



## 105 ERICACEAE <sup>1</sup>

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Shrubs or small trees, rarely cushion plants, herbs, climbers or lianes, evergreen or deciduous (not in Tas.), sometimes epiphytic, very rarely achlorophyllous and/or rhizomatous (not in Australia). Leaves alternate, opposite, whorled or pseudowhorled, simple, stipules absent, sometimes sheathing at base, often pungent, venation palmate or parallel, rarely reticulate. Inflorescence a spike, cluster of spikes, raceme or panicle, or flowers solitary in axils. Flowers regular or nearly so, bisexual, sometimes functionally unisexual, rarely unisexual, (3-)4-5(-7)-merous, subtended by 1 to many imbricate bracts and usually 2 bracteoles. Sepals imbricate, persistent. Corolla usually tubular, campanulate or urceolate, rarely fused into an operculum (*Richea*) or petals free; lobes erect to revolute, valvate or rarely imbricate. Stamens equal or double the number of petals, rarely fewer, if same number then alternating with corolla lobes; filaments adnate to corolla tube or free; anthers free, rarely adnate, usually opening via a single longitudinal slit or terminal pores. Nectary (hypogynous disk) present, rarely absent. Carpels (1-)4-5(-12); ovary superior or inferior (not in Tas.), 1-11-locular, with 1-several ovules per locule, usually subtended by distinct or united nectaries; style simple. Fruit a septicidal or loculicidally dehiscent capsule, a berry or a drupe, occasionally separating into pyrenes. Seeds usually numerous and small; endosperm fleshy, well developed.

Ericaceae are found throughout the world but are absent from the lowlands in tropical areas. There are approximately 130 genera and 4100 species. Australia is a major centre of diversity for the family with approximately 45 genera and close to 600 species.

Ericaceae are placed in the Ericales with a suite of rather small families; it forms a clade with Cyrillaceae (USA, S America) and Clethraceae (SE Asia to Malesia, Madeira, Americas), and this clade is sister to a clade containing Sarraceniaceae (N and S America), Roridulaceae (S Africa) and Actinidiaceae (NE Qld, Malesia to SE Asia, Americas). The relationships of the family has been the subject of much research, the results of which indicated that Ericaceae was not monophyletic with Empetraceae and Epacridaceae nested within it, and so a broader circumscription of the Ericaceae has been adopted (see Kron & Chase 1993; Kron 1996; Kron *et al.* 1999a, 1999b, 2002; Crayn *et al.* 1996, 1998; Stevens *et al.* 2004, and references cited therein).

The family is classified into 8 subfamilies (see Kron *et al.* 2002; Stevens *et al.* 2004 & references cited therein), with the Epacridoideae (formerly known as the Epacridaceae) being a major component of the flora of southern Australia including Tasmania. Only two other subfamilies have Australian natives: Vaccinioideae (*Gaultheria* in E Australia; *Agapetes* in NE Qld) and Ericoideae (*Rhododendron* in NE Qld). Ericoideae and a fourth subfamily, Arbutoideae, are also represented in Australia by naturalised taxa (see below).

The family contains many horticultural species including those of *Rhododendron* (includes Azaleas), *Erica*, *Arbutus*, as well as many native species of *Epacris*. *Vaccinium corymbosum* L. (Blueberry), *V. macrocarpon* L. (Cranberry) and a host of other species and forms of *Vaccinium* L. (e.g., Bilberry, Whinberry, Whortleberry, Blaeberry, Farkleberry, Mortiña, Deerberry, Cowberry, Longonberry, Foxberry) are grown commercially and/or used in preserves and cooking. Some species, notably of *Erica*, *Calluna* and *Rhododendron*, are serious environmental weeds.

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In this treatment no attempt has been made to make the descriptions of the subfamilies completely and directly comparable given the great diversity found outside Australia. Only key features, largely following Kron *et al.* (2002) and Stevens *et al.* (2004), have been provided.

Synonymy: Arbutaceae, Azaleaceae, Empetraceae, Epacridaceae, Prionotaceae, Rhododendraceae, Stypheliaceae.

Key references: Stevens *et al.* (2004).

