



Flora of Australia

Triglochin L.

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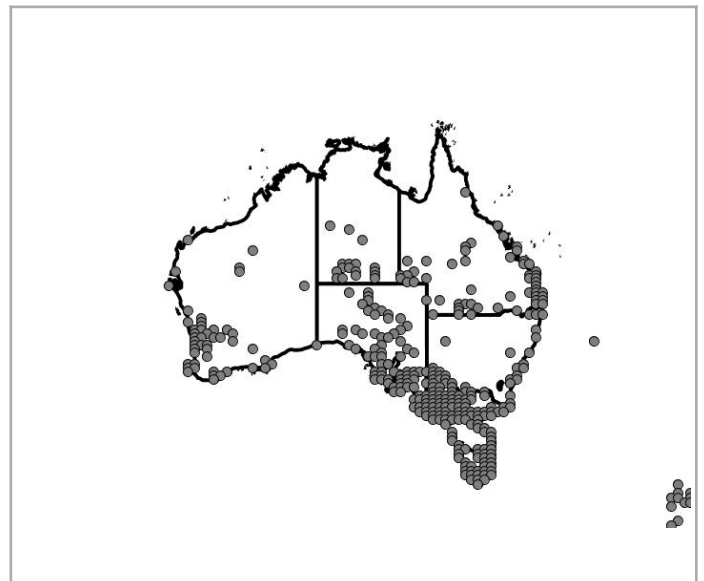
***Triglochin* L.**

- Linnaeus, C. (1 May 1753), *Species Plantarum* 1 : 338

Helen I.Aston

Annual or perennial, minute to robust, aquatic or wetland herbs; roots of annual species fibrous; rhizomes and usually also tuber-bearing roots present in perennial species, rarely bulbs. Leaves \pm linear to terete; basal sheath usually tapered or auriculate, rarely ligulate. Inflorescence a raceme or spike. Flowers usually bisexual, or the lower ones in inflorescence sometimes female in annuals. Perianth of perennials 3 + 3 (both whorls similar), 1–6 in annuals where often variable in number within a species and between terminal and nonterminal flowers. Stamens 6 in perennials, variably 1–6 in annuals. Carpels usually 3–6, irregularly 2–8, free or united; central axis present or absent; ovule basal and erect, anatropous; style short and thick; stigma papillose or hairy, often lateral. Fertile fruiting carpels hard or follicle-like, usually indehiscent, smooth or with hooks, spurs, keels or wings, usually readily separating and falling at maturity except in a few annual species.

Distribution: A genus of about 26 species, cosmopolitan, with its greatest development in Australia where there are 24 species, with 21 endemic and 1 naturalised.



Etymology: from the Greek treis (three) and glochis (pointed), in reference to the projections of the carpel

Chromosome Numbers: $2n = 16, 32, 48,$ and 64 for four tuberous-rooted species, L.Robb & P.Y.Ladiges, *Austral. J. Bot.* 29: 639–651 (1981); H.I.Aston, *Muelleria* 8: 337 (1995).

Notes: Outside Australia, some species of *Triglochin* are reported to be edible, some poisonous (HCN). In Australia, tubers of some species have been a staple food of aboriginal peoples and foliage of some tuberous-rooted species is eaten by stock.

The circumscription of *Triglochin* and its infrageneric treatment has varied. Bentham (1878) described 2 sections, *T.* sect. *Eutriglochin* Benth., [*nom. inval.*, type section; = *T.* sect. *Triglochin*, autonym] and *T.* sect. *Cycnogeton* (Endl.) Benth., the former characterised chiefly by fruits with 3 fertile carpels separating from a central axis of 3 sterile carpels and the latter characterised by fruits with 3–6 fertile carpels and no central axis or sterile carpels. Under *T.* sect. *Cycnogeton* he included all the then-known tuberous-rooted species of *Triglochin* and the single species now placed in the genus *Maundia*. Micheli (1881) removed *Maundia* (as *T. maundii*) to a third section, *T.* sect. *Pseudotriglochin* Micheli [syn. *T.* sect. *Maundia* (F.Muell.) Hook.f. in G.Bentham & J.D.Hooker, *Gen. Pl.* 3: 1012 (1883), *nom. illeg.*, *nom. superfl.*], characterised by the carpels remaining united in fruit. Buchenau & Hieronymous (1889) retained the 3 sections but as subgenera, namely *T.* subg. *Eutriglochin* (Benth.) Buchenau & Hieron. [*nom. inval.*, type subgenus; = *T.* subg. *Triglochin*, autonym], *T.* subg. *Cycnogeton* (Endl.) Buchenau & Hieron. and *T.* subg. *Pseudotriglochin* (Micheli) Buchenau & Hieron. Later Buchenau (1903) retained only the first two of these subgenera within *Triglochin*, accepting *Maundia*, *q.v.*, as a distinct genus. It is possible that *Cycnogeton* may also deserve reinstatement at generic rank, but with a reappraisal and redefinition of distinctive characters. It would apparently include all of the perennial, tuberous-rooted species of *Triglochin* numbered 3–10 in this treatment.

