



## 127 STYLIDIACEAE <sup>1</sup>

AM Gray <sup>2</sup>

Perennial, annual or ephemeral herbs or, rarely, small undershrubs, sometimes with the branchlets closely packed and the whole plant forming a cushion-like mound. Leaves in a basal rosette or whorl-like tufts, or cauline, exstipulate, simple, parallel veined. Inflorescences terminal, racemose or cymose, occasionally a spike or flower solitary. Flowers zygomorphic, sometimes almost actinomorphic, bisexual. Calyx adnate to the ovary in the lower half, 5(-7) lobed, lobes free or united and the calyx 2-lipped. Corolla tubular, 5-lobed, with various outgrowths at the orifice of the tube; anterior lobe undifferentiated (*Phyllachne*, *Forstera*) or differentiated and much smaller forming a labellum (*Stylidium*, *Levenhookia*). Stamens 2; filaments connate with the style, forming a bent and sometimes sensitive column (gynostemium), which is free from the corolla; anthers 2-celled, sessile at the summit of the column. Gynoecium inferior, incompletely 2-locular, often with 1–2 nectiferous glands at the base of the column; ovules numerous, placentation axile or free-central; stigma entire or 2-lobed, situated between the anthers. Fruit a capsule, 2-valved. Seeds small, numerous, embryo embedded in fleshy endosperm.

A family of 4 genera and about 170 species, of which the greatest number belong to the genus *Stylidium*. Widespread in temperate and tropical Australia, extending to New Zealand, New Guinea, south-eastern Asia and southern South America; 4 genera in Australia. The family is placed in the Asterales and is sister to the Donatiaceae (Tas., New Zealand, S America). The genus *Donatia* J.R.Forst. & G.Forst. is included in Stylidiaceae by some authors, often as the sole representative of subfamily Donatioideae (see Lundberg 2001; Lundberg & Bremer 2003; Carolin 2007), but is here placed in Donatiaceae. Reuniting Donatiaceae with Stylidiaceae would unnecessarily remove the defining synapomorphies of the latter (Wege 2007a, b).

The pollination mechanism of Stylidiaceae, particularly in *Stylidium*, is of particular interest. The filaments of the anthers are connate with the style, forming a column (gynostemium). In *Stylidium*, the column, in the “resting” stage, is reflexed, passing over and lying on the labellum; the base of the column is irritable and responds to the insertion of an insect proboscis seeking nectar. The “triggering” of the column is followed by its rapid movement over and onto the back of the visitor, showering the insect with pollen which the insect then transfers to the stigma of another flower by a similar process. The flowers of *Stylidium* are protandrous; in any population of a species the anthers of one flower will mature and dehisce before the stigma is receptive, whilst in another flower the stigma will have matured after the anthers have shed the pollen and are thus receptive to the pollen from another (younger) flower. This process strongly favours out-crossing within the species. In *Levenhookia*, the labellum, rather than the column, is similarly sensitive; in *Forstera* and *Phyllachne* neither the labellum nor the column is motile.

Key references: Wagstaff & Wege (2002); Carolin (2007); Wege (2007b).

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (AVH, NVA); nomenclature (APC, APNI, IPNI).

NOTE: for the satisfactory identification of many of the smaller representatives of this family, particularly for some of the ephemeral species, fresh or pickled material is essential.

This account differs from the previous version (Gray 2009) mainly in *Stylidium* and in particular *S. armeria*.

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- |    |   |                      |
|----|---|----------------------|
| 1. | Branchlets densely packed, plant forming cushion-like mounds; flowers immersed, or slightly protruding above surface of the mound | <b>3 Phyllachne</b>  |
| 1: | Plant with stems loosely arranged or solitary; flowers pedunculate  | 2                    |
| 2. | Corolla actinomorphic or almost so; labellum obscure  | <b>1 Forstera</b>    |
| 2: | Corolla zygomorphic; labellum small but distinctive   | 3                    |
| 3. | Labellum hooded, enclosing the short, erect column  | <b>2 Levenhookia</b> |
| 3: | Labellum small or narrow, not enclosing the short, erect column   | <b>4 Stylidium</b>   |

## 1 FORSTERA

*Forstera* J.R.Forst., *Nova Acta Regiae Soc. Sci. Upsal.* ser. 2, 3: 184, t. 9 (1780).