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

1. Stamens (2) 4 or 5	subfam. 4 Epacridoideae
1: Stamens 8 or 10	2
2. Shrub or subshrub; leaves scale-like or narrow-linear, ericoid, 0.1–2.0 cm long; flowers 4-merous	subfam. 2 Ericoideae
2: Shrub or small tree; leaves narrow-elliptical to broadly-elliptical or lanceolate or almost orbicular, 0.3–16.0 cm long; flowers 5-merous	3
3. Petals 35–45 mm long; fruit a dry capsule, not surrounded by a persistent calyx	subfam. 2 Ericoideae (Rhododendron)
3: Petals 2.5–10.0 mm long; fruit either a dry capsule and then surrounded by fleshy calyx, or a fleshy berry	4
4. Tall erect shrub or small tree; fruit a fleshy berry, not surrounded by fleshy calyx; stems with gland-tipped hairs	subfam. 1 Arbutoideae
4: Weak shrub; fruit a capsule surrounded by fleshy calyx; stems with acicular hairs	subfam. 3 Vaccinioideae

## ERICACEAE SUBFAM. 1 \* ARBUTOIDEAE

Bark usually flaking, the surface smooth. Leaves alternate (in Tas.), not ericoid, epidermis not lignified, margins often serrulate, convolute in bud. Inflorescence terminal, eperulate (not covered in scales). Flowers 5-merous (in Tas.). Calyx persistent. Corolla urceolate, deciduous. Stamens twice the number of petals: filaments swollen at base; anthers with paired reflexed awns, almost smooth, dehiscing by terminal pores or short slits. Stigma slightly lobed. Fruit brightly coloured, fleshy, indehiscent.

A subfamily of 4 genera and approximately 80 species confined largely to the Northern Hemisphere; 1 species naturalised in Australia.

Synonymy: Arbutaceae.

### 1 \* ARBUTUS

*Arbutus* L., *Sp. Pl.* 1: 395 (1753).

Evergreen trees or shrubs. Leaves alternate, petiolate, simple. Inflorescence terminal, a bracteate raceme or panicle; bracteoles absent. Sepals 5, fused at base. Corolla urceolate; lobes 5, short, recurved to revolute. Ovary superior, papillate. Stamens 10; filaments woolly; anther appendage narrow, awn-like. Fruit a globose berry, surface papillate.

A genus of 10 species native to North and Central America, Western Europe and the Mediterranean region. 1 species naturalised in Australia.

1 \* *Arbutus unedo* L., *Sp. Pl.* 1: 395 (1753)

*Irish Strawberry Tree, Strawberry Tree*

*Illustrations:* Jessop, *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1011, Fig. 502a (1986); Walsh, *Fl. Victoria* 3: 512, Fig. 104e-g (1996); Spencer, *Horticultural Flora of South-eastern Australia* 2: 484 (1997); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 242 (2006).

Shrub or tree, to 10 m tall. Young stems with spreading gland-tipped hairs, bark flaky. Leaves 3.0–9.5 cm long, 1.5–3.5 cm wide, ovate to obovate, adaxial surface dark green and glabrous, abaxial surface paler and

with scattered hairs along midvein, margins serrate or rarely entire. Inflorescence a raceme or panicle 2–9 cm long; bracts 2–5 mm long, acute. Sepals approximately 1.5 mm long, broad-deltate, obtuse. Corolla white or pinkish, 8–10 mm long; lobes 0.5–1.0 mm long, rounded, strongly recurved. Berry orange-red when ripe, 13–22 mm diameter, skin rough with conical tubercles. Seeds flattened-ellipsoid, somewhat winged. Flowering Apr.–Aug.

Tas., (TNM, TWE?); also naturalised in SA, NSW?, Vic.; native to southern Europe and Ireland. Sparingly naturalised near Legana (Midlands) and often persisting in abandoned gardens (e.g. near Strahan), from sea-level to c. 400 m elevation. The fruit is used in preserves and to flavour liqueurs.

## ERICACEAE SUBFAM. 2 \* ERICOIDEAE

Leaves alternate, opposite or whorled, ericoid or not, not lignified, margins entire. Inflorescence terminal or in axillary clusters, perulate (covered in scales) or eperulate; scales not scarious. Flowers 4–5-merous (in Tas.). Calyx deciduous. Stamens twice number of petals; anthers lacking appendages; pollen with viscin threads. Fruit a septicidal capsule.

