



## 89 THYMELAEACEAE <sup>1</sup>

Alan M Gray, Matthew L Baker <sup>2</sup>

Shrubs or sub-shrubs, rarely herbs (not in Tas.), dioecious or polygamous; stems erect, ascending or creeping; simple hairs often present. Leaves opposite or alternate, exstipulate, simple, entire, veins usually reticulate. Inflorescences terminal, sometimes axillary, a condensed raceme, or umbels or heads, with or without involucral bracts. Flowers actinomorphic, bisexual or unisexual. Receptacle (hypanthium) tubular, fusiform, cylindrical or sub-campanulate, often petaloid. Sepals 4, inserted on rim of hypanthium and of similar colour and texture, at first imbricate, then spreading or erect. Corolla lobes absent, or small and scale-like, opposite sepals on hypanthium rim. Stamens (1)2, 4 or 8, inserted in throat of hypanthium, enclosed or sometimes exerted; anthers 2, parallel, dehiscence introrse or  $\pm$  latrorse. Nectary small or absent. Ovary superior, free, 1-locular; ovule 1(2); style simple. Fruit usually a drupe, or dry and nut-like, rarely a capsule.

A family of 55–60 genera and about 500 species found throughout the world, especially in tropical and southern Africa, south-east Asia and Australia. In Australia, there are 9 genera and about 100 species; in Tasmania, there are 3 genera and 18 species. Thymelaeaceae are an isolated family within the Malvales.

Some representatives of this family are popular garden plants, including several species of *Daphne* L., in particular *D. odora* Thunb. and *D. cneorum* L., cultivated for their sweetly fragrant flowers and attractive foliage. Some species are also used for small-scale paper manufacture due to their extremely tough fibres. Many Tasmanian species of *Pimelea* are renowned for their tough bark and are popularly known as ‘Bushman’s Bootlaces’. The qualities and uses of the bark of these species was also known to Tasmanian aboriginal people. The plant’s fibres were extracted by soaking and then pounding the stems to separate the bark. The fibre was rolled along the thighs with an open hand to produce a fine thread used for tying and making netting. Some species of *Pimelea* are popularly grown as native plant ornamentals; two Western Australian species, *P. physodes* Hook. (Qualup Bell), with its flamboyant involucral bracts, and *P. rosea* R.Br. (Rose Banjine) with its dense, bright pink to red-purple inflorescences are two examples.

Many species of *Pimelea* and *Daphne* are known to be poisonous if eaten, and have been linked to human and animal poisoning (McKenzie 2012).

Synonymy: Daphnaceae.

Key reference: Rye (1990).

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

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|---|-------------------|
| 1. Style terminal; stamens 8, in two rows; small shrubby weed of bushland at Fern Tree to 1.5 m tall            | 3 <i>Daphne</i>   |
| 1: Style lateral; stamens 2 or 4, in one row; native shrubs of various habits and locations throughout Tasmania | 2                 |
| 2. Corolla lobes minute and scale-like, opposite sepals; stamens 4, alternating with sepals                     | 1 <i>Kelleria</i> |
| 2: Corolla lobes absent; stamens (1)2, opposite sepals  | 2 <i>Pimelea</i>  |

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## 1 KELLERIA

### Alan M Gray

*Kelleria* Endl., *Gen. Pl.* [Endlicher], suppl. 4: 61 (1848).

Synonymy: *Daphnobryon* Meisn., *Prodr.* (DC.) 14(2): 566 (1857).

Small, densely tufted shrubs, stems creeping and rooting at the nodes; branching not dichotomous; glabrous. Leaves alternate, imbricate, sessile, concolorous, glabrous or with the apex sparsely ciliate. Inflorescence a small, ebracteate, terminal head of 4–6 flowers, each flower surrounded at the base by a circlet of short hairs; apex of receptacle not enlarging. Flowers sessile or very shortly pedicillate; bisexual or functionally unisexual. Hypanthium shortly cylindrical to sub-campanulate. Sepals 4, petaloid, sub-erect or spreading. Corolla lobes scale-like, with 1 or 2 scales or glands opposite each, inserted in the throat of the tube. Stamens 4, inserted in the tube, alternating with sepals. Nectary disc absent. Ovary with lateral style; stigma capitate, papillose. Fruit a drupe, or dry and nut-like.

A genus of about 11 species found in Borneo, New Guinea, south-east Australia, and particularly in New Zealand which has 9 species, 2 of which are shared with Australia.

Key reference: Curtis (1967); Heads (1990a, b).

### 1 *Kelleria dieffenbachii* (Hook.) Endl., *Gen. Pl.* [Endlicher], suppl. 4: 61 (1848)

*Carpet Riceflower*

*Drapetes dieffenbachia* Hook., *London J. Bot.* 2: 497 (1843). *Drapetes tasmanicus* Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 5: 299 (1853) [as '*D. tasmanica*']; *Daphnobryon tasmanicum* Meisn., *Prodr.* (DC.) 14(2): 566 (1857) [as '*D. Tasmannicum*']; *Kelleria tasmanica* (Hook.f.) S.Berggr., *Fysiogr. Sällsk. minneskr. med. anl. af des hunfraarsferst* 8: 18, 20 (1877).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: t. 103, no. 62 (1971), as *Drapetes tasmanicus*; Heads, *Fl. Australia* 18: 133, fig. 70a-e (1990); Kirkpatrick, *Alpine Tasmania* 57: fig. 24f (1997); Harden, *Fl. New South Wales* 1: rev. edn 388 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 327 (2004).

A small, prostrate shrub, the stems slender, firm but almost herbaceous, intricately branched, often rooting at the nodes and forming tufts to 30 cm or more in diameter; major branches bearing erect or ascending flowering branchlets c. 1–5 cm high. Leaves somewhat crowded, sub-erect or imbricate; lamina yellowish-green, 1.5–4.0 mm long, 0.4–1.0 mm wide, narrow-linear, to lanceolate, plano- or concavo-convex, abaxial surface with midrib and 2 lateral veins clearly visible, these diverging near the base and then parallel to the midrib, young leaves ciliate at or near the apex, older leaves glabrous or almost so. Inflorescence a terminal head of 1–5 flowers, sessile or very shortly pedicillate, each flower surrounded by a circlet of hairs c. 0.5 mm long. Flowers white, abaxial surface silky-hairy, hypanthium c. 1.5–2.5 mm long, lobes about as long as the tube, each with 2 small, yellow globular glands at the base. Stamens 4, alternating with the lobes; anthers exerted between, but shorter than, the lobes. Fruit a small greenish, ovoid drupe, c. 1.5–2.0 mm long. Flowering & fruiting Dec.–Apr.

Tas. (BEL, TCH, TSE, TSR, TWE); also NSW, New Zealand, New Guinea. Widespread but localised on the higher peaks of the west, south-west and north-east of the state, at c. 800–1550 m alt., forming small patches in open moorlands, herbfields and crevices among rocky plates, in areas where snow accumulates for long periods.

## 2 PIMELEA

### Alan M Gray

*Pimelea* Banks & Sol. Ex Gaertn., *Fruct. Sem. Pl.* 1: 186 (1788).

Synonymy: *Banksia* J.R.Forst. & G.Forst., *Char. Gen. Pl.*, ed. 1: 17 (1775), *nom. rej. non* L.f. (1782). *Calyptrostegia* C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 72 (1845). *Heterolaena* C.A.Mey.,

*Index Seminum* [St. Petersburg (Petropolitanus)] 47 (1845). *Gymnococca* C.A.Mey., *op. cit.* 46 (1845). (For full synonymy see APC, APNI).

