



Flora of South Australia

5th Edition | Edited by Jürgen Kellermann

CENTROLEPIDACEAE¹

D.A. Cooke²

Small monoecious annual or perennial herbs; roots fine, numerous; rhizomes absent; stems very short, branching at ground level to form leafy tufts; leaves near-basal, numerous, with open scarious-hyaline sheaths passing into narrowly linear laminae, 1-veined; hairs eglandular, multicellular uniseriate, or absent. **Inflorescence** a terminal spike or capitulum, usually scapose, several per plant; flowers unisexual, minute, wind-pollinated, enclosed by herbaceous primary bracts; small hyaline secondary bracts often also present; perianth and floral receptacle absent; male flower reduced to a single stamen; female flower reduced to an apocarpous gynoecium of 1–30 carpels; male and female flowers sometimes associated to form asymmetric bisexual units with a stamen adaxial to the carpels; filament capillary; anther elliptic, dorsifixed, versatile, 1-celled; ovary stipitate, utricular with pericarp remaining hyaline in fruit, 1-celled; ovule 1, pendulous, orthotropous; styles filiform, entire, papillose and stigmatic along most of their exposed length. **Fruit** dry, 1-seeded, membranous, dehiscent; seed endospermic, with a minute apical embryo; testa membranous.

3 genera with about 37 species, mainly Australian, also in SE Asia, New Zealand, New Guinea, S America and the Falkland Islands. 10 species in S.A.

The family is a homogenous group whose exact relationship to other Poales is still questionable.

- 1. Inflorescence a spike with 6–11 distichous bracts 1. **Aphelia**
- 1: Inflorescence a head enclosed by a pair of bracts 2. **Centrolepis**

1. APHELIA R.Br.

Prodr. 251 (1810).

(Greek *apheles*, simple; referring to the simple structure of the solitary female florets.)

Brizula Hieron., *Bot. Zeitung (Berlin)* 30: 206 (1872).

Small annuals; leaves filiform to subulate in a basal tuft; scapes erect, filiform, leafless. **Inflorescence** a laterally flattened terminal spike resembling the spikelets of *Cyperus* spp.; rhachis flexuose; primary bracts 6–18, distichous, imbricate, glume-like, herbaceous with hyaline margins; lowest 1 or 2 primary bracts each enclosing 1–3 stamens and sometimes 1 separate carpel; each stamen subtended by a short ovate hyaline secondary bract; upper primary bracts shorter, each enclosing 1 solitary carpel; ovary narrowly ovoid; style brownish, exserted from bracts. **Seed** fusiform, smooth.

6 species in Australia, 2 of these in S.A.

Reference: Cooke (1995).

