glumes similar. Lower glume lanceolate or elliptic, scarious, without keels, 3–7 -nerved. Lower glume apex muticous or mucronate or awned. Upper glume lanceolate or elliptic, 6–12 mm long, scarious, without keels, 3–7 -nerved. Upper glume apex entire or lobed, muticous or mucronate or awned.

Florets. Fertile lemma 5–6 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 7–9 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia.

Western Australia: Mueller, Giles, Fortescue, Ashburton, Austin. Eucla. **Northern Territory:** Darwin & Gulf, Victoria River, Central Australia South. **South Australia:** North-western.

Notes. Diagnostic characters include the lemmas often hairy in linear series; paleas usually glabrous; lanceolate often closely flowered spikelets; resinous culms, foliage, panicle and glumes; partly chartaceous flattened long-ciliate sheaths; narrow dense panicles.

Mainly recorded in the central Eremaean Province of W.A., the southern central part of the N.T., and the North-West region of S.A. On plains, dunes and swales in red sands, red earths and sandy loams; also on hillslopes, ridges, breakaways and gorges in rocky, skeletal and stony soils, associated with laterite, sandstone, quartzite, granite and calcareous sandstone; shores of inland lakes; flowers all seasons; fruits all seasons.

Triodia microstachya R. Br. *Prodr.* 182 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Darwin & Gulf District; North Coast, Cotton Is. (The English Company's Islands), 20 Feb 1803, *R. Brown* [6255] (HT: BM; IT: CANB, E, PERTH (photo BM)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (182), [1878] G.Bentham, *Flora Australiensis* 7 (607), [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 30–250 cm tall. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs. Leaf-blades curved or curled, aciculate, flat or conduplicate, 60 cm long, 0.5–1.3(–4.5) mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle 18–74 cm long, -8 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed or terete, 3–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious, without keels, 3 -nerved. Upper glume oblong, 2.3–3.5 mm long, scarious, without keels, 1–3 -nerved. Upper glume surface smooth.

Florets. Fertile lemma 2–3.5 mm long, without keel or keeled, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Cook, Burke, North Kennedy, Leichhardt.

Notes. Distinguishing characters include the robust resinous habit; large racemose panicle with usually crowded spikelets; strongly nerved (especially lower) glumes long relative to the small, few-flowered spikelet; mostly glabrous and smooth floret; minutely lobed 3-nerved lemma; obovoid compressed caryopsis with large embryo.

W.A., N.T. and Qld N of 20°S on mainland and coastal islands. Widespread and often the dominant grass in deep or skeletal, sandy or yellow earth soils on rugged, dissected often bouldery, sandstone plateaux, hills, ranges, ridges, mesas, escarpments, ravines, gorges, creek valleys and massive outcrops; also associated with

quartzite, basalt, laterite and conglomerate, and found on coastal sands and beach dunes, coastal pindan, salt lakes, in white alluvial sand near creeks, and in rocky creek river beds; flowers Jan.-May, persisting into June to Oct.

Triodia mitchellii Benth. *Fl. Austral.* 7: 606 (1878). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: ST: *Leichhardt s.n.*, Australia: Queensland: on the Maranoa (MEL). ST: *Mitchell s.n.*, Australia: near Mt. Pluto.

Recent synonyms: *Triodia hostilis*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (606), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (387).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (387).

Habit. Perennial. Stolons absent or present. Culms 15–200 cm tall. Leaves cauline. Ligule a fringe of hairs. Leaf-blades curled or flexuous, flat or conduplicate or involute, 30–60 cm long, 0.7–3.5 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic or oblong or ovate, dense or loose, 10–26 cm long, 2–4(–8) cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets, comprising 5–6 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed or terete, 4.5–18.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume elliptic, scarious or cartilaginous, without keels, 3(–5) -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous. Upper glume elliptic, 4–10 mm long, scarious or cartilaginous, without keels, 3(–5) -nerved. Upper glume surface smooth or asperulous, glabrous or indumented. Upper glume apex entire or dentate or lobed, muticous.

Florets. Fertile lemma 4–7 mm long, without keel, 3–13 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland, New South Wales.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory North. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains.

Notes. The highly resinous leaves, panicle branches and glumes; long-bearded orifice margins; 3-nerved cartilaginous glumes; loose exerted florets; mostly hairy deeply lobed lemmas; winged palea keels; and large branched rather dense panicle are diagnostic features.

Allied with *T. pungens*, but differing in foliage and lemma indumentum, spikelet morphology and panicle structure.

Qld, N.S.W. and one record from NE N.T. Shallow often stony soils on hillslopes, ridges and plateaux of sandstone, quartzite, granite, limestone, slates and laterite, often among boulders or outcrops; also in depressions, on sandy creek banks, hard red soils, and sand dunes and other deep sandy soils; flowers all seasons.

Triodia molesta N. T. Burbidge. *Austral. J. Bot.* 1: 164 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: IT: *S.T. Blake 6400*, 26 Jun 1934, Australia: Queensland: Gregory North Distric, Selwyn (US-2545316).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 15–180 cm tall. Mid-culm internodes pubescent. Mid-culm nodes bearded. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades spreading, straight, acuminate, conduplicate, 9–28 cm long, 0.8–1.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle or a panicle of racemes. Panicle linear, 10–32 cm long, 1–2 cm wide, evenly furnished or contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–9), comprising 7–9 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 10–17 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, cartilaginous or coriaceous or indurate, without keels, 3–7 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, 4.5–6 mm long, cartilaginous or coriaceous or indurate,

without keels, 3–7 -nerved. Upper glume surface glabrous. Upper glume apex entire or lobed, muticous or mucronate.

Florets. Fertile lemma 4.5–6 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burke, Gregory North.

Notes. Distinguished by its narrow, simple panicle; partly hirsute lemmas with ciliate margins and lobes, and subequal subulate lobes; mostly glabrous paleas with ciliate apex, the keels with prominent, entire and sometimes exposed keels; woolly indumentum on leaves; relatively long, white-ciliate ligule.

Burke and Gregory North Districts, Qld, between 18°S and 23°S, and from the N.T. border to 144°E. A plant of hilly country and skeletal, shallow, gravelly or stony soils, in association with sandstone, shales, quartzite, slates, laterite, schists, conglomerate, granite and siltstone; flowers Mar.-May, Sept.-Jan.

Triodia pascoeana B.K.Simon. *Nuytsia* 8: 241 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Dampier Dist.: NE slope of Napier Range 3 km N of the Gibb River road on track that passes napier Downs homestead near Yammera Gap, 17.51S 124.48E, 13 Apr 1988, *B. K. Simon 3909* (HT: BRI; IT: BRI, CANB, DNA, K, NSW, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms stature robust to moderate, 100–300 cm tall. Leaf-sheaths smooth or scaberulous, hairy. Ligule a fringe of hairs, 0.2–1 mm long. Leaf-blades straight or curved or flexuous, filiform, conduplicate, 6–30 cm long, 0.8–1.5 mm wide. Leaf-blade surface smooth or scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, dense, 30–40 cm long, 0.5–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–11), comprising 3–11 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 3–7.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or ovate, scarious, keeled, 1-keeled, 1 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume linear or ovate, 2–3.5 mm long, scarious, keeled, 1-keeled, 1 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire or lobed, mucronate or awned.

Florets. Fertile lemma 2–3 mm long, without keel, 3 -nerved. Lemma surface glabrous. Lemma apex lobed, muticous. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fitzgerald. Fortescue.

Notes. Distinguished by its robust, non-resinous habit; long, linear, extremely slender racemose panicle; unequal, scarious, stiffly awned, scabrous, 1-nerved glumes; small, few-flowered spikelets; glabrous, 3-nerved, minutely lobed lemmas.

Resembles *T. microstachya* in spikelet morphology, but that species is resinous, with coarser leaves and panicle, and its blades lack petioles. Also, the lower surface of the blades, which are uniformly nerved in *T. pascoeana*, have the smooth nerveless lateral bands which characterize *T. microstachya* and allied resinous species.

SW Kimberleys, W.A. Limestone ranges and gorges; alluvial frontages and floodplains of major watercourses; flowers Jan.-Apr., persisting until July.

Triodia plectrachnoides N. T. Burbidge. *Austral. J. Bot.* 1: 155 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Cannon Hill, about 12.24S 132.55E, on exposed rocky slopes, greenish, branched tussocks, cocks up to 3 m 2 Sep 1946, *S.T. Blake 17132* (HT: CANB, BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 30–300 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent, or present. Ligule a fringe of hairs. Leaf-blades straight or flexuous, acuminate, conduplicate, 26–50 cm long, 0.7–1.3 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 11–30 cm long, (2–)4–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or indurate, without keels, 3(–5) -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume oblong, 5–8 mm long, scarious or indurate, without keels, 3(–5) -nerved. Upper glume surface glabrous. Upper glume apex entire or lobed, mucronate.

Florets. Fertile lemma 5–7 mm long, without keel or keeled, 3–5 -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Distinguished by its large, open panicle, with many long-pedicelled, closely flowered, straw-yellow spikelets; glumes indurated, rounded on the back, mucronate and often lobed at apex, slightly shorter than spikelet, with a basal internode; lemmas unequally 3-lobed with awn-like mid-lobe, partly hirsute with spreading hairs; glabrous, narrow palea c. as long as lemma; leaf sheaths auriculate; ligule often long-ciliate; callus long-bearded.

Kakadu Natl Park, N.T., and W.A. On sandstone and coarse conglomerate plateaux, escarpments, gorges and massive outcrops among boulders and extensive rock pavements, in red or yellow, shallow or deep sand, often in gullies, depressions, rock crevices and near seasonal streams; flowers Dec.-July, Oct.

Triodia plurinervata N. T. Burbidge. *Austral. J. Bot.* 8: 390 (1960). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Eremaean Province; Dorre Island, Shark Bay, 15 July 1959, *R.D. Royce* 5884 (HT: CANB; IT: PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 10–150 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, 4–7.5 cm long, 0.5–0.7 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 3–10 cm long, 0.5–1.5 mm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (6–8), comprising 6–8 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, (6–)11–17.5 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious or cartilaginous, without keels, 5–9 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume lanceolate, (3–)5–8 mm long, scarious or cartilaginous, without keels, 5–9 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 5–6 mm long, without keel, 11–13 -nerved. Lemma surface indumented. Lemma apex entire or dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Canning, Keatland, Austin. Irwin.

Notes. Distinguished by its spiciform raceme; linear-oblong spikelets; cartilaginous many-nerved glumes; firm, 3-toothed, strongly 11–13 nerved, partly hirsute, dorsally rounded lemmas; sparsely ciliate lodicules; stiffly slender, often horizontal blades with short petioles; purple colouring; and culms branched from cauline and basal nodes.

Central Eremaean Province, W.A. Red sand dunes and steppe, often coastal, sandy loam drainage basin, salt lakes and rocky hilltops; flowers May-July, Sept., Oct.

Triodia procera R. Br. *Prodr.* 182 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: LT: *R. Brown* [6256], Northern Territory: Darwin and Gulf District; Gulf of Carpentaria, North Coast (BM, E?; ILT: BRI, MEL). LT designated by Lazarides, Aust. Syst. Bot. 10(3): 462 (1997).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (182), [1878] G.Bentham, *Flora Australiensis* 7 (607), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (67), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (72, Pl. 22), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 35D-F).

Habit. Perennial. Stolons present. Culms 150–200 cm tall. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades ascending, linear, flat or conduplicate or involute, 35–100 cm long, 4–7 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle 40–100 cm long, 5–9 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or cartilaginous, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume oblong, 3–4 mm long, scarious or cartilaginous, without keels, 1 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 2.8–4.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf, Victoria River.

Notes. Distinguished by its robust habit; bitextured lemma and palea; minutely lobed, mostly glabrous lemma; truncate, glabrous, thickened callus.

Close to *T. microstachya*, but differs in its usually larger spikelets, blunt (not acuminate) glumes, and indurated, bitextured lemma and palea.

Monsoonal regions of N.T., W.A. and Qld (including mainland and coastal islands). Deep, often white, sandy and sandy loam soils; banks of seasonal and permanent watercourses and billabongs; coastal dunes and vine thickets; rocky pavements, slopes and crests of sandstone plateaux, escarpments, hills, outcrops and in gorges; rocky river beds; dry rocky conglomerate ridges; coastal lateritic headlands and foreshores; flowers Nov.-Mar. and July-Aug.

Triodia prona M. Lazarides. *Austral. Syst. Bot.* 10: 463 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; near Thompson's Springs, Carr Boyd Range, 40 miles (64.5 km) south-east of Kununurra, 3 Mar 1963, *Lazarides 6715* (HT: CANB; IT: CANB, DNA, K, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 36A-B).

Habit. Perennial. Culms decumbent, 60–130 cm tall. Leaf-sheaths scaberulous, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.3 mm long. Leaf-blades flexuous, filiform, conduplicate, 15–30 cm long, 0.6–0.7 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, loose, 20–30 cm long, 1–1.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 7–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, cartilaginous, much thinner on margins, without keels, 1(–5) -nerved. Lower glume surface glabrous. Lower glume apex mucronate or awned. Upper glume lanceolate, 7–9 mm long, cartilaginous, without keels, 1(–5) -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire or lobed, mucronate or awned.

Florets. Fertile lemma 3.5–4 mm long, without keel, 3–9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 5–6 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Known only from the type collection.

The species is distinguished by the procumbent flowering stems which are unique in the genus. In spikelet morphology it resembles *P. salina*, but this is a highly resinous species with much longer lemma lobes and awns.

Known only from the type locality in the East Kimberleys, W.A. Infrequent on lower slopes of sandstone mountain range; flowers March.

Triodia pungens R. Br. *Prodr.* 182 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Darwin and Gulf District; Carpentaria, North Coast, *R. Brown* [6257] (HT: BM; IT: E, K, PERTH (photos), MEL, NSW (2 sheets)).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (182), [1878] G.Bentham, *Flora Australiensis* 7 (606), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (74), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (416).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (65, Pl. 17), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (416, fig. 347).

Habit. Perennial. Stolons present. Culms 15–230 cm tall. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades flexuous or tortuous, aciculate, flat or conduplicate, 34 cm long, 0.8–1.2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or pyramidal, 14–27(–37) cm long, 1–2.5(–3.5) cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–6), comprising 5–6 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed or terete, 7–12(–16) mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or cartilaginous or indurate, without keels, 3–5(–7) -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume oblong, 3–10 mm long, scarious or cartilaginous or indurate, without keels, 3–5(–7) -nerved. Upper glume surface glabrous or indumented. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 5–8 mm long, without keel or keeled, 9(–12) -nerved. Lemma surface glabrous or indumented. Lemma apex entire or lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Gardner, Fitzgerald, Hall, Dampier. Canning, Carnegie, Giles, Fortescue, Ashburton, Carnarvon. Irwin, Avon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western. **Queensland:** Burke, Cook, Gregory North, Leichhardt, Mitchell, North Kennedy, South Kennedy, Warrego, Port Curtis.

Notes. Distinguished by its linear panicles; usually closely flowered spikelets; sparsely hairy usually deeply lobed lemmas; resinous foliage.

Burke, Cook, Leichhardt, Mitchell, North and S Kennedy, and Gregory North Districts of Qld, also N.T., W.A. and far NW S.A. On a wide range of deep to skeletal, rocky and gravelly soils of light to heavy texture, including sands, podsols, loams, red earths, cracking clays and alluvium, in association with limestone, laterite, quartzite, sandstone, granite, schists, shales and slates; habitats include plains, dunes, swales, sandhills, hillslopes, ridges, outcrops, scarps, mesas, gorge valleys, stony rises, floodout flats, creek banks and levees, the margins of rockholes, salt lakes, salt pans, and the sandy banks of floodout channels; town streets; flowers all seasons.

Triodia racemigera C.A.Gardner. *Fl. W. Australia* 1: 77 (1952). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Ord River, Kimberley Div., Apr-May 1945, *K.M. Durack s.n.* (HT: PERTH; IT: CANB).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (77), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (68 & 72, Pl. 18 & 22).

Habit. Perennial. Stolons present. Culms 30–130 cm tall. Mid-culm internodes glabrous. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curved or flexuous, aciculate, conduplicate, 55 cm long, 1–1.3 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, linear, 2–5 cm long. Central inflorescence axis 31–65 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3), comprising 3 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed or terete, 4–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, coriaceous or indurate, keeled, 1-keeled, 1–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or

mucronate. Upper glume lanceolate or oblong, 3–5.5 mm long, coriaceous or indurate, keeled, 1-keeled, 1–5 -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous or mucronate.

Florets. Fertile lemma 4.5–6 mm long, without keel or keeled, 3–5 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner. **Northern Territory:** Victoria River.

Notes. Distinguished by its spiciform racemose panicle; glumes long relative to spikelet; lemma hirsute on lower 1/2–2/3, deeply 3-lobed; glabrous relatively long paleas with winged, unexposed keels; mature, reddish-brown, long-hirsute leaf sheaths; extremely long, flexuous or curved, relatively slender blades; cuneate, closely few-flowered spikelets, often almost as wide as long.

East Gardner District of W.A. and adjacent parts of the N.T. On steep rocky slopes, crevices, cliffs and ridges of sandstone hills; flowers Dec., Feb.–May.

Triodia radonensis S.W.L. Jacobs. *Telopea* 4: 658 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Darwin and Gulf District; Radon Creek, Brockman Range, 12°45' S, 132°54' E, 10 Jun 78, *P.K. Latz 7676* (HT: NSW; IT: BRI, CANB, DNA, K, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms sprawling, 150–250 cm tall, 5–10 mm diam. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1 mm long. Leaf-blades flat or conduplicate or convolute, 30–60 cm long, 2–5 mm wide. Leaf-blade surface scaberulous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 14–25 cm long, 7–15 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 5–8 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume oblong, 2–2.5 mm long, membranous, without keels, 3 -nerved. Upper glume surface glabrous. Upper glume apex entire or dentate or lobed, muticous.

Florets. Fertile lemma 2–3 mm long, without keel, 3 -nerved. Lemma surface glabrous. Lemma apex lobed, mucronate. Median (principal) awn from a sinus. Palea apex erose. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Known only from the type collection.

Distinguished by its sprawling, loose habit; highly viscid foliage; broad loose leaf sheaths; long, often convolute or flat blades lacking a petiole; open panicle; oblong spikelet with widely divergent distant florets; membranous, obtusely 2-lobed, 3-ribbed glumes much shorter than the spikelet; mostly indurated, smooth, bitextured inflated almost entire lemmas, and paleas similar to lemma in texture and length.

Having some similarities with *T. procera*, but extremely distinctive in its spikelet morphogy.

Kakadu Natl Park, N.T. Sandy levee banks; flowers June.

Triodia rigidissima (Pilg.) M. Lazarides. *Austral. Syst. Bot.* 10: 468 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Triraphis rigidissima* Pilg.,.

Type of Basionym or Protologue Information: Western Australia: Eremaean Province; 25 km from Menzies, 28 Oct 1901, *L. Diels 5175* (HT: B; IT: K).

Recent synonyms: *Plectrachne rigidissima*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (82 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 37I–L).

Habit. Perennial. Rhizomes absent or present, elongated. Culms erect, 20–70 cm tall. Mid-culm internodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades spreading, straight, aciculate, conduplicate, 2–8 cm long, 2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate, loose, 7–9 cm long, (1.5–)4–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–5), comprising 4–5 fertile floret(s), with diminished florets at the apex, elliptic, laterally compressed, 9–13 mm long.

Glumes. Glumes similar. Lower glume lanceolate, scarious or cartilaginous, without keels, 3–5(–9) -nerved. Lower glume surface glabrous. Lower glume apex muticous or awned. Upper glume lanceolate, 9–13(–18) mm long, scarious or cartilaginous, without keels, 3–5(–9) -nerved. Upper glume surface glabrous. Upper glume apex entire, muticous or awned.

Florets. Fertile lemma 4–7 mm long, without keel. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 11–17 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Canning, Carnarvon, Austin. Coolgardie.

