



## 71 ELAEOCARPACEAE <sup>1</sup>

Alan M Gray <sup>2</sup>

Small to large trees or small, ericoid shrubs, sometimes straggling; glabrous or with an indumentum of simple and/or gland-tipped hairs, or stellate (not in Tas.). Leaves opposite, alternate or whorled, entire or regularly serrate; stipules absent or small and soon caducous (not in Tas.). Inflorescence terminal or axillary, simple or complex racemes, cymes, or flowers solitary. Flowers bisexual, actinomorphic. Receptacle hypogynous, sometimes enlarged, forming a lobed, glandular disc between the petals and the stamens. Sepals 4–5, valvate, free or rarely united at the base. Petals (3)4–5, white, pink or mauve, deeply divided or lobed, or sometimes entire. Stamens (6–)8–∞; filaments free or slightly united at the base; anthers basifixed, more or less continuous with, and often longer than, the filaments, 2 or 4-locular, dehiscing by a terminal pore or apical slits, terminal and basal appendages sometimes present. Gynoecium superior; ovaries 2-many, fused; placentation axile; ovules 2-many per cell; style slender, simple; stigma entire or sometimes 2-lobed. Fruit a drupe, a berry or a somewhat compressed 2-valved capsule that dehisces loculicidally. Seed obovoid to cylindrical, often bearing a coiled, aril-like appendage; endosperm present.

A family of 12 genera and about 605 species found mainly in tropical and temperate southern regions, including Madagascar, though absent from continental Africa. In Australia there are 8 genera and about 77 species; 3 genera and 9 species in Tasmania.

Various studies have indicated that the Australian family Tremandraceae (included *Platytheca*, *Tetratheca*, *Tremandra*) is sister to or nested within Elaeocarpaceae (Savolainen *et al.* 2000a, b; Soltis *et al.* 2000; Crayn *et al.* 2006). Crayn *et al.* (2006) concluded that Tremandraceae are a dry-adapted clade, related to rainforest taxa within Elaeocarpaceae, that dates back to the Palaeocene, but radiated during the Oligo-Miocene with the onset of greater aridity in Australia. Coode (2004) and Culham (2008) include Tremandraceae in Elaeocarpaceae in world accounts of that family; which is followed here. Elaeocarpaceae are placed in the Oxalidales close to Cephalotaceae (SW WA), Brunelliaceae (Central & S America) and Cunoniaceae (tropical & temperate S Hemisphere).

Some members in the family are of considerable horticultural merit. Several species of *Tetratheca* have relatively large, attractively coloured flowers, many with a strong characteristic fragrance; most eastern species are easily propagated and easily grown. Species of *Elaeocarpus* are also recognised as worthy horticultural specimens, in particular, *E. reticulatus*, with its flamboyant white or pink, fragrant, fringed flowers and striking blue fruits. *Aristotelia peduncularis*, despite its rather straggling habit, produces dainty white flowers followed by characteristic heart-shaped berries ranging in colour from white through crimson to black.

Synonymy: Aristoteliaceae, Tetratheceae, Tremandraceae.

Key reference: Coode (2004).

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

<sup>1</sup> This work can be cited as: Gray AM (2011). Elaeocarpaceae, **version 2019:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 10 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/treatments/elaecarpaceae/>

<sup>2</sup> Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

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|---|----------------------|
| 1. Small to medium trees, 5–15(–20) m tall; petals deeply fringed or many-lobed; fruit a fleshy, blue to blackish drupe (King Is., Flinders Is.)              | 2 <b>Elaeocarpus</b> |
| 1: Small, wiry or straggling shrubs, to 4 m tall; petals entire or 3-lobed; fruit a dry capsule or ± fleshy, white, pink, crimson or black berry (widespread) | 2                    |
| 2. Petals entire, pink-mauve, rarely white; fruit a dry capsule   | 1 <b>Tetratheca</b>  |
| 2: Petals usually 3-lobed, white, with reddish longitudinal stripes; fruit a fleshy berry   | 3 <b>Aristotelia</b> |

## 1 TETRATHECA

*Tetratheca* Sm., *Spec. Bot. New Holland* 1: 5, t. 2 (1793).

