



60 POLYGALACEAE ¹

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Trees, climbers, shrubs or herbs; glabrous or with simple hairs. Leaves usually alternate or sometimes opposite or whorled, sessile or petiolate, exstipulate, simple. Inflorescences terminal or axillary, racemes or panicles or sometimes flowers solitary. Flowers bisexual, usually zygomorphic or rarely \pm actinomorphic, hypogynous. Sepals 5, subequal to unequal (sometimes the lateral sepals enlarged into petaloid "wings"), free or partially or fully fused together. Petals 3 or 5 (not in Tas.), subequal to strongly unequal; abaxial petal often modified into a keel, often lobed or crested toward the tip. Stamens (2-)5-8(-10), free or variously fused together and often adnate to the petals. Gynoecium with 2-8 united carpels: ovary superior, (1)2-8-locular, usually with 1 ovule per locule; style straight in actinomorphic flowers or curved or hooked in zygomorphic flowers; stigma 1-2-lobed. Fruit a capsule or samara or drupe or berry. Seeds glabrous or hairy, often arillate or with other appendages.

A sub-cosmopolitan family of 21 genera and about 950 species, with most of the diversity centred in the tropics and subtropics. The family is naturally absent only from polar regions and the western Pacific. 5 genera and about 90 species native and naturalized in Australia; 2 genera and 7 species in Tasmania. Polygalaceae are placed in the order Fabales and are closely related to Quillajaceae (temperate S. American), Surianaceae (Australian and pantropical) and Fabaceae (cosmopolitan). The phylogenetic relationships between the families in this order remain unclear (Stevens 2011).

Synonymy: Xanthophyllaceae.

Key references: Eriksen (1993a, 1993b); Persson (2001); Eriksen & Persson (2007).

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

1. Keel petal bearing a conspicuous finely-divided crest near the tip; fruit orbicular or obcordate; seeds with a prominent helmet-like caruncle, with hairs of uniform length or with some slightly longer hairs at the lower end

1 *Polygala*

1: Keel petal uncrested; fruit cuneate or narrow-obovate; seed appendages (if present) elongate and not helmet-like, with some hairs significantly lengthened into an often caducous coma

2 *Comesperma*

1 * POLYGALA

Polygala L., *Sp. Pl.* 2: 701 (1753).

Herbs, shrubs, or (not in Australia) small trees or climbers. Leaves usually alternate, rarely opposite or whorled, persistent (in Tas.) or sometimes caducous. Inflorescence a terminal, lateral or axillary raceme or spike or sometimes a terminal panicle. Flowers zygomorphic. Calyx consisting of 3 outer unmodified free sepals and 2 inner enlarged and often petaloid "wing" sepals. Corolla of 3 petals with the lower one a boat-shaped "keel", fused together at the base and variously joined to the stamens; keel unadorned (not in Australia) or crested toward the tip. Stamens 8, fused at the base into a staminal tube and then free above; anthers 2-celled and dehiscent via a short apical slit. Fruit usually a compressed bilocular loculicidal

1 This work can be cited as: Monro AM (2019). Polygalaceae, **version 2019:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 6 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/treatments/polygalaceae/>

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capsule, usually obovate or orbiculate, with broad or narrow marginal wings. Seeds usually hairy and sometimes with longer hairs towards the lower end, often with a cap- or hood-like caruncular appendage.

A subcosmopolitan genus of about 350 species (generic limits are currently uncertain) with the greatest diversity in tropical and subtropical regions of the world. In Australia there are about 50 species, with the diversity of native species focused in the northern half of the continent and relatively few mostly weedy species in the south. 2 species naturalized in Tasmania.

1. Erect shrubs, usually 1–2 m high; leaves oblong to obovate; wing sepals magenta 1 *P. myrtifolia*
 1: Lax herbs to c. 40 cm high; leaves elliptic; wing sepals mauve to deep blue 2 *P. vulgaris*

1 * *Polygala myrtifolia* L., *Sp. Pl.* 2: 703 (1753) *Myrtle-leaf Milkwort, Parrot Bush, Sweet Pea Bush*

Illustrations: Morley & Toelken (Eds), *Flowering Plants in Australia* 212, fig. 125b-c (1983); Walsh, *Fl. Victoria* 4: 133, fig. 23e (1999) [as *P. myrtifolia* var. *myrtifolia*]; Murray, *Fl. New South Wales* 3: 6 (1992); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 340 (2006).