A subfamily of nearly 1000 species and 19 genera that are classified into 5 tribes. Of the subfamily only *Rhododendron* is native to Australia with 1 or 2 species found in north-eastern Queensland. *Rhododendron* and 2 other genera are also naturalised in Australia.

Synonymy: Azaleaceae, Rhododendraceae.

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|---|-----------------------|
| 1. Leaves large, 6–16 cm long, plane, elliptical; flowers 5-merous; petals 35–45 mm long            | 2 <i>Rhododendron</i> |
| 1: Leaves scale-like or narrow-linear, ericoid, to 2 cm long; flowers 4-merous; petals 2–10 mm long | 2                     |
| 2. Leaves scale-like, 1–2 mm long, appressed to stem; petals shorter than sepals                    | 3 <i>Calluna</i>      |
| 2: Leaves narrow-linear, 3–20 mm long, spreading or appressed; petals longer than sepals            | 4 <i>Erica</i>        |

## 2 \* RHODODENDRON

*Rhododendron* L., *Sp. Pl.* 1: 392 (1753).

Synonymy: *Azalea* L., *Sp. Pl.* 1: 150 (1753).

Evergreen or deciduous (not in Australia) trees or shrubs; rarely epiphytes (not in Australia). Leaves alternate though sometimes in pseudowhorls, petiolate, simple. Inflorescence usually terminal, a bracteate umbel-like cluster, rarely flowers solitary and axillary; bracteoles absent. Sepals 5, fused at base, not persistent. Corolla funnel-like, campanulate, or tubular or rotate, deciduous, often 5-lobed or two-lipped, much longer than sepals. Stamens (5–)10(–20); anther without awns. Ovary superior. Fruit a capsule, splitting from top.

A genus of approximately 900 species and literally 1000's of cultivars (see Spencer 1997). Found in the northern temperate regions and especially South-East Asia and Malesia with 1 or 2 species in north-eastern Queensland. Only 1 species appears to be naturalised in Australia.

1 \* *Rhododendron ponticum* L., *Sp. Pl.*, ed. 2, 1: 562 (1762)

*Rhododendron*

*Illustrations*: Spencer, *Horticultural Flora of South-eastern Australia* 2: 500 (1997).

Large, dense evergreen shrub to 1.5(–5.0 in gardens) m tall. Leaves 6–16 cm long, 2.5–4.5 cm wide, elliptical, dark, glossy, paler on abaxial surface, margin smooth. Inflorescence a terminal umbel-like cluster, to 12 cm across. Corolla dull purple, paler in throat and with brown spots, 3.5–5.0 cm across, 3.5–4.5 cm long, widely funnel-shaped; lobes spreading and longer than tube. Stamens 10. Capsule 12–17 mm long. Flowers & fruits collected in Nov.

Tas. (TWE); native to the Iberian Peninsula, Bulgaria, Turkey, Caucasus, Lebanon; naturalised in W Europe (where it is a widespread weed). A commonly planted species that has become naturalised at Queenstown and Strahan. Found spreading near gardens and in *Melaleuca squarrosa*/*Pittosporum bicolor* scrub, from sea-level to c. 200 m elevation.

### 3 \* CALLUNA

*Calluna* Salisb., *Trans. Linn. Soc. London* 6: 317 (1802).

Evergreen shrubs. Leaves ericoid. Inflorescence a terminal spike-like cluster arranged on 1 side of stem, made up of axillary and solitary flowers; pedicels each bearing 4 or more bracteoles. Flowers 4-merous. Corolla ± bell-shaped, persistent, shorter than sepals. Stamens 8; anthers spurred. Ovary superior. Fruit a capsule

A monotypic genus confined to Europe and Turkey.

1 \* *Calluna vulgaris* (L.) Hull, *Brit. Fl.* ed. 2 (Hull), 1: 114 (1808)

Ling, Heather

*Erica vulgaris* L., *Sp. Pl.* 1: 352 (1753).

*Illustrations:* Spencer, *Horticultural Flora of South-eastern Australia* 2: 485 (1997); Richardson et al., *Weeds of the South-East, an Identification Guide for Australia* 242 (2006).