Small, perennial, ericoid shrubs, erect or procumbent, usually pubescent, sometimes with glandular hairs, or sometimes glabrous. Leaves opposite, alternate or occasionally whorled, sessile or shortly petiolate; lamina simple, glabrous or glandular-pubescent, margins entire or shallowly toothed. Flowers axillary, solitary or few together in the upper axils, often with a strong, sweet smell. Sepals 4 or 5 (not in Tas.). Petals 4 or 5 (not in Tas.), pink to mauve or, occasionally white, margins entire, involute in pairs in bud and each enclosing 2 stamens, not persistent in fruit. Stamens 8 or 10 (not in Tas.), in a single whorl; anthers basifixed, usually longer than the filament, usually dehiscent by a 2-lipped pore at the apex of an anther tube, without terminal or basal appendages. Ovary 2-locular; style slender; stigma inconspicuous. Fruit a flattened capsule, dehiscent longitudinally at the margins. Seeds minutely brown-hairy; appendage cream-coloured, coiled.

A genus of about 43 species, confined to Australia and found in all States except the Northern Territory. The hairs of *Tetratheca* and related genera (former Tremandraceae) are discussed in detail by Downing *et al.* (2008). Details of the anthers and indumentum are important for the accurate determination of some species.

Key references: Thompson (1976), Jeanes (1996).

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|--|--------------------------------|
| 1. Plants glabrous, sometimes with a sparse indumentum on younger parts  | 2                              |
| 1: Plants always hairy, ± throughout   | 4                              |
| 2. Erect, robust plants (Freycinet Pen.)   | 7 <b>T. sp. Freycinet Pen.</b> |
| 2: Slender, procumbent or weakly ascending plants (widespread)   | 3                              |
| 3. Anthers without distinct apical constriction of the tube, distal end ± expanded below large pore (Asbestos Ra., N Tas.) | 3 <b>T. gunnii</b>             |
| 3: Anther with distinct apical constriction of the tube below small pore (widespread)                                      | 4 <b>T. procumbens</b>         |
| 4. Leaves distinctly whorled   | 5                              |
| 4: Leaves alternate or sometimes randomly clustered  | 6                              |
| 5. Leaves broadly oblong-elliptic to rhomboid-orbicular, 5–12 mm wide, 8–14 mm long, margins ± flat and entire             | 1 <b>T. ciliata</b>            |
| 5: Leaves elliptic to oblong, 4–7(–10) mm long, 1.5–3.0 mm wide, margins narrowly recurved and ± crenate                   | 6 <b>T. sp. Flinders Is.</b>   |
| 6. Glandular hairs present   | 2 <b>T. labillardierei</b>     |
| 6: Glandular hairs absent  | 5 <b>T. pilosa</b>             |

**1 *Tetratheca ciliata*** Lindl., *Three Exped. Australia [Mitchell]* 2: 205 (1838) *Northern Pinkbells*

*Tetratheca ciliata* var. *alba* Ewart, *Fl. Victoria* 713 (1931), *nom. illeg. non* Guilf. (1911).

*Illustrations:* Gardner & Murray, *Fl. New South Wales* 3: 77 (1993); Jeanes, *Fl. Victoria* 4: 128, fig. 2h (1999); Whiting *et al.*, *Tasmania's Natural Flora* 336 (2004).

Slender, often straggling shrubs, semi-erect or spreading, up to 1 m high; older stems terete, irregularly vertically ridged, glabrous or minutely pilose with short, white hairs and, particularly on younger stems, longer, less dense purplish, glandular hairs to c. 1 mm long. Leaves in whorls of 3–5, rarely opposite or alternate, sessile or very shortly petiolate; petioles often thick, stout; lamina 5–10(–15) mm long, 3–5(–8) mm wide, broadly elliptical to broad obovate-orbicular or rhomboid, apex acute or obtuse, margins entire or sometimes narrowly recurved; adaxial surface glabrous or with short, stiff hairs and occasional longer glandular hairs, particularly near and along the margins; abaxial surface pale, usually glabrous. Flowers solitary in the upper axils, often terminating short lateral branches; peduncles as long as or longer than the leaves. Sepals purplish, 2–3 mm long, broadly ovate, spreading or reflexed in the upper part, abaxial surface with short white hairs and scattered glandular hairs, deciduous. Petals pink to lilac-purple, often with darker longitudinal striations, rarely white, 8–12(–15) mm long, obovate-oblong, deciduous. Stamens 2.8–4.5 mm long; body of anther 2–3 mm long, apex  $\pm$  tapering into the anther tube. Ovary velvety, sometimes also with scattered, short glandular hairs. Capsule 4–8 mm long, ovate to broad ovate. Seeds  $\pm$  obovoid, hairy. Flowering & fruiting Aug.–Jan

Tas. (FUR, TNS); also in SA, NSW, Vic. Uncommon, scattered, mainly in near-coastal, localities in the north of the state, usually in sandy heaths or lightly forested woodlands. Listed as Rare under *The Tasmanian Threatened Species Protection Act 1995*.