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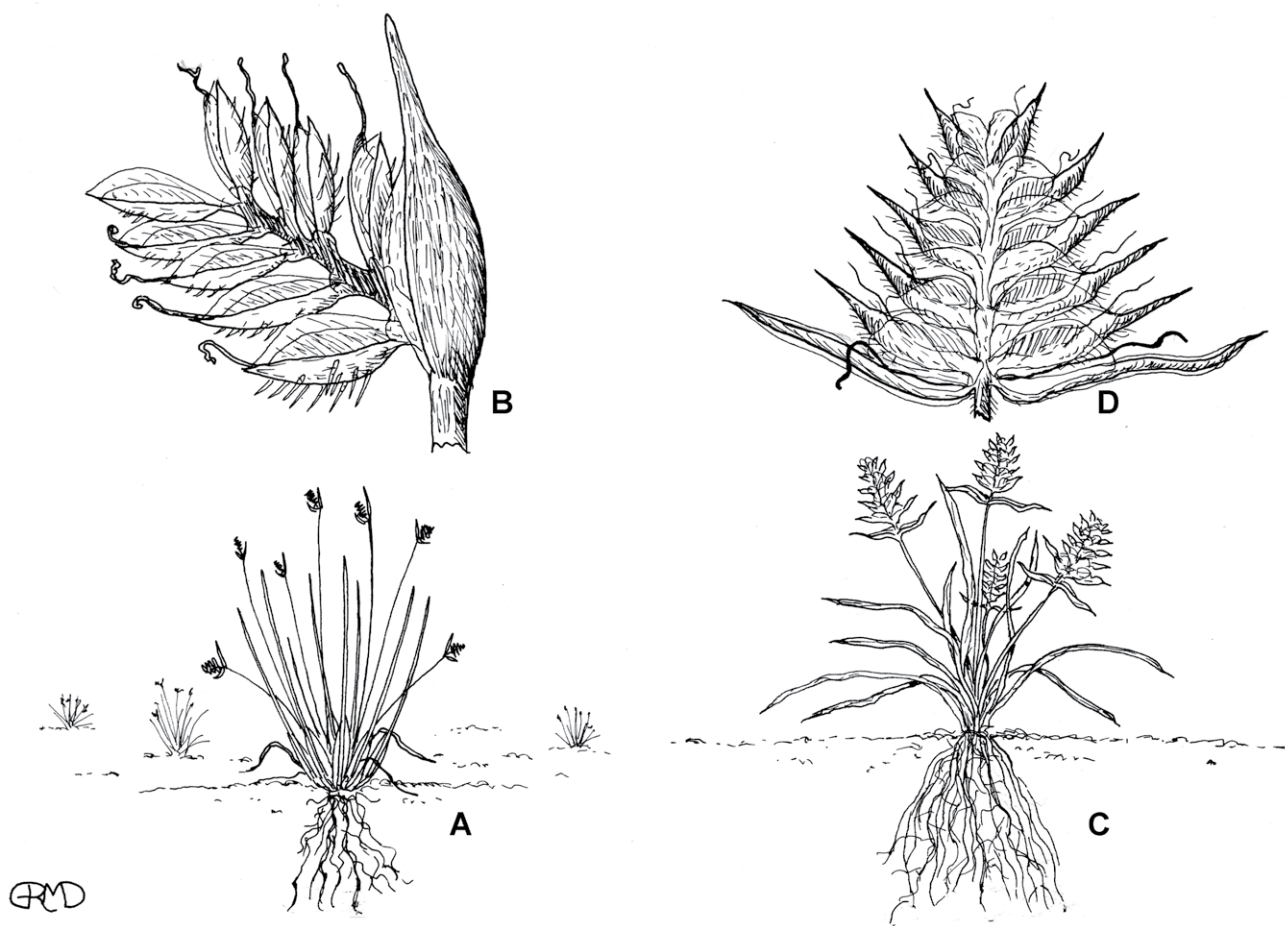


Fig. 1. **A–B, *Aphelia gracilis***: A, habit; B, spike. **C–D, *A. pumilio***: C, habit; D, spike. Illustration by G.R.M. Dashorst, from *Flora of South Australia* 4: 1824, Fig. 833 (1986).

1. Spike not erect, turned to one side; upper primary bracts obtuse..... 1. ***A. gracilis***
 1: Spike erect; upper primary bracts acuminate..... 2. ***A. pumilio***

1. ***Aphelia gracilis*** Sond., *Linnaea* 28: 227 (1856). — *Brizula gracilis* (Sond.) Hieron., *Abb. Naturf. Ges. Halle* 12: 206 (1873). — **Illustr.**: Dashorst & Jessop, *Plants Adelaide Plains & Hills* t. 77 (2006).

Annual 2–4 cm high; leaves filiform, lax, acute, 1–2.5 cm long, glabrous. **Scapes** 1.5–3.5 cm long, glabrous; spike ovate, 3–4 mm × 2–3 mm, turned to one side; lowermost bract erect, 3–4 mm long, acuminate, contracted into a linear tip 1–2 mm long, glabrous to papillose, enclosing 1 or 2 stamens often also with 1 carpel; upper bracts 5–7, obtuse, 0.8–1.5 mm long, pilose, rounded on the dorsal surface, 3-veined, with broad ciliate hyaline margins extending to the apex, at first closely imbricate, eventually separating due to growth of the rachis and ultimately deciduous; carpels solitary, lacking secondary bracts. **Seed** pale-brown, 0.7 mm long. **Slender aphelia. Fig. 1A–B, Pl. 1A.**

S.A.: EP, NL, MU, SL, KI, SE; N.S.W.; Vic.; Tas. On temporarily wet ground, especially the margins of creeks and swamps. Flowers: Oct.–Nov.