Slender, shrubs to 75(-100) cm tall. Stems minutely pilose to pilose. Leaves sessile, opposite, arranged in 4 ranks, scale-like, adpressed, 1–2 mm long; lamina glabrous or pubescent, base with two short projections, margin revolute, apex rounded. Pedicels as long as leaves; bracteoles ovate. Calyx pink to deep purple, petaloid, rarely white; lobes approximately 4 mm long, somewhat scarious and rigid, slightly spreading, persisting with fruit. Fruit almost spherical, 2.0–2.5 mm diameter. Flowering & fruiting Aug.–Mar.

Tas. (TCH, TNS, TSE, TSR); also naturalised in New Zealand; native of Eurasia. A widespread though scattered weed of the Central Plateau, Northern Slopes and the south-east, where found on nature strips, neglected paddocks, roadsides and adjacent heathy scrub, from sea-level to c. 1200 m elevation. This species is also an invasive weed in New Zealand. A large number of cultivars are available (see Spencer 1997).

### 4 \* ERICA

*Erica* L., *Sp. Pl.* 1: 352 (1753).

Synonymy: see Stevens et al. (2004).

Evergreen shrubs or small trees. Leaves whorled, usually linear, margins revolute making leaves appearing to be terete. Inflorescence a terminal umbel or raceme, or axillary cluster, or a leafy panicle, or flowers solitary; bracteoles 2-several. Flowers 4-merous. Sepals free, shorter than petals. Corolla cylindrical, globose, campanulate or urceolate, persistent in fruit; lobes usually shorter than tube. Stamens 8, inserted between lobes of nectary (hypogynous disk); anthers without appendages. Fruit a loculicidal capsule.

A genus of approximately 860 species in Africa, Madagascar, the Middle East, Arabian Peninsula and Europe. Approximately 90% of species are confined to southern Africa. The genus is widely cultivated and there are a large number of horticultural forms (see Spencer 1997). A large number of species persist and the true number of naturalised taxa is unknown. Some species, e.g. *E. lusitanica*, are widespread and invasive weeds and pose an environmental management challenge.

Curtis (1963) included *E. × willmorei* Knowles & Westcott for Tasmania and this taxon was later called *E. aff. willmorei* (see Buchanan 2005) in Tasmania. These names were applied to a taxon with a tubular corolla approximately 2 cm long (see Curtis 1963). There are no species fitting this description known to be naturalised in Tasmania though some species are grown for their attractive flowers (see Spencer 1997) and are naturalised elsewhere in Australia (see Richardson et al. 2006). To further complicate the matter it would appear that the name *E. × willmorei* has been misapplied by many authors, including Curtis (1963); see Nelson and Oliver (2003) for detailed discussion. *Erica × willmorei* is not treated further here.

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|--|---|
| 1. Sepals at least half the length of the corolla, pink; corolla pink  | 2 |
| 1: Sepals less than half the length of the corolla, green or white or yellowish-white; corolla green, white or yellowish | 3 |

- |   |                         |
|---|-------------------------|
| 2. Flowers to 5 mm long, distinctly 4-angled due to keeled sepals; sepals approximately as long as corolla though not concealing it | 5 <i>E. baccans</i>     |
| 2: Flowers 6–10 mm long, rounded; sepals not keeled, mostly concealing corolla  | 6 <i>E. holosericea</i> |
| 3. Hairs on stems of 2 types: branched hairs and unbranched hairs   | 1 <i>E. arborea</i>     |
| 3: Hairs on stems with only unbranched hairs, sometimes minute  | 4                       |
| 4. Flowers minute; corolla not exceeding 2 mm long, green or suffused red or white; anthers awnless                                 | 4 <i>E. scoparia</i>    |
| 4: Flowers large; corolla 4–8 mm long, white, cream to pale greenish-yellow, pink or red; anthers awned                             | 5                       |
| 5. Corolla and calyx pilose abaxially   | 2 <i>E. caffra</i>      |
| 5: Corolla and calyx glabrous abaxially   | 3 <i>E. lusitanica</i>  |

**1 \* *Erica arborea* L., *Sp. Pl.* 1: 353 (1753)***Tree Heath*

*Illustrations:* Jessop, *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1011, Fig. 502b (1986); Walsh, *Fl. Victoria* 3: 512, Fig. 104p-r (1996); Richardson et al., *Weeds of the South-East, an Identification Guide for Australia:* 242 (2006).