Small perennial herbs, erect or decumbent, sparsely branched, glabrous. Leaves small, scattered along the stems or densely clustered in a basal rosette, imbricate, entire, leaf bases persistent. Scapes erect, 1(2)-flowered; bracts 2–3, small, usually inserted well above the middle of the scape or just below the flower. Flowers almost actinomorphic; receptacle epigynous, ovoid-globose. Calyx lobes 5(6), almost equal (undifferentiated). Corolla usually white, tube short, lobes 5(–9), slightly longer than the tube, sometimes with appendages in the throat. Column erect, shorter than the corolla, non-motile; anther lobes 2, sessile. Nectaries 2, reniform. Ovary imperfectly 2-locular; stigma lobes 2.

A genus of 5 species: 1 in Tasmania, 4 in New Zealand.

**1 *Forstera bellidifolia*** Hook., *Hooker's Icon. Pl.* 9: t.851 (1851)

*Tasmanian Forstera*

*Phyllachne bellidifolia* (Hook.) F.Muell., *Fragm. (Mueller)* 8: 39 (1874).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: t. 53, No. 89 (1971); Kirkpatrick, *Alpine Tasmania* 98: fig. 43a (1997).

Glabrous perennial herbs. Leaves in a densely clustered, basal rosette, oblong-spathulate, tapering abruptly to a short, broad petiole, lamina thick, adaxial surface minutely dimpled, shining, margins entire, narrowly hyaline, apex blunt-rounded. Scapes (3–)5–10(–18) cm tall. Calyx lobes 5, linear-oblong, 2–3 mm long, unequal. Corolla usually white, tube c. 2 mm long; lobes slightly longer than the tube, obovate, unequal. Column shorter than the corolla, stout, erect, non-motile; anther lobes 2, sessile. Stigma 2-lobed, broad, projecting between and spreading above the anthers. Capsule ovoid-globose, 5–6 mm long, unilocular, but with a septum imperfectly developed at the base. Flowering Nov.-Mar.; fruiting Feb.-Apr.

Tas. (TCH, TSR, TWE); endemic. Widespread but localised on mountains of the west and south-west of the island of Tasmania, from c. sea level to c. 1200 m alt. Growing in damp, often shaded areas in seepages below cliffs and on ledges, at the margins of tarns and pools and usually closely intermingled with other herbaceous vegetation communities, e.g. 'cushion plant' mounds etc.

## 2 † LEVENHOOKIA

*Levenhookia* R.Br., *Prodr. Fl. Nov. Holland.* 512 (1810).

Synonymy: *Coleostylis* Sond., *Pl. Preiss.* 1(3): 391 (1845).

Small, erect herbs, often ephemeral; stems densely glandular hairy. Leaves few, sessile or petiolate, alternate and well dispersed along the stems, entire. Inflorescence a terminal raceme or corymb, sparsely glandular-pubescent. Flowers zygomorphic, pedicellate, subtended by a small bract. Calyx lobes very shortly joined, subequal. Corolla 5-lobed, very shortly tubular with outgrowths forming a sheath at the throat; 4 posterior lobes subequal, and a shorter, erect, 5<sup>th</sup> (anterior) lobe forming a motile labellum, hooded, and covering the column.

An Australian genus of 10 species.

**1 † *Levenhookia dubia*** Sond., *Pl. Preiss.* 1(3): 392 (1845) [as *Leeuwenhoekia*]

*Hairy Stylewort*

*Coleostylis sonderi* F.Muell., *Trans. Philos. Soc. Victoria* 1: 46 (1855); *Levenhookia sonderi* (F.Muell.) F.Muell., *Fragm. (Mueller)* 1: 18 (1858) [as *Leeuwenhoekia*]; *Levenhookia dubia* var. *sonderi* (F.Muell.) Mildbr., *Pflanzenr. (Engler)* 35: 27 (1908).

*Illustrations:* Toelken, *Fl. S. Austral.* 3: 1419, fig. 639a (1964); Stanberg, *Fl. New South Wales* 3: 442 (1992); Raulings, *Fl. Victoria* 4: 583, fig 111c (1999).

