Flora of Australia

Juncaginaceae Rich.

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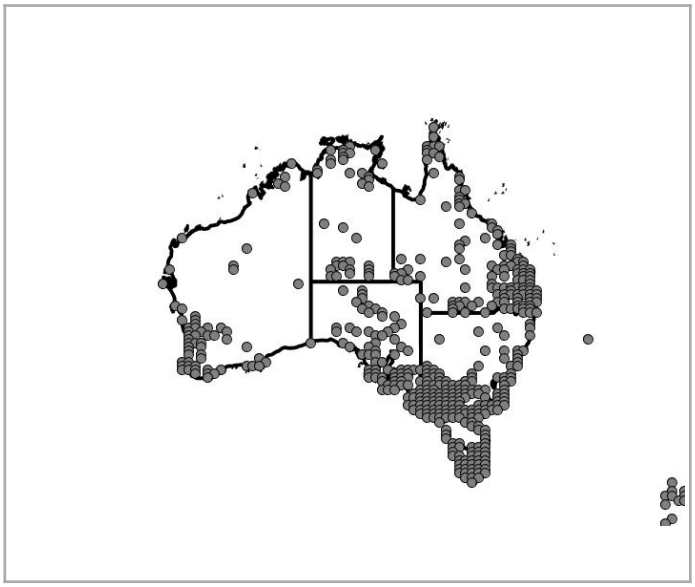
Juncaginaceae Rich.

- Richard, L.C.M. (1808) , *Demonstrations Botaniques* : ix

Helen I.Aston

Annual or perennial glabrous herbs, tufted or rhizomatous, often with tubers, rarely bulbous, emergent when aquatic. Leaves basal, ±linear to terete, often spongy, erect to floating; leaf sheath open, apically tapered, ligulate or auriculate. Inflorescence a raceme or spike, usually bractless, terminal on an axillary scape, rarely also with 2 sessile female flowers at scape base. Flowers mostly bisexual, sometimes unisexual. Perianth often of 3 free tepals or of 6 in 2 similar alternate whorls, less commonly tepals 0 or 1–5, deciduous. Stamens 1–6, except in *Maundia* each inserted on base of tepal and falling with it; anthers sessile or subsessile, 2-locular, longitudinally dehiscent, extrorse, each shorter than its tepal and usually enveloped by it. Gynoecium superior; carpels usually 1 or 3–6, sometimes 2, 7 or 8, free or united ventrally, often 3 of the carpels sterile and forming a central axis; ovule 1 per carpel, basal or apical; style mostly short and thick, rarely thread-like; stigma papillose or hairy. Fertile fruiting carpels hard or follicle-like or an achene, indehiscent or opening ventrally, mostly separating and falling at maturity; 3 fertile carpels alternating with the 3 sterile ones of the central axis when this is present. Seed solitary, non-endospermic; embryo straight.

Distribution: About 29 species in 4 genera, widespread in temperate and cold regions of the world, rarer in the tropics, with Australia the centre of greatest diversity. In Australia 2 native genera with 25 species and 1 naturalised genus.



Notes: A.Cronquist, *Integrated Syst. Classif. Fl. Pl*. 1062–1064 (1981), maintains 5 genera within the family, segregating *Cycnogeton* from *Triglochin*, *q.v*. T.Nakai, *Chosakuronbun Mokuroku* 213 (1943), removed *Maundia* to its own monogeneric family Maundiaceae. *Lilaea* is sometimes placed in a separate family Lilaeaceae.
Shortly before this treatment went to press, a paper by S.von Mering & J.W.Kadereit, *Phylogeny, Systematics and recircumscription of Juncaginaceae - a Cosmopolitan Wetland Family*, was published in O.Seberg *et al*. (eds), *Proc. Fourth International Conference of the Comparative Biology of the Monocotyledons* 55–79 (2010). In that paper the authors conclude that *Maundia* should be placed in the monotypic family Maundiaceae, the genus *Cycnogeton* should be reinstated to contain the tuberous-rooted species of *Triglochin*, and *Lilaea* should be placed within a recircumscribed *Triglochin*. Validly published nomenclatural changes embracing these conclusions are included.
Of the taxa recognised in this *Fl. Australia* treatment, only *Maundia*, *Triglochin striata*, *T. rheophila*, and the introduced *Lilaea* and *T. bulbosa* were included in the otherwise extensive molecular studies conducted, and other data assembled, by von Mering & Kadereit. No Australian annuals were available and, concerning *Maundia*, the paper acknowledges that further sampling and embryological work is desirable.
All genera except *Triglochin* are monotypic.