2. ***Aphelia pumilio*** F.Muell. ex Sond., *Linnaea* 28: 226 (1856). — *Brizula pumilio* (F.Muell. ex Sond.) Hieron., *Abb. Naturf. Ges. Halle* 12: 206 (1873). — **Illustr.**: Dashorst & Jessop, *Plants Adelaide Plains & Hills* t. 77 (2006).

Annual 1–3 cm high; leaves subulate to linear, acute, 1–2 cm long, glabrous. **Scapes** 0.7–2.5 cm long; spike ovate, 4–6 mm × 3–4 mm, erect; lowermost bract leaflike, 4–10 mm long, spreading, glabrous, enclosing 1–3 stamens; the next bract 3–6 mm long, with a spreading leaf-like tip, glabrous, enclosing 1–3 stamens; upper bracts 4–9, acuminate, 1.5–2.5 mm long, keeled, with hairs along the keel, with broad hyaline ciliate margins not extending to the apex, remaining closely imbricate, deciduous in fruit; carpels each with an ovate ciliate secondary bract on the abaxial side. **Seed** dark-brown, 0.8 mm long. **Dwarf aphelia. Fig. 1C–D, Pl. 1B–C.**

S.A.: NL, MU, SL, KI, SE; Vic.; Tas. On temporarily wet ground of various soil types. Flowers: Oct., Nov.

2. CENTROLEPIS Labill.

Nov. Holl. Pl. 1: 7 (1804).

(Greek *kentron*, spur; *lepis*, scale; referring to the points on the bracts of *C. fascicularis*.)

Alepyrum R.Br., *Prodr.* 253 (1810); *Devauxia* R.Br., *Prodr.* 252 (1810).

Small annual and perennial herbs; leaves linear, forming a basal tuft; innermost leaf often reduced to a short sheath. **Scapes** erect, leafless or absent; inflorescence a head of 1–numerous sessile reproductive units enclosed by a pair of herbaceous primary bracts with dilated sheathing bases appearing opposite, often produced beyond the head as leaf-like laminae; each female flower usually associated with a solitary stamen free or partially adnate at the base to form a bisexual unit; gynoecium of 2–30 carpels superposed in 2 rows (often alternating) along a vertical axis formed from the stipes of the carpels; secondary bracts hyaline, 2 or 3 surrounding each bisexual unit, or absent; ovaries ovoid, more or less connate; styles filiform, connate at least at the level of the ovaries, forming a brush-like bundle exerted from the bracts. **Seed** ovoid, smooth, pale-brown, translucent.

About 25 species; 20 in Australia, the others in SE Asia, New Guinea and New Zealand. 8 species in S.A.

Reference: Cooke (1992).

- 1. Heads sessile among the basal leaves 2. **C. cephaliformis**
- 1: Heads scapose
 - 2. Leaves pilose, at least near the base
 - 3. Perennial; gynoecium with 2–4 carpels 5. **C. fascicularis**
 - 3: Annuals; gynoecium with 4–7 carpels
 - 4. Bracts glabrous..... 3. **C. drummondiana**
 - 4: Bracts hairy..... 8. **C. strigosa**
 - 2: Leaves completely glabrous
 - 5. Leaves manifestly distichous; both bracts of the head with long leaf-like laminae..... 1. **C. aristata**
 - 5: Leaves not appearing distichous; outer bract only with a leaf-like lamina
 - 6. Bract lamina straight, no longer than the head; plant softly herbaceous 6. **C. glabra**
 - 6: Bract lamina recurved, longer than the head; leaves wiry; bract bases hardened
 - 7. Stamens and gynoecia 4–10 per head 4. **C. eremica**
 - 7: Stamens and gynoecia 1 or 2 per head..... 7. **C. polygyna**

- 1. **Centrolepis aristata** (R.Br.) Roem. & Schult., *Syst. Veg.* 1: 44 (1817). — *Devauxia aristata* R.Br., *Prodr.* 253 (1810). — **Illustr.:** Dashorst & Jessop, *Plants Adelaide Plains & Hills* t. 78 (1990).