Small, delicate, ephemeral herb; stems reddish, 2–8 cm high, usually unbranched; glandular-pubescent. Leaves distant, shortly petiolate, elliptic to linear-oblongate, 2–6 mm long, 1–3 mm wide. Inflorescence a terminal raceme or corymb, (1)4–6-flowered; bracts leaf-like, linear-oblongate. Calyx globose, 1–2 mm long; lobes scarcely fused, obovate and nearly equal, glandular to glabrescent. Corolla usually white or pinkish, with a yellowish throat, with 4 posterior sub-equal lobes; labellum erect, motile, broadly 2-lobed, lacking appendages, lamina hooded-spathulate, pale pink, equal in length to calyx lobes. Column non-motile, short, erect; base fused with calyx tube; apex yellowish; stigma 2-lobed, one lobe maturing before the other. Ovary globular, glandular-pubescent. Capsule ovoid-globose. Seeds wrinkled to unevenly pitted. Flowering & fruiting Aug.-Sep. [based on non-Tasmanian material].

Tas. (extinct, distribution unknown); occurs in WA, SA, NSW, Vic. The species is listed as Extinct under the *Tasmanian Threatened Species Protection Act 1995*. Only one specimen of this plant is held by the Tasmanian Herbarium. It was collected by W.Archer, with no collection date or locality given. Rodway (1903) cites Brighton, Mount Field and the islands of the Bass Strait as localities. However, there are no known specimens to support any of these localities. For this reason, and due to the widely differing habitats of such widely separated localities, these records are considered dubious. In other states the species grows on sandy, often moist, soils, in heathland and woodland.

### 3 PHYLLACHNE

*Phyllachne* J.R.Forst & G.Forst., *Char. Gen. Pl.* edn 1: 115,t. 58 (1775).

Synonymy: *Helophyllum* Hook.f., *Handb. N. Zeal. Fl.* 167 (1864).

Profusely branched, glabrous herbs, sometimes slightly woody at the base; branches densely crowded, forming often extensive, cushion-like mounds. Leaves small, densely imbricate, thick, coriaceous, entire. Flowers solitary, terminal, actinomorphic, hermaphrodite or monoecious. Calyx lobes 5–6, sub-equal Corolla lobes 5–6, undifferentiated, united into a short tube. Stamens 2, united with the style into a short, erect, non-motile column. Nectaries 2, reniform. Ovary partially 2-locular. Fruit an indehiscent capsule.

A genus of 4 species; 2 endemic in New Zealand, 1 in Tasmania and New Zealand, 1 in South America.

**1 *Phyllachne colensoi*** (Hook.f.) S.Berggr., *Minn. Kong. Fys. Säll. Lund* 8: 11, t.3 figs. 1-27 (1877)*Yellow Cushionplant**Helophyllum colensoi* Hook.f., *Handb. N. Zeal. Fl.* 168 (1864).*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 396, fig. 88 (1963); Kirkpatrick, *Alpine Tasmania* 60, fig. 26d (1997).

Perennial, cushion forming herbs; stems short, erect, a few cm long, sparingly branched and densely packed together forming hard, undulating cushion-like mounds, producing adventitious roots. Leaves numerous, sessile, 2–3 mm long, sub-erect and closely imbricate, persistent, lower portion expanded, upper portion contracted into a narrowly triangular apex, apex obtuse, c. 0.5 mm diam., usually bronze-yellow and with a glandular pore on the abaxial side. Flowers solitary, terminal, flush with or just protruding above the surface of the mound, hermaphrodite or unisexual; receptacle epigynous. Calyx lobes 5–6, oblong, c. 2 mm long, apex ciliolate. Corolla with tube about as long as the calyx; lobes 5–6, almost equal, white, spreading, rounded or irregularly toothed. Column slender, conspicuously exerted, non-motile. Anthers 2, purplish, sub-reniform, dehiscent transversely. Ovary inferior, incompletely bilocular; apex with 2 fleshy semilunar glands; stigma lobes 2, spreading above the anthers, in pistillate flowers large, papillose, smaller in hermaphrodite and staminate flowers. Fruit c. 2 mm diam. Flowering & fruiting Dec.-Mar.