Notes. Distinguished by the few-nerved entire glumes subequal to the spikelet. Allied to *P. desertorum*, but differing by the above characters, as well as its shorter, fewer flowered spikelets and usually shorter panicle. The sides of the lemma are usually glabrous and smooth, but occasionally are pubescent or hirsute in the lower part.

In the SW Eremaean Province of W.A. In red, yellow and brown, often deep, sands and loamy sands on hillslopes and sandplains in association with shale, limestone and laterite; flowers mainly Sept.-Jan., but also Apr. and August.

Triodia roscida N. T. Burbidge. *Austral. J. Bot.* 1: 176 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: 1 mi SE of Turner Station, Kimberley district, 9 Jul 1949, *R.A. Perry 2404* (HT: CANB; IT: AD, BRI, CANB, K, MEL, NSW, NT, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 60–300 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 15 cm long.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, linear, 4–7 cm long. Central inflorescence axis 15–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed or terete, 6–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, scarious or coriaceous or indurate, without keels, 3–10 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate or oblong, 4.5–7 mm long, scarious or coriaceous or indurate, without keels, 3–10 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate.

Florets. Fertile lemma 6–8 mm long, without keel or keeled, 9–12 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Hall. **Northern Territory:** Victoria River.

Notes. Distinguished by its spiciform racemose panicle; closely few-flowered spikelets; subequal, mucronate, many-nerved glumes from c. 1/2 to almost as long as spikelet; deeply lobed many-nerved lemmas; bifid palea long relative to its lemma; often long-hairy leaves and presence of droplets of a brown secretion; glaucous foliage.

Kimberley Region and Hall District, W.A., and adjacent parts of the N.T. Volcanic and limestone outcrops; stony alluvial creek banks; cherty gravels, brown clays and calcareous soils; rocky skeletal hillslopes; gravelly laterite-capped mesas; flowers Feb., Apr.-Aug.

Triodia salina M. Lazarides. *Austral. Syst. Bot.* 10: 471 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Northern Central Australia; Lake Bennett, Lat. 22°45' S, Long. 131°01' E, 18 Jan 72, *P.K. Latz 2108* (HT: CANB; IT: BRI, NT, PERTH).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 34D-F).

Habit. Perennial. Stolons present. Culms 30–160 cm tall. Lateral branches fastigiate. Leaf-sheaths smooth, glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, filiform, conduplicate, 9–27 cm long, 0.8–1.2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense or loose, 17–40 cm long, 1–2.5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed or terete, 10–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, much thinner on margins, keeled, 1-keeled, 1–7 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate or awned. Upper glume lanceolate, 8–17 mm long, scarious, keeled, 1-keeled, 1–7 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire, mucicous or mucronate or awned.

Florets. Fertile lemma 3–4 mm long, without keel or keeled. Lemma surface glabrous or indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 5–10 mm long overall. Lateral lemma awns present. Lodicules present. Anthers 3. Grain 2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Hall, Dampier. **Northern Territory:** Victoria River, Central Australia North.

Notes. Distinguished by its bitextured palea with winged keels; thickened yellowish lemmas with spreading hairs; heavily resinous foliage; elongated usually narrow panicle. Resembling *P. pungens* but without the transversely demarcated lemma of that species, and with a smaller spikelet, spreading (not appressed) lemma hairs and entirely acute, scaberulous-ciliolate palea keels (not partly rounded and smooth).

Between lats. 20°–23°S and W of long. 132°E in the N.T., and adjacent parts of W.A. in the Great Sandy Desert. In or near saline salt-pans, salt-lakes, sandhill swales, soaks and depressions, in deep red soils (sands, sandy loams and clay loams) associated with laterite and limestone; flowers recorded in Jan.-Feb., Apr., and persisting until July-Aug.; fruits recorded in Jan.-Feb., Apr., and persisting until July-Aug.

Triodia scariosa N. T. Burbidge. *Austral. J. Bot.* 1: 173 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Southern Hills, Fraser Range, Cowan, *N.T. Burbidge* 2675 (HT: CANB).

Recent synonyms: *Triodia truncata*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (446), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (416), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (388).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 33D-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (417, Fig. 348), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (388 as subsp *scariosa* and *yelarbonensis*).

Habit. Perennial. Stolons present. Culms 30–100 cm tall. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades straight, aciculate, conduplicate, 4–27 cm long, 0.7–2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense or loose, 7–46 cm long, 1–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–9), comprising 4–9 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed or terete, 5–23 mm long.

Glumes. Glumes similar. Lower glume lanceolate, scarious or cartilaginous, without keels, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 5–11 mm long, scarious or cartilaginous, without keels, 3–5 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucicous.

Florets. Fertile lemma 5–10 mm long, without keel or keeled, 3–9 -nerved. Lemma surface indumented. Lemma apex erose or lobed, mucicous or mucronate. Median (principal) awn from a sinus, 1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Carnegie, Helms, Austin. Irwin, Roe. **South Australia:** North-western, Nullabor, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Burnett, Darling Downs. **New South Wales:** Central-Western Slopes, North-Western

Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Grampians, Lowan Mallee, Murray Mallee, Wannon, Wimmera.

Notes. Distinguished by its elongated, narrow panicles; loosely flowered, linear to elliptical spikelets; 3–5-nerved, muticous, scarious or cartilaginous glumes shorter than spikelet; lemmas hirsute, often thickly 3-nerved, emarginate or minutely 2-lobed, muticous or mucronulate, truncate or obtuse.

S of 24°S in W.A., in S.A., Vic., N.S.W. (S of 30°S and W of 151°E), and in the Burnett and Darling Downs Districts, Qld. Growing in a range of red, yellow or brown, calcareous or clayey or siliceous sands or loams, on plateaux, flats, ridges, gravelly rises, sandplains, dunes, interdunes, swales, or sandhills, often in association with limestone, laterite and sometimes granite, and sometimes in shallow soils on stony hillslopes of quartzite, sandstone and other rocks; saline soils; coastal mallee; creek beds and banks; swamp margins; flowers July–Apr.

Triodia schinzii (Henrard) M. Lazarides. *Austral. Syst. Bot.*, 10(3): 474 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne schinzii* Henrard, *Vierteljahrsschr. Naturf. Ges. Zurich* 74: 134 (1929).

Type of Basionym or Protologue Information: HT: *G.F. Hill 344*, 14 Jun 1911, Australia: Northern Territory (Z; IT: US-1061245).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (82 as *Plectrachne*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (418).

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 37M-P), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (418, fig. 349), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (217 as *Plectrachne schinzii*).

Habit. Perennial. Culms erect, 10–210 cm tall, 2–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 9–25 cm long, 0.8–2 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or lanceolate or oblong, 10–19 cm long, 2.5–3 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed, 10–30 mm long.

Glumes. Glumes similar, shiny. Lower glume linear or lanceolate, membranous or scarious, keeled, 1-keeled, 7–11 -nerved. Lower glume surface glabrous. Lower glume apex mucronate or awned. Upper glume linear or lanceolate, 12–32 mm long, membranous or scarious, keeled, 1-keeled, 7–11 -nerved. Upper glume surface glabrous. Upper glume apex entire, mucronate or awned.

Florets. Fertile lemma 7–8.5 mm long, without keel, 3 -nerved. Lemma surface glabrous or indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 20–25 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Hall, Dampier. Canning, Carnegie, Giles, Helms, Fortescue, Carnarvon. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Mitchell.

Notes. Distinguished by the extremely long, many-nerved glumes much longer than the body of the spikelet; transverse thickened line on lemma body well below sinus of lobes; bitextured, usually glabrous palea usually shorter than lemma body; appressed pubescence on lemma; long-bearded orifice; slender, usually pungent callus.

Between lats. 16° and 29°S in W.A., southern part of the N.T., and the L. Eyre and North-West Regions of S.A. Recorded for Qld by Jacobs (1992), but no specimens seen. Chiefly on plains, dunes, sandhills, swales and pindan in deep, red sands, sandy loams, clayey sands and sandy red earths; also on alluvial creek levees, coastal pindan and beach sands; associated with sandstone, laterite, limestone and slates; flowers Jan.–Oct.; fruits Jan.–Oct.

Triodia secunda N. T. Burbidge. *J. Roy. Soc. Western Australia* 30: 27 (1946). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Northern Province; Coongan Station, Lat. 20°41' S, Long. 119°40' E, 17 May 1937, A.J. Anderson s.n. (*Burbidge 640*) (IT: PERTH) incorrectly cited as 640 by Burbidge (1953: 180).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (78), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (71 & 72, Pl. 21 & 22).

Habit. Perennial. Stolons present. Culms 20–90 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface. Leaf-sheath auricles present. Ligule a fringe of hairs. Leaf-blades straight, acuminate, conduplicate, 6–12.5 cm long, 1 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes appressed, linear, 2–3 cm long. Central inflorescence axis 10–22 cm long.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or lanceolate, scarious, without keels, 1(–3) -nerved. Lower glume surface indumented. Lower glume apex mucronate. Upper glume linear or lanceolate, 3–6.5 mm long, scarious, without keels, 1–3 -nerved. Upper glume surface scabrous, indumented. Upper glume apex entire or lobed, mucronate.

Florets. Fertile lemma 3.5–5.5 mm long, without keel or keeled, 3 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Fortescue.

Notes. Distinguished by its stoloniferous running habit; linear spiciform racemose panicles; fringed auricles; scarious glumes, lemmas and paleas; loosely few-flowered, hairy spikelets; mucronate, scabrous-pubescent glumes; hirsute palea with thickened wingless keels.

Allied to *T. angusta* but readily distinguished by its uniquely fringed auricle.

Restricted to the NW part of the Eremaean Botanical Province, W.A. Flowers recorded in Mar., May, Aug. and Sept.

Triodia spicata N. T. Burbidge. *Austral. J. Bot.* 1: 182 (1953). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Napperby, about 100 mi NW of Alice Springs, 24 Jan 1950, S.L. Everist 4188 (HT: BRI, CANB).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (445), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 15–100 cm tall. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades acuminate, conduplicate, (2.5–)5–10(–19) cm long, 0.6–2 mm wide.

Inflorescence. Inflorescence solid, a raceme or a spike. Racemes 1, 5–13(–26) cm long, 1–1.5 mm wide.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–7), comprising 5–7 fertile floret(s), with diminished florets at the apex, lanceolate or elliptic, laterally compressed or terete, 9–26 mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, scarious or cartilaginous or coriaceous or indurate, without keels, 3–5(–9) -nerved. Lower glume surface glabrous. Lower glume apex mucicous or mucronate. Upper glume lanceolate or ovate, 4–7 mm long, scarious or cartilaginous or coriaceous or indurate, without keels, 3–7(–9) -nerved. Upper glume surface glabrous. Upper glume apex entire, mucicous or mucronate.

Florets. Fertile lemma 5–8 mm long, without keel or keeled, 3(–9) -nerved. Lemma surface indumented. Lemma apex entire, mucicous or mucronate. Median (principal) awn 0.7–1 mm long overall. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Hall, Giles, Fortescue. **Northern Territory:** Victoria River, Central Australia North, Central Australia South.

Notes. Distinguished by the inflorescence of a few-flowered, prominently exerted spike; tightly flowered, finally glossy straw-yellow spikelets; scarious or cartilaginous to indurated glumes, lemmas and paleas; glabrous

relatively short glumes; entire, abruptly ovate, sparsely hairy, usually 3-nerved lemmas; glabrous, relatively long paleas with winged, visible keels; narrow caryopsis, plano-convex in profile; compact, often ring-forming habit; leaves usually with long hairs on ligule, orifice and petiole, and with slender blades; prominently hairy prophylla.

Chiefly Central Australian, N.T. and nearby areas in W.A. Shallow, skeletal, stony and gravelly soils on crests, slopes, outcrops, terraces and scree slopes of sandstone, quartzite, granite and laterite hills, foothills and ridges; also sandy flats; flowers Jan.-Nov.; fruits Jan.-Nov.

Triodia stenostachya Domin. *Biblioth. Bot.* 85: 387 (1915). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Queensland: North Kennedy District; in colle Castle Hill prope opp. Townsville, Feb 1910, *K. Domin s.n.* (HT: PR; IT: K (2 sheets), PERTH (photos)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Stolons present. Culms 30–200 cm tall, 1–1.3 mm diam. Mid-culm internodes glabrous or pubescent. Lateral branches branched. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curled or flexuous, acuminate, conduplicate, 40 cm long, 0.6–1.3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle 20–40 cm long, 3.5–4 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–4), comprising 3–4 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 4–6 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious or cartilaginous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume lanceolate, 2.5–5 mm long, scarious or cartilaginous, keeled, 1-keeled, 1 -nerved. Upper glume surface scabrous, glabrous. Upper glume apex mucronate.

Florets. Fertile lemma 2.5–3.7 mm long, without keel, 3–9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall. Fortescue. **Northern Territory:** Darwin & Gulf, Victoria River.

Queensland: Cook, North Kennedy.

Notes. Distinguished by its highly resinous culms and leaves; large, dense panicles of numerous, relatively small spikelets; mucronate glumes long relative to the spikelet; unequally lobed lemmas; obovoid or ellipsoid, compressed caryopsis.

Similar to *T. microstachya* and *T.cunninghamii* but distinct by the dissimilar lemma lobes.

N of 18°S in W.A. and closely adjacent parts of the N.T., and in the North Kennedy and Cook Districts, Qld; sometimes coastal mainland and islands. Rocky hillslopes and ridges in shallow soils associated with sandstone, quartzite, limestone, laterite-capped basalt, and granite; also in deep littoral sands and on sandy creek banks and levees; flowers Feb.-May, Sept.

Triodia tomentosa S.W.L. Jacobs. *Telopea* 4: 655 (1992). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Western Australia: Eremaean Province; Great Northern Highway, 29°18' S, 117°36' E, 24 Oct 1984, *M.G. Corrick 9324* (HT: NSW; IT: MEL).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Culms 45–90 cm tall. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 1–1.5 mm long. Leaf-blades filiform, conduplicate, 8–28 cm long, 0.7–1 mm wide. Leaf-blade surface scabrous, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 9–15 cm long, 2.5–4 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4–7), comprising 4–7 fertile floret(s), with diminished florets at the apex, linear or lanceolate or cuneate, laterally compressed, 8–14 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, scarious, keeled, 1-keeled, 1–3(–5) -nerved. Lower glume surface glabrous or indumented. Lower glume apex mucicous or mucronate. Upper glume lanceolate, 7–13 mm long, scarious, keeled, 1-keeled, 1–3(–5) -nerved. Upper glume surface smooth or asperulous, glabrous or indumented. Upper glume apex entire, mucicous or mucronate.

Florets. Fertile lemma 7.5–10 mm long, without keel, 3 -nerved or 9 -nerved. Lemma surface indumented. Lemma apex dentate or lobed, mucicous or mucronate. Median (principal) awn from a sinus. Lodicules present. Anthers 3. Grain 2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Austin. Eucla, Roe, Coolgardie.

Notes. Distinguished by the dense, woolly and tangled hairs on the sheaths, orifice and lower part of the blades; the loose paniculate inflorescence; scarious, glabrous glumes long relative to the spikelet; mostly hirsute, minutely lobed lemmas; bitextured lemma and palea; loose florets; relatively long, entirely hairy callus; long ligule.

Similar to *T. lanata*, but differs by its glabrous glumes.

Currently known from the Eremaean Province, W.A., between 27°S and 33°S, and 117°E and 125°E. Recorded on flats, plains and gentle slopes in red sandy gravelly soils over limestone and laterite, or with granite outcrops; flowers July-Nov.

Triodia triaristata M. Lazarides. *Aust. Syst. Bot.* 10: 480 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Northern Territory: Central Australia; Central Mt. Stuart, 21°57', 133°27', 2 Jul 1974, P.K. Latz 5582 (HT: NT; IT: BRI).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 36C-F).

Habit. Perennial. Culms 30–100 cm tall. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.8 mm long. Leaf-blades straight or curved or flexuous, filiform, conduplicate, 20–45 cm long, 0.8–1.2 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle oblong, 16–30 cm long, 2.5–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–17), comprising 7–17 fertile floret(s), with diminished florets at the apex, linear or lanceolate, laterally compressed or terete, 14–27 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, scarious or cartilaginous, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex mucronate or awned. Upper glume oblong, 5–13 mm long, scarious or cartilaginous, keeled, 1-keeled, 3 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex entire, mucronate or awned.

Florets. Fertile lemma 4.5–5 mm long, without keel, 9 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 3 -awned. Median (principal) awn 3.5–5 mm long overall. Lateral lemma awns present. Palea apex dentate. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Central Australia North, Central Australia South. **Queensland:** Burke.

Notes. Distinguished by the 3-lobed, 3-awned, hirsute lemma; hairy, bitextured palea; and narrow, elongated spikelet.

The 3-awned lemmas are a unique feature in *Triodia* s. str., approaching the structure which characterizes *Plectrachne*.

Between 21°S and 24°S and 131°E and 135°E, Central Australia. Sandstone and quartzite hills; flowers recorded in Dec.-Feb., June, July, Sept. and Oct.

Triodia triticoides C.A.Gardner. *Fl. W. Australia* 1: 78 (1952). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Western Australia: Kimberley Research Station, Ord River, 28 Jan 1949, E.C.B. Langfield 32 (HT: PERTH, CANB).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (78), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (68 & 72, Pl. 18 & 22).

Habit. Perennial. Culms 45–200 cm tall. Mid-culm internodes pubescent. Leaf-sheaths hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades aciculate, conduplicate, 5–40 cm long. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle 20–35 cm long, 1 cm wide. Racemes appressed, 4–7 cm long, bearing 14–18 fertile spikelets on each. Central inflorescence axis 20–40 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (7–10), comprising 7–10 fertile floret(s), with diminished florets at the apex, lanceolate or ovate, laterally compressed, 7–9 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, coriaceous or indurate, without keels, 2–5 -nerved. Lower glume surface glabrous. Lower glume apex mucronate. Upper glume oblong, 4–4.5 mm long, coriaceous or indurate, without keels, 2–5 -nerved. Upper glume surface glabrous. Upper glume apex lobed, mucronate.

Florets. Fertile lemma 4–5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner.

Notes. Distinguished by the spiciform, continuous panicle; asymmetrically lobed glume: deeply and unequally lobed lemmas; broadly winged palea keels; and glumes much shorter than the spikelet.

Kimberley region, East and Central Gardner Districts of W.A. Rocky sandstone and limestone hillslopes; flowers recorded in Jan., June and July.

Triodia uniaristata (Lazarides) M. Lazarides. *Austral. Syst. Bot.* 10: 482 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Basionym and/or Replacement Name: *Plectrachne uniaristata* Lazarides, *Nuytsia* 5(2): 280 (1984) [1985].

Type of Basionym or Protologue Information: IT: *Lazarides 7764*, 17 Feb 1973, Australia (L, MO-3820764). IT: *M. Lazarides 7764*, 17 Feb 1973, Australia: Northern Territory: ca. 28 mi SE of Oenpelli Mission (US-3260706).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig 34A-C).

Habit. Perennial. Culms erect, 30–120 cm tall, 4 -noded. Lateral branches branched. Leaf-sheaths scaberulous. Leaf-sheath auricles present. Ligule a fringe of hairs, 1 mm long. Leaf-blades filiform, conduplicate, 20–40 cm long, 1–2 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, 15–30 cm long, 2–5 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (4), comprising 4 fertile floret(s), with diminished florets at the apex, lanceolate, laterally compressed, 4.5–5.5 mm long.

Glumes. Glumes similar. Lower glume lanceolate, membranous or cartilaginous, without keels, 3–5 -nerved. Lower glume apex awned. Upper glume lanceolate, 4.5–6 mm long, membranous or cartilaginous, without keels, 3–5 -nerved. Upper glume surface asperulous. Upper glume apex lobed, awned.