Dwarf to large shrubs; prostrate, ascending or erect; branching sometimes dichotomous; hairs, when present, nearly always colourless or white. Leaves opposite-decussate, sometimes alternate, sessile or petiolate, discolorous, usually paler on abaxial surface, sometimes hairy on one or both surfaces. Inflorescences small to large terminal, or sometimes axillary, rarely elongate, heads of 1-many flowers, each usually surrounded by a circlet of short hairs; the inflorescence often surrounded by an involucre of 4 or more bracts that may differ from the foliage leaves in size, shape or colour; peduncle sometimes enlarged at apex to form a concave or convex receptacle, the attachment of each flower usually surrounded by a circlet of hairs. Flowers sessile or shortly pedicellate; functionally unisexual or bisexual. Hypanthium tubular. Sepals 4, petaloid, sub-erect or spreading. Petals absent. Stamens (1-) 2, opposite the outer sepals, inserted at or near summit of hypanthium. Nectary disc absent. Ovary with lateral style; style long, slender; stigma capitate, papillose or brush-like. Fruit a small drupe, usually thinly fleshy, or dry and nut-like.

A genus of about 108 species widespread in Australia, including Lord Howe Island, and New Zealand. In Australia there are 90 endemic species; 18 (7 endemic) species are found in Tasmania. Many species are poisonous to stock. In some species the staminate flowers are often larger than the pistillate flowers.

*Pimelea phylloides* Meisn. has been attributed to King Island (Tasmania) by Rye (1990), Entwisle (1996), and Buchanan (2005). No specimens were cited in support, and none are known to exist. It is here treated as having been attributed to Tasmania in error.

Key references: Threlfall (1983); Rye (1990).

Note for key: Fresh flowering material is necessary for accurate determination of inflorescence flower numbers and the presence of differentiated involucre bracts.

1. Plants prostrate; branches closely packed, forming dense, matted patches; stamens 2	3 <i>P. pygmaea</i>
1: Plants prostrate, ascending or erect; branches not densely crowded, plants not forming matted patches; stamens 1 or 2	2
2. Plants prostrate or ascending, branches lax, spreading; stamen 1	10 <i>P. filiformis</i>
2: Plants ascending or erect, branches ± rigid; stamens 2	3
3. Involucre bracts clearly differing from foliage leaves in size, shape or colour	4
3: Involucre bracts not or scarcely differentiated from foliage leaves	10
4. Flowers bright yellow	1 <i>P. flava</i>
4: Flowers white, cream, greenish yellow or pink	5
5. Inflorescence loose, 3-6(-8) flowers	6
5: Inflorescence ± compact, 6-15(-25+) flowers	7
6. Leaves 3-8(-10) mm long, elliptical to oblanceolate-obovate; flowers shortly pedicellate; pedicels pubescent	2 <i>P. serpyllifolia</i>
6: Leaves 5-10(-20) mm long, linear-elliptic to linear-lanceolate; flowers shortly pedicellate; pedicels glabrous	7 <i>P. pauciflora</i>
7. Most flower heads conspicuously deflexed-drooping	8
7: Most flower heads quite erect	9
8. Leaves 2-4(-6) cm long, thin, pinnate veins clearly visible on lower surface	15 <i>P. ligustrina</i>
8: Leaves 0.5-1(-2.5) cm long, relatively thick, only the midrib visible	18 <i>P. linifolia</i>

9. Plants with stems distinctly hairy 16 *P. humilis*  
 9: Plants glabrous except for the inflorescence 17 *P. glauca*
10. Leaves (3–)5–8 cm long; flowers in loose, axillary heads; fruit dry, not succulent 8 *P. axiflora*
- 10: Leaves (0.2–)1–3 cm long; flowers in ± dense terminal heads or on short axillary shoots; fruit dry or succulent 11
11. Leaves hairy on both surfaces, adaxial surface sometimes sparsely so 12  
 11: Leaves hairy only on abaxial surface, adaxial surface glabrous 15
12. Leaves narrowly-elliptic to narrow-oblongate, alternate or sub-opposite; older stems ± leafy; leaf scars absent; flowers distinctly yellow to brownish-yellow 13
- 12: Leaves broadly-ovate to elliptic, opposite; older stems leafless; leaf scars prominent; flowers white or creamy-yellow 14
13. Leaves ± hairy on both sides 11 *P. micrantha*  
 13: Leaves sparsely hairy abaxially, few and scattered, or glabrous adaxially 12 *P. curviflora*
14. Leaves densely hairy on both surfaces; flowers 6–10; hypanthium 5–8 mm long, hairs on hypanthium not obscuring flower detail 4 *P. milliganii*
- 14: Leaves densely hairy abaxially, sparsely so adaxially; flowers 10–20; hypanthium 10–12(–15) mm long, hairs on hypanthium ± wholly obscuring flower detail 5 *P. leiophylla*
15. Leaves at least twice as long as broad, elliptical to elliptical-oblongate  
 15: Leaves almost as wide as long, broadly elliptical, elliptical-ovate to orbicular 17
16. Flower heads mostly terminal on longer branches; fruit dry, enclosed within persistent base of hypanthium at maturity, not exposed 6 *P. cinerea*  
 16: Flower heads on very short axillary branchlets; fruit black, succulent, naked at maturity 9 *P. drupacea*
17. Leaves ± erect; margins flat; abaxial surface silvery-silky with straight, appressed hairs 13 *P. sericea*  
 17: Leaves ± spreading; margins narrowly recurved; abaxial surface white-tomentose with crisped, felty hairs 14 *P. nivea*

**1 *Pimelea flava* R.Br., *Prodr. Fl. Nov. Holl.* 361 (1810), subsp. *flava* Yellow Riceflower**

*Calyptrastegia flava* (R.Br.) Endl., *Gen. Pl.* [Endlicher] suppl. 4: 61 (1848); *Banksia flava* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Cochrane *et al.*, *Flowers and Plants of Victoria and Tasmania* 26, pl. 58 (1980); Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448e (1986); Entwisle, *Fl. Victoria* 3: 919, fig. 186d (1996); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 330 (2004); Minchin, *Wildflowers of Tasmania – A Field Guide* 107, pl. 158 (2005); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania* ed. 4, 155 (2008).

Small, erect, ± dichotomously branched shrubs 0.3–1.5 m high; branches ± rigid, slender, almost glabrous to sparsely silky-hairy, older stems ± smooth, leafy. Leaves opposite, spreading to ± erect, often crowded, shortly petiolate; lamina 3–15 mm long, 1.5–9.0 mm wide, narrowly elliptic or obovate-oblong to almost orbicular, thin, flat, glabrous, often with the midrib and sometimes the secondary veins conspicuous, concolorous, often turning a distinctive bluish-green on drying, margins ± thickened, apex blunt or mucronulate. Inflorescence an erect, compact terminal head of 9-many flowers; involucral bracts 2 or 4, greenish-yellow, petiolate, usually distinctively longer and broader than the foliage leaves, glabrous. Flowers bright yellow, mostly unisexual; pedicels short, hairy; hypanthium sparsely pubescent adaxially, more densely so abaxially; lobes glabrous adaxially. Staminate flowers: hypanthium 3.0–5.5 mm long; lobes 1–3

mm long, spreading; stamens 2, shorter than the lobes. Pistillate flowers smaller than staminate flowers: hypanthium 2.2–4.5 mm long; lobes 1.0–1.8 mm long, ± erect; style enclosed. Fruit dry, enclosed by the persistent hypanthium. Flowering & fruiting Aug.-May.