The annual species of *Triglochin* require far more study, both biologically and taxonomically. Several of the species accepted in this treatment show intergradations, and quite a number of collections could not be placed satisfactorily. Traditionally, annual species have been distinguished on fruit characters, and for this the carpels must be fully mature and expanded. Even then, several species show considerable polymorphism in both carpel size and the degree of development of carpel projections. Floral parts have been largely ignored by most authors, including the current one, although there are indications that they will yield some diagnostic differences to supplement those shown by fruits; see e.g., B.L.Rye in N.G.Marchant *et al.*, *Fl. Perth Region* 2: 720–723 (1987).

Article 62.2 (b), example 5, of the ICBN Saint Louis Code (2000) decrees that the gender of *Triglochin* is feminine, although initially regarded as neuter. Each specific and infraspecific epithet cited in this treatment is therefore treated as feminine, irrespective of the gender accepted by its original author. Thus epithets ending here in “a” and “is” may have been, and in most cases were, spelt originally with the neuter endings “um” and “e” respectively.

Bibliography: H.I.Aston, A revision of the tuberous-rooted species of *Triglochin* L. (Juncaginaceae) in Australia, *Muelleria* 8: 331–364 (1995); H.I.Aston, Notes on some Australian *Triglochin* (Juncaginaceae) annuals: typification and nomenclature, *Muelleria* 26: 98–100 (2008).

Source: Flora of Australia Volume 39

Nomenclature

Aston, H.I. in Wilson, A.J.G. (ed.) (2011), Juncaginaceae. *Flora of Australia* 39 : 58-61
 taxonomic synonym: *Cycnogeton* Endl.: 58

Images



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



Fig. 2: '*Triglochin nana*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)





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

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Fig. 4: '*Triglochin hexagona*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

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

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

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Fig. 7: '*Triglochin muelleri*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

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

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

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

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Fig. 11: '*Triglochin striata*' by Fagg, M. (© Australian National Botanic Gardens)

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Fig. 12: '*Triglochin minutissima*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)

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

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

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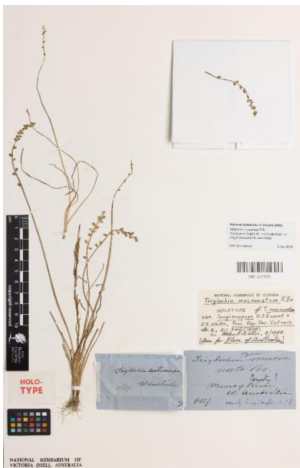


Fig. 15: '*Triglochin mucronata*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)



Fig. 16: '*Triglochin* sp.' by Thiele, K.R. (© Thiele, K.R.)



Fig. 17: '*Triglochin striata*' by Fagg, M. (© Fagg, M.)



Fig. 18: '*Triglochin* sp. A *Flora of Australia* (G.J. Keighery 2477)' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)



Fig. 19: '*Triglochin procera*' by Fagg, M. (© Australian National Botanic Gardens)

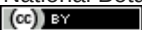


Fig. 20: '*Triglochin minutissima*' by Royal Botanic Gardens Victoria (© Royal Botanic Gardens Board)