Florets. Fertile lemma 4–5.5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex lobed, awned, 1 -awned. Median (principal) awn from a sinus, 13 mm long overall. Lateral lemma awns absent. Palea 2 -nerved. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Like *P. contorta* this species is unique within the genus by virtue of its 2-lobed, 1-awned lemmas. From *P. contorta*, *P. uniaristata* is distinguished by its smaller, fewer-flowered spikelet in which the florets are inserted within the glumes, by its glabrous (not partly hirsute) palea, and by its larger panicle.

Kakadu Natl Park, N.T. Dominant on bank of small creek in sandstone gorge; sandstone escarpment; flowers Feb.-March.

Triodia vella M. Lazarides. *Austral. Syst. Bot.* 10: 483 (1997). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Queensland: Darling Downs District; Lat 28°11' S, Long. 151°02' E, 26 Sep 92, *P.I. Forster 11661* (HT: BRI; IT: BRI, CANB, DNA, K, MEL, NSW, PRE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 35J-K).

Habit. Perennial. Culms 30–100 cm tall. Leaf-sheaths glabrous on surface. Leaf-sheath auricles absent. Ligule a fringe of hairs, 0.5–0.8 mm long. Leaf-blades straight, filiform, conduplicate, 16–20 cm long, 0.8 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear, dense, 7.5–16 cm long, 0.5–1 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–6), comprising 3–6 fertile floret(s), with diminished florets at the apex, oblong, laterally compressed, 6–10 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear or oblong, chartaceous or scarious, keeled, 1-keeled, 3 -nerved. Lower glume surface glabrous. Lower glume apex muticous. Upper glume linear or oblong, 4–5 mm long, chartaceous or scarious, keeled, 1-keeled, 3 -nerved. Upper glume surface asperulous, glabrous. Upper glume apex entire, muticous.

Florets. Fertile lemma 5 mm long, without keel, 3 -nerved. Lemma surface indumented. Lemma apex entire or lobed, muticous. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Darling Downs.

Notes. Known from only two collections, one sterile.

Distinguishing characters include the white-woolly lemma and palea; minutely 2-lobed, 3-nerved lemma; chartaceous to hyaline glumes, lemmas and paleas; relatively small, loosely flowered spikelet; linear, prominently exerted panicle, and non-resinous mostly glabrous and smooth foliage. *T. vella* is closely allied to *T. scariosa* but differs by its woolly indumentum, usually much smaller spikelets, and the absence of a mucro between the lemma lobes.

Darling Downs District, Qld. Inhabits sandstone and laterised plateaux; flowers Sept.

Triodia wiseana C.A.Gardner. *J. Roy. Soc. Western Australia* 28: 166 (1942). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Triodeae.

Type of Basionym or Protologue Information: Australia: Mount Margaret Pass, Hamersley Range, C.A. Gardner 3129 (HT: PERTH; IT: CANB).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (74), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (70, Pl. 20).

Habit. Perennial. Stolons absent or present. Culms 30–120 cm tall. Mid-culm internodes glabrous. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles absent. Ligule a fringe of hairs. Leaf-blades curved or flexuous, acuminate, conduplicate, 4.5–30 cm long, 0.8–1.3 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, dense, (5–)9–35 cm long, 1.5–3(–6) cm wide.

Spikelets. Spikelets sessile or pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (5–9), comprising 5–9 fertile floret(s), with diminished florets at the apex, lanceolate or oblong, laterally compressed or terete, 7–19 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate or oblong, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5 -nerved. Lower glume surface glabrous. Lower glume apex muticous or mucronate. Upper glume lanceolate or oblong, 4.5–9 mm long, scarious or cartilaginous or indurate, keeled, 1-keeled, 3–5 -nerved. Upper glume surface smooth or asperulous, glabrous. Upper glume apex muticous or mucronate.

Florets. Fertile lemma 4–7.5 mm long, without keel, 9–10 -nerved. Lemma surface glabrous or indumented. Lemma apex lobed, muticous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Fitzgerald, Hall, Dampier. Keartland, Carnegie, Fortescue, Ashburton, Carnarvon. Eucla, Avon. **Northern Territory:** Victoria River.

Notes. Distinguished by the sparsely hairy lemmas, with usually deep subulate lobes; usually glabrous, relatively long paleas with prominently winged keels; strongly 3-nerved glumes; paniculate inflorescence; indumentum of long, straight, stiff hairs on orifice, which extend along margins of blades in tubercular-based clusters.

Mainland and islands of NW W.A. (N of 24°S) and areas of N.T. adjacent to East Gardner and Hall Districts of the Kimberley Region. Commonly in shallow and skeletal, rocky soils and gullies on hills, ridges, plateaux, mountains, ranges, gorges and outcrops of limestone; also in association with granite, sandstone, quartzite, shale, schist, basalt, chert and laterite; in alluvial, red stony clay loam, coarse sandy and gravelly soils on plains and gentle slopes, stony downs, sandplains, valley floors, grass steppes, creek beds, floodouts and banks, and drainage lines; flowers all seasons.

Triodia sp. A Kimberley Flora Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.

Triodia sp. C Kimberley Flora Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.

Triodia sp. B Kimberley Flora Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.

Triodia sp. Little Sandy Desert (S. van Leeuwen 4935) Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.
Western Australia: Kearthland.

Triodia sp. Mt Ella (M.E. Trudgen 12739) Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.
Western Australia: Fortescue.

Triodia sp. Prince Regent River (R.L. Barrett & M.D. Barrett RLB 3680) Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.
Western Australia: Gardner.

Triodia sp. Shovelanna Hill (S. van Leeuwen 3835) Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.
Western Australia: Kearthland, Fortescue.

Triodia sp. Theda (M.D. Barrett & R.L. Barrett MDB 2143) Classification. (GPWG 2001) : Subfamily Chloridoideae. Triodeae.
Australian Distribution: Western Australia.
Western Australia: Gardner.

Tripsacum dactyloides* Classification. (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.
Australian Distribution: Queensland.
Queensland: Moreton.

Tripogon loliiformis (F. Muell.) C.E.Hubb. *Bull. Misc. Inform.* 448(1934). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Festuca loliiformis* F. Muell., *Fragm.* 8: 128 (1873).

Type of Basionym or Protologue Information: ST: *Bowman s.n.*, Australia: Suttor's River ST: *Leichhardt s.n.*, Australia: ad Noretton's Bay ST: *Leichhardt s.n.*, Australia: Charley's Creek ST: *Bowman s.n.*, Australia: Walloon ST: *Bowman s.n.*, Australia: Gracemere ST: *Bowman s.n.*, Herbert's Creek ST: *O'Shanesy s.n.*, Australia: Rockhampton ST: *J. Drummond 976*, Australia occidentali extratropica.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (618 as *Diplachne loliiformis*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (205), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (461), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (405), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (389).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (206, Pl.61), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (263), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 73A-E), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (404, Fig. 336), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (389).

Habit. Annual or perennial. Culms erect, 3.5–55 cm tall, 1–4 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Ligule a fringed membrane, a ciliate membrane, 0.1–2 mm long. Leaf-blades flat or conduplicate or convolute, 1–7.5 cm long, 0.5–1.3 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid or compound, a raceme, a panicle of racemes. Racemes 1, erect, straight, 2–9.5(–17) cm long.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (5–18), comprising 5–18 fertile floret(s), with diminished florets at the apex, linear or oblong, laterally compressed, 4–12(–22) mm long.

Glumes. Glumes similar. Lower glume lanceolate or ovate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume lanceolate or oblong or ovate, 2–3.5(–5.2) mm long, membranous, keeled, 1-keeled, 1–3 -nerved.

Florets. Fertile lemma 1.9–3.5(–4.5) mm long, without keel, 3 -nerved. Lemma apex dentate, mucronate. Median (principal) awn 0.6–1 mm long overall. Palea 2 -nerved. Anthers 2. Grain 1–2.2 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Giles, Helms, Fortescue, Ashburton, Carnarvon, Austin. Irwin, Avon, Coolgardie. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Murray. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** Northern Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Grampians, Midlands, Riverina, Volcanic Plain, Wimmera.

Notes. This species is termed a 'resurrection plant' as it is able to produce green leaf from dry butts, and flowers and fruits in a very short time after rain.

Morphologically variable in inflorescence form and spikelet arrangement; further work is required to determine if 2 species are represented.

Occurs in all mainland states in Australia.; most common in Central and Eastern Australia, also in Papua and New Guinea. In a variety of habitats: rocky slopes, plateaux and outcrops of granite and sandstone in skeletal reddish soils with spinifex; on plains in red sand or sandy to clayey loams in open *Acacia* woodlands especially Mulga; depressions and creeklines on gibber plains with chenopods; floodplains in red to brown clayey soils in open eucalypt woodland; rocky slopes and outcrops of granite in pockets of sandy loam in eucalypt forest or *Callitris* and eucalypt woodland with a grassy understorey.; flowers and fruits throughout the year.

Triraphis mollis R. Br. *Prodr.* 185 (1810). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Type of Basionym or Protologue Information: *Littora Novae Hollandiae intra tropicum*. HT: *R. Br.* 6248, (K).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (185), [1878] G.Bentham, *Flora Australiensis* 7 (603), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (85), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (443), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (405), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (389).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (84, Pl. 23), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (265), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 76A-C), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (406, Fig. 406), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (389).

Habit. Annual or perennial. Culms erect, stature slender to delicate, 10–70(–120) cm tall, 2–3(–4) -noded. Mid-culm nodes glabrous. Lateral branches simple. Leaves mostly basal. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.6–1 mm long. Leaf-blades linear, flat or convolute, 5–50 cm long, 1–4 mm wide.

Inflorescence. Inflorescence solid or compound, a panicle, a panicle of racemes. Panicle linear, 3–25 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (8–10), comprising 8–10 fertile floret(s), with diminished florets at the apex, linear or oblong or obovate, laterally compressed, 4.5–10 mm long.

Glumes. Glumes dissimilar, similar to fertile lemma in texture. Lower glume linear or lanceolate, membranous, keeled, 1-keeled, 1 -nerved. Upper glume linear or lanceolate, 3.6–4.8(–6) mm long, membranous, keeled, 1-keeled, 1 -nerved. Upper glume apex dentate, awned.

Florets. Fertile lemma 4–6 mm long, keeled, 3 -nerved. Lemma apex dentate, awned, 3 -awned. Median (principal) awn from a sinus, 7–9 mm long overall. Lateral lemma awns present. Palea 2 -nerved. Lodicules present. Anthers 3. Grain 2–2.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Victoria.

Western Australia: Gardner, Dampier. Kertland, Carnegie, Giles, Fortescue, Ashburton, Carnarvon, Austin. **Northern Territory:** Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Nullabor, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, Port Curtis, South Kennedy, Warrego, Gregory South. **New South Wales:** Central Coast, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** Murray Mallee.

Notes. Grazed, but generally not well regarded as a forage grass as it contains HCN, but stock poisoning is rarely a problem as the species is usually scattered in pastures dominated by other grasses.

A tufted habit is most common, but tussocky specimens also have been collected, possibly from deeper soils or more fertile sites, or there may be annual and perennial forms of the species. The feathery purple heads are distinctive.

Widespread across inland Australia in all mainland states, and within 150 km of the coast in Qld and S.A.; also in Papua New Guinea. Recorded from sandy islands, subcoastal sandhills, but mostly inland in arid and semi-arid areas on better watered sites such as creek floodouts, swales and lower dune slopes, usually in clayey sand in association with open woodland or *Acacia* shrubland, but also on finer textured red earths; flowers June–Aug. in tropical Australia, or growing and flowering after rain in the warmer months elsewhere.

Trisetum flavescens* (L.) Beauv. *Ess. Agrostogr.* 88, 180, t. 18, fig. 1 (1812). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Avena flavescens* L., *Pl. Sp.* 80 (1753).

Type of Basionym or Protologue Information: LT: *Herb. A. Van Royen no. 913.7–458*, (L). LT designated by Cope in Cafferty et al., *Taxon* 49(2): 247 (2000).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (390), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (161).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (390).

Habit. Perennial. Culms erect or geniculately ascending, 20–80(–100) cm tall, 2–5 -noded. Ligule an eciliate membrane, 0.3–1.1 mm long. Leaf-blades 3.5–18 cm long, 1.5–5 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle elliptic, 6.5–15 cm long, 1.5–7 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 5–7(–8) mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma, shiny. Lower glume lanceolate, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic, 4.3–6.5 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 4.4–6.3 mm long, keeled, 5 -nerved. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 5–9 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: Northern Tablelands, Central Tablelands, Southern Tablelands.

Notes. Introduced. Native to Europe and the Mediterranean. Roadsides and grasslands. Flowers Nov.

Trisetum spicatum subsp. australiense Hultén ex Veldkamp. *Gard. Bull. Singapore* 36(1): 135 (1983)

. **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: LT: *Helms* 847, 15 Apr 1922, Australia: New South Wales: Mt. Kosciusko, 2135 m (S; ILT: C). LT designated by Veldkamp, *Gard. Bull. Sing.* 36: 135 (1983).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (588 as *Trisetum subspicatum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *T. spicatum*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (391 as *T. spicatum*), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (161).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (267), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (391), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (162, Fig.24).

Habit. Perennial. Rhizomes present, elongated. Culms erect or geniculately ascending, 8–65 cm tall, 1–5 -noded. Leaf-sheaths glabrous on surface or hairy. Ligule an eciliate membrane. Leaf-blades flat or involute, 4–15 cm long, 1–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence solid, a panicle. Panicle linear or ovate, 1.5–11 cm long, 1–2 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with a barren rachilla extension, oblong, laterally compressed, 4–7.7 mm long.

Glumes. Glumes similar, thinner than fertile lemma, shiny. Lower glume elliptic, membranous, keeled, 1-keeled, 1–3 -nerved. Upper glume elliptic or ovate, 4–6.5 mm long, membranous, keeled, 1-keeled, 3 -nerved.

Florets. Fertile lemma 4–6.6 mm long, keeled, 5 -nerved. Lemma surface glabrous or indumented. Lemma apex entire or dentate, awned, 1 -awned. Median (principal) awn dorsal, 2.5–6.5 mm long overall, with a twisted column. Anthers 3.

Continental Distribution: Europe, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Queensland, New South Wales, Victoria, Tasmania.

Queensland: Moreton. **New South Wales:** Southern Tablelands. **Victoria:** Snowfields. **Tasmania:** Central Highlands, Ben Lomond, South West, Mt Wellington.

Notes. Also N.Z. Alpine and subalpine grasslands and woodlands, usually on skeletal soils. Flowers Jan.-Mar.

Triticum aestivum* L. *Sp. Pl.* 1: 85 (1753). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Triticeae.

Type of Basionym or Protologue Information: LT: "*Triticum 3*" *Herb. Clifford no. 24*, (BM). LT designated by Bowden, *Canad. J. Bot.* 37: 674 (1959).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (59 as *Trisetum pumilum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia*, [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (279), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (391), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (107).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (199, Pl.59 as *T.vulgare*), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (269), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (280, fig. 217), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (391), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (106, Fig.15).

Habit. Annual. Culms erect, 60–100 cm tall. Mid-culm internodes hollow, thin-walled. Leaf-sheaths glabrous on surface or hairy. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–1.25 mm long, hyaline, truncate. Leaf-blades flat, 10–60 cm long, 7–15 mm wide. Leaf-blade surface scabrous, indumented.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, linear or oblong, 5–18 cm long, bearing 16–20 fertile spikelets on each. Rhachis tough.

Spikelets. Spikelets sessile. Fertile spikelets many flowered, with at least 2 fertile florets (2–4), comprising 2–4 fertile floret(s), with diminished florets at the apex, ovate, laterally compressed, 10–15 mm long.

Glumes. Glumes similar. Lower glume elliptic or ovate, chartaceous or coriaceous, keeled, 2-keeled, winged on keel, 5–9 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate or awned. Upper glume ovate, 6–11 mm long, coriaceous, keeled, 2-keeled, 5–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex with a unilateral tooth, muticous or awned.

Florets. Fertile lemma 10–15 mm long, keeled, 5–10 -nerved. Lemma apex muticous or awned, 1 -awned. Median (principal) awn 0–150 mm long overall. Palea 2 -nerved. Anthers 3. Grain 5–7 mm long.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania.

Western Australia: Drummond. **South Australia:** Gairdner-Torrens Basin, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Darling Downs, Moreton. **New South Wales:** Central Coast, Southern Tablelands, Central-Western Slopes. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Riverina, Volcanic Plain, Wannon, Wimmera. **Tasmania:** No region given.

Notes. Cultivated as a cereal.

In all states except N.T. Perhaps not truly naturalized; usually appearing where seed is dropped but rarely persisting.

Uniola sp. Forster 23666 Classification. (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Australian Distribution: Queensland.

Queensland: Leichhardt.

Uranthoecium truncatum (Maiden & Betche) Stapf. *Hooker's Icon. Pl.* t.3073 (1916). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Rottboellia truncata* Maiden & Betche, *Proc. Linn. Soc. New South Wales* 21: 741, t. 69 (1906).

Type of Basionym or Protologue Information: Australia, Yandama: *Mullen* (K iso).

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (483), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (490), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (392).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (491, Fig. 424), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (392).

Habit. Annual. Culms 15–45 cm tall. Ligule a fringed membrane, a ciliate membrane, 1.1–1.5 mm long. Leaf-blades 4–15 cm long, 2–5 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes appressed, oblong, 0.2–1.5 cm long, bearing 2–4 fertile spikelets on each. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 8–11 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, chartaceous, without keels, 7 -nerved. Upper glume ovate, 4.5–5.5 mm long, chartaceous, keeled, 2-keeled, 7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, coriaceous, 2-keeled (above), 7–9 -nerved.

Fertile lemma 4–7.3 mm long, without keel, 5 -nerved. Palea 2 -nerved.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia North. **South Australia:** Lake Eyre. **Queensland:** Burke, Gregory North, Maranoa, Mitchell, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Arid regions of mainland states other than W.A. and Victoria. In arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers Mar.-June.

Urochloa advena* (Vick.) R.D. Webster. *Australian Paniceae (Poac.):* 231: (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Brachiaria advena* Vickery, *Contr. New South Wales Natl. Herb.* 1(6): 329–330 (1950) [1951].

Type of Basionym or Protologue Information: HT: *A. Noble s.n.*, Australia: Glen Innes (NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (394).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms erect or geniculately ascending or decumbent, stature slender to delicate, 20–120 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Mid-culm

nodes pubescent. Lateral branches sparsely branched. Leaf-sheaths glabrous on surface. Ligule a fringe of hairs, 0.6–1 mm long. Leaf-blades linear or lanceolate, 3–15 cm long, 2–5.5 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–6, 1.1–2.8 cm long, 2–5 mm wide. Central inflorescence axis 1–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, dorsally compressed, 3–3.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–1 -nerved. Lower glume surface glabrous. Upper glume oblong, 1.9–3.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 3–5 -nerved. Fertile florets bisexual.

Fertile lemma 2.25–3.2 mm long, without keel, 3 -nerved. Lemma apex muticous. Palea without keels.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs. **New South Wales:** Northern Tablelands, North-Western Slopes.

Notes. In tropical and subtropical wet sclerophyll forests and dry sclerophyll forests. Flowers Jan.–Apr.

Urochloa argentea (R.Br.) Hughes. *Bull. Misc. Inform.* 315 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum argenteum* R. Br., *Prodr.* 190 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown* 6095, 1803, Australia: Northern Territory: Gulf of Carpentaria (BM; IT: BRI, US-80467 (fragm.)).

Recent synonyms: *Brachiaria argentea*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum argenteum*), [1878] G.Bentham, *Flora Australiensis* 7 (473 as *Panicum argenteum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms 20–40 cm tall, 4–8 -noded. Mid-culm internodes pubescent. Mid-culm nodes glabrous. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades 1–4 cm long, 1.5–4.5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–6, 1–3.5 cm long, 1.5–4 mm wide. Central inflorescence axis 4–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 2–3.3 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3–5 -nerved. Lower glume surface indumented. Upper glume obovate, 1.9–2.2 mm long, membranous, without keels, 7 -nerved. Upper glume surface indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1.8–2.1 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Diagnostic features include spikelet shape and spikelet pubescent patterns. This distinctive pattern of hair distribution is also found in *U. holosericea*.