Much branched shrub, 1–3 m tall. Branchlets covered in erect, shortly branched hairs as well as scattered short, straight and unbranched hairs. Leaves mostly in pseudowhorls of 3–4; petioles short, erect, appressed; lamina spreading, 4–7 mm long, 0.5–1.0 mm wide, narrow-linear, adaxial surface of young leaves puberulent, becoming glabrous, margins revolute, apex acute. Inflorescence apparently axillary or in groups of 2–4 at the ends of axillary branches, flowering branch forming loose pyramidal panicles; pedicels shorter than leaves; bracteoles yellow-white, 3, approximately 1 mm long, linear. Calyx at first green, becoming white, approximately 1.5 mm long, not keeled, ciliate, persistent. Corolla white, turbinate, 2.5–4.0 mm long, glabrous, persistent; lobes short, bluntly triangular. Stamens included; anthers near the throat of corolla tube, brown-purple, lobes with small appendages near base. Style exerted after anthesis; stigma capitate, obscurely 4-humped. Capsule approximately 2 mm long. Flowering (Jul.–)Sep.–Oct.; fruiting Oct.–Feb. (persisting to Sep.).

Tas. (TNS, TSE, TSR, TWE); also naturalised in SA, NSW, Vic.; native to Mediterranean regions, W Asia, N Africa. Localised on roadsides, regrowth, disturbed vegetation and abandoned farms, on Bruny Island, and scattered in the south-east, west and north-west of the state, from sea-level to c. 300 m elevation.

**2 \* *Erica caffra* L., *Sp. Pl.* 1: 353 (1753)***African Heath*

*Illustration:* Schumann et al., *Ericas of South Africa* 118 (1992).

Erect shrub to 0.6(–2.0) m tall. Branchlets puberulous with simple hairs. Leaves in pseudowhorls of 3; petioles short, erect; lamina spreading, 9–12 mm long, 0.7–1.0 mm wide, narrow-linear, adaxial surface of younger leaves puberulent and becoming glabrous, abaxial surface with appressed white hairs except on midrib, margins recurved but not revolute, apex acute. Flowers numerous, honey-scented, 2–3 together and terminating very short peduncles in axils of uppermost leaves of branches; pedicels shorter than leaves, pubescent; bracteoles greenish to white, 3, 1.5–3.0 mm long, linear. Sepals green, 2.5–3.0 mm long, not flush with corolla, abaxial surface pilose, not keeled. Corolla cream to pale greenish-yellow, 5–8 mm long, narrow-urceolate, abaxial surface pilose; lobes short. Stamens included; anther locules ± free, yellow, approximately 1 mm long, each with a basal appendage much smaller than locule. Stigma capitate approximately level with the tips of the corolla. Capsule depressed-globose, 3–4 mm diameter. Flowering Sep.–Nov.; fruiting Oct.–Jun.

Tas. (TSE); also naturalised in SA; native to South Africa. An uncommon weed naturalised on Bruny Island on roadsides and in heath, all occurrences near sea-level.

**3 \* *Erica lusitanica* Rudolphi, *J. Bot.* (Schrader) 2: 286 (1800)***Spanish Heath*

*Illustrations:* Jessop, *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1011, Fig. 502d (1986); Williams & Chapman, *Fl. New South Wales* 3: 400 (1992); Walsh, *Fl. Victoria* 3: 512, Fig. 104m-o (1996); Richardson et al., *Weeds of the South-East, an Identification Guide for Australia* 243 (2006).

Erect, slender shrub to 2(–3) m tall. Young stems densely hispid. Leaves alternate or in pseudowhorls of (3–)4; petiole short, erect; lamina 5–7 mm long, 0.5–0.7 mm wide, narrow-linear, margins minutely and sparsely hispid, strongly revolute, apex acute. Flowers numerous, in groups of 2–4, terminal on very short axillary shoots, at ends of branches, these branches numerous and forming long terminal pyramidal panicles; pedicels slender, shorter than leaves; bracteoles 3, creamy-brown, approximately 0.5 mm long, linear. Sepals white to green, 1.0–1.5 mm long, abaxial surface glabrous, not keeled, persistent. Corolla white to pink, approximately 4 mm long, campanulate; tube cylindrical, abaxial surface glabrous, persistent; lobes rounded, 0.5–1.0 mm long. Stamens included; anther-lobes dark purple, with slender fimbriate yellow basal appendages. Style exerted after anthesis; stigma small, cup-shaped. Capsule approximately 3 mm long. Flowering May–Dec.; fruiting Sep.–Mar.