Flora of Australia: vascular plants Triglochin key

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

1	Inflorescence a raceme or spike with flowers all bisexual or lower ones sometimes female only in some annual species; additional basal flowers absent; stamens usually more than 1 per flower; fruit of several hard or follicle-like carpels	2
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 scilloides
2	Plants perennial; leaf sheaths without auricles, the margins gradually narrowed apically or (in <i>T. bulbosa</i> and <i>T. striata</i>) forming ligules; tepals and stamens 6; fruits smooth or with rounded ridges or keels	3
2	Plants annual; leaf sheaths auriculate; tepals and stamens mostly 1–3, sometimes 6; fruits often with obtuse or acute projections or fine spurs, sometimes smooth or narrowly winged	4
3	Rootstock bulbous, fibre-covered, bearing smaller bulbils; fruits with 3 fertile carpels separating at maturity from a slender persistent central axis	Triglochin bulbosa
3	Rootstock rhizomatous; fruits with usually 3–6 fertile carpels separating at maturity but (except in <i>T. striata</i>) without a central axis	Triglochin striata
4	Fruiting carpels with points, spurs or spines which project from the body of the carpel, these sometimes reduced and near-absent	5
4	Fruiting carpels without such projections, sometimes with rounded expansions or bulges at or above base	15
5	Fruit projections all basal	7
5	Fruit projections apical, or from narrow lateral wings, sometimes also basal in <i>T. mucronata</i>	6
6	Fruit elliptic to elliptic-rectangular; fertile carpels with 2 narrow, lateral wings, each wing 2-pointed; points from bluntly triangular to rarely long and spinescent, sometimes near-absent	Triglochin hexagona
6	Fruit inverted-pyramidal; fertile carpels with stylar beaks spreading or recurving outwards; sterile carpels with \pm erect apical points	Triglochin mucronata
7	Fruit \pm subcylindric with abruptly conical summit and widened, truncate, 6-spurred base	Triglochin turrifera
7	Fruit not as above; fertile carpels each with 2 or 4 basal points or spurs	8
8	Fruits usually sessile, sometimes on pedicels to 0.2 mm long	9
8	Fruits pedicellate, on pedicels usually 0.2–15 mm long, from less than to about twice as long as fruit	12
9	Fruit body narrowly obovoid; basal spines thickened dorsally, membranous ventrally, spreading	Triglochin calcitrapa
9	Fruit body \pm narrowly pyramidal to ellipsoid or ovoid; basal spurs various	10
10	Fruits erect and strongly appressed to rachis, sometimes semi-erect; fertile carpels with narrow side-wings extended into short basal points 0.1–0.4 mm long; wings almost obscuring sterile carpels; receptacle prominently thickened	Triglochin centrocarpa
10	Fruits not as above	11
11	Basal spurs down-pointed to spreading, 0.5–2.8 mm long; sterile carpels with broad dorsal surfaces readily visible between fertile carpels	Triglochin muelleri
11	Basal spurs from slightly upcurved to strongly inrolled, 0.5–2.6 mm long; sterile carpels (central axis) sunken between fertile carpels and almost hidden	Triglochin sp. A
12	Fruit body narrowly linear-pyramidal; basal spurs 2 per carpel	13
12	Fruit body narrowly to broadly ovoid or ellipsoid but a little narrowed above middle; basal spurs 4 per carpel	14

13	Fruit 1.8–6 mm long; basal spurs consisting of short downward to outward points, sometimes near-absent, or upcurved when longest; membrane when present thin and translucent	<i>Triglochin nana</i>	
13	Fruit (10–) 12–15.5 mm long; basal spurs of each carpel upcurved, their lower edges united by a thick membrane	<i>Triglochin stowardii</i>	
14	Fruit body narrowly ovoid to ovoid, 3.5–7.5 mm long; basal spurs 4, 2 spreading laterally, upcurved to inrolled, usually 1.5–3.7 mm long, also 2 downpointed, shorter, near-absent to 1.3 mm long	<i>Triglochin isingiana</i>	
14	Fruit body ovoid to broadly ovoid or ellipsoid, often ±abruptly contracted at base, 1.3–3.2 mm long; basal spurs 4, 2 spreading laterally, straight to upcurved, 0.05–0.15 mm long, also 2 downpointed, shorter	<i>Triglochin trichophora</i>	
15	Fruits sessile, rarely on pedicels to 0.2 (–1.2) mm long		16
15	Fruits pedicellate; pedicels (0.1–) 0.25–6.2 mm long		18
16	Perianth segments of non-terminal flowers 2 or 3; fruits ellipsoid to obloid, usually remaining whole; sterile carpels with broad dorsal surfaces readily visible between fertile carpels and curving continuously into receptacle	<i>Triglochin muelleri</i>	
16	Perianth segments of non-terminal flowers 1; fruits with carpels separating at maturity; sterile carpels visible but narrow		17
17	Fruits very narrowly pyramidal to subobloid, not widened at base, 1–2.2 mm long	<i>Triglochin minutissima</i>	
17	Fruits ±cylindric, slender, widened at base, 3.2–5.8 mm long	<i>Triglochin longicarpa</i>	
18	Fruits ovoid to broadly ovoid to ellipsoid, 1.5–3 mm long; fertile carpels with lateral edges slightly rounded at base in dorsal view, not bulged or tapered; fruit base ±truncate	<i>Triglochin trichophora</i>	
18	Fruits narrowly trullate, 4–6.1 mm long; fertile carpels each with 2 rounded bulges projecting outwards near base (rarely bulges lacking); carpels tapered downwards and inwards below bulges	<i>Triglochin protuberans</i>	