Tas. (BEL, FUR, TNS, TSE, TSR); also SA, Vic. Widespread, but occasional, from sea-level to c. 500 m alt., in wet heaths, often on poorly drained, heavy or rocky soils in open situations. Also occasionally in low, scrubby or lightly forested areas, in the east, north and south-east. The remains of old receptacle heads, often densely hairy, sometimes persist in the sinus of past seasons divergent branches. The taxon is listed as *Rare* under *The Tasmanian Threatened Species Protection Act 1995*. This species is poisonous.

The other subspecies, *P. flava* subsp. *dichotoma* (Schltdl.) Threlfall, occurs in north-eastern Victoria. It differs from subsp. *flava* by having more leathery leaves, white flowers, involucre bracts scarcely as large as the leaves and the hypanthium being circumscissile above the ovary in fruit.

**2 *Pimelea serpyllifolia*** R.Br., *Prodr. Fl. Nov. Holl.* 360 (1810), subsp. ***serpyllifolia*** *Thyme Riceflower*

*Banksia serpyllifolia* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Threlfall, *Fl. S. Austral.* 2, ed. 4: 863, fig. 449g (1986); Entwisle, *Fl. Victoria* 3: 927, fig. 186g (1996); Harden, *Fl. New South Wales* 1, rev. edn: 380 (2000); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 336 (2004).

Small, non-dichotomously branched shrubs, 0.2–1.5 m high, erect, spreading, or rarely ± prostrate; branches ± rigid, glabrous; older stems ± smooth, variously leafy. Leaves opposite, spreading to somewhat recurved, crowded, very shortly petiolate; lamina 3–8(–10) mm long, 1.5–3.0 mm wide, narrow elliptical to oblanceolate-obovate, thick, flat or ± concave, glabrous, venation obscure, midrib visible on abaxial surface, concolorous, not turning a distinctive bluish-green on drying, margins entire, apex blunt. Inflorescence erect, terminal or sometimes on very short lateral branchlets, loose heads of 3–8 flowers; involucre bracts 2–4, green, sessile, leaf-like, broader than the foliage leaves, elliptic-obovate, glabrous. Flowers dull yellow to greenish-yellow, rarely white, unisexual; pedicels short, densely pubescent; hypanthium and lobes glabrous. Staminate flowers: hypanthium 1.8–2.5 mm long, lobes 1.0–1.7 mm long, sub-erect to spreading; stamens 2, shorter than the lobes. Pistillate flowers: hypanthium 1.5–2.5 mm long, lobes 0.8–1.8 mm long, erect. Style enclosed. Fruit dry or slightly succulent, exposed or sometimes enclosed by the persistent hypanthium. Flowering & fruiting Aug.-Jun.

Tas. (BEL, FUR, KIN); also WA, SA, NSW, Vic. Scattered and local in the north-east of the state and more frequent on the islands of Bass Strait; from sea-level to c. 75 m alt. Found mainly in near-coastal areas on stabilised sand fore-dunes, open sandy heaths and rocky outcrops, or in low, open or scrubby vegetation to the landward of the coast.

The other subspecies, *P. serpyllifolia* subsp. *occidentalis* Rye (WA), differs from subsp. *serpyllifolia* in having stems hairy immediately below the inflorescences and the hypanthium slightly hairy internally.

**3 *Pimelea pygmaea*** F.Muell. & C.Stuart ex Meisn., *Linnaea* 26: 346 (1854) *Alpine Riceflower*

*Banksia pygmaea* (F.Muell. & C.Stuart ex Meisn.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: t. 104, no. 62 (1971); Heads, *Fl. Australia* 18: 118, fig. 52 (1990); Kirkpatrick, *Alpine Tasmania* 61: fig. 26e (1997); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 335 (2004).

Prostrate or dwarf shrubs, much branched, branching not dichotomous; main branches bearing short, erect flowering branchlets, 2–5(–10) cm high, the plants forming densely matted, cushion-like patches up to 50 cm diam.; older stems smooth, hairy, dead leaves persisting. Leaves mostly opposite, sessile, often crowded, ± erect and imbricate; lamina 2–4(–5) mm long, 1.0–2.5 mm wide, broadly oblong to ovate, concolorous, not turning a distinctive bluish-green on drying, coriaceous, flat or slightly concave, glabrous except for some long, sparse ciliate hairs near the apex, venation obscure, margins sometimes recurved, apex

blunt. Flowers solitary or rarely 2 together in the axils of the uppermost leaves, white, bisexual or pistillate; pedicels very short, hairy; involucre bracts absent or the flowers subtended by 2 bracts slightly smaller than the foliage leaves. Bisexual flowers: hypanthium 2–3 mm long, glabrous; lobes c. 2 mm long, spreading, usually glabrous adaxially, hairy abaxially. Pistillate flowers: hypanthium narrower than bisexual flowers, 1.5–1.7 mm long, glabrous; lobes c. 0.8 mm long, erect, hairy abaxially. Stamens 2, half as long as the lobes. Style exerted, c. half as long as the lobes. Fruit dry, enclosed. Flowering & fruiting Oct.–Feb.

Tas. (BEL, TCH, TSE); endemic. Locally abundant in drier or well-drained situations on the moorlands and open, montane heaths of the Central Plateau at high altitudes, c. 800–1000 m alt.

**4 *Pimelea milliganii*** Meisn., *Prodr. (DC.)* 14(2): 509 (1857)

*Silver Riceflower*

*Banksia milligani* (Meisn.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Kirkpatrick, *Alpine Tasmania* 57: fig. 21e (1997); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 333 (2004).

Small, much-branched shrubs to c. 75 cm high, branching conspicuously dichotomous, rigid, erect; densely tomentose with long, silvery-silky hairs, older branches glabrescent, marked with conspicuously prominent, tuberculate scars of fallen leaves. Leaves opposite, sessile, erect, crowded-imbricate; lamina 5–12 mm long, 3–5 mm wide, ovate or elliptical, flat, both surfaces densely covered with long, appressed, silvery-silky hairs, features of the lamina surfaces and margins obscured by the dense tomentum, apex blunt. Inflorescences terminal, erect, compact heads of c. 6–10 flowers; involucre bracts not differing from foliage leaves. Flowers white, bisexual (possibly rarely unisexual); very shortly pedicellate; hypanthium 5–8 mm long, densely hairy abaxially, glabrous adaxially; lobes 2.0–2.5 mm long, spreading or  $\pm$  recurved, densely hairy. Stamens 2, exerted, up to 1.5 mm beyond hypanthium throat. Style as long as the lobes. Fruit dry, enclosed. Flowering & fruiting Jan.–Apr.

Tas. (TCH, TWE); endemic. Rare, local about the summits of a few of the higher mountains of the central west coast, c. 800–1400 m alt. Found in low montane heaths and micro-shrubberies. *Pimelea milliganii* is similar to *Pimelea leiophylla* (see discussion below). Listed as *Rare* under *The Tasmanian Threatened Species Protection Act 1995*. The remains of old receptacle heads, often densely hairy, sometimes persist in the sinus of past seasons divergent branches.