Tas. (TCH, TSR, TWE); also New Zealand. Local and scattered throughout montane habitats in the west and south-west of the island of Tasmania, from c. 1000 m alt. to the highest peaks. A component of alpine herb-fields in wet, exposed places or rocky ground, often where snow lays for long periods. It can form large mounds which may extend for some metres and often coalescing and forming extensive mosaics with other plants of similar habit.

**4 STYLIDIUM***Stylidium* Sw. ex Willd., *Sp. Pl. ed. 4*, 4(1): 7, 146 (1806).

Synonymy: *Candollea* Labill., *Ann. Mus. Natl. Hist. Nat.* 6: 453, t. 63 (1805), nom. rej., non Labill. (1806). *Ventenatia* Sm., *Exot. Bot.* 2: 13, t. 66 (1805), nom. illeg., non Cav. (1798). *Oreostylidium* Berggr., *Minneskr. Fisiog. Sällsk. Lund.* 8: 1, t. 1 (1887).

Herbs, sometimes ephemeral, or small undershrubs; stems erect, sometimes very short and thick, or creeping. Leaves sessile, spirally arranged along the stems or in a basal rosette or rosettes along the stems. Inflorescence a panicle, cyme or raceme. Flowers pedicellate in the axils of small bracts, hermaphrodite, zygomorphic. Calyx free or variously united, the lobes almost equal. Corolla tubular, with various outgrowths at the orifice of the tube, deeply 5-lobed, abaxial lobe (labellum) usually reflexed, considerably smaller than the 4 remaining lobes, the lobes ascending to spreading, equal or in more or less opposite pairs. Stamens 2, united with the style to form an elongated column; column twice-folded (bent), usually motile (irritable) at the base. Nectaries 1–2, hemispherical or reniform. Ovary inferior, 2-locular or partially bilocular with the septum incomplete in the apical portion; placentation axile or free-central; ovules numerous. Stigma entire. Fruit a 2-valved capsule, usually glandular-hispid.

A genus of about 220 species, chiefly Australian, especially south-western Western Australia where the majority of species are endemic; also found in south-eastern Asia from Sri Lanka and China to Papua New Guinea, as well as New Zealand (1 sp.). *Oreostylidium* Berggr. (New Zealand) was shown to be congeneric with *Stylidium* by Wagstaff and Wege (2002).

NOTE: separation of *S. graminifolium* and *S. armeria* is frequently difficult as there are numerous intermediate and intergrading forms between the two species.

- |    |   |                           |
|----|---|---------------------------|
| 1. | Plants perennial, large, robust, more than 10 cm tall when flowering; leaves numerous, radical, dense   | 2                         |
| 1: | Plants mostly ephemeral, delicate 2–4(–10) cm high, including inflorescence; leaves few, radical or scattered   | 3                         |
| 2. | Plant robust; leaves linear-lanceolate to oblong to oblong-lanceolate, 3–5(–15) mm wide at the widest point; margins smooth; inflorescence a dense, often much-contracted spike, 8–50(–100) cm high, upper scape 2.5–4 mm diam. | <b>5 S. armeria</b>       |
| 2: | Plant moderately robust, but slender; leaves narrow-linear, usually 1.5–2(–5) mm wide at the widest point; margins often serrulate; inflorescence a loose spike, 5–20(–75) cm high, upper scape 1–2 mm diam.                    | <b>6 S. graminifolium</b> |
| 3. | Capsule and receptacle globose, slightly shorter than lobes, glandular-hairy; lobes free  | <b>4 S. perpusillum</b>   |
| 3: | Capsule and receptacle narrow, oblong-linear, much longer than broad, much shorter than the lobes, almost glabrous; 2 lobes united almost to their tips   | 4                         |
| 4. | Corolla 1.3–3 mm diam., fan-shaped, posterior lobes almost twice as long as the anterior lobes, pale, pink with deep reddish stripe along outer side of each lobe; throat appendages 6  | <b>1 S. beaugleholei</b>  |
| 4: | Corolla 3–4 mm diam., not fan-shaped, petals oriented in nearly equal, opposite pairs, white or pale pink, not striped; throat appendages 0 or 4  | 5                         |
| 5. | Leaves scattered; petals equal, vertically paired, the two anterior petals slightly smaller than the posterior pair; throat appendages 0  | <b>2 S. despectum</b>     |
| 5: | Leaves in basal rosette; petals unequal, laterally paired, the two anterior petals larger than the posterior pair; throat appendages 4, indistinct  | <b>3 S. inundatum</b>     |

**1 Stylidium beaugleholei** J.H.Willis, *Muelleria* 1: 153 (1967)*Beauglehole's Triggerplant**Illustrations:* Toelken, *Fl. S. Austral.* 3: 1421, fig. 640a (1964); Raulings, *Fl. Victoria* 4: 583, fig. 111f (1999).