Erect shrub 1–2(–4) m high, usually glabrous. Leaves 10–40 mm long, 8–25 mm wide, obovate to oblong, obtuse. Inflorescence a terminal raceme, held among upper leaves. Sepals: outer sepals 4–6 mm long, ovate; wing sepals magenta fading to white, 10–20 mm long, 6–12 mm wide, broad-ovate, clawed. Petals: keel white with pink streaks and dark red tip, bearing a much-branched crest; upper petals white with pink-flecked tips, rounded-oblong; corolla tube glabrous. Stamens diadelphous, free above. Ovary orbiculate; style curving. Capsules orbiculate, narrowly winged, emarginate, 7–12 mm long, 7–12 mm wide. Seeds black, smooth, pubescent, ovoid; appendage helmet-like, with 3 lobes extending about one-quarter the length of the seed. Flowering throughout the year, with a peak in Sept.–Oct.

Tas. (FUR, KIN, TSE); also naturalised in WA, SA, Qld, NSW, Vic., Norfolk Is.; native to southern Africa, widely naturalized, e.g. New Zealand and S Europe. In scattered sites near Hobart, on the E and N coasts and on King Is. Found in coastal heath communities, abandoned garden areas and along roadsides.

2 * *Polygala vulgaris* L., *Sp. Pl.* 2: 702 (1753) *Common Milkwort*

Illustrations: Walsh, *Fl. Victoria* 4: 133, fig. 23c (1999); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 341 (2006).

Lax shrub to c. 40 cm high, sparsely pubescent. Leaves 10–30 mm long, 2–5 mm wide, elliptic, acute. Inflorescence a terminal raceme, held clear of upper leaves. Sepals: outer sepals 2–3 mm long, ovate; wing sepals mauve to deep blue, 6–8 mm long, 5–6 mm wide, obovate, sessile. Petals: keel purple, bearing a finely-divided crest; upper petals purple to blue, rounded-oblong; corolla tube ciliate. Stamens diadelphous, sessile. Ovary obovate; style straight. Capsules obovate, narrowly winged, emarginate, 6–9 mm long, 5–7 mm wide. Seeds black, smooth, pubescent, obloid; appendage rather flattened, with 3 membranous lobes extending about one-third the length of the seed. Flowering Sept.–Feb.

Tas. (KIN); also naturalized in Vic.; native to western Europe, also naturalized in New Zealand. Collected from a small number of near-coastal sites around Temma. A weed in moist heath and along roadsides.

2 COMESPERMA

Comesperma Labill., *Nov. Holl. Pl.* 2: 21, t. 159 (1806).

Bredemeyera sect. *Comesperma* (Labill.) Chodat, *Nat. Pflanzenfam.* [Engler & Prantl] III, 4(138–139): 338 (1896).

Erect shrubs, wiry herbs or twining climbers. Leaves alternate, readily deciduous, sometimes reduced to scales. Inflorescence terminal or rarely axillary, a pyramidal raceme or sometimes corymb-like or flowers solitary. Flowers zygomorphic. Calyx consisting of 3 outer unmodified sepals with the lower two sometimes connate (not in Tas.) and 2 inner enlarged and petaloid “wing” sepals. Corolla of 3 petals with the lower one a boat-shaped “keel”, fused together at base and variously joined to the stamens; keel unadorned or with a

hooked appendage toward the tip (not in Tas.). Stamens 8, fused at the base into a staminal tube and then either all free above or diadelphous and sessile; anthers 2-celled and dehiscent via a short apical slit. Fruit a laterally compressed bilocular loculicidal capsule, usually clavate and attenuate or rarely orbicular (not in Tas.), sometimes with narrow marginal wings. Seed almost always with readily deciduous coma that arises all over the seed coat or may be concentrated in particular areas, often with elongated membranous appendages arising from the raphe.