## 2 *Tetratheca labillardierei* Joy Thomps., *Telopea* 1: 189 (1976)

*Glandular Pinkbells*

*Tetratheca glandulosa* Labill., *Nov. Holl. Pl.* 1(12): 96, t. 123 (1805), *nom. illeg. non* Sm. (1804). *Tetratheca glandulosa* var. *angustifolia* Schuch, *Synopsis Tremandrearum* 34 (1853).

*Illustrations:* Curtis & Morris, *The Student's Flora of Tasmania* 1, 2nd edn: 260, fig. 17 (1975); Gardner & Murray, *Fl. New South Wales* 3: 76 (1993); Jeanes, *Fl. Victoria* 4: 128, fig. 22b (1999); Whiting *et al.*, *Tasmania's Natural Flora* 337 (2004); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania*, 4th edn, 122 (2008).

Small shrubs, 20–80(–100) cm high, branches erect or spreading; stems terete, sometimes with fine vertical ridges, hairy with scattered, fine, white hairs and copious but evenly spaced, patent, glandular hairs to c. 1.5 mm long, distributed mainly along the fine ridges. Leaves alternate, rarely sub-opposite, subsessile; petioles short, broad; lamina 3–6(–15) mm long, 1.5–3(–4) mm wide, oblanceolate to elliptical-oblong, rarely sub-orbicular, apex acute or obtuse, margins narrowly revolute, unevenly and distantly toothed-undulate, with glandular hairs, mainly on the distant teeth; adaxial surface glabrous; abaxial surface mealy, very finely pubescent and with scattered, long, glandular hairs, particularly along the prominent veins. Flowers solitary in the upper axils, on peduncles as long as or a little longer than the leaves. Sepals 1.5–3.0 mm long, broad lanceolate to orbicular, abaxial surface glandular-hairy, persistent. Petals, pink or lilac, with darker striations, rarely white, 6–12 mm long, broadly obovate or ovate,  $\pm$  deciduous. Stamens purplish with yellow tips, 3–4 mm long; body of anther 1.5–2.5 mm long, apex tapering into the anther tube. Ovary velvety but also with scattered, glandular hairs. Capsule 4–6 mm long, obcordate to broad cuneate. Seeds  $\pm$  cylindrical, hairy. Flowering & fruiting Jul.–May.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also NSW, Vic. Locally common throughout the state, particularly abundant in the east, in sandy heaths and open woodlands, on sandstone, from sea-level to c. 900 m alt.

## 3 *Tetratheca gunnii* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 36, t. 7B (1855)

*Shy Pinkbells*

*Tetratheca pilosa* var. *calva* Rodway, *Tasman. Fl.* 10 (1903), *p.p.* *Tetratheca pilosa* Labill. *sensu* W.M.Curtis & D.I.Morris, *The Student's Flora of Tasmania* 1: 60 (1975), *p.p.*

*Illustration:* Whiting *et al.*, *Tasmania's Natural Flora* 337 (2004).

Small, slender shrubs, 10–30 cm high, with many weak stems arising from a possibly rhizomatous rootstock, some stems  $\pm$  erect, arising near the base and some branches  $\pm$  trailing with the tips weakly ascending; stems terete or slightly ridged, covered with minute white tubercles, some of which with minute white hairs or longer, gland-tipped hairs to c. 1.5 mm long. Leaves alternate, rarely sub-opposite, sub-erect or

spreading, often distant along the stem, sub-sessile; petiole distinct, thick; lamina 2–6 mm long, 0.5–1.5 mm wide, narrow elliptical to linear-lanceolate, apex blunt, often glandular and surmounted by short, stiff hairs, margins revolute almost to the midrib; adaxial surface with scattered, long, scarcely gland-tipped hairs, mainly along the margins; abaxial surface hardly visible. Flowers solitary, rarely 2 together, in distal axils, forming long, leafy racemes, on peduncles as long as or a little shorter than the leaves but lengthening a little as the flower matures. Sepals brown, c. 1 mm long, concave, glabrous or with a few short hairs, deciduous. Petals pink or deep lilac, rarely white, 3.5–4.5 mm long, elliptical to obovate, occasionally ovate, deciduous. Stamens c. 2 mm long; body of anther 1.5 mm long, apex expanded below large apical pore, anther tube absent. Ovary with short, shining hairs and a few glandular hairs. Capsule 2.5–4.0 mm long, obovate. Seeds not seen. Flowering & fruiting Sep.-Nov.