Tas. (all regions except MIS); also naturalised in SA, NSW, Vic.; native to S France, N Spain & Portugal. A widespread and invasive weed of roadsides, disturbed areas and native vegetation, from sea-level to c. 750 m elevation. This species can form monocultures that effectively prevents the establishment of other plant species.

**4 \* *Erica scoparia* L., *Sp. Pl.* 1: 353 (1753)**

*Green Heather, Twig Heath*

Much branched shrub, 2–3 m tall. Branchlets minutely hispidulous. Leaves mostly in pseudowhorls of 3; petioles short, erect, appressed; lamina spreading, 3–6 mm long, approximately 0.5 mm wide, glabrous, narrow-linear, margins strongly revolute, apex acute. Flowers apparently axillary or in groups of 2–3 at the ends of axillary branches; pedicels shorter than leaves; bracteoles brown, 3, approximately 0.5 mm long, linear. Calyx green, approximately 1 mm long, not keeled, glabrous, persistent. Corolla green, sometimes with red or white tips, campanulate, approximately 2 mm long, glabrous, persistent; lobes short, bluntly triangular. Stamens included; anthers near the throat of corolla tube, brown-purple, without appendages. Style slightly exerted after anthesis; stigma flat. Capsule approximately 2 mm long. Flowering Aug.–Dec.; fruiting Dec.–May (often persisting to Sep.).

Tas. (TNM, TNS); native to Europe. Scattered weed, often locally very common, of the Northern Midlands where it is found along roadsides, in disturbed areas, and in native bushland and grassland, to c. 300 m elevation.

**5 \* *Erica baccans* L., *Mant. Pl.* 2: 233 (1767)**

*Berry-flower Heath*

*Illustrations:* Jessop, *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1011, Fig. 502c (1986); Schumann et al., *Ericas of South Africa* 217 (1992); Walsh, *Fl. Victoria* 3: 512, Fig. 104h-i (1996).

Erect or rounded shrub to 2(–3) m tall. Stems glabrous. Leaves in pseudowhorls of 4, dense and closely overlapping on younger growth; petioles short, erect; lamina spreading, linear, 5–8 mm long, approximately 0.7 mm wide, margins revolute, entire or denticulate, apex acute. Flowers solitary, in axils of upper leaves, forming terminal clusters of 2–4; pedicels longer than leaves, pink; bracteoles 3, pink, 3–4 mm long, oval. Sepals 4–5 mm long, oblong, strongly keeled, embracing corolla, glabrous or minutely ciliate, persistent. Corolla flesh-pink to magenta-pink, globose, exceeding sepals by approximately 1.5 mm, glabrous, persistent; lobes rounded, approximately 1 mm long, slightly spreading. Stamens included; anther locules ± free, red-brown, approximately 1 mm long, each with a wing-like basal appendage as long as the locule. Stigma capitate, at approximately the same level as the tips of the corolla. Capsule depressed-globose, approximately 4 mm diameter. Flowering Aug.–Nov.; fruiting Oct.–May.

Tas. (FUR, TNS, TSE, TSR); also naturalised in WA, SA, Vic.; native to South Africa. Sparsely naturalised in the south-east, e.g. near Hobart, Orford and Conningham, from sea-level to c. 250 m elevation; rarely collected in the north of the state, e.g. at Greens Beach along roadsides and other disturbed areas as well as in native heath and *Eucalyptus* woodland.

**6 \* *Erica holosericea* Salisb., *Trans. Linn. Soc.* 6: 352 (1802)**

*Erica andromedaeflora sensu* W.M.Curtis, *The Student's Flora of Tasmania* 2: 419 (1963), *non* Andrews (1809).

*Illustrations:* Schumann *et al.*, *Ericas of South Africa* 214 (1992); Spencer, *Horticultural Flora of South-eastern Australia* 2: 488 (1997).