Very small, erect, ephemeral herbs, 3–5 mm high; stems reddish, simple or with few branches from near the base. Leaves very few, mostly in a basal rosette, linear to narrow elliptic or ovate-elliptic, 2–3(–5) mm long, 0.3–0.5 mm wide. Inflorescence a terminal corymb, 1–5-flowered. Calyx linear, 4–7 mm long, with scattered glandular hairs; lobes 2, equal, united almost to the apex. Corolla pinkish-white with reddish stripes on the abaxial surface, 1.3–1.0 mm diam., usually fan-shaped; posterior lobes obovate-spathulate, c. twice as long as the anterior lobes; labellum without appendages; throat appendages 6. Column c. 0.5 mm long; anthers pale. Stigma cushion-like. Capsule linear, c. 3–7 mm long. Seeds brown, c. 0.2 mm long, ellipsoid, smooth to ridged. Flowering & fruiting Nov.–Dec.

Tas. (FLI); also WA, SA, Vic. In Tasmania known only from Cape Barren Island and in Mount William National Park in the north-east. Plants are usually scattered in wet sandy heaths, ditches and depressions. The species is probably more widespread than collections suggest as it is easily overlooked.

**2 Stylidium despectum** R.Br., *Prodr. Fl. Nov. Holland* 571 (1810)*Small Triggerplant**Candollea despecta* (R.Br.) F.Muell., *Syst. Census Austral. Pl. Suppl.* 1: 86 (1884).*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 394, figs 87a–b (1963); Toelken, *Fl. S. Austral.* 3: 1421, fig. 640c (1964); Stanberg, *Fl. New South Wales* 3: 444 (1992); Raulings, *Fl. Victoria* 4: 583, fig. 111g (1999).

Small, erect, ephemeral herbs, 1.5–10 cm high; stems reddish, often fleshy. Leaves few, alternate, glabrous, sometimes a little crowded toward the base of the stem and surmounting a white, thickened hypocotyle, but not rosetted, narrow lanceolate, 1–4 mm long, apex acute. Flowers terminal, solitary or in a cymose corymb, shortly pedicellate; receptacle with a few short glandular hairs. Calyx lobes linear, c. 5 mm long, shorter than the tube, the two anterior lobes united almost to their tips. Corolla 3–4 mm diam., tube short; lobes white or pale pink, usually darker toward the apex, paired vertically, c. equal, or the anterior lobes slightly smaller than the posterior, oblong-oblongate; labellum minute, ovate, pointed; throat appendages absent. Column c. 1 mm long; anthers dark rimmed. Stigma cushion-like. Capsule narrow linear, c. 5–7 mm long. Seeds dark brown, c. 0.3 mm long, ellipsoid, smooth to slightly ridged. Flowering & fruiting Oct.–Jan.

Tas. (BEL, FLI, TNM, TSE); also WA, SA, NSW, Vic. Localised in the north, north-east and south-east of the state. Occurs in wet sandy heaths, drying swamps, soaks and margins of ditches, from sea-level to c. 200 m alt. Apparently often in association with *S. inundatum*, but rather more widespread than that species.

### 3 *Styidium inundatum* R.Br., *Prodr. Fl. Nov. Holland* 571 (1810)

*Swamp Triggerplant*

*Styidium brachyphyllum* sensu W.M.Curtis, *The Student's Flora of Tasmania* 2 (1963), non Sond. (1845).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 394, fig. 87c (1963), as *S. brachyphyllum*; Toelken, *Fl. S. Austral.* 3: 1421, fig. 640e (1964); Stanberg, *Fl. New South Wales* 3: 444 (1992), as *S. brachyphyllum*; Raulings, *Fl. Victoria* 4: 583, fig. 11h (1999).