In tropical and subtropical sub-humid woodlands. Rare. Flowers Apr.

Urochloa atrisola R.D. Webster. *Australian Paniceae (Poac.):* 232 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *S. T. Blake* 17776, 14 May 1947, Australia: Northern Territory: Barkly Tableland, 17°20'S 135°45'E, undulating *Astrebla* grassland, grey pedocalcic soil, 221 m, rich green tufts, more or less oblique culms up to 30 cm long (BRI-186629; IT: BRI-065747, CANB, DNA, K, MO-4616119, NT).

Recent synonyms: *Brachiaria atrisola*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms geniculately ascending, 10–60 cm tall, 1–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches branched. Leaf-sheaths glabrous on

surface or hairy. Ligule a fringe of hairs, 0.8–1.4 mm long. Leaf-blades linear or lanceolate, 3–15 cm long, 4–10 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–4, 1.5–6 cm long, 3 mm wide, bearing 6–16 fertile spikelets on each. Central inflorescence axis 4–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.6–4.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, hyaline, without keels, 7–11 -nerved. Upper glume elliptic, 3.5–4.4 mm long, membranous, without keels, 9 -nerved. Upper glume surface glabrous. Upper glume apex mucous. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.4–4.3 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Barkly Tableland. **Queensland:** Burke.

Notes. Morphologically similar to the glabrous form of *U. piligera* but has a rounded apex on the upper glume and lower lemma, turgid spikelets, relatively larger spikelets and lacks the distinct callus at the base of the spikelet.

In arid and semi-arid low woodlands and arid tussock grasslands. Restricted to the black-soils region of Qld and the N.T. Flowers Mar.-May.

Urochloa brizantha* (A. Rich.) R.D. Webster. *Australian Paniceae* (Poac.): 233: (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum brizanthum* Hochst. ex A. Rich., *Tent. Fl. Abyss.* 2: 363 (1850).

Type of Basionym or Protologue Information: LT: *G.H.W. Schimper* 89, 3 Oct 1837, Ethiopia: Tigre: in declivibus meridionalis partis mediae et superioris monte Sellenda prope Adouba (P; ILT: B, K, L, M, MO, US-945063 (fragm. ex M & photo), TUB). LT designated by ?; cited by Veldkamp, *Blumea* 41: 417 (1996); CS.

Recent synonyms: *Brachiaria brizantha*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Perennial. Rhizomes present. Stolons absent. Culms erect or geniculately ascending, 30–200 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 3–15 cm long, 3–20 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes (1–)2–16, 4–20 cm long, 4–5 mm wide. Central inflorescence axis 3–20 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4–6 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–11 -nerved. Upper glume oblong, 3.8–5.9 mm long, cartilaginous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, cartilaginous, 5 -nerved.

Fertile lemma 3.5–5.6 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Queensland, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook.

Notes. Introduced; W.A. and Qld. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. *Brachiaria brizantha* and *U. decumbens* are native to Africa and are widely introduced as forage species. Flowers Feb.-Mar.

Urochloa decumbens* (Stapf) R.D. Webster. *Australian Paniceae* (Poac.): 234: (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Brachiaria decumbens* Stapf, *Fl. Trop. Afr.* 9: 528 (1919).

Type of Basionym or Protologue Information: ST: *Speke & Grant* 488, Tanzania: Bukoba Distr.: Karagwe (K). ST: *Dimmer* 1070, Uganda: Mengo Distr.: M'pumu, 400 ft (K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (394).

Illustrations: [1983] J.C.Tothill & J.B.Hacker, *Grasses of Southern Queensland* (132 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (394).

Habit. Perennial. Rhizomes absent or present. Stolons present. Culms decumbent, 50–150 cm tall, wiry. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 5–20 cm long, 7–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–7, 1–6 cm long, 4–5 mm wide. Central inflorescence axis 1–8 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4–5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–9 -nerved. Upper glume oblong, 3.9–4.9 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.5–4.8 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Africa, Tropical Asia, Australasia, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald. **Queensland:** Cook, Moreton, South Kennedy, Wide Bay. **New South Wales:** North Coast.

Notes. Diagnostic characteristics include the stoloniferous habit, a flat rachis, and hairy spikelets. It has, in common with *U. brizantha*, a pronounced rachilla between the glumes.

Introduced; W.A. and Qld. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, and tropical and subtropical sub-humid woodlands. Widely introduced in tropical areas as a forage species. Flowers Jan.-Aug.

Urochloa distachya (L.) Nguyen. *Novit. Syst. Pl. Vasc., Acad. Sci. URSS*, 1966, 13 (1966). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum distachyon* L., *Mant. Pl.* 2: 183–184 (1771).

Type of Basionym or Protologue Information: HT: *Koenig s.n.*, India (LINN-80.41; IT: L-908.92–1790).

Recent synonyms: *Brachiaria distachya*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (478 as *Panicum distachyum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual or perennial. Stolons present. Culms prostrate, 5–20 cm tall. Mid-culm internodes pubescent. Mid-culm nodes glabrous or pubescent. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 1.8–12 cm long, 3–9 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–3, 1–3.5 cm long, 2–2.5 mm wide. Central inflorescence axis 0.15–2 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.4–3.7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–9 -nerved. Upper glume oblong, 3–3.5 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved. Fertile florets bisexual.

Fertile lemma 2–2.8 mm long, without keel. Lemma apex muticous. Palea without keels.

Continental Distribution: Africa, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis, Moreton, Mitchell.

Notes. Native; N.T. and Qld. Flowers Jan.-Aug.

Urochloa foliosa (R. Br.) R.D. Webster. *Australian Paniceae (Poac.)*: 236: (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum foliosum* R. Br., *Prodr.* 191 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6110*, Australia: Queensland: Keppel Bay (BM).

Recent synonyms: *Brachiaria foliosa*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191 as *Panicum foliosum*), [1878] G.Bentham, *Flora Australiensis* 7 (481 as *Panicum foliosum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses*

of Australia (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (394).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (77 as *Brachiaria foliosa*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (394).

Habit. Perennial. Rhizomes present. Stolons absent. Culms geniculately ascending or decumbent, 25–90 cm tall, 3–6 -noded. Mid-culm internodes glabrous or pubescent or hirsute. Mid-culm nodes pubescent or bearded. Leaf-sheaths hairy. Ligule a fringe of hairs. Leaf-blades lanceolate or oblong, 4–19 cm long, 4–22 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–10, 2.5–9 cm long, 3–5 mm wide. Central inflorescence axis 3–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 4.5–6.5 mm long. Rachilla internodes elongated between glumes and elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–11 -nerved. Lower glume surface indumented. Upper glume elliptic, 4.5–6.2 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface indumented. Upper glume apex mucicous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.3–4.1 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burke, Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, North-Western Slopes, North-Western Plains.

Notes. Diagnostic features include spikelet length, spreading primary branches, the distinct constriction at the base of the upper glume, and the rounded pedicel apex. The pedicel apex is similar to that found in *Paspalum*. Specimens from the western part of its distribution possess much narrower leaf blades. A typical example of this variation was collected at Bowen Downs by G.R. Lee (BRI). *Brachiaria foliosa* is similar to the introduced species, *U. texana*.

In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers throughout the year but mostly Nov.-June.

Urochloa fusca* (Roem. & Schult.) Kunth. *Rev. Gram.* i. 31 (1829). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum fasciculatum* Poir., *Encycl.* 4: 731 (1798), non Swartz (1788).

Type of Basionym or Protologue Information: Est vraisemblablement originaire de la Jamaïque, (HT: P).

Recent synonyms: *Brachiaria fasciculata*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (394).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (394 as *U.fasciculata* var. *reticulata*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–120 cm tall. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 1 mm long. Leaf-blades lanceolate, 3–20(–30) cm long, 5–15 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Racemes 3–20, 1–8 cm long, 3–4 mm wide. Central inflorescence axis 6–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed, 2.4–3.1 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 1–5 -nerved. Upper glume obovate, 2.5–3.1 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.2–2.9 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Leichhardt. **New South Wales:** North-Western Slopes.

Notes. Introduced. Native to Texas and northern Mexico but now widely introduced. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, temperate sub-humid woodlands, and semi-arid shrub woodlands. Frequently occurs as a weed but is occasionally grown for grain. Flowers Jan.-June.

Urochloa gilesii (Benth.) D.K.Hughes. *Kew Bull.* 1923, 319 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum gilesii* Benth., *Fl. Austral.* 7: 477 (1878).

Type of Basionym or Protologue Information: HT: *Giles s.n.*, Australia: Northern Territory: Charlotte Waters (K).

Recent synonyms: *Brachiaria gilesii*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (477 as *Panicum gilesii*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (475 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (427 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (395).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (428, fig. 357 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (395).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 15–40 cm tall, 3–5 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent or bearded. Leaf-sheaths hairy. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades lanceolate, 2–10 cm long, 3–13 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–5, 1.5–4 cm long, 3–6 mm wide. Central inflorescence axis 1–4 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.3–5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 0–1(–3) -nerved. Upper glume ovate, 2.3–4.9 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2–2.5 mm long, without keel. Lemma apex mucronate or awned. Median (principal) awn 0.5 mm long overall. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Darwin & Gulf, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Eastern. **Queensland:** Burke, Darling Downs, Leichhardt, Maranoa, Mitchell, North Kennedy, Port Curtis, South Kennedy, Warrego, Moreton, Gregory North, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. There are 2 varieties.

1(0). Collar hairy; spikelet bearing axes wingless; lower glume not inflated at the base **b.** subsp. **occidentalis**

Collar glabrous; spikelet bearing axes winged; lower glume inflated at the base **a.** subsp. **gilesii**

Brachiaria gilesii (Benth.) Hughes subsp. **gilesii**

Spikelets of *U. notochthona* appear to be identical to those of *U. gilesii* except for the complete absence of hairs. Parallel glabrous and hairy forms of one species are not uncommon in this genus. As noted by Stapf (1919), the presence or absence of hairs appears to be of limited taxonomic importance. Perhaps it would be appropriate to recognize *forma* to account for this variation.

The inflorescence of this species is of interest. Typically, 2 primary branches are present at the apex of the main axis and a third primary branch is located c. 10 mm below the apex. The lowermost primary branch originates at the node of the subtending leaf.

Brachiaria gilesii subsp. **occidentalis**

This taxon differs from the typical form in shorter spikelets and the occurrence of paired spikelets on the primary branches. In addition, there appears to be a geographical separation. Species with small spikelet forms from W.A. can be found elsewhere in this tribe.

In Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands

Urochloa holosericea (R. Br.) R.D. Webster. *Bull. Misc. Inform.* 315 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum holosericeum* R. Br., *Prodr.* 190 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6094*, Australia: Northern Territory: Gulf of Carpentaria (BM; IT: K, LE, P).

Recent synonyms: *Brachiaria holosericea*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum holosericeum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (235 as *Brachiaria*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (475 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect, 15–70 cm tall. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, flat or conduplicate, 1–8 cm long, 2–7 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–6, 0.8–3.5 cm long, 2–4 mm wide. Central inflorescence axis 3–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3.3 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels, 3 -nerved. Lower glume surface indumented. Upper glume elliptic, 2.4–3.3 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex mucicous or mucronate.

Florets. Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, awned.

Fertile lemma 1.7–2.5 mm long, without keel. Lemma apex mucronate or awned. Palea without keels. Grain 1.25–1.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier. Mueller, Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North. **Queensland:** Burke, Cook, Gregory North, Mitchell, North Kennedy, South Kennedy.

Notes. Infra -specific taxa: subsp. **holosericea**, subsp. **velutina**.

Leaf blades not velutinous **U. holosericea** subsp. **holosericea**

Leaf blades velutinous **U. holosericea** subsp. **velutina**.

Urochloa holosericea subsp. holosericea **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Certain forms of *U. holosericea* subsp. *holosericea* lack the characteristic awn on the lower lemma and possess a slightly oblique pedicel apex. As a result, these specimens vaguely resemble *U. argentea*, which has a similar pattern of indumentum. Specific specimens are *B.Rice 3140* (CANB), *P.K.Latz 2775* (CANB), and *S.T.Blake 8480* (BRI).

W.A., N.T., and Qld. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Oct.-May.

Urochloa holosericea subsp. velutina R.D. Webster. *Austral. Paniceae*, 240 (1987). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: HT: *P. K. Latz 1979*, Australia: Northern Territory: Central North Dist.: Yeundumu Aboriginal Reserve, 22.10S 131.48E (CANB).

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. *Urochloa holosericea* subsp. *velutina* differs from the typical form in possessing velutinous leaf blades, fewer and shorter hairs on the inflorescence branches and pedicels, and generally longer awned lower lemmas.

W.A., N.T., and Qld. In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. *Brachiaria holosericea* subsp. *velutina* occurs in the arid and semiarid areas of north central Australia, whereas subsp. *holosericea* occurs N of this area in tropical and subtropical subhumid woodlands. Flowers Jan.-Aug.

Urochloa humidicola* (Rendle) O. Morrone & F.O. Zuloaga. *Bull. Misc. Inform.* 297 (1936).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum humidicola* Rendle, *Cat. Afr. Pl.* 2(1): 169 (1899).

Type of Basionym or Protologue Information: HT: *F. Welwitsch* 2678, Apr 1868, Angola: Huila: in rather damp wooded meadows near the river Monino (BM; IT: K, LISU).

Recent synonyms: *Brachiaria humidicola*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Perennial. Rhizomes absent. Stolons present. Culms geniculately ascending or decumbent, 40–100 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades linear or lanceolate, 4–20 cm long, 3–10 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–3(–4), 2–7 cm long, 2.5–4 mm wide. Central inflorescence axis 2–13 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3.8–6 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous or indumented. Upper glume oblong, 3.8–4.4 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.2–5.5 mm long, without keel. Lemma apex muticous or mucronate. Palea without keels.

Continental Distribution: Africa, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Queensland: Cook, North Kennedy.

Notes. Introduced. Africa. Collected as a weed in sugar cane fields of the Burdekin R. irrigation area; one record of a naturalisation, but likely for more to occur as it becomes more used as a pasture species. Flowers Jan.-Mar.

Urochloa kurzii (Hook. f.) Nguyen. *Lecomte, Fl. Indo-Chine* 7: 438 (1922). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum kurzii* Hook. f., *Fl. Brit. India* 7(21): 38 (1897) [1896].

Type of Basionym or Protologue Information: India: lower Bengal: Seebpore, *Kurz s.n.* (LT: K).

Recent synonyms: *Brachiaria kurzii*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms decumbent, 15–60 cm tall. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades lanceolate, 2–8 cm long, 2–18 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–7, 5–7.5 cm long, 1.5 mm wide. Central inflorescence axis 3.5–8 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–7 -nerved. Upper glume ovate, 1.25–3.5 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.1–3 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Queensland.

Western Australia: Dampier. **Queensland:** Cook.

Notes. First reported as introduced into Australia by Blake in *Proc. Roy. Soc. Queensl.* 81: 4 (1969). Blake cites two specimens, however, the collection from W.A. (Lazarides 4851) is *Brachiaria ramosa*. The present status of this species in Australia is uncertain.

Introduced. Native to India. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. Flowers May.

Urochloa mosambicensis* (Hack.) Dandy. *J. Bot.* 69: 54 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum mosambicense* Hack., *Bol. Soc. Brot.* 6: 140 (1888).

Type of Basionym or Protologue Information: HT: *M.R. de Carvalho* 19, 1886, Mozambique (W; IT: COI, K; US-80775 (fragm. ex W)).

Recent synonyms: *U. rhodesiensis*, *U. pullulans*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (395).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (395).

Habit. Perennial. Rhizomes present. Stolons absent or present. Culms geniculately ascending, 20–150 cm tall. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades linear or lanceolate, 2–30 cm long, 3–20 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes (2–)3–15, 2–10 cm long, 0.8–1.4 mm wide. Central inflorescence axis 2.5–12 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong, membranous, without keels, 3-nerved. Upper glume ovate, 4–4.5 mm long, membranous, without keels, 5-nerved. Upper glume surface glabrous or indumented. Upper glume apex mucicous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5-nerved.

Fertile lemma 2–4 mm long, without keel. Lemma apex mucronate or awned. Median (principal) awn 0.5–1.2 mm long overall.

Continental Distribution: Africa, Tropical Asia, Australasia, and Pacific.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Christmas Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Central Australia North, Central Australia South. **Queensland:** Burnett, Cook, Leichhardt, Moreton, North Kennedy. **New South Wales:** Central-Western Slopes, North-Western Plains.

Notes. The taxonomic concepts of Clayton (1982) have been followed for this species. The name *U. rhodesiensis* has been applied to those specimens with solitary spikelets, however this feature is inconsistent and placing the name in synonymy is justified. *Urochloa pullulans* has been applied to those specimens with glabrous spikelets. The typical spikelets of *U. mosambicensis* are densely ciliate. The taxonomic relationship between these forms is uncertain.

Introduced. In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers Dec.-July.

Urochloa mutica* (Forsk.) Nguyen. *Fl. Trop. Afr.* 9: 526 (1919). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum muticum* Forssk., *Fl. Aegypt.-Arab.* 20 (1775).

Type of Basionym or Protologue Information: Egypt: Rosettae (Rashid), 2–6 Nov. 1761, *Forsskal* 86 (HT: C).

Recent synonyms: *Brachiaria mutica*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (395).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (395).

Habit. Perennial. Rhizomes absent. Stolons present. Culms sprawling, 25–125 cm tall. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades 6–30 cm long, 3–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–20, 2–13 cm long, 4–6 mm wide. Central inflorescence axis 7–30 cm long.

Spikelets. Spikelets sessile and pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.5–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 0–5 -nerved. Upper glume oblong, 2.7–3.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–3 mm long, without keel. Lemma apex muticous or mucronate. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, New South Wales, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Western Australia: Gardner, Hall. Drummond. **Northern Territory:** Darwin & Gulf. **Queensland:** Burnett, Cook, Gregory North, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast.

Notes. Diagnostic features include the presence of pronounced stolons, glabrous spikelets and hairy leaves.

Introduced. A native of tropical South America or Africa, and widely introduced in tropical areas for improved pastures. In tropical heaths, tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, tropical and subtropical sub-humid woodlands, arid tussock grasslands, and coastal grasslands. Flowers sporadically throughout the year but mostly Nov.-May.

Urochloa notochthona (Domin) D.K.Hughes. *Fl. Trop. Afr.* 9: 597 (1920). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum notochthonum* Domin, *Repert. Spec. Nov. Regni Veg.* 10: 60 (1911).

Type of Basionym or Protologue Information: HT: *Dallachy s.n.*, Australia: Darling River (PR).

Recent synonyms: *Brachiaria notochthona*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (475 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (428 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (395).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (428, fig. 358 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (395).

Habit. Annual. Culms decumbent, 12–20 cm tall. Lateral branches simple. Ligule a fringe of hairs. Leaf-blades lanceolate, 2–5 cm long, 3–7 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–5, 1–3 cm long, 2–3 mm wide. Central inflorescence axis 1–2 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4–4.8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels. Upper glume ovate, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.2 mm long, without keel. Lemma apex mucronate or awned, 1 -awned. Median (principal) awn 0.75–1 mm long overall. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Eyre Peninsula, Murray, Yorke Peninsula, Southern Lofty. **Queensland:** Maranoa, Warrego, Gregory South. **New South Wales:** North-Western Plains, North Far Western Plains.

Urochloa occidentalis (C.A.Gardner & C.E.Hubb.) B.K.Simon ms. *Hooker's Icon. Pl.* 3363 (1938).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Brachiaria occidentalis* C.A. Gardner & C.E. Hubb., *Hooker's Icon. Pl.* 4: pl. 3363, p. 1 (1938).

Type of Basionym or Protologue Information: HT: *Gardner 3227a*, Australia: Western Australia: Wandagee Station (K; IT: PERTH).