An endemic Australian genus of about 30 species with the greatest diversity distributed in the southern half of the continent. 5 species in Tasmania.

Key references: Pedley (1984); Keighery (2002).

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| 1. Erect shrubs, leaves persisting on most of plant; wing sepals usually pink or magenta | 2 |
| 1: Erect wiry subshrubs or twining climbers, often few-leaved or with leaves reduced to scales or with only a basal rosette of true leaves; wing sepals usually blue or mauve | 3 |
| 2. Stems glabrous to hispidulous, smooth, not usually glaucous; leaves with recurved margins, paler below, linear to narrow-obovate, apex produced into a recurved mucro; inflorescences pyramidal, elongating in fruit | 1 <i>C. ericinum</i> |
| 2: Stems glabrous, usually tuberculate, usually glaucous; leaves concolorous, flat, oblong, obtuse and not mucronate; inflorescences corymb-like, not elongated in fruit | 2 <i>C. retusum</i> |
| 3. Twining climbers; inflorescences axillary | 3 <i>C. volubile</i> |
| 3: Erect wiry subshrubs; inflorescences terminal | 4 |
| 4. Leaves often forming a basal rosette with scale leaves above or true leaves persisting for much of the length of the stems; wing sepals about twice as long as outer sepals, usually deep blue | 4 <i>C. calymega</i> |
| 4: Leaves not forming a basal rosette, reduced to scales very close to base of plant (so appearing ±leafless); wing sepals less than twice as long as outer sepals, violet to mauve | 5 <i>C. defoliatum</i> |

1 *Comesperma ericinum* DC., *Prodr. (DC.)* 1: 334 (1824) [as *C. ericina*] *Heath Milkwort, Match-heads*

Bredemeyera ericina (DC.) Chodat, *Nat. Pflanzenfam.* [Engler & Prantl] 3(4): 331, fig. 117Q (1896) [as '*B. ericine*']. *Comesperma latifolium* Steetz, *Revis. Gen. Comesperma* 5–6 (1847); *C. ericinum* var. *latifolium* (Steetz) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 32 (1855) [as '*C. ericinum* var. *_latifolia_*']. *Comesperma acutifolium* Steetz, *loc. cit.* 6 (1847); *C. ericinum* var. *acutifolium* (Steetz) Hook.f., *loc. cit.* 1: 32 (1855) [as '*C. ericinum* var. *_acutifolia_*']. *Comesperma linariifolium* A.Cunn. ex Steetz, *Revis. Gen. Comesperma* 7 (1847) [as '*C. linariaefolium*']. *Comesperma ericinum* f. *tasmanicum* Gand., *Bull. Soc. Bot. France* 60: 456 (1913); *C. tasmanicum* (Gand.) Prain, *Index Kew. Suppl.* 5: 65 (1921).

Illustrations: Walsh, *Fl. Victoria* 4: 136, fig. 24f (1999); Murray, *Fl. New South Wales* 3: 4 & colour plate 1 (1992); Whiting *et al.*, *Tasmania's Natural Flora* 256 (2004).

Erect slender shrub, 1–2 m tall; stems often reddish, glabrous or puberulous or hispidulous, smooth, not usually glaucous. Leaves persistent, usually with recurved margins, paler below, linear to elliptic to narrow-obovate, with a recurved mucro, 5–20 mm long, 2–4 mm wide. Inflorescence a many-flowered pyramidal terminal raceme, elongating in fruit. Outer sepals ovate, 1–2 mm long; wing sepals magenta-pink, obovate, not clawed, 5–8 mm long, 3–4 mm wide. Keel deep pink with white tip; upper petals white to cream, rounded-oblong; corolla tube glabrous. Stamens diadelphous and sessile. Ovary circular. Capsules spathulate, emarginate, 6–8 mm long, 3–4 mm wide. Seeds black, smooth, ellipsoidal, with linear appendages on both margins and forming a short tail; coma evenly distributed over seed surface. Flowering mainly Oct.–Dec.