Annual herb 2–10 cm high, rigidly erect, bright-green or becoming reddish after flowering; leaves equitant, distichous, linear-subulate, keeled, acute, 1–6 cm × 0.8–1.6 mm, glabrous, shiny; innermost leaf not reduced. **Scapes** flattened, 2-edged, 1–8 cm long, glabrous; head flattened, oblong-ovoid, 1.3–3 mm wide; primary bracts appearing opposite, with cartilaginous brown bases gaping apart at the apex and leaf-like laminae, glabrous or scabridulous on keel, the outer bract 8–35 mm long, the inner one 4–30 mm; gynoecia 20–30, each with a stamen at its side but not adnate; secondary bracts truncate, 2 or 3 per gynoecium; carpels 3–6; styles connate for about a third of their length above the top ovary. **Seed** narrowly ovoid, c. 0.7 mm long. **Pointed centrolepis. Fig. 2.**

S.A.: FR, EP, NL, MU, YP, SL, KI, SE; W.A.; N.S.W.; Vic.; Tas. In moist microhabitats within mallee, scrub, woodland and forest on sand and other infertile soils. Flowers: Sep.–Dec.



Fig. 2. *Centrolepis aristata*: A, habit; B, pseudanthium. Illustration by G.R.M. Dashorst, from *Flora of South Australia* 4: 1825, Fig. 834A (1986).

2. **Centrolepis cephaloformis** Reader, *Vict. Naturalist* 19: 97 (1902).

Minute annual herb forming round moss-like or burr-like tufts 0.4–2 cm diam., pale-green; leaves crowded, subulate, acute, mucronate, 3–8 × 0.5–0.8 mm, recurved, glabrous. **Scapes** absent; heads sessile, terete, ovoid-conic, 2–3 × 1–1.6 mm; primary bracts appearing opposite, with keeled scarious straw-coloured bases remaining closely sheathing, the outer bract with a recurved subulate lamina 2–4 mm long, the inner one acute without a lamina; gynoecia 1–3; secondary bracts absent; carpels 4–10; styles connate up to half their length above the top ovary. **Seed** c. 0.5 mm long.

1. All or most heads containing three gynoecia 2a. **C. cephaloformis** subsp. **cephaloformis**

1. All or most heads containing one gynoecium 2b. **C. cephaloformis** subsp. **murrayi**

2a. **Centrolepis cephaloformis** Reader subsp. **cephaloformis**

Leaves strongly recurved, the innermost one reduced to an obtuse hyaline sheath; lamina of the outer bract subequal to the head. **Each** head containing 3 (rarely 2) gynoecia and 2 stamens. **Dwarf centrolepis, cushion centrolepis.**

S.A.: FR, EP, NL, MU, YP, SL, SE; W.A.; Vic. In mallee and disturbed communities on sand and other infertile soils, also on the margins of clay pans and salt marshes. Flowers: Sep.–Nov.

(Rare status in S.A., but probably just undercollected.)

2b. **Centrolepis cephaloformis** Reader subsp. **murrayi** (J.M.Black) D.A.Cooke, *Muelleria* 4: 269 (1980). — *Centrolepis murrayi* J.M.Black, *Trans. & Proc. Roy. Soc. South Australia* 47: 367 (1923). — **Illustr.:** *Fl. S. Austral.* 4: 1825, Fig. 834B (1986).

Leaves slightly recurved, the innermost one very short; lamina of the outer bract often longer than the head. **Each** head containing 1 (exceptionally 2) gynoecia and a solitary stamen.

S.A.: EP (Pearson Island), KI; W.A. Flowers: Oct.–Nov.

Known in this State only from the type collections on Pearson Island, and Kangaroo Island; two disjunct populations from coastal W.A. are referred to the same subspecies, which may be a relic widely supplanted on the mainland by the more specialised subsp. *cephaloformis*.

(Rare status in S.A.)

3. **Centrolepis drummondiana** (Nees) Walp., *Ann. Bot. Syst.* 1: 896 (1849). — *Devauxia drummondiana* Nees, *Ann. Mag. Nat. Hist.* 6: 51 (1841); *D. drummondii* Nees in Lehm., *Pl. Preiss.* 2: 70 (1846); *C. drummondiana* (Nees) Hieron., *Abh. Naturf. Ges. Halle* 12: 212 (1873), *nom. illeg.*, as '*drummondi*', also quoted as '*drummondii*' (e.g. J.M.Black, *Fl. S. Austral.* ed. 2, 1: 178, 1943).