Bibliography: S.L.Endlicher, Alismaceae, in J.G.C.Lehmann, Pl. Preiss. 2: 53–55 (1846); O.W.Sonder, Juncagineae, in D.F.L.von Schlechtendal (ed.), Linnaea 28: 223–225 (1856); F.G.P.Buchenau, Index criticus Juncaginacearum hucusque descriptarum, Abh. Naturwiss. Vereine Bremen 1(2): 213–222 [p.p.] (1867) & 1(3): 222 [p.p.]–224 (1868); G.Bentham, Naiadeae p.p., Fl. Austral. 7: 164–169 (1878); M.Micheli, Juncagineae, in A.L.P.P.de Candolle & A.C.P.de Candolle, Monogr. Phan. 3: 94–109 (1881); J.D.Hooker, Juncagineae in Naiadaceae, in G.Bentham & J.D.

Hooker, Gen. Pl. 3: 1012–1013 (1883); F.G.P.Buchenau & G.H.E.W.Hieronymous, in H.G.A.Engler & K.A.E.Prantl, Nat. Pflanzenfam. 2: 222–227 (1889); F.G.P.Buchenau, Scheuzeriaceae, in H.G.A.Engler, Pflanzenr. Heft 16, IV. 14: 1–20 (1903); J.Thompson, Juncaginaceae, Contr. New South Wales Natl. Herb. Fl. Ser. 16: 77–80 (1961); H.I.Aston, Juncaginaceae and Lilaeaceae, Aquatic Pl. Australia 241–248 & 256–258 (1973); P.B.Tomlinson, Juncaginaceae, Lilaeaceae, in C.R.Metcalf (ed.), Anat. Monocot. 7: 242–269 (1982); R.R.Haynes et al., Juncaginaceae, in K.Kubtizki (ed.), Fam. Gen. Vasc. Pl. 4: 260–263 (1998).

Source: Flora of Australia Volume 39

Images

Fig. 1: '*Triglochin minutissima*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 2: '*Cycnogeton rheophilum*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

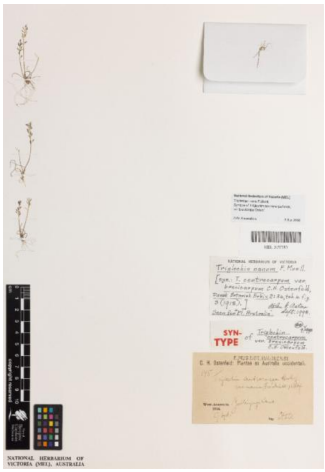
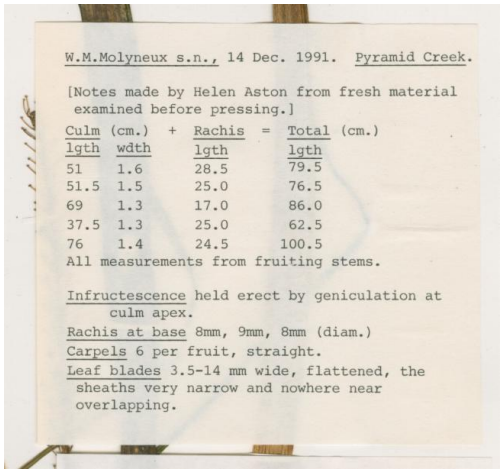


Fig. 3: '*Triglochin nana*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)



W.M.Molyneux s.n., 14 Dec. 1991. Pyramid Creek.

[Notes made by Helen Aston from fresh material examined before pressing.]

Culm (cm.) lgth	wdth	+	Rachis lgth	=	Total (cm.) lgth
51	1.6		28.5		79.5
51.5	1.5		25.0		76.5
69	1.3		17.0		86.0
37.5	1.3		25.0		62.5
76	1.4		24.5		100.5

All measurements from fruiting stems.

Infructescence held erect by geniculation at culm apex.