Tas. (TNS); endemic. Known only from a very localized area in the Asbestos Range in the central north of the state, in dry, heathy/grassy woodland. Listed as Endangered under *The Tasmanian Threatened Species Protection Act 1995*. *Tetratheca gunnii* and *T. procumbens* may be insufficiently distinct as to warrant specific separation (see discussion under *T. procumbens* below).

#### 4 *Tetratheca procumbens* Gunn ex Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 35, t. 7A (1855)

*Spreading Pinkbells*

*Tetratheca calva* var. *pulchella* F.Muell. ex Schuch., *Synopsis Tremandrearum* 27 (1853). *Tetratheca pilosa* var. *procumbens* Benth., *Fl. Austral.* 1: 132 (1863). *Tetratheca pilosa* var. *calva* Rodway, *Tasman. Fl.* 10 (1903), p.p.

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 5: t. 332, No. 172 (1975); Kirkpatrick, *Alpine Tasmania* 50, fig. 21a (1997); Jeanes, *Fl. Victoria* 4: 128, fig. 22e (1999); Whiting et al., *Tasmania's Natural Flora* 338 (2004).

Small, procumbent to weakly ascending shrubs, with few to many wiry stems arising from an often thick, woody rootstock, 5–20(–30) cm long; stems terete, often irregularly ridged, and appearing almost quadrangular near the nodes, glabrous or somewhat scabrous with glandular or tubercle based hairs, particularly on younger stems. Leaves often ± distant, alternate, sub-opposite to irregularly whorled; petiole c. 0.5 mm long; lamina 2–8 mm long, 0.5–1.5(–2) mm wide, linear to linear-lanceolate, apex acute, margins revolute, sometimes to the midrib; adaxial surface scabrous; abaxial surface glabrous or with scattered hairs along the midrib and near the margins. Flowers usually solitary in the mid and upper leaf axils, forming long but sparse, leafy racemes, on peduncles longer than leaves and elongating to c. 4 mm in mature flower. Sepals brown, c. 1 mm long, ovate, adaxial surface hairy, particularly along the margins, abaxial surface glabrous, deciduous. Petals lilac-pink, often with darker longitudinal striations, occasionally white, 3.0–4.5 mm long, obovate to elliptical, deciduous. Stamens c. 2.0–2.5 mm long; body of anther 1.0–1.5 mm long, apex constricted below small apical pore. Ovary with scattered, fine short hairs and some glandular hairs. Capsule 2–4 mm long, obovate to obcordate. Seeds oblong. Flowering & fruiting Sep.-Feb.

Tas. (BEL, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also Vic. (where rare and recorded from only two montane localities). Scattered to locally common in sub-alpine heaths and open grasslands and also at lower altitudes in grassy woodlands and shrubby heathlands, from sea-level to c. 1200 m alt.

*Tetratheca gunnii* and *T. procumbens* may be insufficiently distinct as to warrant specific separation. The major feature separating the two taxa involves the character of the anthers, in particular the relative size of the terminal pore. Jeanes (1996) argued that this is a sufficiently valid character to maintain the two taxa as distinct species. Ronald C. Gunn, in a note attached to the holotype of *T. gunnii* at Kew (for type details see APNI), argued that the two species should be regarded as distinct on the grounds that *T. gunnii* maintained a distinctive appearance when compared, in the field, with *T. procumbens* and *T. pilosa sensu lato*. As Gunn wrote: “I have sought in vain for distinct characters and yet failing in the leaves and flowers – there is nothing to fall back upon but the general aspect of the plant in a state of Nature”. Careful study of herbarium collections from widespread populations of *T. procumbens* have demonstrated that the habit of the two taxa are often indistinguishable, as are some variations of the indumentum of the ovary and vegetative parts. However, the two species are retained here pending further critical evaluation, particularly of freshly collected flowering material and detailed field research.

*Tetratheca procumbens* is also at times difficult to distinguish from *T. pilosa* (see also Jeanes 1996, 1999), and it is evident that further detailed field research is required to determine if the two species are distinct.