Shrub to 100 cm tall. Branches glabrous or minutely hispidulous. Leaves usually in pseudowhorls of 3; petioles short, erect, appressed to stem; lamina half spreading, 15–20 mm long, 1.5–2.0 mm wide, narrow-linear, adaxial surface of younger leaves with long, spreading hairs, these scattered though prominent as though in lateral lines, abaxial surface densely covered with short stiff hairs which cause the margins to appear densely ciliate, margins closely revolute, apex subulate and ending in a hair-like point. Flowers numerous along upper parts of branches, terminating axillary branches; pedicels pink, longer than leaves, fleshy, puberulent; bracteoles 3, small, lanceolate. Calyx almost spherical, pale to rose-pink, sepals 7–10 mm long, ovate, concave, almost keeled near apex, puberulent, hard, becoming brown in fruiting stage. Corolla pink; tube approximately as long as calyx, puberulent, persistent and becoming brown with fruit; lobes approximately 1/2 as long as tube, darker in colour than tube, at first protruding to form a cylinder, later becoming folded and contracted at tips and darkening to red or crimson. Stamens approximately as long as calyx, included; anthers with flat orange-red basal appendages. Style included; stigma capitate. Capsule approximately 4 mm long. Flowering Jun.–Nov.; fruiting Oct.–Nov. (often persisting).

Tas. (TSE, TSR); native to South Africa. Localised weed of Bruny Island and occasionally other areas, e.g. Kingston. Found growing in disturbed areas, such as derelict pasture, and native vegetation, mostly near sea-level.

### ERICACEAE SUBFAM. 3 VACCINIOIDEAE

Apical bud of vegetative shoot aborting. Leaves alternate, not ericoid, epidermis not lignified (in Tas.), margins entire to serrate. Inflorescence terminal and axillary, perulate (covered in scales) or eperulate; scales not scarious. Flowers 4(not in Tas.)–5-merous. Calyx persistent. Corolla usually urceolate or campanulate. Stamens twice number of petals; anthers with awns, disintegration tissue present on the back of the anthers, dehiscing by apical pores. Stigma truncate. Fruit a capsule or berry, enclosed by persistent, enlarged succulent calyx.

A subfamily of > 1000 species in 48 genera and 5 tribes. *Gaultheria* (E Australia) and *Agapetes* (NE Qld) are the two native genera though others are grown for horticulture and agriculture (see discussion under family).

### 5 GAULTHERIA

*Gaultheria* Kalm ex L., *Sp. Pl.* 1: 395 (1753).

Synonymy: *Brossaea* L., *Sp. Pl.* 2: 1190 (1753); *Brossea* Kuntze, *Rev. Gen. Pl.* 2: 388 (1891), orth. var. *Pernettya* Gaudich, *Ann. Sci. Nat.* (Paris) 5: 102 (1825) [as '*Pernettia*'].

Erect or prostrate shrubs; stems often hispid. Inflorescence terminal or axillary in upper leaf axils, racemose, or flowers solitary. Calyx 5-lobed, often enlarging and becoming succulent and surrounding or enclosing fruit. Corolla urceolate or campanulate, shortly 5-lobed. Stamens 10, not exceeding corolla; filaments dilated at base; anther lobes usually tipped with 2 erect awns. Fruit a berry or capsule.

A genus of over 130 species with a major Centre of diversity in southern and central America. Species are also found in New Zealand, Malesia and Australia (5 species; 4 endemic). The phylogeny of the genus is discussed by Bush *et al.* (2009a, b) and seed morphology by Lu *et al.* (2010). *Gaultheria procumbens* L. is the source of Oil of Wintergreen.

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|---|-----------------------|
| 1. Larger leaves 30–80 mm long; erect or spreading shrub to 1(–2) m tall  | 2 <i>G. hispida</i>   |
| 1: Leaves 3–22 mm long; prostrate, spreading or erect shrub to 30 cm tall   | 2                     |
| 2. Leaves 3–6(–8) mm long, narrow-elliptical, margins smooth; branchlets almost glabrous  | 4 <i>G. tasmanica</i> |
| 2: Leaves 5–22 mm long, narrow-elliptical, lanceolate or broadly elliptical to almost orbicular, margins serrate; branchlets hispid or with long spreading bristles | 3                     |

3. Leaves 5–10 mm long, broadly elliptical to almost orbicular, apex blunt; fruit a dry capsule, completely enclosed by succulent calyx 1 *G. depressa*
- 3: Leaves 12–22 mm long, narrow-elliptical, lanceolate, apex acute; fruit a succulent pericarp, half-enclosed by succulent calyx 3 *G. lanceolata*

**1 *Gaultheria depressa*** Hook.f., *Lond. J. Bot.* 6: 267 (1847)

*Creeping Waxberry*

*Gaultheria antipoda* var. *depressa* (Hook.f.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 241 (1857). *Gaultheria antipoda* sensu Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 241 (1857); G.Bentham, *Fl. Austral.* 4: 142 (1868); L.Rodway, *Tasman. Fl.*: 108 (1903), non G.Forst. (1786).