Recent synonyms: *Urochloa gilesii* subsp. *occidentalis*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (236 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (233, Pl.69 as *Brachiaria*).

Habit. Annual. Culms decumbent, stature slender to delicate, 10–30 cm tall, 3–6 -noded. Mid-culm internodes glabrous. Mid-culm nodes pubescent or bearded. Lateral branches simple or sparsely branched. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, truncate. Leaf-blades linear or lanceolate, 1.5–5.5 cm long, 4–9 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–5, erect, 3–5 cm long, 2–3 mm wide. Central inflorescence axis 2–4 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 3–3.8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline, without keels, 1–3 -nerved. Upper glume ovate, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2.3–2.5 mm long, without keel. Lemma apex mucronate. Median (principal) awn 0.2–0.4 mm long overall. Palea without keels. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Dampier. Fortescue, Carnarvon.

Notes. W.A. In arid and semi-arid low woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers Feb.–Oct.

Infra -specific taxa: var. **occidentalis**, var. **ciliata** .

Spikelets glabrous **U. occidentalis** var. **occidentalis**

Spikelets hairy **U. occidentalis** var. **ciliata** .

Urochloa occidentalis var. **occidentalis** **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Australian Distribution: Western Australia.

Urochloa occidentalis var. **ciliata** (C.A.Gardner & C.E.Hubb.) B.K.Simon. *Fl. Australia* 44C: *** (200**). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or **Replacement Name:** *Brachiaria occidentalis* var. *ciliata* C.A.Gardner & C.E.Hubb., *Hooker's Icon. Pl.* 3363: 3 (1938).

Type of Basionym or Protologue Information: T: Turee Stn, W.A., Oct. 1933, [initials?][none known]*MacGuire s.n.*; lecto: PERTH; isolecto: BRI, K, (here chosen).

Australian Distribution: Western Australia.

Urochloa oligotricha* (Figari & De Not.) Henrard. *Blumea* 4: 502 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or **Replacement Name:** *Panicum oligotrichum* Fig. & De Not., *Mem. Reale Accad. Sci. Torino, ser. 2*, 14: 333 (1854).

Type of Basionym or Protologue Information: T: *Figari s.n.*, Nubia.

Recent synonyms: *U. bolbodes*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Perennial. Rhizomes absent. Stolons absent. Culms 30–100 cm tall. Mid-culm internodes glabrous. Mid-culm nodes glabrous or pubescent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades 6–45 cm long, 5–20 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 6–20, 2–12 cm long, 0.7–1 mm wide. Central inflorescence axis 4–10 cm long.

Spikelets. Spikelets sessile and pedicelled or sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 3.5–5 mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume lanceolate, herbaceous, without keels, 5–7 -nerved. Lower glume surface glabrous or indumented. Upper glume lanceolate, 3.9–4.8 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous or indumented. Upper glume apex muticous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2–2.8 mm long, without keel. Lemma apex mucronate or awned. Median (principal) awn 0.3–0.6 mm long overall.

Continental Distribution: Africa and Australasia.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Introduced. In tropical and subtropical sub-humid woodlands. Flowers Jan.-Aug.

Urochloa panicoides* Beauv. *Ess. Agrost.* 53 (1812). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: NT: *P. Beauv., Ess. Agrost. pl. 11, f. 1 (1812)*, NT designated by Veldkamp, *Blumea* 41: 433 (1996).

HT: *Commerson in de Jussieu s.n.*, Mauritius (P (lost)). According to Veldkamp, the type "could not be found" at G or P.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (476 as *Panicum helopus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (493), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (396).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (492, fig. 425 as var. *panicoides*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (396).

Habit. Annual. Rhizomes absent. Stolons absent. Culms geniculately ascending or decumbent, 10–100 cm tall. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Ligule a fringed membrane or a fringe of hairs. Leaf-blades linear or lanceolate, 2–25 cm long, 3–18 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–7(–10), 1–7 cm long, 0.9–1.2 mm wide. Central inflorescence axis 1–9 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, (2.5–)3.5–4.9(–5.5) mm long. Rachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, 3.4–4.9 mm long, membranous, without keels, 7–13 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucicous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2–3.1 mm long, without keel. Lemma apex mucronate or awned. Median (principal) awn 0.3–1 mm long overall.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Western Australia: Ashburton. Irwin, Avon, Coolgardie. **South Australia:** Eyre Peninsula, Murray, Southern Lofty. **Queensland:** Burnett, Cook, Darling Downs, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Northern Tablelands, North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Introduced; Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. Flowers Feb.-May.

Infra-specific taxa: var. *panicoides*, var. *pubescens*.

Spikelets glabrous **U. panicoides** var. *panicoides*

Spikelets pubescent **U. panicoides** var. *pubescens* .

Urochloa panicoides var. panicoides * Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales.

Urochloa panicoides var. pubescens * (Kunth) Bor. *Grasses Burma, Ceylon, India & Pakistan* 372 (1960). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Urochloa pubescens* Kunth, *Révis. Gramin.* 1: 31 (1829).

Type of Basionym or Protologue Information: 'Insulae Mascarenae [Mascarene Is.], Nova Hollandia [Australia]', *n.v.*

Australian Distribution: Queensland.

Urochloa piligera (F. Muell. ex Benth.) R.D. Webster. *Bull. Misc. Inform.* 315 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum piligerum* F. Muell. ex Benth., *Fl. Austral.* 7: 477 (1878).

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Australia: Northern Territory: Victoria River.

Recent synonyms: *B. piligera* var. *intercedens*, *Brachiaria piligera*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (477 as *Panicum piligerum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (237 as *Brachiaria*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (475 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (429 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (396).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (429, fig. 359 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (396).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms erect or geniculately ascending, 15–60 cm tall, 3–7 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.7–1.5 mm long. Leaf-blades 4–15 cm long, 3–11 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–4, 2–6 cm long, 2–3.5 mm wide, bearing 8–18 fertile spikelets on each. Central inflorescence axis 3–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, (3.3–)3.8–4.3(–4.9) mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume obovate, membranous, without keels, 9–11 -nerved. Lower glume surface glabrous. Upper glume elliptic, 3.2–4.1 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5–7 -nerved.

Fertile lemma 2–4 mm long, without keel. Lemma apex mucronate. Palea without keels. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Fitzgerald. Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Murray. **Queensland:** Cook, North Kennedy, Port Curtis, South Kennedy, Burke, Leichhardt, Burnett, Wide Bay, Darling Downs, Moreton, Gregory North, Mitchell, Warrego, Maranoa. **New South Wales:** North Coast, Central Coast.

Notes. *Brachiaria piligera* has parallel glabrous and hairy forms. The glabrous form of *U. piligera*, which is otherwise identical to the hairy form, has been confused with *U. subquadriflora*. *Urochloa piligera* lacks a palea of the lower floret, has relatively large spikelets, and usually has closely overlapping spikelets. Alternatively, *U. subquadriflora* (including *U. miliiformis*) has a well developed palea of the lower floret, relatively smaller, well separated spikelets.

In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, arid hummock grasslands, and coastal grasslands. Flowers sporadically throughout the year.

Urochloa polyphylla (R. Br.) R.D. Webster. *Bull. Misc. Inform.* 315 (1923). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum polyphyllum* R. Br., *Prodr.* 190 (1810).

Type of Basionym or Protologue Information: "(T.) Littora Novae Hollandiae intra tropicum.",.

Recent synonyms: *Brachiaria polyphylla*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum polyphyllum*), [1878] G.Bentham, *Flora Australiensis* 7 (477 as *Panicum polyphyllum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms geniculately ascending, 15–60 cm tall, 3–7 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.3–0.6 mm long. Leaf-blades linear or lanceolate, 2–8 cm long, 3–7 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–7, 1.5–4 cm long, 1.5–2 mm wide. Central inflorescence axis 3–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.9–3.7 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Lower glume surface glabrous. Upper glume elliptic, 2.8–3.5 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface glabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.4–2.8 mm long, without keel. Lemma apex mucronate. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, North Kennedy.

Notes. The red to brown glabrous spikelets and narrow primary branches are diagnostic for this easily recognizable Australian endemic.

In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Flowers Feb.-Aug.

Urochloa praetervisa (Domin) D.K.Hughes. *Bull. Misc. Inform.* 446 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum praetervisum* Domin, *Biblioth. Bot.* 85: 309 (1915).

Type of Basionym or Protologue Information: HT: *Andrews 156*, Australia: South Australia: vicinity of Lake Eyre (?).

Recent synonyms: *B. windersii*, *Brachiaria praetervisa*.

Key references (books and floras): [1981] M.Lazarides in J.Jessop (ed)., *Flora of Central Australia* (476 & as *Brachiaria windersii*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (429 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (396).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (430, fig. 360 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (396).

Habit. Annual. Rhizomes absent. Stolons absent or present. Culms erect or geniculately ascending, stature slender to delicate, 20–60 cm tall, 2–3 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs. Leaf-blades lanceolate, 40–170 cm long, 4–13 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–8, 2–7 cm long, 2–4 mm wide. Central inflorescence axis 5–12 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or ovate, dorsally compressed, 2.8–4 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 2.7–3.9 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous. Upper glume apex muticous. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.3–3.5 mm long, without keel. Lemma apex mucronate or awned. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales.

Western Australia: Gardner, Dampier. **Northern Territory:** Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Cook, Burke, North Kennedy, Gregory North, Gregory South, Warrego. **New South Wales:** North-Western Plains, North Far Western Plains.

Notes. Hubbard (1938) used inflorescence form and hairiness of the pedicels to recognize *B. windersii*, however, the two forms obviously intergrade and most specimens are intermediate. Setae can occur on the pedicels in this and other species, making this attribute of limited taxonomic importance. Diagnostic features of *U. praetervisa* include the glabrous paired spikelets, spikelet length, the presence of a well developed palea on the lower floret, and the distinct straight mucro of the upper floret.

In tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, arid hummock grasslands, and tropical sub-humid grasslands. Frequently associated with disturbed habitats. Flowers mostly Dec.-June.

Urochloa pubigera (R. & S.) R.D. Webster. *Proc. Roy. Soc. Queensland* 81: 5 (1969). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pubigerum* Roem. & Schult., *Syst. Veg.* 2: 460 (1817); *Panicum pubescens* R. Br., *Prodr.* 190 (1810), non Lam. (1798).

Type of Basionym or Protologue Information: LT: *R. Brown 6111*, Australia: Northern Territory: Pobasso Island (BM; IT: BRI, E, K, MEL). LT designated by ?; cited by Veldkamp, *Blumea* 41: 426 (1996).

Recent synonyms: *B. ramosa* var. *grandiflora*, *Brachiaria pubigera*.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum pubescens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms decumbent, 20–60 cm tall, 3–6 -noded. Mid-culm internodes pubescent. Mid-culm nodes pubescent. Ligule a fringe of hairs, 0.7–1 mm long. Leaf-blades linear or lanceolate, 3–18 cm long, 4–16 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 4–10, 3–9 cm long, 2–3 mm wide, bearing 8–30 fertile spikelets on each. Central inflorescence axis 6–18 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or obovate, dorsally compressed, 3.5–4.6 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 7–9 -nerved. Lower glume surface glabrous or indumented. Upper glume elliptic, 3.1–4.2 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or cartilaginous, 5–7 -nerved.

Fertile lemma 2.5–3.2 mm long, without keel. Lemma apex mucronate. Palea without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Hall, Dampier. **Northern Territory:** Darwin & Gulf, Barkly Tableland. **Queensland:** Cook, North Kennedy, South Kennedy, Leichhardt, Mitchell, Warrego.

Notes. Diagnostic features include spikelet length, the acuminate apex of the upper glume and lower lemma, and relative length of the callus at the spikelet base.

In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, and coastal grasslands. Native to Australia and Malesia. Further work may show that it occurs through India and tropical Africa. Flowers mostly Jan.-June.

Urochloa ramosa* (L.) Nguyen. *Fl. Trop. Afr.* 9: 542 (1919). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum ramosum* L., *Mant. Pl.* 1: 29–30 (1767).

Type of Basionym or Protologue Information: India:, *Anon.* (LT: LINN-80.44).

Recent synonyms: *Brachiaria ramosa*.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (235 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms 10–70 cm tall. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades 2–25 cm long, 4–14 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–15, 1–8 cm long, 2–4 mm wide. Central inflorescence axis 3–13 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 2.4–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–7 -nerved. Upper glume ovate, 2.5–3.4 mm long, membranous, without keels, 5–9 -nerved. Upper glume surface glabrous or indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or coriaceous (rarely), 5 -nerved. Fertile florets female.

Fertile lemma 2–3.3 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, and North America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf. **Queensland:** Cook, North Kennedy, South Kennedy, Port Curtis, Warrego.

Notes. Morphologically similar to *U. pubigera* and they may intergrade in areas of sympatry, however, Australian specimens are distinct. Diagnostic features of *U. ramosa* include a shorter spikelet and a less apiculate apex on the upper glume and lower lemma.

Introduced. A native of Africa and Asia. In tropical and subtropical rain forests and tropical and subtropical sub-humid woodlands. In Australia it occasionally occurs as a weed in cultivated areas. Flowers Feb.-July.

Urochloa reptans (L.) Stapf. *Hooker's Icon. Pl.* t. 3363: 3 (1938). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum reptans* L., *Syst. Nat. (ed. 10)* 2: 870 (1759).

Type of Basionym or Protologue Information: Jamaica:, *P. Browne s.n.* (LT: LINN-80.52).

Recent synonyms: *Brachiaria reptans*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (476 as *Panicum prostratum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (236 as *Brachiaria*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons present. Culms decumbent, 10–60 cm tall. Mid-culm internodes glabrous. Mid-culm nodes pubescent. Ligule a fringe of hairs. Leaf-blades lanceolate, 1.5–8 cm long, 3–15 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 5–15, 1–4 cm long, 1–2 mm wide. Central inflorescence axis 1–8 cm long.

Spikelets. Spikelets sessile and pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 1.5–2.2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume orbicular, hyaline, without keels, 0–1 -nerved. Upper glume ovate, 1.7–2.2 mm long, membranous, without keels, 7 -nerved. Upper glume surface glabrous. Upper glume apex mucicous. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 1–2 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Australian Distribution: Western Australia, Northern Territory, Queensland, Christmas Is.

Western Australia: Gardner, Fitzgerald. Giles. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy.

Notes. Some specimens illustrate the problem at generic level of spikelet orientation. At the base of the primary branch the spikelets will frequently occur singly and abaxial to the rachis (here the rachis is the primary branch). The solitary spikelet represents the upper spikelet of a pair as a vestigial lower spikelet can frequently be observed. The spikelets soon become paired and the lower spikelet is adaxial to the rachis (here the rachis is the secondary branch). Towards the apex of the primary branch the spikelets frequently become solitary and adaxial. This solitary spikelet represents the lower spikelet of the pair. Here, it is the upper spikelet which is lost. In traditional *Urochloa* species it is the lower spikelet which is lost or vestigial towards the apex.

Native to Asia but now occurs throughout the tropics. In tropical and subtropical rain forests, Brigalow forests, tropical and subtropical sub-humid woodlands, semi-arid shrub woodlands, arid and semi-arid low woodlands, coastal grasslands, and tropical sub-humid grasslands. Flowers Jan.-Aug.

Urochloa subquadrupara* (Trin.) R.D. Webster. *Lingnan Sci. J.* 7: 214 (1931). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum subquadruparum* Trin., *Gram. Panic.* 145 (1826).

Type of Basionym or Protologue Information: LT: *Chamisso s.n.*, LT designated by ?; cited by Veldkamp, *Blumea* 41: 426 (1996).

Recent synonyms: *B. miliiformis*, *Brachiaria subquadrupara*

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (237 as *Brachiaria miliiformis*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (475 as *Brachiaria miliiformis*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (431 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (431, fig. 361 as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (396).

Habit. Annual or perennial. Rhizomes absent. Stolons absent or present. Culms prostrate, 10–200 cm tall. Ligule a fringe of hairs. Leaf-blades linear or lanceolate, 2–20 cm long, 4–10 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–5, 2–6 cm long, 2–3 mm wide. Central inflorescence axis 2.5–10 cm long.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3–3.7 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–11 -nerved. Upper glume oblong, 2.8–3.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex mucicous. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.8–3.5 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, and South America.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, Christmas Is.

Western Australia: Gardner, Dampier, Canning, Fortescue, Austin. **Northern Territory:** Darwin & Gulf, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre, Gairdner-Torrens Basin, Eastern. **Queensland:** Burke, Burnett, Cook, Darling Downs, Gregory North, Leichhardt, Maranoa, Mitchell, Moreton, North Kennedy, Port Curtis, South Kennedy, Warrego, Wide Bay, Gregory South. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains.

Notes. Close relatives include *U. distachya* and *U. piligera*, however, it is distinguished by spikelet length and presence of a palea in the lower floret.

Introduced; W.A., N.T., and Qld. Native to tropical Africa and Asia but widely occurs as a weed. In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. Flowers throughout the year.

Urochloa texana* (Buckl.) R.D. Webster. *Proc. Roy. Soc. Queensland* 81: 7 (1969). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum texanum* Buckley, *Prelim. Rep. Surv. Texas* 3 (1866).

Type of Basionym or Protologue Information: HT: *S.B. Buckley s.n.*, USA: Texas: Travis Co.: Austin (PH; IT: US-81144 (fragm. ex PH)).

Recent synonyms: *Brachiaria texana*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (397).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (396).

Habit. Annual. Culms geniculately ascending or decumbent, 40–120 cm tall. Mid-culm internodes glabrous or pubescent. Mid-culm nodes pubescent. Leaf-sheaths hairy. Ligule a fringed membrane, a ciliate membrane, 1–1.5 mm long. Leaf-blades lanceolate, flat or conduplicate, 8–20 cm long, 7–20 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 3–10, 3–8 cm long, 3–4 mm wide. Central inflorescence axis 7–24 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 4.7–6 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Upper glume elliptic, 4.7–5.2 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.5–4.1 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia and North America.

Australian Distribution: Queensland, New South Wales.

Queensland: Darling Downs, Moreton. **New South Wales:** North Coast, Central-Western Slopes, North-Western Plains.

Notes. Introduced. Native to Texas and northern Mexico but now widely introduced. In tropical and subtropical wet sclerophyll forests, dry sclerophyll forests, temperate sub-humid woodlands, and semi-arid shrub

woodlands. A weedy species commonly associated with moist ditches, margins of cultivated fields, and in other disturbed areas. Flowers Jan.-Aug.

Urochloa whiteana (Domin) R.D. Webster. *Bull. Misc. Inform.* 446 (1934). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum whiteanum* Domin, *Biblioth. Bot.* 85: 305 (1915).

Type of Basionym or Protologue Information: HT: *Anon.*, Australia: Queensland: "Cape False bei Yerraba" (?).

Recent synonyms: *Brachiaria whiteana*.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia* (as *Brachiaria*).

Habit. Annual. Rhizomes absent. Stolons absent. Culms erect or geniculately ascending, 10–50 cm tall, 3–7 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5–1 mm long. Leaf-blades 4–15 cm long, 2.5–5 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 2–4, 2–5 cm long, 1.5–2 mm wide, bearing 8–20 fertile spikelets on each. Central inflorescence axis 3–9 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 3–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate or obovate, membranous, without keels, 7–9(–11) -nerved. Lower glume surface glabrous. Upper glume elliptic, 2.8–3.3 mm long, membranous, without keels, 7 -nerved. Upper glume surface indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.3–2.8 mm long, without keel. Lemma apex mucronate. Palea without keels.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Burnett, Darling Downs, Leichhardt, Moreton, Port Curtis, South Kennedy, Wide Bay, Cook, Mitchell.

Notes. Native. In tropical and subtropical rain forests, tropical and subtropical wet sclerophyll forests, Brigalow forests, tropical and subtropical sub-humid woodlands, and semi-arid shrub woodlands. Flowers mostly Dec.-May.