### 5 *Tetratheca pilosa* Labill., *Nov. Holl. Pl.* 1: 95, t. 122 (1805)

*Hairy Pinkbells*

*Tetratheca calva* F.Muell. ex Schuch., *Synopsis Tremandrearum* 25 (1853). *Tetratheca calva* var. *hispidula* Schuch., *op. cit.* 27 (1853). *Tetratheca glandulosa* Sm. var. *glabrata* Schuch., *op. cit.* 34 (1853). *Tetratheca ericifolia* var. *pilosa* (Labill.) Tate, *Trans. Proc. & Rep. Roy. Soc. South Australia* 12: 62 (1889); *T. ericifolia* var. *pilosa* (Labill.) Maiden & Betche, *Census N.S.W. Pl.*: 119 (1916), *nom. illeg. non* Labill. (1889).

*Illustrations*: Whiting *et al.*, *Tasmania's Natural Flora* 338 (2004); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania*, 4th edn, 122 (2008).

Variable, slender to robust shrubs, often with a stout, woody, much branched root-stock; stems erect to spreading, up to 60 cm high, terete or with fine longitudinal ridges, hispid with fine erect or retrorse, white to brown tubercle-based hairs especially along the ridges. Leaves alternate, occasionally opposite or in irregular whorls of 3–5; petiole short but distinct; lamina 2–15 mm long, 1–5 mm wide, linear to broadly elliptic-ovate or sometimes oblanceolate, apex blunt or with a fine, short point, margins flat or recurved or ± revolute to the midrib; adaxial surface glabrous or with numerous, erect hairs and scattered setae to c. 1–2 mm long, particularly along the midrib and nearer the margins, the hairs often reduced to their tuberculate bases; abaxial surface, where visible, often paler, glabrous or with fine, erect hairs. Flowers solitary or rarely 2(3) together in the axils of the upper leaves, often crowded and forming short, leafy racemes; peduncles shorter than or as long as the leaves, lengthening as the flower matures. Sepals dark, appearing scarious, 1.0–2.5 mm long, narrow to broadly ovate, glabrous or very sparsely glandular-hairy, deciduous. Petals pale to dark pink-mauve, rarely white, 3–12 mm long, elliptical to obovate, deciduous. Stamens purple, 1.5–4.5 mm long; body of anther 1.0–2.5 mm long, tapering into the anther tube. Ovary glabrous or variously hairy, with scattered short, stiff, shining hairs or long, hollow, shining hairs often to 1 mm long. Capsule 3.0–4.5 mm long, obovate to cuneate or cordate, often beaked. Seeds oblong, appressed-hairy. Flowering & fruiting Sep.-Jan.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also SA, Qld, NSW, Vic. Widespread and locally common throughout the state, in dry forests and woodlands and grassy-heathy open country on soils derived mainly from dolerite, from sea-level to c. 750 m alt. *Tetratheca pilosa* and *T. procumbens* are at times difficult to distinguish (see discussion under *T. procumbens* above).

In Tasmania, the two subspecies are not always clearly or readily separable, either in the field or with herbarium material. Intermediates are commonly encountered. The two subspecies are easily separated morphologically in Victoria where they occupy distinct geographic areas (Jeanes 1999). Further critical research and field collections are necessary to clarify the status of the subspecies along with *T. sp. Flinders Is.* (*T. Rudman HO510551*) *Tas Herbarium* (see below). The following key is largely based on that published by Thompson (1976) and Jeanes (1999).

1. Leaves alternate, occasionally some opposite, 2–15 mm long, 1.0–1.5 mm wide, margins closely revolute; ovary glabrous or pubescent, with short gland-tipped hairs, rarely bearing long, hollow, shining hairs 5a subsp. *pilosa*
- 1: Leaves alternate, opposite or, often in irregular whorls of 3–4, 5–8(–11) mm long, (1–)2–3(–5) mm wide, margins flat, recurved or revolute, especially near apex; ovary bearing numerous long, hollow, shining hairs 5b subsp. *latifolia*

#### 5a *Tetratheca pilosa* Labill. subsp. *pilosa*

*Hairy Pinkbells*

*Illustrations*: Jeanes, *Fl. Victoria* 4: 128, fig. 22c (1999); Gardner & Murray, *Fl. New South Wales* 3: 78, fig. 14a (1999).