**5 *Pimelea leiophylla*** A.M.Gray & M.Baker, *Muelleria* 35, 16 (2016)

*Freycinet Riceflower*

Small, erect to spreading shrubs, 0.3–1.5 m high;  $\pm$  dichotomously branched; branches slender; younger branches appressed silky-hairy; older stems sparsely silky-hairy, glabrescent, nodes prominent. Leaves pale to mid-green, opposite, decussate, almost sessile, spreading to sub-erect, or erect and  $\pm$  loosely appressed, often crowded on younger branches, distant or absent on older branches, lamina 5–12(–15) mm long, 3–5(–10) mm wide, broadly ovate to elliptic, flat; adaxial surface sparsely appressed silky-hairy, older leaves usually glabrescent; abaxial surface densely appressed villous to silky-hairy, hairs extending beyond margins, not turning bright bluish-green on drying, apex slightly recurved, acute or minutely apiculate. Inflorescence an erect, compact terminal, or sometimes lateral, head of 10–25(–30) flowers; involucre bracts 4–(8), slightly broader than the subtending leaves, indumentum as for foliage leaves. Flowers white to pale creamy-yellow, base of hypanthium sometimes with a distinctive pink flush; bisexual or functionally unisexual and the plants monoecious; pedicels very short, obscured by long, dense hairs; hypanthium 8–12(–15) mm long, densely appressed-hairy abaxially, hairs almost obscuring flower detail at anthesis, glabrous adaxially; lobes 3–5 mm long, spreading or slightly recurved, often  $\pm$  cucullate. Stamens 2, inserted at base of the outer sepals, equal to, or a little shorter than the lobes; filaments curving outwards and  $\pm$  appressed to lobes following dehiscence. Style slender, enclosed ( $\sigma$ ), or exerted, exceeding the lobes ( $\sigma$ + $\rho$ ). Fruit dry, enclosed by persistent base of hypanthium. Flowering Oct.–Feb.

Tas. (TSE); endemic. Uncommon, local in open, dry forests and scrubby heaths, chiefly on granitic soils and gravels amongst granite boulders on Freycinet Peninsula and Schouten Island; from sea-level to c. 450 m

alt. Similar to *Pimelea milliganii* but differing in the sparsely hairy adaxial leaf surfaces, the more numerous flowers of the inflorescence, larger flowers and the dense, villous hairs which almost obscure the hypanthium and the lobes. Differing also in the habitat, *P. milliganii* is uncommon at high altitudes on mountains of the west coast, whereas this species is restricted to lowland granitic soils on Freycinet Peninsula and Schouten Island, on the east coast.

**6 *Pimelea cinerea*** R.Br., *Prodr. Fl. Nov. Holl.* 361 (1810)

Grey Riceflower

*Pimelea gunnii* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 230 (1855) [as '*P. Gunnii*']. *Banksia cinerea* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: t. 215, no. 131 (1978); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 328 (2004).

Small, straggling shrubs c. 1.0–1.5 m high; branching not dichotomous, spreading to erect, ± rigid, densely hairy, the hairs long, spreading, older stems smooth, glabrescent, ± leafy. Leaves mostly opposite, spreading to sub-erect, not crowded, shortly petiolate; lamina 10–30 mm long, 4–10 mm wide, elliptic or sometimes ± oblanceolate, not turning distinctive bluish-green on drying, relatively thick, flat or the margins slightly recurved, discolorous, adaxial surface glabrous with the veins clearly visible, sparsely to densely hairy on the abaxial surface, the veins ± prominent, apex blunt or sometimes acute. Inflorescences erect, compact terminal heads of 8–10 flowers; involucre bracts scarcely differing from foliage leaves. Flowers white, bisexual; pedicels short, densely hairy; hypanthium (4–)6–9 mm long, woolly-hairy on the abaxial surface, glabrous adaxially, lobes (1.5–)3–4 mm long, spreading. Stamens 2, exerted, as long as the lobes. Style exerted, as long as the lobes. Fruit dry enclosed by the persistent hypanthium. Flowering & fruiting Nov.–Jun.

Tas. (BEL, TCH, TNS, TSE, TSR, TWE); endemic. Local and occasional, particularly in the west and south-east of the state, with some isolated occurrences in the north-east, from sea-level to c. 900 m alt. Occurs in clearings and at the margins of wet sub-montane forests and shrubberies.

**7 *Pimelea pauciflora*** R.Br., *Prodr. Fl. Nov. Holl.* 360 (1810)

Poison Riceflower

*Banksia pauciflora* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Entwisle, *Fl. Victoria* 3: 927, fig. 186j (1996); Harden, *Fl. New South Wales* 1, rev. edn: 380 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 333 (2004);

Small to medium shrubs c. 1–3 m high; branches slender, not dichotomous, ± rigid, glabrous, older stems smooth, sparsely leafy. Leaves opposite, scarcely crowded, subsessile; lamina 5–10(–20) mm long, 1–3 mm wide, narrow linear-elliptic to linear lanceolate, concolorous, not turning bright bluish-green on drying, thin, flat, margins entire, midrib conspicuous, lateral veins obscure apex acute. Inflorescence an erect, loose head of 3–8 flowers, terminating the main branches or sometimes on very short lateral branches; involucre bracts 2–4, green, sessile, shorter and broader than the foliage leaves, glabrous. Flowers yellowish to greenish-yellow, unisexual; pedicels very short, glabrous; hypanthium and lobes glabrous. Staminate flowers: hypanthium 1–3 mm long; lobes spreading, c. 1–2 mm long; stamens 2, as long as than lobes. Pistillate flowers: hypanthium 2.5–3.0 mm long; lobes erect, c. 0.5 mm long; style enclosed. Fruit scarlet-orange, slightly succulent, naked. Flowering & fruiting Oct.–Feb.

Tas. (BEL, FUR, TCH, TNM, TNS, TSR); also NSW, Vic. Locally common on the slopes of the central northern and north-eastern plateaus of the state, from sea-level to c. 750 m alt., particularly along the banks of streams and in open, grassy areas in sub-montane shrubberies. This species is poisonous.

**8 *Pimelea axiflora*** F.Muell. ex Meisn., *Linnaea* 26: 345 (1854), subsp. *axiflora*

Bootlace Bush

*Banksia axiflora* (F.Muell. ex Meisn.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Heads, *Fl. Australia* 18: 117, fig. 51 (1990); Entwisle, *Fl. Victoria* 3: 919, fig. 186l (1996); Harden, *Fl. New South Wales* 1, rev. edn: 380 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 328 (2004); Cochrane et al., *Flowers and Plants of Victoria and Tasmania* 94, pl. 455 (1980).

Shrubs to c. 3 m high; branches not dichotomous, slender, ± rigid, erect, glabrous or the younger stems minutely pubescent, older stems smooth, ± leafy. Leaves opposite or shortly petiolate; lamina 3–5(–8) cm long, 0.2–1.2 cm wide, linear to linear-lanceolate to oblong-elliptic, thin to almost membranous, flat or convex with the margins slightly recurved, glabrous, discolorous, mid green on the adaxial surface, paler on the abaxial surface, not turning bright bluish-green on drying, pinnate reticulate veins conspicuous. Inflorescences axillary, in compact heads of 2–8 flowers; involucre bracts 2–4, rarely 6, brown to greenish almost papery, partially hairy abaxially, shorter than the stem leaves, petiolate, elliptic to narrow elliptic. Flowers white or dull white; unisexual; pedicels short, hairy; hypanthium silky-hairy at the base, to almost glabrous above; lobes sparsely hairy to glabrous. Staminate flowers: hypanthium 3–6 mm long; lobes 1–3 mm long, spreading; stamens 2, shorter than the lobes. Pistillate flowers: hypanthium 2–5 mm long; lobes 1–2 mm long, erect; style exerted, a little longer than the lobes. Fruit dry, enclosed or with the apex slightly protruding. Flowering & fruiting Sep.–Dec.