Annual herb forming grass-like tufts to 6 cm diam., pale-green; leaves numerous, linear, acute, 1–3 cm × 0.7–1 mm, lax, sparsely pilose near the base, glabrous to papillose above; innermost leaf reduced to an obtuse hyaline sheath. **Scapes** few, terete, filiform, 3–5 cm long, glabrous; head terete, ovoid-conic, 3–4 mm × c. 1.5 mm; primary bracts separated by a minute internode, closely sheathing, subequal, acute, minutely mucronate or with capillary points to 2 mm long, glabrous; gynoecia 4–10; secondary bracts acute, 2 per gynoecium; carpels 4–7; styles connate for about half their length above the top ovary. **Seed** c. 0.5 mm long.

S.A.: ?FR (Wooltana Station); W.A. Flowers: Oct.–Dec.

Recorded for the State on the basis of a single collection made in 1920; possibly an adventive which may not have persisted at this locality or an erroneously labelled collection from WA.

4. **Centrolepis eremica** D.A.Cooke in Jessop & Toelken, *Fl. S. Austral.* 4: 1826 (1986). — *C. polygyna* auct. non (R.Br.) Hieron.: Jessop, *Fl. S. Austral.* ed. 3, 1: 316 (1978), partly.

Annual herb 2–4.5 cm high, forming hemispherical tufts 1.5–6 cm diam., dull-green; leaves numerous, crowded, linear to subulate, obtuse, terete, 4–15 × 0.5–0.7 mm, wiry, recurved, glabrous; innermost leaf reduced to an obtuse scarious-hyaline sheath. **Scapes** numerous, terete, wiry, 1.5–3 cm long, glabrous; head terete, ovoid-conic,