Erect to spreading or procumbent shrubs to 60 cm high. Leaves alternate, occasionally some opposite; lamina 2–15 mm long, 1.0–1.5 mm wide, linear to very narrowly ovate, apex blunt or with a short, acute point, margins usually closely revolute, often obscuring the midrib; adaxial surface glabrous or with numerous, minute, erect hairs and scattered tubercles with long setae, c. 1.5 mm long; abaxial surface usually

obscured. Peduncles 1–9 mm long in the mature flower. Petals dark to pale pink, rarely white, 3–12 mm long and variable in width, broadly ovate to elliptical. Ovary glabrous or pubescent, the hairs scattered, slender, gland-tipped, rarely with long, hollow, shining hairs. Flowering & fruiting Sep.-Jan.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also SA, NSW, Vic. Distribution and ecology in Tasmania as for species.

**5b *Tetratheca pilosa* subsp. *latifolia*** Joy Thomps., *Telopea* 1: 213 (1976)

*Broadleaf Hairy Pinkbells*

*Illustrations:* Jeanes, *Fl. Victoria* 4: 128, fig. 22d (1999); Gardner & Murray, *Fl. New South Wales* 3: 78, fig. 14b (1999).

Erect shrubs, 30–50 cm high. Leaves alternate, opposite or often in irregular whorls of 3–4; lamina 5–8(–11) mm long, (1–)2–3(–5) mm wide, narrowly to broadly elliptical to elliptical-oblongate, rarely almost orbicular, the base often obscurely serrate, apex blunt or with a small mucro, margins flat or loosely recurved, or revolute especially nearer the apex; adaxial surface usually with sparsely distributed setae to 1 mm or so long but sometimes reduced to the glandular bases; abaxial surface paler, glabrous or with a few, fine, erect hairs. Peduncles 4–7 mm long in the mature flower; petals dark pink to lilac, 5–8 mm long, variable in width but with the broadest part above the middle. Ovary with short, scattered glandular hairs and often dense, long, hollow, shining hairs. Flowering & fruiting Sep.-Jan.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also NSW, Vic. Distribution and ecology in Tasmania as for species.

**6 *Tetratheca* sp. Flinders Is. (T.Rudman HO510551) Tas Herbarium**

Slender, erect, sparsely branched shrubs, 15–45 cm high; stems terete or slightly ridged, pilose, with spreading, whitish to fawn, tubercle-based hairs that are 0.5–1.5 mm long, interspersed with scattered, very short, fine hairs. Leaves mostly in fairly distant whorls of 3(–5), sometimes alternate or sub-opposite; petiole 0.5–1.0 mm long, thick; lamina 2–5 mm long, 1–3 mm wide, elliptical, apex blunt to sub-acute, often  $\pm$  minutely glandular, margins recurved to scarcely revolute, undulate, but appearing  $\pm$  sub-crenate, a tubercle-based hair tipping each crenation; adaxial surface sparsely pilose with tubercle-based hairs similar to those of the stems; abaxial surface rusty-mealy, glabrous, or with a few sparse, long, tuberculate hairs along the midrib. Flowers solitary in the upper leaf axils, appearing crowded due to the whorled leaves; peduncles 3–5 mm long, scarcely lengthening as the flower matures, bearing a few, short, white hairs particularly on the slightly expanded upper portion below the receptacle. Sepals purple-brown, c. 1.0–1.5 mm long, ovate, margins slightly ciliolate in the upper half, deciduous. Petals dark pink to lilac with darker longitudinal striations, 3–7 mm long, obovate to elliptical-oblong. Stamens 2–3 mm long; anthers 1.5–2.0 mm long, tapering into the anther tube. Ovary moderately to densely pilose, with white, hollow, antrorse hairs, some as long as or longer than the ovary. Capsule 2.5–4.5 mm long, obovate-oblong. Seed not seen. Flowering & fruiting Oct.-Jan.

Tas. (FUR); endemic. Apparently confined to Flinders Island where it is found in heaths and open woodlands. Further extensive collections from Flinders Island, and critical revision of *T. pilosa* (see above), are required to resolve the status of this entity.