Tas. (KIN); also NSW, Vic. In Tasmania, occurs only on King Island, from sea-level to c. 50 m alt., where it is found in moist situations in gullies and damp sclerophyll forest. Listed as *Endangered* under *The Tasmanian Threatened Species Protection Act 1995*.

There are three subspecies of *P. axiflora*. *Pimelea axiflora* subsp. *alpina* (F.Muell. ex Benth.) Threlfall occurs in restricted localities in montane areas of north-eastern Victoria. It differs from *P. axiflora* subsp. *axiflora* in being a smaller, more compact plant with smaller, thicker leaves and less hairy flowers, and glabrous bracts. *Pimelea axiflora* subsp. *pubescens* Rye which is a restricted taxon of New South Wales, differs from the others by having long hairs (to 1 mm long).

### 9 *Pimelea drupacea* Labill., *Nov. Holl. Pl.* 1: 10 (1805)

*Cherry Riceflower*

*Banksia drupacea* (Labill.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891); *Gymnococca drupacea* (Labill.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 73 (1845).

*Illustrations:* Heads, *Fl. Australia* 18: 115, fig. 43 (1990); Entwisle, *Fl. Victoria* 3: 923, fig. 187a (1996); Gilfedder et al., *The Nature of the Midlands* 121 (2003); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 329 (2004); Minchin, *Wildflowers of Tasmania – A Field Guide* 109, pl.162 (2005).

Small, often slender shrubs to c. 1.5 m high; branches ± rigid, not dichotomous, younger branches ± silky-hairy, older stems smooth, sparsely leafy. Leaves opposite, shortly petiolate; lamina 1–7 cm long, 0.25–1.5 cm wide, narrowly to broadly elliptical, thin, midrib and lateral veins conspicuous, discolorous, adaxial surface glabrous, abaxial surface paler, sometimes sparsely silky-hairy, not turning bright bluish-green on drying, flat or with the margins narrowly recurved, apex blunt or mucronulate. Inflorescences terminal or apparently axillary on very short lateral branchlets, compact heads of 4–12 flowers; involucre bracts 2, rarely 4, green, shorter than the subtending leaves. Flowers white or creamish-yellow, sometimes tinged with pink, bisexual; pedicels short, densely hairy; hypanthium 4–6 mm long, silky-hairy abaxially, glabrous adaxially; lobes 2–4 mm long, silky-hairy. Stamens 2, shorter than the lobes. Style almost as long as the lobes. Fruit black, sometimes red, succulent, naked, single or 3–6 in clusters. Flowering & fruiting Aug.–Apr.

Tas. (BEL, FUR, KIN, TCH, TNS, TSE, TSR, TWE); also Vic. Widespread and local to frequent in damp shrub-beries and forests, particularly in the south-east, west and north-west of the state, from sea-level to c. 850 m alt. This species is poisonous, particularly the fruit, apparently affecting the nerves controlling breathing (W.D. Jackson, pers. comm.)

### 10 *Pimelea filiformis* Hook.f., *London J. Bot.* 6: 280 (1847)

*Trailing Riceflower*

*Banksia filiformis* (Hook.f.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).



*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: t. 143, no. 85 (1973); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 330 (2004); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania* ed. 4, 119 (2008).

Small, spreading shrubs; branches very slender, lax, often prostrate and scrambling up to 50 cm or more, not dichotomous, smooth, leafy throughout. Leaves opposite,  $\pm$  distant, shortly petiolate; lamina 5–12 mm long, 2–6 mm wide, oblong-elliptical, thin, flat or slightly convex with the margins very shortly recurved, concolorous, not turning bright bluish-green on drying, midrib and reticulate veins conspicuous, apex blunt or mucronulate. Inflorescence of 6–8 flowers in fairly compact terminal heads or terminating short lateral branches, the inflorescence sometimes elongating into a short spike; involucre bracts undifferentiated from the stem leaves. Flowers white, or pink, particularly towards the base of the hypanthium, bisexual; pedicels short, sparsely hairy. Hypanthium 4–5 mm long, both surfaces glabrous or with scattered hairs; lobes 2–3 mm long. Stamen 1, filament erect, exceeding the lobes. Style exerted, exceeding the lobes. Fruit dry, enclosed. Flowering & fruiting Aug.–May.

Tas. (BEL, TNM, TNS); endemic. Restricted to a few scattered localities in the central north of the state, particularly in the upper River Tamar catchment. Found in open forests, along creek banks and drainage lines from sea-level to c. 400 m alt. Listed as *Rare* under *The Tasmanian Threatened Species Protection Act* 1995.

**11 *Pimelea micrantha*** F.Muell. ex Meisn., *Linnaea* 26: 351 (1854)

*Silky Riceflower*

*Pimelea curviflora* var. *micrantha* (F.Muell. ex Meisn.) Benth. *Fl. Austral.* 6: 32 (1873); *P. curviflora* subsp. *micrantha* (F.Muell. ex Meisn.) Threlfall, *Brunonia* 5: 184 (1983).

*Illustrations:* Entwisle, *Fl. Victoria* 3: 927, fig. 187f-g (1996); Harden, *Fl. New South Wales* 1, rev. edn: 387 (2000); Gilfedder *et al.*, *The Nature of the Midlands* 91 (2003).

Small shrubs 15–50 cm high; densely branched, branches  $\pm$  rigid, not dichotomous, younger stems densely white-hairy, older stems smooth, leafy. Leaves alternate, tending to opposite distally, shortly petiolate; lamina 2–10 mm long, 1–5 mm wide, elliptic to narrow elliptic, both surfaces silky-pubescent, grey-green, relatively thin, concolorous, flat, not turning bright bluish-green on drying, venation obscured, apex acute. Inflorescences 1 or more fairly compact heads of 3–9 flowers, terminating short branchlets, or axillary; involucre bracts absent. Flowers dull yellow or yellowish-brown, bisexual; pedicels very short, pubescent; hypanthium 2.5–3.5 mm long, densely pubescent abaxially, glabrous adaxially; lobes erect, c. 0.5 mm long. Stamens 2, inserted below lobes, subsessile in throat. Style enclosed. Fruit dry, naked or enclosed. Flowering & fruiting Nov.–May.

Tas. (FUR<sup>o</sup>, TNM); also WA, SA, NSW, Vic. Very localised in remnant native grassland vegetation on basalt soils in the Central Midlands. From sea-level to c. 250 m alt. The species is known from Tasmania from only two collections. Curtis (1967) cites Flinders Island as a Tasmanian locality for this taxon and a collection from this island exists at the National Herbarium of Victoria (AVH; not seen). It is quite possible that these records are a misidentification involving forms of the very closely related *P. curviflora*.

*Pimelea micrantha* is doubtfully specifically distinct from *P. curviflora* and had previously been relegated to subspecific status under the latter species (Threlfall 1983; Rye 1990). It has been included in this current treatment under its present status pending future, critical revision of the group. The possibility arises that *P. micrantha* may not be represented in Tasmania. See also discussion under *P. curviflora*.