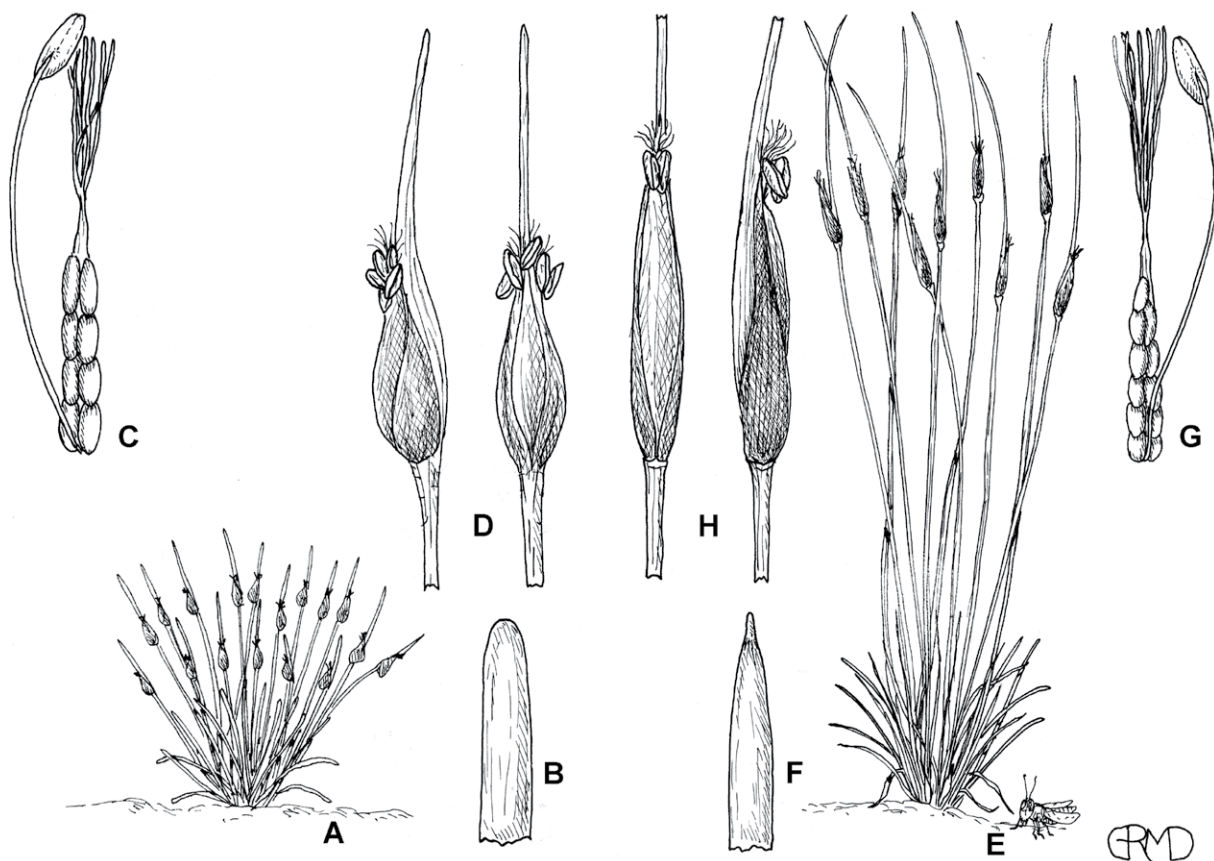


Fig. 3. **A–D, *Centrolepis eremica***: A, habit; B, leaf apex; C, pseudanthium; D, flower head, lateral and ventral view. **E–H, *C. polygona***: E, habit; F, leaf apex; G, pseudanthium; H, flower head, lateral and ventral view. Illustration by G.R.M. Dashorst, from *Flora of South Australia* 4: 1827, Fig. 835 (1986).

2–3.5 × 1–2 mm; primary bracts appearing opposite, with brown cartilaginous bases remaining closely sheathing, the outer bract with a recurved subulate lamina 2–8 mm long, the inner one acute without a lamina; gynoecia 4–10, each with a stamen at its side but not adnate or some lacking the stamen; secondary bracts absent; carpels 7–20; styles shortly connate above the top ovary. **Seed** c. 0.6 mm long. **Fig. 3A–D, Pl. 1D.**

S.A.: NW, LE, GT, FR, EA, EP (Caroona Hill); W.A.; N.T.; N.S.W. Usually close to temporary or permanent water, on clay pans, creek beds and lake margins. Flowers: Jul.–Sep.

Related to *C. polygyna*, which it replaces in central Australia.

5. ***Centrolepis fascicularis*** Labill., *Nov. Holl. Pl.* 1: 7 (1804). — **Illustr.:** Dashorst & Jessop, *Plants Adelaide Plains & Hills* t. 78 (1990).

Perennial herb forming dense cushions 3–12 cm diam., bright-green; leaves numerous, linear-filiform, acute, 1–4.5 cm × c. 0.8 mm, straight, spreading, soft, sparsely pilose in the basal half; innermost leaf reduced to a hyaline sheath. **Scapes** few, terete, filiform, 2.5–6 cm long, glabrous; head broadly ovoid, c. 3 mm long; primary bracts separated by a minute internode, gaping apart, subequal, with keelless herbaceous stiffly hairy bases tapered into glabrous leaf-like apices to 3 mm long; gynoecia 8–14 each with a stamen at its side but not adnate; secondary bracts mostly truncate, 2 per gynoecium; carpels 2–4; styles connate only to the top ovary. **Seed** c. 0.5 mm long; scapes and bracts persistent after fruiting. **Tufted centrolepis.**

S.A.: EP (Marble Range), SL, KI, SE; W.A., Qld, N.S.W., Vic., Tas. New Guinea. On margins of swamps and in moist microhabitats within forest. Flowers: Nov.–Feb.

6. ***Centrolepis glabra*** (F.Muell. ex Sond.) Hieron., *Abb. Naturf. Ges. Halle* 12: 209 (1873). — *Devauxia glabra* F.Muell. ex Sond., *Linnaea* 28: 226 (1856).