**7 *Tetratheca* sp. Freycinet Pen. (A.C.Rozefelds 323) Tas Herbarium**

Erect, usually robust, shrubs, often much branched above the base, 20–80(–100) cm high; stems terete, very finely ridged, glabrous or with minute tubercles, sometimes with minute, scattered, white hairs on younger stems, older stems with prominent, raised leaf scars. Leaves alternate to sub-opposite, rarely in irregular whorls of 3–4, tending to be confined to the distal portions of the stems, sub-erect to spreading; petiole short, thick, c. 1–1.5 mm long; lamina (5–)8–15 mm long, 1–2(–4.5) mm wide, elliptical to oblongate or narrowly obovate, base narrowed, apex blunt or shortly mucronate, margins narrowly recurved to revolute, sometimes almost to the midrib, rarely flat, entire; adaxial surface glabrous or occasionally minutely tuberculate; abaxial surface paler, glabrous, the midrib usually prominent. Flowers solitary, rarely 2

together in the axils of the upper leaves; peduncle 3–8(–10) mm long, recurved, lengthening in the fruiting stage. Sepals purplish, 1–2 mm long, broadly ovate, glabrous, deciduous. Petals pale to deep lilac-pink, often with darker longitudinal striations, 5–10(–12) mm long, broadly elliptical to obovate. Stamens 3–5 mm long; anthers 2.5–4.0 mm long, tapering into the anther tube. Ovary glabrous, or rarely with very scattered, short, white hairs that are c. 0.5 mm long and a few tubercle-based glandular hairs near the apex. Capsule 2.5–4.5 mm long, obovate-obcordate. Seed not seen. Flowering & fruiting Aug.-Dec.

Tas. (TSE); endemic. Confined to the Freycinet Peninsula on the Tasmanian east coast, in dry heaths and open woodlands, on granitic soils and gravels, from sea-level to c. 500 m alt.

## 2 ELAEOCARPUS

*Elaeocarpus* L., *Sp. Pl.* 1: 515 (1753).

Trees or shrubs, rarely buttressed at the base, glabrous or pubescent; crown often conical. Leaves alternate, petiolate, simple; lamina with serrated margins (Tas.) or smooth, domatia present or absent. Inflorescences axillary, a raceme, borne in the distal portions of the branches. Flowers bisexual, sometimes polygamous. Sepals 4–5. Petals 4–5, deeply fringed or many-lobed, sometimes entire or shallowly lobed (neither in Tas.), valvate or imbricate. Stamens numerous, inserted on receptacle inside a glandular disc; anthers basifixed, usually longer than the filaments, often awned, dehiscing by terminal slits. Ovary 2–5 locular; style subulate; stigma 2-lobed. Fruit a drupe, blue to blackish, globose to ovoid; mesocarp variously fleshy; endocarp often bony, deeply sculptured in pits and wrinkles. Seed: testa smooth, appendage absent.

A genus of about 200 species found in tropical Africa, South-East Asia, the South-West Pacific and northern and eastern Australia. In Australia there are 21 species.

Key reference: Coode (1984).

**1 *Elaeocarpus reticulatus*** Sm., *Cycl. (Rees)* 12, no. 6 (1809) [as *E. reticulata*]

*Blueberry Ash*

*Elaeocarpus cyaneus* Sims, *Bot. Mag.* 42: t. 1737 (1815). *Perinka reticulata* (Sm.) Raf., *Sylva Tellur.* 60 (1838).

*Illustrations:* Jeanes, *Fl. Victoria* 3: 323, fig. 64d-f, pl. 7 (facing p. 372) (1996); Wrigley & Fagg, *Australian Native Plants*, 4th edn, 528 (1996); Harden, *Fl. New South Wales* 1, rev. edn: 317 (2000); Whiting *et al.*, *Tasmania's Natural Flora* 110 (2004).

Tall shrubs or small trees, to 5–15(–20) m tall, glabrous or sparsely pubescent. Leaves alternate; petioles 10–20 mm long, swollen at junction with lamina; lamina 5–13(–15) cm long, 1–4 cm wide, elliptic to oblong-elliptic, both surfaces light green, often turning red prior to falling, glabrous, strongly reticulate veined, some small domatia often present at junctions of main and subsidiary veins, base attenuated, apex acute-acuminate or obtuse, margins serrate. Inflorescence axillary, a pendulous raceme, flowers numerous; pedicels 5–10 mm long. Sepals 5–10 mm long, lanceolate, sparsely appressed-hairy. Petals white, or flushed pink, 8–10 mm long, deeply incised-fringed or lobed, ± glabrous or the margins ciliolate near the base. Stamens 12–15; anthers with terminal awn; awn ciliolate. Fruit light to dark blue, shining, ovoid to globose, c. 10–12 mm long, edible but unpalatable. Flowering & fruiting (often concurrently) Oct.-Jan.