**12 *Pimelea curviflora*** R.Br., *Prodr. Fl. Nov. Holl.* 362 (1810)

*Curved Riceflower*

*Banksia curviflora* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891); *Calyptrostegia curviflora* (R.Br.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg* 4:74 (1845). *Pimelea gracilis* R.Br., *Prodr. Fl. Nov. Holl.* 362 (1810); *Calyptrostegia gracilis* (R.Br.) Endl., *Gen. Pl.* [Endlicher] suppl. 4: 61 (1848); *Pimelea curviflora* subsp. *gracilis* (R.Br.) Threlfall, *Brunonia* 5: 185 (1983); *Pimelea curviflora* var. *gracilis* (R.Br.) Threlfall, *Fl. S. Austral.*, ed. 4, 4: 2147 (1986). *Pimelea curviflora* var. *sericea* Benth., *Fl. Austral.* 6: 31 (1873).

*Illustrations:* Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448b (1986), as *P. curviflora* var. *sericea*; Entwisle, *Fl. Victoria* 3: 919, fig. 187h-i (1996); Harden, *Fl. New South Wales* 1, rev. edn: 386-7 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 329 (2004).

Small, erect shrubs, 15–150 cm high, very variable; branches not dichotomous, older branches brown, ± rigid, sparsely leafy, sparsely to densely pilose, younger branchlets green, conspicuously, comparatively slender. Leaves usually opposite on younger branches, ± alternate on older branches; shortly petiolate; lamina 2–10(–15) mm long, 1–3(–5) mm wide, narrowly elliptic to oblanceolate-obovate, relatively thin, discoloured, sparsely to densely hairy on the abaxial surface, adaxial surface glabrous or with sparse, shorter hairs, not turning bright bluish-green on drying, margins flat or narrowly revolute, apex acute or mucronulate. Inflorescences terminal and/or axillary, 5–many flowered compact heads; involucre bracts absent or undifferentiated from stem leaves. Flowers greenish-yellow, bisexual or pistillate; pedicels hairy; hypanthium and lobes with sparse, appressed hairs. Bisexual flowers: hypanthium 3–6 mm long, slender, often slightly curved; lobes spreading, 0.5–3.0 mm long; stamens 2, inserted below the lobes; subsessile in throat. Pistillate flowers: hypanthium 1–3 mm long; lobes 1.2–2.0 mm long. Style enclosed. Fruit dry, enclosed. Flowering & fruiting Oct.–Mar.

Tas. (BEL, FUR, KIN, TNM, TNS, TSE, TSR); also in, SA, Qld, NSW, Vic. Common in dry, open forests, shrubberies and grasslands, usually on fertile soils in the central north, north-east and Derwent Valley; from sea-level to c. 750 m alt. On Flinders Island it has been reported as spreading and invading pastures. This species is poisonous.

Threlfall (1983), followed by Rye (1990), recognised six varieties for *P. curviflora* and this classification has met with varied acceptance across Australia (see APC, APNI). The major differences separating these varieties are not clear-cut and so there is much difficulty in distinguishing between them. In Tasmania, only plants referable to *P. curviflora* var. *sericea* had been recognised. However, the boundaries between *P. curviflora* var. *curviflora* and *P. curviflora* var. *sericea* are arbitrary and intermediates are frequently encountered. Accordingly, no varieties of *P. curviflora* are recognised in this treatment. Extensive field collections, observations and critical research will be necessary to resolve this problem and that discussed above under *P. micrantha*.

### 13 *Pimelea sericea* R.Br., *Prodr. Fl. Nov. Holl.* 361 (1810)

*Mountain Riceflower*

*Banksia sericea* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891). *Pimelea lanata* Hensl., *Botanist* t.61 (1838), *nom. illeg.*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 2: t. 44, no. 73, 74 (1969); Cochrane et al., *Flowers and Plants of Victoria and Tasmania* 116, pl. 580 (1980); Kirkpatrick, *Alpine Tasmania* 50: fig. 21c (1997); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 335 (2004); Minchin, *Wildflowers of Tasmania – A Field Guide* 109, pl.160 (2005); Simmons et al., *A Guide to Flowers and Plants of Tasmania* ed. 4, 31 (2008).

Shrubs 25–75 cm high, much-branched, compact, branches ± rigid, partially dichotomous; silky-hairy except for the adaxial leaf surfaces, older stems finely ridged, sparsely silky-hairy. Leaves sessile or very shortly petiolate, mostly opposite, crowded; lamina (5–)7–13 mm long, (3–)5–10 mm wide, broadly elliptical to elliptic-ovate, discoloured, adaxial surface glabrous, ± shining, abaxial surface silvery-silky with dense, straight, appressed hairs that extend beyond the margins, margins flat, venation obscure, not turning bright bluish-green on drying, apex blunt. Inflorescences terminal, erect, compact, 15–many flowered heads; involucre bracts ± undifferentiated from stem leaves. Flowers white, or pink particularly in bud, bisexual or very rarely pistillate; pedicels shortly hairy; hypanthium 6–10 mm long, adaxial surface sparsely hairy, abaxial surface densely pubescent; lobes 2–4 mm long, pubescent, erect to half spreading. Stamens 2, erect, as long as the lobes. Style exerted, as long as the lobes. Fruit dry, enclosed. Flowering & fruiting Aug.–Jun.

Tas. (BEL, TCH, TNS, TSE, TSR); endemic. Widespread and frequent in montane shrubberies, moorlands, and on talus slopes on dolerite mountains in the central west, south and the north-east of the state; from c. 500–

1400 m alt. The remains of old receptacle heads, often densely hairy, sometimes persist in the sinus of past seasons divergent branches.

**14 *Pimelea nivea*** Labill., *Nov. Holl. Pl.* 1: 10 (1805)

*Bushman's Bootlace*

*Heterolaena nivea* (Labill.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 73 (1845); *Banksia nivea* (Labill.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891). *Pimelea incana* R.Br., *Prodr. Fl. Nov. Holl.* 361 (1810); *Heterolaena incana* (R.Br.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 73 (1845); *P. nivea* var. *incana* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 332 (1855). *Pimelea incana* var. *erecta* Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 5: 299 (1853).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 3: 621, fig. 132 (1967); Stones & Curtis, *The Endemic Flora of Tasmania* 1: t. 4, no. 5, 6 (1967); Cochrane et al., *Flowers and Plants of Victoria and Tasmania* 116, pl. 582 (1980); Heads, *Fl. Australia* 18: 116, fig. 45 (1990); Gilfedder et al., *The Nature of the Midlands* 121 (2003); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 333 (2004); Minchin, *Wildflowers of Tasmania – A Field Guide* 107, pl. 157 (2005); Simmons et al., *A Guide to Flowers and Plants of Tasmania* ed. 4, 119 (2008).