Rachis at base 8mm, 9mm, 8mm (diam.)

Carpels 6 per fruit, straight.

Leaf blades 3.5-14 mm wide, flattened, the sheaths very narrow and nowhere near overlapping.

Fig. 4: '*Cycnogeton rheophilum*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 5: '*Triglochin mucronata*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

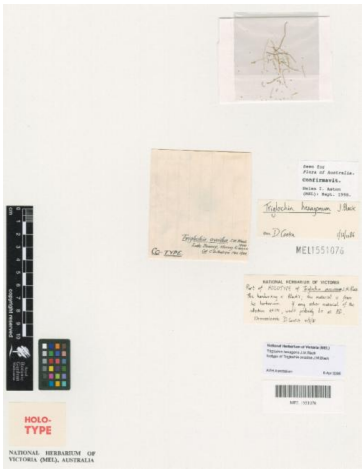


Fig. 6: '*Triglochin hexagona*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 7: '*Cycnogeton procerum*' by Fagg, M. (© Fagg, M.)

Fig. 8: '*Triglochin minutissima*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 9: '*Triglochin nana*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 10: '*Triglochin muelleri*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 11: '*Cycnogeton procerum*' by Fagg, M. (© Fagg, M.)

Fig. 12: '*Cycnogeton alcockiae*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 13: '*Triglochin turrifera*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 14: '*Triglochin turrifera*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 15: '*Cycnogeton procerum*' by Fagg, M. (© Fagg, M.)

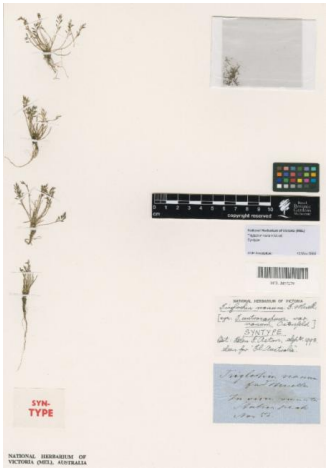


Fig. 16: '*Triglochin nana*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 17: '*Triglochin striata*' by Fagg, M. (© Australian National Botanic Gardens)

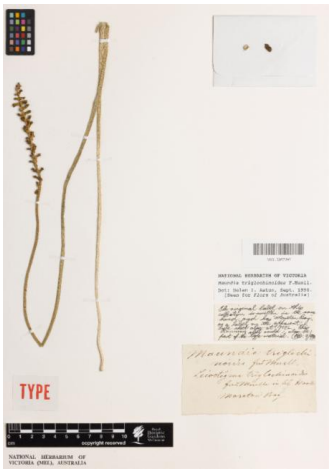


Fig. 18: '*Maundia triglochinoides*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Fig. 19: '*Cycnogeton procerum*' by Fagg, M. (© Fagg, M.)

Fig. 20: '*Cycnogeton multifructum*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

Flora of Australia: vascular plants Juncaginaceae key

Modified from: **Aston, H.I.** (2011). Juncaginaceae. In: *Flora of Australia* **39**. Australian Biological Resources Study, Canberra.

1	Inflorescence a spike with bisexual and unisexual flowers, also additional female flowers sessile within leaf bases; stamen 1 in both bisexual and staminate flowers; fruit an achene	Triglochin: Triglochin scilloides
1	Inflorescence a raceme or spike with flowers all bisexual or lower ones sometimes female only in some annual species of Triglochin; additional basal flowers absent; stamens usually more than 1 per flower; fruit of several hard or follicle-like carpels	2
2	Bracts 2 per flower; tepals apparently absent; carpels usually 4, sometimes 2 or 3, wholly united lengthwise, falling together or tardily separating at maturity; ovule apical, pendulous and orthotropous	Maundia: Maundia triglochinoides
2	Bracts absent; tepals present, 3 + 3 (both whorls similar) in perennials, 1–6 in annuals; carpels usually 3–6, from wholly united lengthwise to separate, readily separating at maturity except in a few annual species; ovule basal, erect and anatropous	3

3	Perennials; roots bearing naked tubers	Cycnogeton
3	Annuals or perennials; roots without tubers (in T. bulbosa bearing fibre-covered bulbils)	Triglochin

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