Tas. (FUR, KIN); also Qld, NSW, Vic. In Tasmania, occurring only on King and Flinders Islands, where found mostly in moist forests, gullies and shaded sites, from sea-level to c. 300 m alt. Listed as Rare under the *Tasmanian Threatened Species Protection Act 1995*. A particularly attractive, ornamental small tree that is easily grown and maintained.

## 3 ARISTOTELIA

*Aristotelia* L'Her., *Stirp. Nov.* 31, t. 16 (1784), *nom. cons.*

Synonymy: *Friesia* DC., *Prodr. (DC.)* 1: 520 (1824), *nom. illeg., non* Spreng. (1818).

Small, often straggling shrubs to 4 m tall, or trees up 15 m tall (not in Tas.), glabrous or with simple hairs. Leaves opposite, rarely in 3's or alternate, petiolate, younger leaves sometimes almost ternate; lamina simple, entire or serrate, basal venation sometimes ternate. Inflorescence axillary, racemes or panicles or rarely a 3-flowered cyme or flowers solitary. Flowers bisexual or unisexual and then plants dioecious. Sepals 4–5. Petals 4–5, white, with reddish longitudinal stripes, imbricate at tip, 3-lobed, notched or  $\pm$  entire. Stamens 4–15, inserted above the raised glandular disc-like portion of the receptacle; anthers basifixed, as long as the filaments, linear, narrowed and pointed, or awned at the apex, dehiscent by 2 sub-apical lateral slits. Ovary 2–4 locular; style simple; stigma entire or slightly notched. Fruit a berry. Seeds with or without a short terminal appendage.

A genus of 5 species found in Australia (2 spp.), New Zealand (2 spp.) and South America (Chile to Peru; 1 sp.). In Australia, *A. australasica* F.Muell. is confined to north-eastern New South Wales and *A. peduncularis* to Tasmania.

Key reference: Coode (1985).

**1 *Aristotelia peduncularis*** (Labill.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 52 (1855) *Heart Berry*

*Elaeocarpus peduncularis* Labill., *Nov. Holl. Pl.* 2: 15, t. 155 (1806); *Friesia peduncularis* (Labill.) DC., *Prodr. (DC.)* 1: 520 (1824).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 1: t. 8, No. 12 (1967); Curtis & Morris, *The Student's Flora of Tasmania* 1, 2nd edn: 91, fig. 25, (1975); Whiting et al., *Tasmania's Natural Flora* 110 (2004); Simmons et al., *A Guide to Flowers and Plants of Tasmania*, 4th edn, 58 (2008).

Slender, often straggling shrubs, sparsely branched, to 4 m tall. Leaves opposite to sub-opposite, occasionally alternate or in whorls of 3, tending to be clustered toward the distal portions of the branches; petioles 0.5–10 mm long; lamina 1.5–8.0 cm long, (5–)8–15(–20) mm wide, lanceolate or narrow elliptical to broadly ovate, glabrous, usually simple but occasionally deeply pinnately divided into 3–4 pairs of narrow, serrated lobes, margins serrate, base usually rounded, apex acute to acuminate, adaxial surface often shining, abaxial surface paler. Flowers axillary, solitary or 2(3) together, pendulous, on long slender pedicels up to 40 mm long; bracts 4–6, clustered in the axils at the base of the pedicel. Sepals 6–8 mm long, lanceolate. Petals white, longer than the sepals, broadly cuneate, deeply 3-lobed, usually with a reddish striation on the inner surface, below each notch. Stamens 12, in groups opposite the sepals, inserted at the summit of the disc-like portion of the receptacle which is lobed and finely hairy; filaments pubescent; anthers narrowed at the apex and forming a short terminal awn extending beyond the 2 sub-apical slits. Fruit a berry, white, pink, crimson or black, shining, 1.0–1.5 mm long, heart-shaped, thinly fleshy, surmounted by the slightly enlarged receptacle. Flowering Oct.–Dec.; fruiting Jan.–Mar.

Tas. (BEL, KIN, TCH, TNS, TSE, TSR, TWE); endemic. Scattered to locally frequent, particularly in the south of the state, in wet forests and shrubberies, particularly along river banks and similar moist, shaded places, from sea-level to c. 1100 m alt. An attractive specimen plant that requires considerable pruning to maintain.

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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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