Erect, slender, often straggling shrubs 0.5–2.0 m high; usually open and sparingly branched, ± rigid but often arching, sometimes dichotomously branched, occasionally ± compact, older stems finely ridged, glabrescent to smooth; all parts except older stems and the adaxial leaf surfaces densely white-tomentose with crisped, felty hairs. Leaves opposite, very shortly petiolate, spreading, sometimes crowded but often distant on long, slender branches; lamina (3–)5–15 mm long, (3–)5–15 mm wide, often with a distinct change in form and size for 2–3 nodes below the peduncle, broadly elliptical to almost orbicular but occasionally obovate or narrow elliptical, margins shortly recurved, often thick, flat or ± convex, adaxial surface glabrous, dark green, shining, abaxial surface densely white-tomentose, not turning bright bluish-green on drying, apex rounded or emarginate. Inflorescences terminal, erect, compact 15–many flowered heads; involucre bracts scarcely differentiated from stem leaves. Flowers white or cream, occasionally clear pink, bisexual or very rarely pistillate; pedicels long-hairy; hypanthium 8–10 mm long, adaxial surface glabrous or sparsely hairy, abaxial surface densely hairy; lobes 2–3 mm long, adaxial surface sparsely pubescent, spreading or somewhat reflexed. Stamens, 2, shorter or longer than the lobes. Style exerted, exceeding the lobes. Fruit enclosed, dry. Flowering & fruiting Aug.-Feb.

Tas. (BEL, FUR, TNM, TNS, TSE, TSR, TWE); endemic. Widespread and abundant in well-drained situations in heaths, shrubberies, open forests and on dry, rocky slopes in the central north, east coast and south-east of the state; from sea-level to c. 1200 m alt. The remains of old receptacle heads, often densely hairy, sometimes persist in the sinus of past seasons divergent branches.

The green bark, when peeled from the plant, is extremely tough and is indeed able to be used as an emergency bootlace or for other tying purposes. This species makes an attractive garden specimen if carefully pruned.

**15 *Pimelea ligustrina*** Labill., *Nov. Holl. Pl.* 1: 9, t.3 (1805), subsp. **ligustrina**

*Tall Riceflower*

*Calyptrostegia ligustrina* (Labill.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 74 (1845); *Banksia ligustrina* (Labill.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891).

*Illustrations:* Cochrane et al., *Flowers and Plants of Victoria and Tasmania* 120, pl. 603 (1980); Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448i (1986); Heads, *Fl. Australia* 18: 118, fig. 53 (1990); Entwisle, *Fl. Victoria* 3: 927, fig. 188b (1996); Harden, *Fl. New South Wales* 1, rev. edn: 381 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 332 (2004).

Variable, erect shrubs 1–2 m high; branching often dichotomous, branches slender, ± rigid, glabrous except for the inflorescence and upper leaf axils, older branches often slightly tuberculate. Leaves opposite sessile to very shortly petiolate; lamina 2–4(–6) cm long, 0.5–1.5 cm wide, lanceolate to narrow ovate, or narrowly to broadly elliptical, thin, midrib and lateral veins conspicuous, discolorous, abaxial surface usually a little paler than the adaxial surface, flat, or the margins slightly recurved, not turning bright bluish-green on drying,

apex acute. Inflorescences terminal, compact, many-flowered almost spherical heads, usually on recurved, naked peduncles, often 2–6 cm long and subtended by 2 initiate branches; involucre bracts often purplish, 4–8, broadly lanceolate or broadly elliptical, shorter than the flowers. Flowers white, occasionally pinkish, bisexual or pistillate; pedicels shortly hairy; hypanthium, glabrous adaxially, with long and short hairs abaxially; lobes hairy abaxially. Bisexual flowers: hypanthium 6–13 mm long; lobes spreading, 1–4 mm long. Pistillate flowers: hypanthium and lobes a little shorter. Stamens 2, often exerted beyond the lobes. Style exerted, longer than the stamens. Fruit dry, enclosed. Flowering & fruiting Oct.-Jul.

Tas. (BEL, KIN, TCH, TNS, TSE, TSR, TWE); also SA, Qld, NSW Vic. Widespread, frequent to occasional in wet forests and shrubberies, particularly in the north, north-east and south-east of the state; from sea-level to c. 950 m alt. The remains of old receptacle heads, often densely hairy, sometimes persist in the sinus of past seasons divergent branches.

The species has two other subspecies. *Pimelea ligustrina* subsp. *ciliata* Threlfall occurs in southern New South Wales and north-eastern and eastern Victoria. It differs from subsp. *ligustrina* in having reddish-brown involucre bracts that are not reflexed in the fruiting stage and the receptacle not elongating in fruit. *Pimelea ligustrina* subsp. *hypericina* (Cunn.) Threlfall from northern and central coastal New South Wales differs in having the peduncles bearing short, fine hairs below the involucre bracts.

**16 *Pimelea humilis*** R.Br., *Prodr. Fl. Nov. Holl.* 361 (1810)

*Dwarf Riceflower*

*Banksia humilis* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891). *Pimelea tasmanica* Gand., *Bull. Soc. Bot. France* 60: 419 (1913).

*Illustrations:* Cochrane *et al.*, *Flowers and Plants of Victoria and Tasmania* 123, pl. 621 (1980); Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448h (1986); Entwisle, *Fl. Victoria* 3: 927, fig. 188e (1996); Harden, *Fl. New South Wales* 1, rev. edn: 384 (2000); Gilfedder *et al.*, *The Nature of the Midlands* 121 (2003); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 331 (2004).

Small shrubs, 5–35 cm high; much branched, branches not dichotomous, ± soft, erect or ascending, younger stems densely silky-villous, older stems ± smooth, sparsely leafy. Leaves opposite, sessile to shortly petiolate, crowded; lamina 5–16 mm long, 1–9 mm wide, elliptic to narrowly elliptic-oblong, flat, glabrous or the younger leaves sparsely silky-hairy, concolorous or the abaxial surface somewhat paler, not turning bright bluish-green on drying. Inflorescences erect, terminal, compact heads of 10-many flowers; involucre bracts 4–6, sessile, a little broader than the foliage leaves, abaxial surface glabrous, adaxial surface sparsely pubescent nearer the midrib. Flowers creamy-white, bisexual or pistillate; pedicels hairy; hypanthium glabrous at the basal abaxial portion, densely hairy above, glabrous adaxially. Bisexual flowers: hypanthium 10–15 mm long; lobes 1–5 mm long, spreading, hairy abaxially. Pistillate flowers: hypanthium and lobes a little shorter. Stamens 2, erect, c. as long as the lobes or a little shorter. Style exerted. Fruit dry, enclosed. Flowering & fruiting Aug.-Jun.

Tas. (BEL, FUR, TCH, TNM, TNS, TSE, TSR, TWE); also SA, NSW, Vic. Widespread and frequent, particularly at lower altitudes, in drier heaths, grasslands, rocky places and dry, open forests. Found from sea-level to c. 800 m alt.

**17 *Pimelea glauca*** R.Br., *Prodr. Fl. Nov. Holl.* 360 (1810)

*Smooth Riceflower*

*Calyptrastegia glauca* (R.Br.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 74 (1845); *Banksia glauca* (R.Br.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891), *nom. illeg.*

*Illustrations:* Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448g (1986); Entwisle, *Fl. Victoria* 3: 927, fig. 188f (1996); Harden, *Fl. New South Wales* 1, rev. edn: 381 (2000); Gilfedder *et al.*, *The Nature of the Midlands* 121 (2003); Whiting *et al.*, *Tasmania's Natural Flora*, ed. 1, 331 (2004).