Annual or ephemeral herb 1–4, exceptionally to 8 cm high, softly herbaceous, forming small scattered tufts, dull-green or becoming reddish; leaves few, linear to filiform, acute, 1–8 cm × 0.5–1 mm, lax, flattened, glabrous; innermost leaf reduced to an obtuse hyaline sheath. **Scapes** few, terete, filiform, 1–7 cm long, glabrous; head

cylindrical, 2–3 mm × c. 0.7 mm; primary bracts appearing opposite, gaping apart at apex, glabrous, herbaceous with hyaline margins, the outer bract with a capillary green lamina 0.8–3 mm long, the inner one acute without a lamina; gynoecia 4–6; secondary bracts absent; carpels 5–7; styles connate only to the top ovary, red. **Seed** c. 0.5 mm long. **Smooth centrolepis**. **Fig. 4.**

S.A.: EP, NL, MU, YP, SL, KI, SE; W.A.; N.S.W.; Vic.; Tas. On mud around temporary freshwater pools and stream margins. Flowers: Oct., Nov.

(Rare status in S.A., but undercollected.)

7. **Centrolepis polygyna** (R.Br.) Hieron., *Abh. Naturf. Ges. Halle* 12: 210 (1873). — *Alepyrum polygynum* R.Br., *Prodr.* 253 (1810).

Annual herb 1.5–6 cm high, forming small scattered tufts, dull-green becoming red-brown after flowering; leaves crowded, linear-subulate, acute or mucronate, terete, 4–12 × 0.5–0.8 mm, wiry, recurved, glabrous; innermost leaf reduced to an obtuse scarious-hyaline sheath. **Scapes** terete, filiform, 1–5 cm long, glabrous; head terete, cylindrical, 3–5 × c. 1 mm; primary bracts appearing opposite, with dark-brown cartilaginous bases remaining almost closed, the outer bract with a recurved subulate lamina 3–10 mm long, the inner one acute without a lamina; gynoecia 1 or 2, each with a stamen shortly adnate the gynoecium axis; secondary bracts absent, or rarely 1, minute, scarious; carpels 6–26; styles shortly connate above the top ovary. **Seed** c. 0.5 mm long. **Wiry centrolepis**. **Fig. 3E–H, Pl. 1E.**

S.A.: FR, EP, NL, MU, YP, SL, KI, SE; W.A.; N.S.W.; Vic.; Tas. In mallee, scrub, heath and woodland on sand and other infertile soils. Flowers: Jul.–Nov.

8. **Centrolepis strigosa** (R.Br.) Roem. & Schult. subsp. **strigosa**., *Syst. Veg.* 1: 43 (1817). — *Devauxia strigosa* R.Br., *Prodr.* 252 (1810). — **Illustr.**: *Fl. A.C.T.* 93 (1970); Dashorst & Jessop, *Plants Adelaide Plains & Hills* t. 78 (1990).

Annual herb 2–7 cm high, bright-green; leaves numerous, crowded evenly to form a neat hemispherical tuft, linear-subulate, acute, mucronate, 1–2.5 cm × c. 0.8 mm, straight, spreading, soft, pilose; innermost leaf reduced to a hyaline sheath. **Scapes** terete, filiform, 1.5–6 cm long, glabrous or minutely pubescent; head ovoid, 3–4 mm long; primary bracts separated by a minute internode, gaping apart, subequal, with keelless herbaceous stiffly hairy bases contracted into terete glabrous points to 1 mm long; gynoecia 10–20, each with a stamen at its side but not adnate; secondary bracts truncate, 2 or 3 per gynoecium; carpels 5–7; styles shortly connate above the top ovary. **Seed** c. 0.5 mm long. **Hairy centrolepis**. **Pl. 1F.**

S.A.: FR, EP, NL, MU, YP, SL, KI, SE; W.A., Qld, N.S.W., Vic., Tas. Probably adventive in New Zealand. In mallee, heath, scrub, woodland and open forest, on sand and other infertile soils. Flowers: Sep.–Nov.

The other subspecies, subsp. *pulvinata* and subsp. *rupestris*, are endemic to Tas. and W.A., respectively.