Tas. (FUR, TSE, TSR); also Qld, NSW, Vic. Near-coastal areas in the north-east and east of the state, also on Flinders Is and Cape Barren Is. Growing in dry heathlands and open forests and woodlands, often in sandy soils.

2 *Comesperma retusum* Labill., *Nov. Holl. Pl.* 2: 22, t. 160 (1806) [as '*C. retusa*']*Mountain Milkwort, Purple Milkwort**Bredemeyera retusa* (Labill.) Anon., *Census Pl. Victoria* 40 (1923) [as *B. retusum*].*Illustrations:* Walsh, *Fl. Victoria* 4: 136, fig. 24g (1999); Murray, *Fl. New South Wales* 3: 4 (1992); Woolmore et al., *King Island Flora* 65 (2002); Whiting et al., *Tasmania's Natural Flora* 256 (2004).

Erect slender shrub, 1.0–1.5 m tall; stems reddish, glabrous, usually tuberculate, glaucous. Leaves persistent, flat, concolorous, oblong, obtuse, not mucronate, 6–15 mm long, 3–5 mm wide. Inflorescence a few-flowered corymb-like raceme that does not elongate in fruit. Outer sepals ovate, 2.0–2.5 mm long; wing sepals deep pink to magenta, obovate, scarcely clawed, 4–7 mm long, 2–3 mm wide. Keel deep pink to purple with yellow-green tip; upper petals white, rounded-oblong; corolla tube glabrous. Stamens diadelphous and sessile. Ovary cordate. Capsules clavate, emarginate, 10–15 mm long, 2–4 mm wide. Seeds brownish-black, smooth, ovoid, with linear appendage on inner margin only, not tailed; coma densest on margins and base. Flowering mainly Dec.–Jan.

Tas. (BEL, FUR, KIN, TCH, TNS, TSE, TSR, TWE); also Qld, NSW, Vic. Widespread across the state from the east coast to the north-west corner, also on Flinders Is, Cape Barren Is. and King Is. Growing in heath or grasslands or open woodlands or forests, often in wetter situations on peaty soils.

3 *Comesperma volubile* Labill., *Nov. Holl. Pl.* 2: 24, t.163 (1806) [as *C. volubilis*]*Blue Love Creeper, Love Creeper**Bredemeyera volubilis* (Labill.) Chodat ex Anon., *Census Pl. Victoria* 40 (1923) [as *B. volubile*]. *Comesperma volubile* var. *micranthum* Steetz, *Pl. Preiss.* 2: 303 (1848) [as *C. volubile* var. *micrantha*].*Illustrations:* Morley & Toelken (Eds), *Flowering Plants in Australia* 212, fig. 125a (1983); Walsh, *Fl. Victoria* 4: 136, fig. 24a (1999); Murray, *Fl. New South Wales* 3: 5 & colour plate 1 (1992); Woolmore et al., *King Island Flora* 65 (2002); Gilfedder et al., *The Nature of the Midlands* 73 (2003); Whiting et al., *Tasmania's Natural Flora* 257 (2004).

Twining climber, 1–2 m long; stems green, glabrous, ribbed, not glaucous. Leaves often not persistent (so appearing ±leafless), flat, concolorous, narrowly oblong to elliptic, apex acute, 10–15(–30) mm long, 1–3(–5) mm wide. Inflorescence a few-to many-flowered loose axillary raceme, not elongating in fruit. Outer sepals triangular, 1.5–2.0 mm long; wing sepals pale blue to mauve, orbiculate to broad-ovate, shortly clawed, 5–8 mm long, 5–7 mm wide. Keel deep purple with cream tip; upper petals cream with purple-flecked tips, spatulate; corolla tube sometimes pubescent. Stamens free above. Ovary pyriform. Capsules clavate, shortly beaked, 10–20 mm long, 3–5 mm wide. Seeds brown, wrinkled, hemi-ellipsoidal, linear appendages on both margins and forming a short tail; coma densest on margins. Flowering mainly July–Dec.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also WA, SA, Qld, NSW, Vic. Widespread on the east coast and extending into central parts of the state, also on Flinders Is., Cape Barren Is. and King Is. Growing in a wide variety of habitats including dry heath and open forests and woodlands.