Small, erect ephemeral herbs; flowering stems 1.5–10 cm high, simple or branched from the base. Leaves few, scattered or in a basal rosette, surmounting a swollen hypocotyle, 3–8 mm long, c. 1 mm wide. Flowers pedicellate, solitary or in irregular cymose corymbs; receptacle glabrous or with a few, small scattered glandular hairs, linear-obconical. Calyx 4–9 mm long, lobes linear, shorter than the tube, united for half their length, unequal in size, the largest c. 1.5 mm long. Corolla 3–4 mm diam., tube short; lobes pink with a white patch at the throat, divided to almost half way; 4 lobes paired laterally, the anterior lobes almost twice as long as the sepals, oblong, slightly curved with apex rounded; posterior lobes shorter; labellum minute, pointed and recurved; throat appendages 4, often obscure. Column c. 2 mm long; anthers dark-rimmed. Stigma cushion-like. Capsule 5–8 mm long, narrow-terete, tapered toward the base. Seeds brown, c. 0.2 mm long, ellipsoid, tapered at each end. Flowering & fruiting Oct.–Dec.

Tas. (BEL, FLI, KIN); also WA, SA, NSW, Vic. Localised in the north-east of the state, and on the islands of Bass Strait. Occurring in damp depressions, ditches and soaks, and in sandy heaths, from sea-level to c. 100 m alt. Listed as Rare under the *Tasmanian Threatened Species Protection Act 1965*.

### 4 *Styidium perpusillum* Hook.f., *London J. Bot.* 6: 266 (1847)

*Tiny Triggerplant*

*Illustrations:* Toelken, *Fl. S. Austral.* 3: 1421, fig. 640f (1964); Raulings, *Fl. Victoria* 4: 583, fig. 111f (1999).

Very small, ephemeral herbs; stems slender, erect, c. 3–5 cm high, with scattered glandular hairs. Leaves few, in a basal rosette, linear-spathulate to obovate, 2–4 mm long, 1–2 mm wide. Flowers terminal, solitary or in an open, few-flowered corymb. Calyx globose, c. 1–1.5 mm long, sparsely glandular-pubescent; lobes almost equal, oblong, apex rounded. Corolla white, c. 3 mm diam. tube short; lobes paired vertically, anterior lobes larger, 2–3 mm long, usually with short basal wings, posterior lobes smaller and sometimes slightly cucullate; labellum acute, petal-like, cupped, throat appendages absent. Column c. 1 mm long; anthers golden. Stigma shortly stipitate, brush-tipped. Capsule globose, c. 2 mm long. Seeds ellipsoid, c. 0.2 mm long, smooth. Flowering & fruiting Oct.–Dec.

Tas. (BEL, FLI); also WA, SA, Vic. Localised in the north-east of the state; found in wet, sandy heaths, moist depressions, coastal areas in soaks and hollows, to c. 100 m alt. Listed as Rare under the *Tasmanian Threatened Species Protection Act 1995*.



**5 *Styidium armeria* (Labill.) Labill., *Nov. Holl. Pl.* 2: 66 (1806), subsp. *armeria* Coastal Triggerplant**

*Candollea armeria* Labill., *Ann. Mus. Natl. Hist. Nat.* 6: 455 (1805); *Styidium armerium* (Labill.) St.-Lag., *Ann. Soc. Bot. Lyon* 7: 135 (1880), *nom. illeg.* *Candollea umbellata* Labill., *Ann. Mus. Natl. Hist. Nat.* 6: 456 (1805); *Styidium umbellatum* (Labill.) Labill., *Nov. Holl. Pl.* 2(22): 66, t. 217 (1806). *Candollea serrulata* Labill., *Ann. Mus. Natl. Hist. Nat.* 6: 454, t.64, f.2 (1805); *Styidium serrulatum* (Labill.) Rich., *Syn. Pl. (Persoon)* 2(1): 210 (1806). *Styidium melastachys* R.Br., *Prodr. Fl. Nov. Holland.* 568 (1810). *Styidium graminifolium* f. *grandiflorum* Mildbr., *Pflanzenr. (Engler)* 35: 73 (1908). *Styidium dilatatum* W.D.Jacks. & R.J.E.Wiltshire, *Austral. Syst. Bot.* 14(6): 961 (2001).