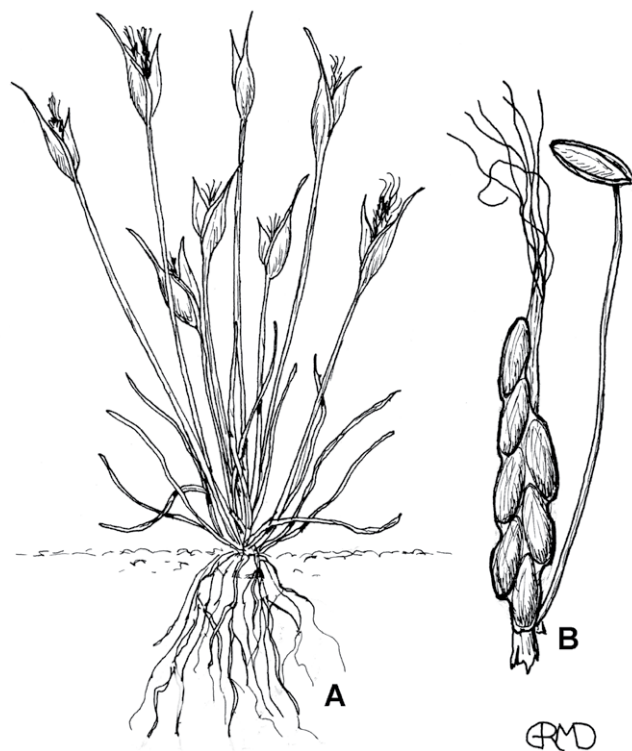
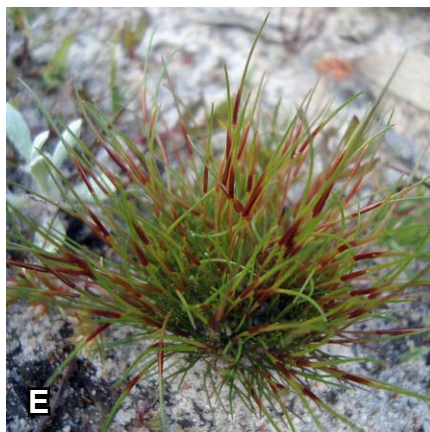
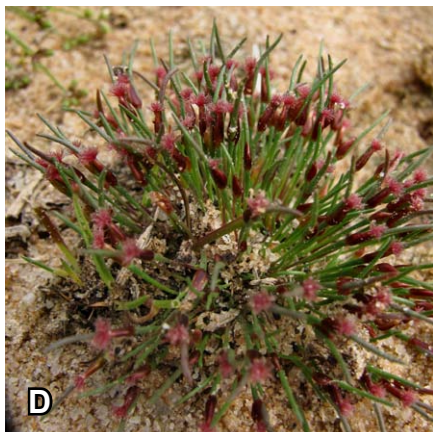
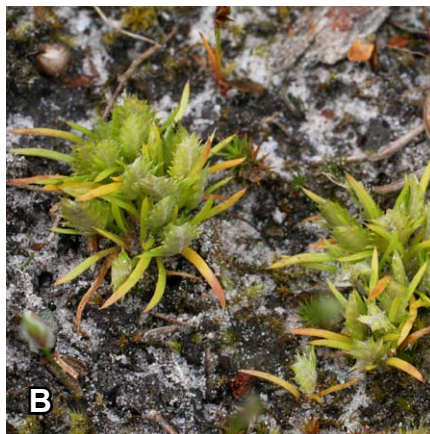
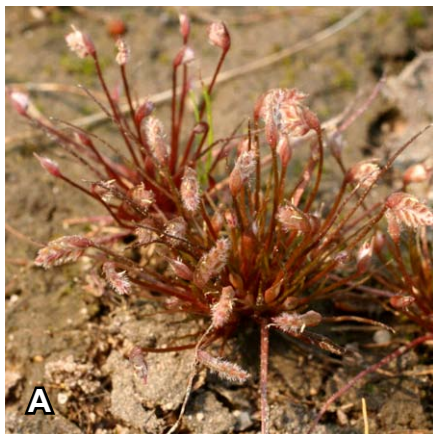


Fig. 4. *Centrolepis glabra*: A, habit; B, pseudanthium. Illustration by G.R.M. Dashorst, from Flora of South Australia 4: 1828, Fig. 836B (1986).

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Pl. 1. A, *Aphelia gracilis*. B–C, *A. pumilio*. D, *Centrolepis eremica*. E, *C. polygyna*. F, *C. strigosa*. Photos: A–C & F, P.J. Lang; D, R.J. Bates; E, D.J. Duval, DEWNR.