Vacoparis laxiflorum (F.M.Bailey) Spangler. *Austral. Syst. Bot.* 16(3): 297 . (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sorghum laxiflorum* F.M. Bailey, *Rep. Bellenden-Ker Range* 70 (1889).

Type of Basionym or Protologue Information: HT: *F.M. Bailey s.n.*, 1 Aug 1889, Australia: Queensland: Cook District: Mulgrave River (BRI; IT: K).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect or geniculately ascending, 100–200 cm tall, 14 -noded. Mid-culm internodes pruinose. Mid-culm nodes glabrous or pubescent or bearded. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane, 1–2 mm long. Leaf-blades 3–16 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle elliptic, 7–17 cm long, 3–4 cm wide. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Companion spikelets represented by single glumes or rudimentary, comprising 2 unequal glumes without lemmas, 4.3–5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblongate, dorsally compressed, 5.3–6.6 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume ovate, coriaceous, without keels, 11 -nerved. Lower glume surface glabrous or indumented. Upper glume ovate, membranous or coriaceous, without keels, 7 -nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3–4 mm long, 3 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 25–43 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 3 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Burke, Cook, Leichhardt, Moreton, North Kennedy, Port Curtis, South Kennedy, Wide Bay.

Notes. Near-coastal areas of N.T. and northern and central Qld where it occurs on cracking clays and alluvial soils. Also in Papua New Guinea. Flowers July, Mar.--June. Map 18.

Vacoparis macrospermum (E.D.Garber) Spangler. *Austral. Syst. Bot.* 16(3): 297. (2003). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Sorghum macrospermum* E.D. Garber, *Univ. Calif. Publ. Bot.* 23(6): 323 (1950).

Type of Basionym or Protologue Information: HT: *Anonymous s.n.*, Australia: Northern Territory: Darwin and Gulf District; UC-753385, specimen cultivated in 1948 from seed collected by W. Hartley "near Darwin" in 1947 (UC (photo, CANB)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Habit. Annual. Culms erect, stature robust to moderate, 180–380 cm tall, 5–10 mm diam. Mid-culm nodes glabrous or pubescent. Leaves cauline. Ligule a fringed membrane, a ciliolate membrane, 2.6–5 mm long. Leaf-blades 30–60 cm long, 15–30 mm wide. Leaf-blade surface glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of rames. Panicle ovate, effuse, 15–35 cm long. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile, 1 in the cluster. Companion spikelets pedicelled, 1 in the cluster. Basal sterile spikelets absent or well-developed, 0–4 in number. Companion spikelets represented by single glumes or rudimentary, comprising 2 subequal glumes without lemmas, 6.5–13.5 mm long. Companion spikelet glumes muticous. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 10–11 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma, shiny. Lower glume ovate, coriaceous, much thinner above, without keels, 15–20 -nerved. Lower glume surface glabrous. Upper glume ovate, coriaceous, without keels, winged on margins, 7 -nerved. Upper glume surface scabrous, indumented. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 80 % of length of spikelet, hyaline, 2 -nerved.

Fertile lemma 3.5–4 mm long, 1 -nerved. Lemma apex dentate, awned, 1 -awned. Median (principal) awn from a sinus, 30–52 mm long overall, with a twisted column. Palea absent. Lodicules present. Anthers 3. Grain 5.2–6.3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Found in a small area of limestone outcrops north-west of Katherine, N.T. Flowers Feb.--Apr. Map 17.

Vulpia bromoides* (L.) S. F. Gray. *Nat. Arr. Brit. Pl.* 2: 124 (1821). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca bromoides* L., *Sp. Pl.* 1: 75 (1753).

Type of Basionym or Protologue Information: LT: *Herb. A. van Royen*, (L-912, 356–219). LT designated by Stace & Jarvis, *Bot. J. Linn. Soc.* 91: 436 (1985).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (663 as *Festuca bromoides*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (91), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (438), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (170), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (398), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (293), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (292, Fig.39).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (171, fig. 120), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (398), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (292, Fig 39).

Habit. Annual. Culms erect or decumbent, 2–60 cm tall. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.2–0.5 mm long. Leaf-blades flat or involute, 1–18 cm long, 0.4–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle lanceolate or oblong, (0.5–)1.8–14 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 7–14 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear to lanceolate, membranous, without keels or keeled, 1 -nerved. Upper glume lanceolate, 4.3–10 mm long, membranous, without keels or keeled, 3 -nerved. Upper glume apex muticous or awned.

Florets. Fertile lemma 5.5–9.8 mm long, without keel, 5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 5–12 mm long overall. Palea 2 -nerved. Palea apex divided to base. Anthers 1.

Continental Distribution: Europe, Africa, Temperate Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I, Lord Howe.

Western Australia: Drummond. **South Australia:** Nullabor, Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Burnett, Darling Downs, Moreton. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North East, West Coast, Central Highlands, East Coast, South West.

Notes. Introduced. Native to much of Europe and N Africa. In disturbed sites, ranging from damp or wet areas to dry open habitats. Flowers Aug-Mar.(-May). Fruits Nov.-Apr.

Vulpia ciliata* Dum. *Observ. Gramin. Belg.* 100 (1824). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Type of Basionym or Protologue Information: T: Icon. Descr. Gram. Austriac. 4: t. 65 (1809) cited in Fl. Libya 145: 31 (1988).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (171), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (398), [2009] A.Wilson (ed.). *Flora of Australia*, Vol 44A. *Poaceae* 2 (293), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (292, Fig.39).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (171, Fig. 121), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (398), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (292, Fig 39).

Habit. Annual. Culms erect or decumbent, 5–45 cm tall, 1–2 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliate membrane. Leaf-blades flat or involute, 1–10 cm long, 0.4–2 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, 3–33 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–7), comprising 1–7 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 5–10.2 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong or ovate, membranous, without keels, 0–1 -nerved. Upper glume lanceolate, 1.9–3.4 mm long, membranous, without keels, 1–3 -nerved. Upper glume apex muticous.

Florets. Fertile lemma 4–7.7 mm long, without keel, 3–5 -nerved. Lemma surface indumented. Lemma apex awned, 1 -awned. Median (principal) awn 5–15.3 mm long overall. Palea 2 -nerved. Palea apex entire. Anthers 1.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, and Australasia.

Australian Distribution: South Australia, New South Wales, Victoria.

South Australia: Murray, Southern Lofty, South-eastern. **New South Wales:** Northern Tablelands, Central Tablelands. **Victoria:** Eastern Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Otway Range, Riverina, Volcanic Plain, Wannon, Wimmera.

Notes. Australian material referable to subsp. *ciliata* as described in Flora Europaea.

Introduced. Native to the Mediterranean. In dry (often sandy), open habitats. Flowers Oct.-Dec. Fruits Nov.-Dec.

Vulpia fasciculata* (Forssk.) Sampaio. *Herb. Portug.* 24 (1913). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca fasciculata* Forssk., *Fl. Aegypt.-Arab.* 22 (1775).

Type of Basionym or Protologue Information: HT: *Forsskål 1260*, Apr 1762, Egypt: Alexandria (C).

Recent synonyms: *V. membranacea* auct.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (438), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (172), [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (439), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (398), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (291), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (292, Fig.39).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (172, Fig. 122), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (398), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (292, Fig 39).

Habit. Annual. Culms erect or decumbent, 7–60 cm tall, 2–3 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane or a fringed membrane, a ciliolate membrane. Leaf-blades flat or involute, 1–11 cm long, 0.4–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle oblong, 2–12.5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–3), comprising 2–3 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 12–21.3 mm long.

Glumes. Glumes dissimilar. Lower glume ovate, membranous, without keels, 0–1 -nerved. Upper glume lanceolate, 10–18.7 mm long, chartaceous, keeled, 1-keeled, 3 -nerved. Upper glume surface scabrous. Upper glume apex awned.

Florets. Fertile lemma 8–20 mm long, keeled, 3–5 -nerved. Lemma apex awned, 1 -awned. Median (principal) awn 10–25 mm long overall. Palea 2 -nerved. Palea apex divided to base. Anthers 1–3.

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, New South Wales, Victoria, Tasmania.

Western Australia: Irwin, Drummond, Eyre, Avon. **South Australia:** Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **New South Wales:** South Coast. **Victoria:** East Gippsland, Gippsland Plain, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Volcanic Plain. **Tasmania:** North East, Midlands.

Notes. Introduced. Native to the Mediterranean, also in Europe. Often coastal in dry disturbed areas, often in sandy soils and sand-dunes. Flowers Sept.-Dec. Fruits Oct.-Mar.

Vulpia muralis* (Kunth) Nees. *Linnaea* 19: 694 (1847). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca muralis* Kunth, *Syn. Pl.* 1: 218 (1822).

Type of Basionym or Protologue Information: HT: *F.W.H.Humboldt & A.J.A.Bonpland s.n.*, Ecuador (P; IT: BM, US-91045 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (172), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (399), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (295), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (292, Fig.39).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (173, Fig. 123), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (399), [2009] A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (292, Fig 39).

Habit. Annual. Culms erect, 6–60 cm tall. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.5–1 mm long, entire or lacerate, truncate. Leaf-blades 1.6–14.5 cm long, 0.4–2 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, 1.5–15 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (2–9), comprising 2–9 fertile floret(s), with diminished florets at the apex, cuneate, laterally compressed, 5–12 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume lanceolate, membranous, without keels or keeled, 1 -nerved. Upper glume lanceolate, 3–6.4 mm long, membranous, without keels or keeled, 1–3 -nerved. Upper glume apex muticous or awned.

Florets. Fertile lemma 4–7 mm long, without keel, 5 -nerved. Lemma surface glabrous. Lemma apex awned, 1 -awned. Median (principal) awn 5.3–20 mm long overall. Palea 2 -nerved. Palea apex divided to base. Anthers 1(–3).

Continental Distribution: Europe, Africa, Temperate Asia, and Australasia.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria.

South Australia: Flinders Ranges, Eastern, Eyre Peninsula, Murray, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Moreton, Wide Bay. **New South Wales:** Central Coast, Southern Tablelands,

North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Plain, Midlands, Murray Mallee, Riverina, Wimmera.

Notes. Introduced. Native to Europe and the Mediterranean. In moist or dry, open habitats. Flowers (May-)Aug.-Dec. Fruits Sept.-Nov.

Vulpia myuros* (L.) C.C.Gmel. *Fl. Bad.* 1: 8 (1805). **Classification.** (GPWG 2001) : Subfamily Pooideae. Tribe Poeae.

Basionym and/or Replacement Name: *Festuca myuros* L., *Sp. Pl.* 1: 74–75 (1753).

Type of Basionym or Protologue Information: LT: *Herb. A. van Royen*, (L-912.556–218). LT designated by Stace & Jarvis, *Bot. J. Linn. Soc.* 91: 436 (1985).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (91), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (431), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2002] J.Wheeler, N.Marchant & M.Lewington, *Flora of the South West* (439), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (173), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (399), [2009] A.Wilson (ed.), *Flora of Australia*, Vol 44A. *Poaceae* 2 (294 & var. *myurus*, var. *megalura*), [1992] J.R.Wheeler et al, *Flora of the Kimberley Region* (292, Fig.39 as f. *myurus*, f. *megalura*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (90, Pl. 25), [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (273), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (174, fig. 124 as forma *megalura* & 175, fig. 125 as forma *myuros*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (399), [2009]. A.Wilson (ed.), *Flora of Australia* 44A: *Poaceae* 2 (292, Fig 39).

Habit. Annual. Culms erect or decumbent, 5–70 cm tall, 2–3 -noded. Leaf-sheaths smooth, glabrous on surface. Ligule an eciliate membrane, 0.3–1 mm long. Leaf-blades flat or involute, 2–17 cm long, 0.4–3 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Panicle linear, 5–39 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets many flowered, with at least 2 fertile florets (3–10), comprising 3–10 fertile floret(s), with diminished florets at the apex, oblong or cuneate, laterally compressed, 7–13 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume linear to lanceolate, membranous, without keels or keeled, 1 -nerved. Upper glume lanceolate, 2.6–8 mm long, membranous, without keels or keeled, 1–3 -nerved. Upper glume apex muticous or awned.

Florets. Fertile lemma 4.7–8.5 mm long, without keel, 5 -nerved. Lemma surface glabrous or indumented. Lemma apex awned, 1 -awned. Median (principal) awn 5–19.6 mm long overall. Palea 2 -nerved. Palea apex divided to base. Anthers 1–2.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, South America, and Antarctica.

Australian Distribution: Western Australia, South Australia, Queensland, New South Wales, Victoria, Tasmania, Norfolk I.

Western Australia: Drummond. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, Kangaroo Island, South-eastern. **Queensland:** Darling Downs, Leichhardt, Moreton, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast, Central Tablelands, Southern Tablelands, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains. **Victoria:** East Gippsland, Eastern Highlands, Gippsland Highlands, Gippsland Plain, Grampians, Lowan Mallee, Midlands, Murray Mallee, Otway Plain, Otway Range, Wilsons Promontory, Riverina, Snowfields, Volcanic Plain, Wannon, Wimmera. **Tasmania:** Furneaux Group, North East, Central Highlands, Midlands, Ben Lomond, East Coast.

Notes. Introduced. Native to Europe, introduced to New Zealand, Africa, North and South America. Usually in dry often rocky or sandy habitats. Flowers (May-)July-Dec. Fruits July-Mar.

Infra-specific taxa: f. *myuros*, f. *megalura*.

Lemmas with glabrous margins or occasionally ciliolate at the apex
myuros

V. myuros f.

Lower lemma with glabrous margins, the distal lemmas ciliate on the upper half of the margin
megalura

V. myuros f.

Vulpia myuros f. myuros

Notes. Tas. and the Bass Strait islands, N.S.W., Vic., Qld, W.A. and S.A. Common in pastures, roadsides and waste areas. Flowers (May-)July-Nov. Fruits Oct.-Feb.

Vulpia myuros f. megalura*

Notes. Tas. and the Bass Strait islands, N.S.W., A.C.T., Vic., Qld, W.A. and S.A. Usually in dry often rocky or sandy habitats. Flowers June-Dec. Fruits July-Jan.(-Mar.).

Walwhalleya proluta (F. Muell.) K.E. Wills & J.J. Bruhl. *Aust. Syst. Bot.* 19: 327 (2006). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum prolutum* F.Muell., *Trans. & Proc. Victorian Inst. Advancem. Sci.* 1854/1855: 46 (1855).

Type of Basionym or Protologue Information: HT: *F. von Mueller s.n.*, Australia: Victoria: Avoca River (MEL; IT: K).

Recent synonyms: *Homopholis proluta*, *Whalleya proluta*.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (490 as *Panicum prolutum*), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (257 as *Panicum prolutum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (495 as *Whalleya*), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (400).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (494, fig. 426 as *Whalleya*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (400).

Habit. Perennial. Stolons absent. Culms erect, 20–100 cm tall, wiry, 5-noded. Lateral branches simple or sparsely branched. Leaf-sheaths smooth or scaberulous. Leaf-sheath auricles present. Ligule an eciliate membrane, 1.5–4 mm long, truncate or obtuse. Leaf-blades flat, 2–20 cm long, 2–7 mm wide. Leaf-blade surface smooth or scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, effuse, 10–28 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic, dorsally compressed, 3–4 mm long.

Glumes. Glumes thinner than fertile lemma. Lower glume elliptic or oblong or ovate, membranous, much thinner on margins, without keels, 3–5-nerved. Upper glume elliptic, 3–3.6 mm long, membranous, without keels, 7(–9)-nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7-nerved.

Fertile lemma 1.9–2.5 mm long, without keel. Lemma surface indumented. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria.

South Australia: Flinders Ranges, Eyre Peninsula, Northern Lofty, Murray, Yorke Peninsula, Southern Lofty, South-eastern. **Queensland:** Darling Downs, Maranoa, Warrego. **New South Wales:** North Coast, North-Western Slopes, Central-Western Slopes, South-Western Slopes, North-Western Plains, South-Western Plains, North Far Western Plains, South Far Western Plains. **Victoria:** East Gippsland, Murray Mallee, Riverina, Volcanic Plain, Wimmera.

Notes. *Homopholis proluta* has in common with *H. belsonii* the overall form of the inflorescence, a membranous ligule, pronounced raised nerves on the lower lemma, and the C3 leaf anatomy. It is closer allied to *H. belsonii* than the *Panicum* species.

In dry sclerophyll forests, temperate sub-humid woodlands, semi-arid shrub woodlands, shrub steppe shrublands, acacia shrublands, and eucalypt shrublands. Flowers Oct.-May.

Walwhalleya pungens K.E. Wills & J.J. Bruhl. *Aust. Syst. Bot.* 19: 327 (2006). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Whalleya pungens* Wills & J. Bruhl, *Austral. Syst. Bot.* 13: 463–465, f. 1, 2c (2000).

Type of Basionym or Protologue Information: Australia: New South Wales: Woodsreef [precise locality withheld], 11 Dec 1995, *K.W. Wills, J.J. Bruhl, R.D.B. Whalley & J.R. Hosking 100e* (HT: NSW; IT: BRI, CANB, K, MEL, NE).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (400).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (400).

Habit. Perennial. Stolons present. Culms 20–40 cm tall. Lateral branches branched. Leaf-sheath auricles absent. Ligule an eciliate membrane, 0.7–1.9 mm long. Leaf-blades involute, 3.5–6.5 cm long, 1.9–3 mm wide. Leaf-blade surface scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle 9–20 cm long.

Spikelets. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 fertile floret(s), elliptic, dorsally compressed, 3–3.7 mm long.

Glumes. Lower glume elliptic, 3–5(–7) -nerved. Upper glume lanceolate, 2.9–3.5 mm long, 7–9 -nerved.

Florets. Basal sterile florets 1. Lemma of lower sterile floret 7(–9) -nerved.

Fertile lemma 2.5–2.9 mm long. Lemma apex muticous or mucronate.

Continental Distribution: Australasia.

Australian Distribution: New South Wales.

New South Wales: North-Western Slopes.

Notes. Currently known from the serpentine ridge S of Bingara, and near the old asbestos mine at Woodsreef, 60 km S of Bingara, N.S.W. Flowers Oct.

Walwhalleya subxerophila (Domin) K.E. Wills & J.J. Bruhl. *Aust. Syst. Bot.* 19: 327 (2006).

Classification. (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum subxerophilum* Domin, *Biblioth. Bot.* 85: 316 (1915).

Type of Basionym or Protologue Information: Queensland: bewaldete Sandhügel der Dividing Range bei Jericho, *Domin III. 1910* (PR).

Recent synonyms: *Whalleya subxerophila* (Domin) Wills & J. Bruhl.

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (400).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (400).

Habit. Perennial. Rhizomes absent. Stolons absent. Culms erect, 20–70 cm tall, wiry, 5–10 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches simple or sparsely branched. Leaf-sheaths smooth or scaberulous. Leaf-sheath auricles present. Ligule an eciliate membrane, 1–3.5 mm long, erose, truncate. Leaf-blades linear, flat or convolute, 2–13 cm long, 1.5–4 mm wide. Leaf-blade surface smooth or scaberulous or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–23 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 2–2.75 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume lanceolate or ovate, membranous, much thinner on margins, without keels, 3–5 -nerved. Lower glume apex muticous or mucronate. Upper glume elliptic, 3 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface scabrous and tuberculate. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7–9 -nerved.

Fertile lemma 1.9–2.5 mm long, without keel. Lemma apex mucronate. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Queensland, New South Wales.

Queensland: Burnett, Darling Downs, Leichhardt, Maranoa, Mitchell, Port Curtis, Warrego. **New South Wales:** North-Western Slopes, Central-Western Slopes, North-Western Plains, South-Western Plains.

Notes. Distinctive features include the presence of pronounced scabrosities on the upper glume and lower lemma, the stout wiry culms, and absence of a lower palea.

In Brigalow forests, temperate sub-humid woodlands, semi-arid shrub woodlands, and acacia shrublands. Flowers mostly Nov.–June.

Whiteochloa airoides (R.Br.) Lazarides. *Brunonia* 1: 73 (1978). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Creeping Panic.