Small, much branched shrubs, 10–50 cm high, glabrous except for the inflorescence; not dichotomously branched, branches ± rigid, small nodes prominent on older branches. Leaves mostly opposite, sessile to

shortly petiolate, often crowded and  $\pm$  imbricate; lamina 3–15 mm long, 1.5–6 mm wide, ovate-lanceolate to narrow elliptic, glabrous, bluish-green or somewhat glaucous, thick, flat or  $\pm$  concave, midrib often prominent on abaxial surface, concolorous, not turning bright bluish-green on drying, apex deflexed-mucronate. Inflorescences terminal, compact, erect, 8-many flowered; involucre bracts 4, sessile, ovate to ovate-lanceolate, wider than the foliage leaves,  $\pm$  erect, inner pair glabrous or silky-hairy adaxially, margins ciliate, outer pair glabrous abaxially. Flowers white, bisexual; pedicels hairy; hypanthium 6–15 mm long, silky-villous in the abaxial upper portion,  $\pm$  glabrous below; lobes 2–4 mm long, glabrous adaxially. Stamens 2, shorter than the lobes. Style exserted. Fruit dry. Flowering & fruiting Sep.-Jun.

Tas. (BEL, FUR, KIN, TNM, TSE.); SA, Qld, NSW, Vic. Widespread and locally frequent in coastal dry heaths, and in open forests and grassy places inland. Found from sea-level to c. 250 m alt. This species is poisonous.

**18 *Pimelea linifolia*** Sm., *Spec. Bot. Nov. Holland* 31, t.11 (1794)

*Slender Riceflower*

*Calyptrostegia linifolia* (Sm.) C.A.Mey., *Bull. Sci. Acad. Imp. Sci. Saint-Pétersbourg* 4: 74 (1845); *Banksia linifolia* (Sm.) Kuntze, *Revis. Gen. Pl.* 2: 583 (1891). *Pimelea linoides* A.Cunn., *Geogr. Mem. New South Wales [Field]* 326 (1825); *P. linifolia* subsp. *linoides* (A.Cunn.) Threlfall, *Brunonia* 5: 142 (1983).

*Illustrations:* Cochrane et al., *Flowers and Plants of Victoria and Tasmania* 70, pl. 320 (1980); Threlfall, *Fl. S. Austral.* 2, ed. 4: 859, fig. 448j (1986); Heads, *Fl. Australia* 18: 115, fig. 40 (1990); Entwisle, *Fl. Victoria* 3: 927, fig. 188l (1996); Harden, *Fl. New South Wales* 1, rev. edn: 382 (2000); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 332 (2004); Minchin, *Wildflowers of Tasmania – A Field Guide* 109, pl. 161 (2005).

Small, often sparse shrubs 0.25–1 m high, very variable, rarely prostrate or decumbent; often distinctly dichotomously branched, branches slender,  $\pm$  rigid, older stems glabrous, small nodes scarcely prominent. Leaves opposite, shortly petiolate, spreading or sub-erect to erect and often appressed; lamina 0.5–1(–2.5) cm long, 1–3(–5) mm wide, elliptic to oblanceolate, adaxial surface glabrous, dark green to bluish-green, often drying to a  $\pm$  vivid blue-green, abaxial surface paler, apex apiculate or blunt. Inflorescences of (10–)25-many; flowers in compact,  $\pm$  deflexed to pendulous heads, infrequently erect or sub-erect, terminating main and short lateral branches; involucre bracts 4, green or often yellowish to reddish, glabrous to sparsely hairy adaxially, particularly along the midrib, sessile, lanceolate or narrow elliptical to ovate. Flowers creamy-white, often pinkish, bisexual or pistillate; pedicels densely hairy; hypanthium abaxial surface pubescent, adaxial surface glabrous or pubescent; lobes hairy. Bisexual flowers: hypanthium 7–15 mm long, slender, lobes spreading, 2–5 mm long. Pistillate flowers: hypanthium and lobes a little smaller. Stamens 2, exserted, as long as the lobes. Style exserted, as long as the lobes. Fruit greenish, dry, enclosed. Flowering & fruiting almost throughout year.

Tas. (all regions except MIS); also SA, Qld, NSW, Vic. Widespread and locally abundant throughout the state, with the exception of the dryer areas of the central and eastern Midlands. Found in damp, sandy heaths and shrubberies in open, moist forests from sea-level to c. 1000 m alt. The remains of old receptacle heads, often densely hairy, often persist in the sinus of past seasons divergent branches. This species is poisonous.

Threlfall (1983), followed by Rye (1990) and APC, identified four subspecies of *P. linifolia*, two of which occurred in Tasmania: viz. subsp. *linifolia* and subsp. *linoides*. The two subspecies were distinguished mainly on the colour of the leaves. The typical variety being medium green to dark green on the abaxial surface and subsp. *linoides* having dark bluish-green or dark green on the abaxial surface. Although some specimens do exhibit the distinctive blue-green leaves of subsp. *linoides*, many do not and the character cannot be applied consistently to many specimens and considerable variation is evident in populations throughout the state. For this reason the subspecies, have not been recognised in this treatment. Further critical research and field studies are required to clarify the taxonomic problems within this species.

### 3 \* DAPHNE

**Matthew L Baker**

*Daphne* L., *Sp. Pl.*, 1: 356 (1753).

Deciduous or evergreen shrubs; glabrous or pubescent. Leaves alternate or occasionally opposite, shortly petiolate, glabrous or pubescent. Inflorescence of terminal or axillary panicles, racemes or heads, with or without bracts. Flowers sessile or very shortly pedicellate, bisexual or unisexual. Hypanthium tubular or urceolate. Sepals 4 or 5, petaloid, erect or spreading. Corolla absent. Stamens 8 or 10, inserted in the hypanthium tube. Nectary disc present. Ovary with terminal style; stigma discoid or capitate. Fruit usually a fleshy drupe.

A genus of about 95 species, native to Europe and northern Africa and extending through to northern India and eastern and south-eastern Asia. Several species are cultivated, mainly in the cool regions of Australia, the most common being the fragrant, winter-flowering *Daphne odora*. *Wikstroemia indica* (L.) C.A. Mey. which is native to the Northern Territory, Queensland and New South Wales, was first described as *D. indica* L.

Key reference: Feliner (1997); Herber (2003).

**1 \* *Daphne laureola*** L., *Sp. Pl.*, 1: 356 (1753)

*Spurge Laurel*

*Illustrations:* Phillips and Rix, *Shrubs* 38 (1989); Baker, *Plant Protection Quarterly* 28(1): 3, fig. 1–2 (2013).

A small, glabrous shrub to 1.5 m high; stems ascending to erect, outer stems often decumbent and rooting where they touch the ground. Leaves alternate, somewhat crowded at the ends of branches, spreading to erect; lamina (20–)35–122(–133) mm long, (6.5–)10–28(–31) mm wide, oblanceolate, ± flat, discolorous, dark glossy green adaxially, paler abaxially, glabrous. Inflorescence of axillary, bracteate racemes, with 5–10 ± fascicled flowers, each flower subtended by a deciduous leaf-like bract. Flowers greenish-yellow, abaxial surface glabrous, hypanthium 7–10 mm long, Sepals c.  $\frac{1}{3}$  as long as the hypanthium tube, spreading. Stamens 8, in two rows; anthers included within the hypanthium. Fruit a small, black, ovoid drupe, 8–11 mm long. Flowering Sep.–Nov.; fruiting Dec.–Jan.

Tas. (TSE), native throughout Europe and northern Africa (Morocco and Algeria), naturalised in North America and New Zealand. Known in Tasmania from only one population at Fern Tree where it grows as a weed in bushland and unkempt gardens. The leaves are usually only present at the top 15–20 cm of the stems. Below this, leaf scars are prominent on the stem where old leaves have been shed.

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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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