*Illustrations* (as *S. dilatatum*): Jackson & Wiltshire, *Austral. Syst. Bot.* 14(6): 959, fig. 5 (2001); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania*, 4<sup>th</sup> edn, 83 (2008).

Perennial, caespitose herbs, variable in size. Leaves in a dense basal rosette, erect, spreading or recurved, linear-lanceolate to oblong-lanceolate, 8–25(–45) cm long, 3–5(–15) mm wide, glabrous, scarious, margins entire or serrated towards the apex, base expanded, apex acute. Inflorescence a spike or raceme, often crowded and dense; scapes stout, erect, 8–50(–100) cm high, 2.5–4 mm diam., glandular-pubescent above the lower flowers, glabrescent below; floral bracts small. Calyx ovoid, c. 5–7 mm long, glandular-pubescent; lobes shorter than the tube, united into two lips. Corolla pink to magenta, tube c. 5 mm long, lobes spreading, 8–15 mm diam., paired laterally, obovate to lanceolate; labellum ovate, with linear lateral basal appendages; throat appendages 8, unequal, prominent. Column 8–12 mm long; anthers and stigma sessile, at the distal portion of the column; anthers dark-rimmed, subtended by claviform hairs. Stigma cushion-like. Capsule sub-cylindric, c. 8–15 mm long. Seeds reddish-brown, ellipsoid, angular, 1–2 mm long, surface papillate. Flowering Nov.-Feb.; fruiting Jan.-Apr.

Tas. (FLI, TSE, TSR, TWE); also SA, Qld, NSW, Vic. Widespread and locally common in open woodlands, heaths and shrubberies, particularly nearer coastal areas but also extending to higher altitudes inland. There are two subspecies, the other is endemic to Victoria (Best *et al.* 2009). *Styidium armeria* and *S. graminifolium* can be difficult to distinguish but are both retained here. Further taxonomic research is required to adequately resolve the boundaries between these two species.

*Styidium dilatatum* and an undescribed taxon alluded to by Jackson and Wiltshire (2001), together with *S. montanum* Raulings & Ladiges (NSW, Vic., Tas. ?) are part of the *S. armeria* / *S. graminifolium* complex. Gray (2009) considered *S. dilatatum* and *S. armeria* to be insufficiently distinct to justify the recognition of *S. dilatatum*; a view supported by Best *et al.* (2009) for the Victorian flora. Raulings and Ladiges (2001) state that *S. montanum* also occurs in Tasmania. However, they do not cite any Tasmanian specimens in support of this statement, and no specimens under that name are held in the Tasmanian Herbarium, and so, it has not been included in this account.

**6 *Styidium graminifolium* Sw. ex Willd., *Sp. Pl., ed. 4 [Willdenow]* 4: 146 (1805) Narrowleaf Triggerplant**

*Candollea graminifolia* (Sw. ex Willd.) F.Muell., *Syst. Census Austral. Pl.* 1: 85 (1884). *Styidium graminifolium* var. *angustifolium* Mildbr., *Pflanzenr. (Engler)* 35: 73 (1908). *Ventenatia major* Sm., *Exot. Bot.* 2: 13, t. 66 (1805); *Styidium majus* (Sm.) Druce, *Bot. Exch. Club Brit. Isles Rep.* 2: 649 (1917).

*Illustrations*: Curtis, *The Student's Flora of Tasmania* 2: 393 fig. 86 (1963); Toelken, *Fl. S. Austral.* 3: 1421, fig. 640d (1964); Stanberg, *Fl. New South Wales* 3: 443 (1992); Raulings, *Fl. Victoria* 4: 586 fig. 112c (1999); Cameron, *Guide to Flowers and Plants of Tasmania*, 3<sup>rd</sup> edn, 65, pls. 145–146 (2000).