Basionym and/or Replacement Name: *Panicum airoides* R. Br., *Prodr.* 190 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown 6112*, Australia: Northern Territory: Darwin & Gulf Distr.: Gulf of Carpenteria, Cape Shield (BM; IT: B, E, K, P).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (190 as *Panicum airoides*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: inflorescences resemble those of *Aira*.

Habit. Perennial. Culms 45–110 cm tall, 3–4 -noded. Mid-culm internodes glabrous or pubescent. Mid-culm nodes glabrous or pubescent or bearded. Ligule a fringed membrane, a ciliolate membrane, 0.3–0.7 mm long. Leaf-blades 10–24 cm long, 1.5–5.5 mm wide. Leaf-blade surface scaberulous.

Inflorescence. Inflorescence compound, a panicle. Panicle linear or oblong, 7–25 cm long, 1–10 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 3–4 mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated between glumes, or elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume orbicular, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex muticous or mucronate. Upper glume ovate, 3–4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5 -nerved, mucronate.

Fertile lemma 1.7–3 mm long, without keel, 3 -nerved. Lemma apex mucronate. Anthers 3. Grain 1.75–2.25 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald, Hall. **Northern Territory:** Darwin & Gulf. **Queensland:** Burke, Cook, Leichhardt, North Kennedy, South Kennedy.

Notes. In tropical and subtropical rain forests, tropical and subtropical sub-humid woodlands, and coastal grasslands. A widespread species with variable inflorescence form. Flowers throughout the year.

Whiteochloa biciliata Lazarides. *Brunonia* 1: 85 (1977). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Mauve Sandgrass.

Type of Basionym or Protologue Information: Australia: Western Australia: Northern Province: Cockatoo Sands near Kununurra, 8 Mar 1963, *Lazarides* 6791 (HT: CANB; IT: BRI, K, L, NT, PERTH, US).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from the Latin bis (twice), cilium (hair) and -ata (possessing). Upper glume densely ciliate on the marginal pair of nerves.

Habit. Annual. Culms 40–110 cm tall, 6 -noded. Mid-culm nodes glabrous. Leaf-sheaths smooth or scaberulous, glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.2–0.5 mm long. Leaf-blades 5–10(–19) cm long, 2–3(–5) mm wide. Leaf-blade surface scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 8–15 cm long, 3–9 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.5–3.8 mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated between glumes, or elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume ovate, 2.4–3.7 mm long, membranous, without keels, 5 -nerved. Upper glume surface smooth or asperulous, glabrous or indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5 -nerved, mucronate.

Fertile lemma 1.7–2.3 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.5–2 mm long.

Continental Distribution: Australasia.

Australian Distribution: Western Australia.

Western Australia: Gardner, Fitzgerald.

Notes. In tropical and subtropical sub-humid woodlands. Flowers Mar.-Aug.

Whiteochloa capillipes (Benth.) Lazarides. *Brunonia* 1:79 (1978). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum capillipes* Benth., *Fl. Austral.* 7: 484 (1878).

Type of Basionym or Protologue Information: LT: *Schultz* 806, Australia: Nort Darwinhern Territory: Darwin & Gulf Distr.: Port (K; ILT: B). LT designated by Hughes, Bull. Misc. Inform. 1923: ? (1923).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (484 as *Panicum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (259 as *Panicum*).

Derivation: from the Latin *capillis* (a hair) and *pes* (foot). The spikelets are borne on thread-like pedicels.

Habit. Annual or perennial. Rhizomes absent or present, short. Culms 60–105 cm tall, 4–6 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.25–0.8 mm long. Leaf-blades 10–25 cm long, 2.5–7 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–25 cm long, 5–6 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.2–3 mm long. Rhachilla internodes elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3–5 -nerved. Lower glume apex mucous or mucronate. Upper glume oblong, 2.2–2.9 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface glabrous. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5 -nerved, mucronate.

Fertile lemma 1.7–2.1 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1–1.5 mm long.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke.

Notes. The most obvious diagnostic feature of the species is the open diffuse panicle. The secondary branches are spreading with relatively long spreading pedicels. Two species of this genus have racemose primary branches. Reduction of the primary branches form open paniculate to racemose is of limited taxonomic significance at the generic level.

Extends to New Guinea and Malaysia. In tropical and subtropical sub-humid woodlands. Flowers mostly Feb.-June.

Whiteochloa cymbiformis (Hughes) B.K.Simon. *Austrobaileya* 2: 23 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum cymbiforme* Hughes, *Bull. Misc. Inform. Kew* 1923(9): 323 (1923).

Type of Basionym or Protologue Information: IT: A. *Cunningham* 341, 1822, Australia: Western Australia (US-1445623 (fragm.)).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (258 as *Panicum*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (472 as *Panicum cymboforme*).

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (255, Pl.75 as *Panicum*).

Derivation: from the Greek *kymbe* (boat) and *forma* (appearance).

Habit. Annual or perennial. Culms 50–200 cm tall. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface. Ligule a fringed membrane, a ciliolate membrane, 0.5–1.2 mm long. Leaf-blades 10–40 cm long, 4–15 mm wide.

Inflorescence. Inflorescence compound, a panicle. Panicle lanceolate or elliptic, 12–70 cm long, 4–15 cm wide, contracted about primary branches.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.8–3.9 mm long. Rhachilla internodes elongated between glumes, or elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume apex mucronate. Upper glume oblong, 2.3–3.2 mm long, membranous, without keels, 7–9 -nerved. Upper glume surface glabrous. Upper glume apex mucous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5–7 -nerved, mucous.

Fertile lemma 1.7–2.3 mm long, without keel. Lemma apex mucous. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory.

Western Australia: Gardner, Dampier. Canning, Fortescue, Carnarvon. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland, Central Australia North.

Notes. A very interesting feature of *W. cymbiformis* is the presence of filiform bristles which terminate some branches. Some specimens completely lack these structures, however, bristles are usually present. This is the only species that is variable for this taxonomically very important character. The presence of a bristle in

Whiteochloa is consistent because other genera in the Paniceae that have a rugose upper floret and C4 subtype NADP are bristle-bearing. Genera with a rugose upper floret and C4 subtype PCK lack bristles.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Feb.-July.

Whiteochloa multiciliata Lazarides. *Brunonia* 1: 88 (1977). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf Distr.: on Start Highway, 10.5 mi SE of Mataranka, 21 Mar 1964, *Lazarides 7093* (HT: CANB; IT: BRI, K, L, MO, NSW, NT, PERTH.).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from the Latin *multus* (many), *cilium* (hair) and *-ata* (possessing). With seven rows of hairs on the upper glume.

Habit. Annual. Culms 45–100 cm tall, 4–6 -noded. Mid-culm nodes glabrous. Leaf-sheaths glabrous on surface or hairy. Ligule a fringed membrane, a ciliolate membrane, 0.4–0.7 mm long. Leaf-blades 8–18 cm long, 2.5–6 mm wide. Leaf-blade surface smooth or scaberulous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 12–18 cm long, 5–10 cm wide.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 2.5–3.5 mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated below proximal fertile floret.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, keeled, 1-keeled, 3 -nerved. Lower glume surface indumented. Lower glume apex muticous or mucronate. Upper glume oblong, 2.4–3.4 mm long, membranous, without keels, 7 -nerved. Upper glume surface smooth or asperulous, indumented. Upper glume apex muticous or mucronate. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5 -nerved, mucronate.

Fertile lemma 1.5–2.1 mm long, without keel. Lemma apex mucronate. Anthers 3. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. In tropical and subtropical sub-humid woodlands. Flowers Jan.-Apr.

Whiteochloa semitonsa (F.Muell. ex Benth.) C.E.Hubb. *Austrobaileya* 2: 23 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum semitonsum* F. Muell. ex Benth., *Fl. Austral.* 7: 483 (1878).

Type of Basionym or Protologue Information: LT: *Elsey s.n.*, Australia: Northern Territory: Darwin & Gulf Distr., Victoria River (K). LT designated by Hughes, Kew Bull. 9:30 (1923).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (483 as *Panicum semitonsum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from the Latin *semi-* (half) and *tonsa* (shaven). Origin unclear, not given by author.

Habit. Annual. Culms 30–60 cm tall, 3–6 -noded. Mid-culm nodes glabrous or pubescent. Leaf-sheaths glabrous on surface or hairy. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades flat or conduplicate, 6–11(–23) cm long, 3–4(–5) mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle of racemes. Racemes 7–12, (2–)3–5(–8.5) cm long, bearing 8–32 fertile spikelets on each. Central inflorescence axis 8–14 cm long.

Spikelets. Spikelets pedicelled, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, laterally compressed, 2.5–3(–3.75) mm long. Rhachilla internodes brief up to lowest fertile floret, or elongated below proximal fertile floret (0.1mm).

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblate, membranous, without keels, 3–5 -nerved. Lower glume surface glabrous or indumented. Lower glume apex muticous or mucronate. Upper glume oblong, 2.5–3.4 mm long, membranous, without keels, 5–7 -nerved. Upper glume surface smooth or tuberculate, glabrous or indumented. Upper glume apex mucronate. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, scarious, 5 -nerved, muticous.

Fertile lemma 1.7–2.5 mm long, without keel. Lemma apex mucronate. Grain 1.5–1.75 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, Queensland.

Northern Territory: Darwin & Gulf. **Queensland:** Cook, Burke.

Notes. Diagnostic features of *W. semitonsa* include the racemose primary branches, short pedicels, usually hairy (strigose) upper glume, usually glabrous culm nodes and overlapping spikelets. The lemma of the lower floret has a distinct vertical groove and a hyaline area at the base. At maturity, the lemma splits along this groove exposing the well developed stamens of the lower floret and facilitates dispersal of the mature pollen.

In tropical and subtropical sub-humid woodlands. Flowers Feb.-July.

Whiteochloa sp. (sp. Hann River, Aplin 917 et al (PERTH) Classification. (GPWG 2001) :

Subfamily Panicoideae. Paniceae.

Australian Distribution: Western Australia.

Western Australia: Fitzgerald.

x Triticosecale

Classification. Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Australian Distribution: New South Wales.

Xerochloa barbata R.Br. *Prodr.* 197 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Rice Grass.

Type of Basionym or Protologue Information: Australia: *R. Brown 6144* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197), [1878] G.Bentham, *Flora Australiensis* 7 (501), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (295), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (291, Pl.85 & 292, Pl.86).

Derivation: Latin for beardless. Glumes and/or lemmas glabrous.

Habit. Annual or perennial. Culms erect or geniculately ascending, 20–50 cm tall, 3–5 -noded. Mid-culm internodes hollow. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.4–1.8 mm long. Leaf-blades filiform or linear, flat or involute, 2.5–13 cm long, 1.5–4 mm wide. Leaf-blade surface smooth.

Inflorescence. Inflorescence compound, a panicle of spikes.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5.5–8.5 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, hyaline or membranous, without keels, 0–1 -nerved. Lower glume surface glabrous. Upper glume lanceolate, 2.1–5.6 mm long, membranous, without keels, 3–5 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or cartilaginous or indurate, 3–5 -nerved.

Fertile lemma 5–7.5 mm long, without keel, 3 -nerved. Palea 2 -nerved, without keels. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke.

Notes. The densely woolly rachis clearly distinguishes it from *X. imberbis*. A membranous upper glume and pronounced nerves distinguish it from *X. laniflora*.

Inhabits the saline tidal flats of the Kimberley, Arnhem and Carpentaria regions. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Feb.-June.

Xerochloa imberbis R.Br. *Prodr.* 197 (1810). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Northern Rice Grass, Rice Grass.

Type of Basionym or Protologue Information: Australia: *R. Brown 6143* (K iso).

Key references (books and floras): [1810]. R.Brown, *Prodromus* (197), [1878] G.Bentham, *Flora Australiensis* 7 (501), [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (294), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia 1 Gramineae* (292, Pl.86).

Derivation: Latin for beardless. Glumes and/or lemmas glabrous.

Habit. Perennial. Rhizomes present, short. Culms geniculately ascending or decumbent, 15–75 cm tall, 3–5-noded. Mid-culm internodes solid or spongy. Mid-culm nodes glabrous. Ligule a fringe of hairs, 0.15–0.5 mm long. Leaf-blades linear or filiform, flat or involute, 6–25 cm long, 0.8–4 mm wide.

Inflorescence. Inflorescence compound, a panicle of spikes.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate, dorsally compressed, 5.8–12 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume oblong or ovate, hyaline or membranous, without keels, 0-nerved. Upper glume lanceolate or oblong, 4.5–9 mm long, chartaceous, without keels, 5-nerved. Upper glume surface glabrous. **Florets.** Basal sterile florets 1, male, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5–7-nerved. Fertile florets female.

Fertile lemma 5.5–11 mm long, without keel. Anthers 3.

Continental Distribution: Tropical Asia and Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River. **Queensland:** Burke, Cook.

Notes. The leaf blades have a thickened and spongy adaxial mesophyll and epidermis. Diagnostic features include spikelet shape and the glabrous rachis.

Occurs in coastal saline areas from W.A. to tropical Qld. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers mostly Feb.-Sept.

Xerochloa laniflora Benth. *Fl.Austral.* 7: 502 (1878). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Northern Rice Grass, Rice Grass.

Type of Basionym or Protologue Information: Australia, Sturt's Creek: *Mueller* (K iso).

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (501), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (296), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Illustrations: [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (291, Pl.85 & 292, Pl.86).

Derivation: from the Latin *lana* (wool) and *flos* (flower). Lemma and palea hairy.

Habit. Annual or perennial. Stolons present. Culms geniculately ascending or decumbent, 12–50 cm tall, 2–3-noded. Mid-culm internodes hollow or solid or spongy. Ligule a fringe of hairs, 0.3–0.8 mm long. Leaf-blades involute, 4–22 cm long, 1–3.5 mm wide.

Inflorescence. Inflorescence compound, a panicle of spikes.

Spikelets. Spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 4.8–10 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume linear, membranous, without keels, 1-nerved. Lower glume surface indumented. Upper glume lanceolate, 4–9 mm long, hyaline or scarious, without keels, 0–3-nerved. Upper glume surface indumented. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous or chartaceous or cartilaginous or indurate, 7-nerved.

Fertile lemma 4–10 mm long, without keel, 3-nerved. Palea 2-nerved.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald, Dampier. Canning, Fortescue. **Northern Territory:** Victoria River, Central Australia North. **Queensland:** Burke, Gregory North, Warrego.

Notes. The spikelet features of this species have been misinterpreted in some publications. The hairy prolongation of the rachis was thought to be the lower glume and the palea of the lower floret was considered to be the rachis.

Xerochloa laniflora is a xerophytic species that can usually be distinguished from *X. barbata* by the texture of the upper glume.

In tropical and subtropical sub-humid woodlands, acacia shrublands, and arid hummock grasslands. Flowers Feb.-July.

Yakirra australiensis (Domin) Lazarides & R.D.Webster. *Brunonia* 7: 293 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum australiense* Domin, *J. Linn. Soc., Bot.* 41: 271, t. 10, f. 7; t. 11, f. 8–12 (1912).

Type of Basionym or Protologue Information: Australia: Western Australia: Northern Province: between Ashburton and Yule River, *E. Clement s.n.* (HT: K).

Recent synonyms: *Ichnanthus australiensis* (Domin) Hughes.

Key references (books and floras): [1952] C.A. Gardner, *Flora of Western Australia 1 Gramineae* (261 as *Ichnanthus*), [1981] M. Lazarides in J. Jessop (ed.), *Flora of Central Australia* (471 as *Panicum*), [2002] D. Sharp & B.K. Simon, *AusGrass, Grasses of Australia*, [2006] J. Jessop, G.R.M. Dashorst, F.M. James, *Grasses of South Australia* (495).

Illustrations: [1952] C.A. Gardner, *Flora of Western Australia 1 Gramineae* (263, Pl. 76 as *Ichnanthus*), [2006] J. Jessop, G.R.M. Dashorst, F.M. James, *Grasses of South Australia* (496, fig. 427 as var. *australiensis*).

Habit. Annual or perennial. Culms erect, 5–30 cm tall, 5–10-noded. Mid-culm internodes solid or spongy. Mid-culm nodes glabrous or pubescent. Lateral branches branched. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades flat or involute, 3–10 cm long, 0.5–4 mm wide. Leaf-blade surface smooth, glabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle elliptic, 2–5 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 3.2–4.5 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume elliptic or ovate, membranous, without keels, 3–5-nerved. Upper glume elliptic or oblong, 3–4.3 mm long, membranous, without keels, 7-nerved.

Florets. Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7-nerved.

Fertile lemma 2.3–3 mm long, without keel. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Western Australia: Gardner, Fitzgerald, Dampier, Canning, Kertland, Fortescue, Carnarvon, Austin. **Northern Territory:** Victoria River, Barkly Tableland, Central Australia North, Central Australia South. **South Australia:** North-western, Lake Eyre. **Queensland:** Burke, Gregory North, Gregory South, Mitchell.

Notes. Infra-specific taxa: var. *australiensis*, var. *intermedia*.

Primary branches appressed to main axis

Y. australiensis var. *australiensis*

Primary branches exerted and spreading

Y. australiensis var. *intermedia*

Yakirra australiensis var. *australiensis*

Classification. Key references (books and floras): [2002] D. Sharp & B.K. Simon, *AusGrass, Grasses of Australia*.

Australian Distribution: Western Australia, Northern Territory, South Australia, Queensland.

Notes. Diagnostic features include spikelet length, plant height and the reduced, non-exserted inflorescence. Some specimens from the northern part of its distribution may have an inflorescence that barely exceeds the subtending leaf blade.

Occurs in the arid areas from Qld to the coastal areas of W.A. In arid and semi-arid low woodlands, shrub steppe shrublands, acacia shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Feb.–Aug.

Yakirra australiensis var. *intermedia* R.D. Webster. *Austral. Paniceae* 266 (1987).

Classification. Type of Basionym or Protologue Information: T: Near Lucky Hill 23 km NNE of Dunham R., *M. Lazarides 8547*; holo: CANB.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Notes. Intermediate between *Y. australiensis* and *Y. pauciflora*. A generally more profusely branching pattern and smaller spikelet size distinguishes it from *Y. pauciflora*; whereas a more exerted inflorescence and spreading primary branches separate it from var. *australiensis*. The more open form of its inflorescence and usually larger plants may be the result of this taxon generally occurring in less arid areas.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, arid hummock grasslands, and tropical sub-humid grasslands.

Yakirra majuscula (F. Muell. ex Benth.) Lazarides & R.D. Webster. *Brunonia* 7: 295 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum majusculum* F. Muell. ex Benth., *Fl. Austral.* 7: 482 (1878).

Type of Basionym or Protologue Information: HT: *Elsey s.n.*, Australia: Northern Territory: Victoria River Distr.: Victoria River (K; IT: MEL).

Recent synonyms: *Ichnanthus majusculus* (F.Muell. ex Benth.) Hughes.

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (482 as *Panicum majusculum*), [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (262 as *Ichnanthus majusculus*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from the Latin *majus* (great) and *-ula* (diminutive). Somewhat larger in some respect than related species.

Habit. Annual. Culms 30–75 cm tall. Mid-culm internodes hollow. Mid-culm nodes glabrous. Lateral branches sparsely branched. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades 5–30 cm long, 2–7 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 4–15 cm long, with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 5–6.8 mm long.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, (5–)7–9 -nerved. Upper glume ovate, 5–6.8 mm long, membranous, without keels, 7–9 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 3.4–5.1 mm long, without keel, 5 -nerved. Lodicules present.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Fitzgerald. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Cook.

Notes. Similar to *Y. pauciflora* but can be distinguished on spikelet size. These species have in common the unusual characteristic of hairs on the adaxial surface of the upper glume and lower lemma. In general, *Y. majusculum* is distributed N of *Y. australiensis*, and tends to be less branched and taller in habit.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, arid hummock grasslands, and tropical sub-humid grasslands. Flowers mostly Feb.-Sept.