4 *Comesperma calymega* Labill., *Nov. Holl. Pl.* 2: 23, t.162 (1806)*Blue Spike Milkwort**Comesperma isocalyx* Spreng., *Syst. Veg.* 16th edn, 3: 172 (1826), *nom. illeg.*; *Bredemeyera calymega* (Labill.) Anon., *Census Pl. Victoria* 40 (1923).*Illustrations:* Walsh, *Fl. Victoria* 4: 136, fig. 24d (1999); Woolmore et al., *King Island Flora* 65 (2002); Whiting et al., *Tasmania's Natural Flora* 255 (2004).

Erect to ascending wiry subshrub, 30–60 cm tall; stems green, glabrous, smooth, not glaucous. Leaves forming a basal rosette and reduced to scales above or true leaves sometimes persisting for much of the length of the stem, flat, leathery, concolorous, narrow- to very broad-elliptic, acute, 8–20(–35) mm long, 3–15(–15) mm wide. Inflorescence a many-flowered pyramidal terminal raceme, elongating in fruit. Outer sepals oblong and somewhat acute, 2–3 mm long; wing sepals deep purple to blue, obovate to orbiculate,

shortly clawed, 5–6 mm long, 4–5 mm wide. Keel cream with purple and yellow tip; upper petals cream with blue tips, oblong and somewhat acute; corolla tube glabrous. Stamens free above. Ovary circular with a short beak. Capsules asymmetrically clavate, emarginate, 6–9 mm long, 2–3 mm wide. Seeds black, smooth, ovoid, with no obvious appendages; coma arising mainly from the base. Flowering mainly Sept.–Jan.

Tas. (BEL, FUR, KIN, TSE, TSR, TWE); also WA, SA, Vic. Found on the east and north coasts, also on Flinders Is., Cape Barren Is. and King Is. Growing in sandy heath and sedgeland.

5 *Comesperma defoliatum* F.Muell., *Pl. Victoria* 1: 189 (1862)

Leafless Milkwort

Comesperma nudiusculum sensu Steetz, *Revis. Gen. Comesperma* 18 (1847), non DC. (1824); *Bredemeyera defoliata* (F.Muell.) Anon., *Census. Pl. Victoria* 40 (1923).

Illustrations: Walsh, *Fl. Victoria* 4: 136, fig. 24c (1999); Murray, *Fl. New South Wales* 3: 5 (1992); Whiting *et al.*, *Tasmania's Natural Flora* 255 (2004).

Erect wiry subshrub, to about 60 cm tall; stems green, glabrous, ribbed, not glaucous. Leaves reduced to scales close to the base of plant (so appearing ±leafless), flat, concolorous, elliptic, acute, 3–5 mm long, 0.25–0.5 mm wide, glabrous. Inflorescence a few-flowered pyramidal terminal raceme, elongating in fruit. Outer sepals oblong, 2–4 mm long; wing sepals mauve to blue, orbicular to broad-obovate, shortly clawed, 3–4 mm long, 2–3 mm wide. Keel deep purple with yellow tip; upper petals cream, oblong and somewhat acute; corolla tube margins tuberculate. Stamens free above. Ovary orbicular. Capsules clavate, emarginate, 8–12 mm long, 2–4 mm wide. Seeds black, smooth, ovoid, with narrow appendages on both margins and forming a short tail; coma densest on margins. Flowering mainly Nov.–Feb.

Tas. (BEL, FUR, KIN, MIS, TCH, TNM, TNS, TSE, TSR, TWE); also Qld, NSW, Vic. Found in scattered localities from the south-west corner of the state along the east and north coasts, also on Cape Barren Is. Growing in wet heath and sedgeland, often in peaty soils.

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NOTE: Web addresses can and do change: a list of current web addresses is maintained in the web version of this treatment on the *Flora of Tasmania Online* website at <https://flora.tmag.tas.gov.au>

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