Perennial, caespitose herbs, very variable in size. Leaves numerous, arranged in a dense basal rosette, erect to spreading, or recurved, semi-rigid, linear to narrow linear-lanceolate, 5–10(–30) cm long, 1.5–2(–5) mm wide, glabrous, margins somewhat recurved, entire or sometimes minutely serrulate, particularly toward the apex, base expanded and somewhat scarious, apex tapered to a blunt or acute point. Inflorescence a spike-like raceme, with few to numerous uncrowded flowers; scapes slender, erect, 5–20(–75) cm high, 1–2 mm diam., usually twice as long as the leaves, glandular hairy, particularly in the distal portion; floral bracts small. Calyx 2–6 mm long, densely

glandular hairy, lobes equal, shorter than the tube, united into two lips, with two minute bracteoles between the lips. Corolla pink, magenta or occasionally white, 5–10 mm diam.; tube shorter than the lobes; lobes paired laterally, sub-equal, oblong, posterior pair slightly narrower, abaxial surface glandular-hairy; labellum reflexed, apex acute to rounded, 2 short, linear lateral appendages near the base; throat appendages 8, 6 prominent, 2 reduced, glandular. Column longer than the lobes; anthers and stigma sessile at the distal portion of the column; anthers dark-rimmed, fringed by glands. Stigma oval, cushion-like, papillose. Capsule ovoid-oblong, dehiscence septical. Seeds light brown, c. 1 mm long, ellipsoid. Flowering Sep.-May; fruiting Oct.-May.

Tas. (all regions except MIS); also SA, Qld, NSW, Vic. Widespread and abundant in a wide variety of habitats including open forest, woodland, heathlands, sometimes forming extensive swards, from sea-level to c. 1000 m alt. *Stylidium graminifolium* and *S. armeria* can be difficult to distinguish but are both retained here. Further taxonomic research is required to adequately resolve the boundaries between these two species (see also discussion under *S. armeria*).

## REFERENCES

- APC (Australian Plant Census) <http://www.chah.gov.au/apc/about-APC.html>
- APNI (Australian Plant Name Index) <http://www.anbg.gov.au/cgi-bin/apni>
- AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) <http://www.anbg.gov.au/avh.html>
- Best RJ, Francis DE, Walsh NG (2009) A new subspecies of *Stylidium armeria* (Stylidiaceae) from the Macedon Range, Victoria. *Muelleria* **27** 174–178.
- Carolin RC (2007) Stylidiaceae. In K Kubitzki, JW Kadereit, C Jeffrey (Eds) *The Families and Genera of Vascular Plants: VIII Flowering Plants – Eudicots – Asterales*. pp. 614–619. (Springer-Verlag: Berlin)
- Gray AM (2009) 127 Stylidiaceae, version 2009:1. In Duretto MF (Ed.) *Flora of Tasmania Online*. 9 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery). [www.tmag.tas.gov.au/floratasmania](http://www.tmag.tas.gov.au/floratasmania)
- IPNI (International Plant Name Index) <http://www.ipni.org/index.html> or <http://www.us.ipni.org/index.html>
- Jackson WD, Wiltshire RJE (2001) Historical taxonomy and a resolution of the *Stylidium graminifolium* complex (Stylidiaceae) in Tasmania. *Australian Systematic Botany* **14** 937–969.
- Lundberg J (2001) *Phylogenetic Studies in the Euasterids II with Particular Reference to Asterales and Escalloniaceae*. (Acta Universitatis Upsaliensis: Uppsala)
- Lundberg J, Bremer K (2003) A phylogenetic study of the order Asterales using one morphological and three molecular data sets. *International Journal of Plant Science* **164** 553–578.
- NVA (Natural Values Atlas) (Department of Primary Industries and Water: Hobart) <http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6TV6TV?open>
- Raulings EJ, Ladiges PY (2001) Morphological variation and speciation in *Stylidium graminifolium* (Stylidiaceae), description of *S. montanum* and reinstatement of *S. armeria*. *Australian Systematic Botany* **14** 901–935.
- Rodway L (1903) *The Tasmanian Flora*. (Government Printer: Hobart)
- Wagstaff SJ, Wege J (2002) Patterns of diversification in New Zealand Stylidiaceae. *American Journal of Botany* **89** 865–974.
- Wege JA (2007a) Donatiaceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. p. 132. (Royal Botanic Gardens, Kew: London)
- Wege JA (2007b) Stylidiaceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. pp. 312–333. (Royal Botanic Gardens, Kew: London)
- NOTE: Web addresses can and do change: a list of current web addresses will be maintained on the *Flora of Tasmania Online* website [[www.tmag.tas.gov.au/floratasmania](http://www.tmag.tas.gov.au/floratasmania)].

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