Yakirra muelleri (Hughes) Lazarides & R.D.Webster. *Brunonia* 7: 294 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Ichnanthus muelleri* Hughes, *Bull. Misc. Inform. Kew* 1923(9): 329 (1923).

Type of Basionym or Protologue Information: HT: *Mueller s.n.*, Australia: Western Australia: Northern Province; north-west Australia, near King Sound (K; IT: MEL, P).

Recent synonyms: *Panicum muelleri* (Hughes) Lazarides.

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (262 as *Ichnanthus*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (471 as *Panicum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: in honour of Ferdinand Jacob Heinrich Mueller (1825–96), German-born Australian botanist.

Habit. Annual. Culms erect, 8–30 cm tall, 4–8 -noded. Mid-culm internodes solid or spongy. Mid-culm nodes pubescent. Lateral branches branched. Ligule a fringe of hairs, 0.4–1.5 mm long. Leaf-blades flat or involute, 2–12 cm long, 1–5 mm wide. Leaf-blade surface smooth, indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 1–8 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, lanceolate or oblanceolate or elliptic, dorsally compressed, 4.7–5.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate or elliptic, 4.7–5.5 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.9–3.4 mm long, without keel. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Dampier. **Northern Territory:** Darwin & Gulf, Central Australia North. **Queensland:** Cook, Burke, South Kennedy, Gregory South, Mitchell, Warrego.

Notes. The type is from the W Kimberley region of W.A., and it seems very likely that it is actually a depauperate form of *Y. pauciflora* var. *pauciflora*.

Known from a small number of specimens from the semi-arid areas of western Qld with few collection from eastern N.T. and the W Kimberley region of W.A. In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, acacia shrublands, and arid tussock grasslands. Flowers Apr.-July.

Yakirra nulla Lazarides & R.D.Webster. *Brunonia* 7: 295 (1985). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Northern Territory: Darwin & Gulf District: ca. 8 mi NE of Adelaide River township, 17 Mar 1965, *Lazarides & Adams* 262 (HT: CANB; IT: K, L, NT).

Derivation: from the Latin *nullus* (nothing). Apex of the stipe lacks appendages.

Habit. Annual or perennial. Culms erect or decumbent, 50–60(–100) cm tall, 4–6 -noded. Mid-culm internodes hollow, glabrous or hirsute. Mid-culm nodes glabrous or pubescent. Lateral branches sparsely branched. Leaf-sheaths hairy. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades 3–8(–17) cm long, 2–10 mm wide. Leaf-blade surface scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 5–23 cm long, 4–12 cm wide, contracted about primary branches or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblanceolate, dorsally compressed, 3.8–5.1 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume elliptic, 4.1–5.1 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved.

Fertile lemma 2.5–3.8 mm long, without keel, 7 -nerved. Lodicules absent or vestigial. Anthers 3. Grain 1.7 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory.

Northern Territory: Darwin & Gulf.

Notes. Similar to the typical form of *Y. pauciflora* but easily distinguished by the absence of lateral appendages at the apex of the swollen rachilla.

Restricted to a relatively small area E and SE of Darwin. N.T. In tropical and subtropical sub-humid woodlands and coastal grasslands. Flowers Feb.-May.

Yakirra pauciflora (R.Br.) Lazarides & R.D.Webster. *Brunonia* 7: 294 (1984). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum pauciflorum* R. Br., *Prodr.* 191 (1810).

Type of Basionym or Protologue Information: HT: *R. Brown s.n.*, 1803, Australia: Northern Territory: Darwin & gulf Distr.: North Coast, Gulf of Carpentaria (BM(fragm., US-80903); IT: B, E, K, MEL, P).

Recent synonyms: *Ichnanthus pauciflorus* (R.Br.) Hughes.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (191 as *Panicum pauciflorum*), [1878] G.Bentham, *Flora Australiensis* 7 (483 as *Panicum pauciflorum*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from the Latin *paucus* (few) and *flos* (flower). Spikelets few per inflorescence.

Habit. Annual. Culms erect, 31–75 cm tall, 4–8 -noded. Mid-culm internodes hollow or solid or spongy. Mid-culm nodes glabrous. Lateral branches sparsely branched. Ligule a fringe of hairs, 0.5–2 mm long. Leaf-blades flat or involute, 4–20 cm long, 1.5–5 mm wide. Leaf-blade surface smooth or scabrous, glabrous or indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 3–12 cm long, evenly furnished.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblanceolate or elliptic or oblong, dorsally compressed, 3.7–5.2 mm long. Rhachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 5–7 -nerved. Upper glume lanceolate or elliptic, 3.6–5.1 mm long, membranous, without keels, 7 -nerved. **Florets.** Basal sterile florets 1, barren, without significant palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 7 -nerved.

Fertile lemma 2.6–3.6 mm long, without keel. Lodicules present. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: Western Australia, Northern Territory, Queensland.

Western Australia: Gardner, Dampier. **Northern Territory:** Darwin & Gulf, Victoria River, Barkly Tableland. **Queensland:** Burke, Mitchell, Cook.

Notes. The range in morphological variation in this species is poorly understood and more collections are needed. It intergrades with *Y. masjusculum* on spikelet length and some specimens intergrade with *Y. australiensis*.

In tropical and subtropical sub-humid woodlands, arid and semi-arid low woodlands, and tropical sub-humid grasslands. Flowers Feb.-June.

Yakirra websteri B.K.Simon. *Austrobaileya* 3: 602 (1992). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Type of Basionym or Protologue Information: Australia: Queensland: Mitchell Dist.: 93 k N of Langlo Crossing, 20 May 1975, G. R. Beeston 1361C (HT: BRI-AQ268164; IT: BRI, CANB, K, NSW).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: in honour of Robert Dale Webster (1950–). United States botanist.

Habit. Perennial. Culms erect, 25–80 cm tall, 2–3 -noded. Mid-culm nodes pubescent. Lateral branches simple. Ligule a fringe of hairs, 0.5 mm long. Leaf-blades 7–12 cm long, 2–5 mm wide. Leaf-blade surface indumented.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 10–20 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, ovate, dorsally compressed, 2.5 mm long. Rachilla internodes elongated between glumes.

Glumes. Glumes dissimilar, thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3–5 -nerved. Upper glume ovate, 2.5 mm long, membranous, without keels, 9 -nerved. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous.

Fertile lemma 1.8 mm long, without keel. Lodicules present. Grain 1.5 mm long.

Continental Distribution: Australasia.

Australian Distribution: Queensland.

Queensland: Maranoa, Mitchell.

Notes. The only species of *Yakirra* with spikelets less than 3 mm long and with a fully developed lower palea.

Zea mays* L. *Sp. Pl.* 971 (1753). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Common name: Corn, Maize.

Type of Basionym or Protologue Information: LT: *Anon.*, America (LINN-1096.1). LT designated by Iltis & Doebley, *Amer. J. Bot.* 67: 1001 (1980).

Key references (books and floras): [1952] C.A.Gardner, *Flora of Western Australia* 1 *Gramineae* (354), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (401).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (401).

Derivation: a name of Caribbean origin for *Zea mays*.

Habit. Annual. Culms erect, 200–300 cm tall. Mid-culm internodes solid. Leaves cauline. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, 25–100 cm long, 20–100 mm wide.

Inflorescence. Inflorescence compound, a panicle of racemes.

Spikelets. Spikelets sessile, 2 in the cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, obovate, dorsally compressed.

Glumes. Glumes similar, firmer than fertile lemma. Lower glume oblate, scarious, of similar consistency above, without keels, 0 -nerved. Upper glume oblate, scarious, without keels, 0 -nerved. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret membranous, 0 -nerved. Fertile florets female.

Fertile lemma without keel, 0 -nerved. Lodicules absent or vestigial or present. Anthers 3.

Continental Distribution: Europe, Africa, Temperate Asia, Tropical Asia, Australasia, Pacific, North America, and South America.

Zea mexicana* (Schrad.) Kuntze. *Amer. J. Bot.* 29: 817 (1942). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Andropogoneae.

Basionym and/or Replacement Name: *Euchlaena mexicana* Schrad., *Index Sem.* 1832: 3 (1832).

Type of Basionym or Protologue Information: HT: (LE-TRIN-0001.01). "Probably Central Plateau Race or Chalco Race" H.H. Iltis. IT: *Muhlenfordt s.n.*, Mexico (US-727076 (fragm.)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*.

Derivation: from Mexico.

Habit. Annual. Culms erect, 200–400 cm tall. Mid-culm internodes solid. Lateral branches branched. Leaves cauline. Leaf-sheaths glabrous on surface. Ligule an eciliate membrane. Leaf-blades linear or lanceolate, flat, 60–120 cm long, 50–80 mm wide. Leaf-blade surface glabrous.

Inflorescence. Inflorescence compound, a panicle of racemes. Rhachis fragile at the nodes.

Spikelets. Spikelets sessile. Male spikelets sessile and pedicelled, 2 in a cluster. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, oblong, laterally compressed, 4–8 mm long.

Glumes. Glumes dissimilar, firmer than fertile lemma. Lower glume oblong, indurate, without keels. Upper glume elliptic, membranous, without keels. **Florets.** Basal sterile florets 1, barren, with palea or without significant palea. Lemma of lower sterile floret membranous. Fertile florets female.

Fertile lemma without keel. Anthers 3.

Continental Distribution: Africa, Temperate Asia, Tropical Asia, Australasia, North America, and South America.

Australian Distribution: Queensland.

Queensland: Cook.

Notes. Native to Mexico: introduced to Australia as fodder and naturalised in N. Qld.

Zoysia macrantha Desv. *Opusc.* 54 (1831). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Common name: Prickly Couch.

Type of Basionym or Protologue Information: Crescit in Nova-Hollandia, iso:NSW.

Key references (books and floras): [1810]. R.Brown, *Prodromus* (208 as *Zoysia pungens*), [1878] G.Bentham, *Flora Australiensis* 7 (506 as *Zoysia pungens*), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (407), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (402).

Illustrations: [1984] N.T.Burbidge. rev. S.W.L.Jacobs, *Australian Grasses* (275), [2005] K.Mallet (ed.), *Flora of Australia* 44B: *Poaceae* 3 (Fig. 55 as subsp. *walshii*), [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (408, fig. 338 as subsp. *walshii*), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (402).

Derivation: from the Greek *makros* (large) and *anthos* (flower). Spikelets large.

Habit. Perennial. Rhizomes present, elongated. Culms decumbent, 5–30 cm tall. Lateral branches simple or sparsely branched. Leaves cauline. Ligule a fringed membrane or a fringe of hairs, a ciliate membrane. Leaf-blades flat or involute or convolute, 1–16 cm long, 0.5–4 mm wide.

Inflorescence. Inflorescence solid, a raceme. Racemes 1, 2–5 cm long.

Spikelets. Spikelets pedicelled. Fertile spikelets 1-flowered, comprising 1 fertile floret(s), without rachilla extension, lanceolate or elliptic or oblong or ovate, laterally compressed, 2–5 mm long.

Glumes. Glumes firmer than fertile lemma, shiny. Upper glume lanceolate or oblong or ovate, 2–5 mm long, coriaceous, without keels, 1 -nerved.

Florets. Fertile lemma 3.5 mm long, without keel, 1 -nerved. Lemma apex mucronate. Palea 0 -nerved. Anthers 3.

Continental Distribution: Australasia.

Australian Distribution: South Australia, Queensland, New South Wales, Victoria, Tasmania.

Queensland: Moreton, Port Curtis, Wide Bay. **New South Wales:** North Coast, Central Coast, South Coast.

Victoria: East Gippsland, Gippsland Plain, Otway Plain, Wannon, Wimmera. **Tasmania:** King Island, Furneaux Group, North East, East Coast.

Notes. Endemic

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Infra-specific taxa: subsp. **macrantha**, subsp. **walshii**.

Spikelets 3.5–5 mm long; mature leaves more than 2 mm wide **Z. macrantha** subsp. **macrantha**

Spikelets 2.3–3.5 mm long; mature leaves c. 1 mm wide **Z. macrantha** subsp. **walshii**

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Zoysia macrantha subsp. macrantha **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Australian Distribution: Queensland, New South Wales, Victoria.

Notes. Of value as a sand and soil binder on foreshores and margins of salt-swamps.

Z. macrantha was incorrectly referred to *Z. pungens* Willd. (a later synonym of *Z. matrella* (L.) Merrill) by Benthams and other authors until 1931.

All around the E coast from near Melbourne to the Shoalwater Bay area of Qld, N of Yeppoon. Occurs in eroded hollows of coastal rock platforms, on beach sand dunes, sometimes with other grasses such as *Cynodon dactylon*, and in mangroves and salt marshes.

***Zoysia macrantha* subsp. *walshii* .**

Zoysia macrantha* subsp. *walshii Nightingale. *Fl. Austral.* 43: 376 (2002). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Australian Distribution: South Australia, New South Wales, Victoria, Tasmania.

Notes. Formerly attributed to *Z. matrella* (L.) Merrill, but differs in its firmer, erect stems and leaves and the truncate rather than oblique attachment of the spikelet to the pedicel. Differs from *Z. macrantha* subsp. *macrantha* by the foliage forming a much more compact mass, the culms being shorter and rhizomes more frequent.

Found in the Lower Eyre Penin., Kangaroo Is. and SE region of S.A., scattered across eastern and near-coastal Vic., commonly on the islands of Bass Strait, and in N coastal Tas. Recorded from open scrub of *Melaleuca halmaturorum*, in black soil over clay, around the edges of inland swamps, and at the foot of coastal cliffs.

***Zoysia matrella* (L.) Merr.** *Philipp. Journ. Sc., Bot.* vii. 230 (1912). **Classification.** (GPWG 2001) : Subfamily Chloridoideae. Cynodonteae.

Basionym and/or Replacement Name: *Agrostis matrella* L., *Mant. Pl.* 2: 185 (1771).

Type of Basionym or Protologue Information: LT: *Koenig 56*, Sri Lanka ? (LINN-84.11; ILT: L). LT designated by Goudswaard, *Blumea* 26: ? (1980).

Key references (books and floras): [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (402).

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (402).

Australian Distribution: Queensland, Christmas Is, Cocos Keeling Is, Ashmore Reef, Coral Sea Is.

Queensland: Cook, North Kennedy, Port Curtis.

***Zuloagaea bulbosa** H. B. & K.** **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Basionym and/or Replacement Name: *Panicum bulbosum* H. B. & K., *Nov. Gen. Sp.* 1: 99 (1815).

Type of Basionym or Protologue Information: HT: *F.W.H.A. von Humboldt & A.J.A. Bonpland 4250*, Sep, Mexico: Guanajuato: Santa Rosa (P-Bonpl.; IT: US-2907467 (fragm. & photo ex P)).

Key references (books and floras): [2002] D.Sharp & B.K.Simon, *AusGrass*, *Grasses of Australia*, [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales*.

Illustrations: [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (314 as *Panicum*).

Habit. Perennial. Rhizomes absent or present. Stolons absent. Culms erect, 30–150 cm tall, 3–8 -noded. Mid-culm internodes glabrous. Mid-culm nodes glabrous. Lateral branches sparsely branched. Leaf-sheaths smooth or antrorsely scabrous. Leaf-sheath auricles absent. Ligule a fringed membrane, a ciliolate membrane, 0.5–1 mm long. Leaf-blades linear, 20–60 cm long, 3–15 mm wide. Leaf-blade surface smooth or scabrous.

Inflorescence. Inflorescence compound, a panicle. Panicle ovate, 12–50 cm long, evenly furnished or with spikelets clustered towards branch tips.

Spikelets. Spikelets pedicelled. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic or oblong, dorsally compressed, 3–4.2 mm long. Rhachilla internodes brief up to lowest fertile floret.

Glumes. Glumes thinner than fertile lemma. Lower glume ovate, membranous, without keels, 3 -nerved. Lower glume apex mucicous. Upper glume elliptic or ovate, 3–3.5 mm long, membranous, without keels, 5 -nerved. **Florets.** Basal sterile florets 1, male or barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, membranous, 5 -nerved, mucicous or mucronate.

Fertile lemma 2.8–4 mm long, without keel. Lemma apex mucicous. Anthers 3.

Continental Distribution: Australasia, North America, and South America.

Australian Distribution: New South Wales.

New South Wales: North Coast, Central Coast, Central-Western Slopes.

Notes. The obscurely transverse rugose or wrinkled surface of the upper floret is very unusual for *Panicum*.

Introduced; Native to semi-arid regions of SW United States where it is occasionally cultivated as a forage species. In temperate wet sclerophyll forests, dry sclerophyll forests, temperate sub-humid woodlands, and semi-arid shrub woodlands. Flowers Nov.-Apr.

Zygochloa paradoxa (R.Br.) S.T.Blake. *Univ. Queensland Dept. Biol. Pap* 1 (19): 8 (1941). **Classification.** (GPWG 2001) : Subfamily Panicoideae. Paniceae.

Common name: Sandhill Canegrass.

Basionym and/or Replacement Name: *Neurachne paradoxa* R. Br., *Exped. Centr. Austral.* 2: App. 89 (1849).

Type of Basionym or Protologue Information: Australia: Sturt .

Key references (books and floras): [1878] G.Bentham, *Flora Australiensis* 7 (504 as *Spinifex paradoxus*), [1981] M.Lazarides in J.Jessop (ed.), *Flora of Central Australia* (483), [2002] D.Sharp & B.K.Simon, *AusGrass, Grasses of Australia*, [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (497), [2008] S.W.L.Jacobs, R.D.B.Walley & D.J.B.Wheeler, *Grasses of New South Wales* (403).

Illustrations: [2006] J.Jessop, G.R.M.Dashorst, F.M.James, *Grasses of South Australia* (498, Fig. 428), [2008] S.W.L.Jacobs, R.D.B.Whalley & D.J.B.Wheeler, *Grasses of New South Wales*, 4th edn (403).

Derivation: from the Greek *para* (irregular) and *doxa* (opinion). Different from the expected in regard to related species.

Habit. Perennial. Rhizomes present, elongated. Culms geniculately ascending, 40–150 cm tall, 4–8 mm diam., woody. Lateral branches suffrutescent. Ligule a fringe of hairs, 0.5–1.2 mm long. Leaf-blades 1–30 cm long, 1–10 mm wide.

Inflorescence. Inflorescence compound, a panicle, with racemose branches.

Spikelets. Spikelets sessile. Male spikelets sessile. Fertile spikelets 2-flowered, the lower floret barren (rarely male), the upper fertile, comprising 1 basal sterile florets, comprising 1 fertile floret(s), without rachilla extension, elliptic, dorsally compressed, 5–10 mm long.

Glumes. Glumes similar, thinner than fertile lemma. Lower glume ovate, chartaceous, without keels, 7–9 -nerved. Lower glume surface indumented. Upper glume ovate, 5–10 mm long, chartaceous, without keels, 7–9 -nerved. Upper glume surface glabrous or indumented. **Florets.** Basal sterile florets 1, barren, with palea. Lemma of lower sterile floret 100 % of length of spikelet, chartaceous, 5 -nerved. Fertile florets female.

Fertile lemma 4.5–10 mm long, 5 -nerved. Lemma surface glabrous. Anthers 3. Grain 3 mm long.

Continental Distribution: Australasia.

Australian Distribution: Northern Territory, South Australia, Queensland, New South Wales.

Northern Territory: Central Australia North, Central Australia South. **South Australia:** Lake Eyre, Gairdner-Torrens Basin, Flinders Ranges, Eastern, Eyre Peninsula. **Queensland:** Gregory North, Gregory South. **New South Wales:** North Far Western Plains, South Far Western Plains.

Notes. Disarticulation is primarily at the compacted culm nodes and secondarily at the spikelet base. The disseminule consists of a spikelet, a very short pedicel, and 3 highly modified bracts with pronounced curved wings. These unusual modifications undoubtedly assist in dispersal.

Spikelets of the male inflorescence occur in a reduced panicle and the prolonged rachis, bract and prophyllum are not modified into winged structures.

In shrub steppe shrublands, arid tussock grasslands, and arid hummock grasslands. Flowers mostly Mar.-Sept.