*Illustrations:* Kirkpatrick, *Alpine Tasmania* 54, Fig. 23b (1997); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 153 (2004); Simmons et al., *A Guide to Flowers and Plants of Tasmania*, ed. 4: 27 (2008).

Low, spreading shrub. Branches prostrate and creeping or ascending to 20 cm tall, with long spreading, bristle-like hairs. Leaves alternate, shortly petiolate; lamina 5–10 mm long and wide, broadly elliptical to almost orbicular, coriaceous, glabrous, veins conspicuous, margins bluntly serrate, the teeth usually tipped with conspicuous reddish bristles to approximately 1.5 mm long, apex blunt. Flowers solitary in the axils of uppermost leaves, subsessile, minutely bracteate. Corolla 2.5–3.0 mm long. Anthers without terminal awns. Fruit a capsule; pericarp dry but completely surrounded by the enlarged and succulent red or white sepals that are 8–10 mm across. Flowering Dec.–Jan.; fruiting Jan.–Mar.(Apr.).

Tas. (BEL, TCH, TSR, TWE); also New Zealand. Found on mountaintops to approximately 1600 m elevation, in alpine herbfields and shrubberies, often amongst rocks.

**2 *Gaultheria hispida*** R.Br., *Prodr. Fl. Nov. Holland.* 558 (1810)

*Snow Berry, Copperleaf Snowberry*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 417, Fig. 94 (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 3: 193, t. 65 (1971); Walsh, *Fl. Victoria* 3: 512, Fig. 104d (1996); Kirkpatrick, *Alpine Tasmania* 39, Fig. 14a (1997); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 154 (2004); Simmons et al., *A Guide to Flowers and Plants of Tasmania*, ed. 4, 27 (2008).

Erect, spreading shrub, to 1(–2) m tall. Branchlets and abaxial surface of leaves hispid. Leaves alternate, shortly petiolate; lamina (20–)30–80 mm long, (5–)8–22 mm wide, elliptical, coriaceous, adaxial surface of young leaves slightly hairy and midrib pubescent, becoming glabrous and hairy with age, veins not conspicuous, margin serrate, teeth at first tipped with subulate multicellular hairs, apex acute or apiculate. Inflorescence of dense panicles, terminal and in axils of upper leaves; peduncles usually shorter than leaves; bracts broadly ovate, sheathing, approximately 1.5 mm long; bracteoles smaller. Corolla 4–5 mm long. Anthers with terminal awns. Fruit a capsule; pericarp dry but completely surrounded by the enlarged and succulent snow-white sepals that are 8–12 mm across. Flowering Oct.–Feb.; fruiting Jan.–May.

Tas. (BEL, KIN, TCH, TNS, TSE, TSR, TWE); also Vic. A widespread species on the island of Tasmania where it is found in rainforest and wet eucalypt forest to approximately 1000 m elevation.

**3 *Gaultheria lanceolata*** Hook.f., *Lond. J. Bot.* 6: 267 (1847)

*Lanceleaf Waxberry*

*Brossaea lanceolata* (Hook.f.) Kuntze, *Rev. Gen. Pl.* 2: 388 (1891) [as '*Brossea lanceolata*']; *Pernettya lanceolata* (Hook.f.) B.L.Burt & A.W.Hill, *J. Linn. Soc., Bot.* 49: 638 (1935).

Small, spreading shrub to 30 cm tall. Branches erect or ascending, branchlets hispid. Leaves alternate, shortly petiolate; lamina (8–)12–25 mm long, 3–7 mm wide, narrow-elliptical to lanceolate, coriaceous, younger leaves puberulent, becoming glabrous and shiny with age, veins not conspicuous, margin serrate with blunt teeth, apex acute. Flowers solitary, in axils of upper leaves forming leafy racemes; pedicels 4–6 mm long, minutely bracteate. Corolla approximately 4 mm long. Anthers with terminal awns. Fruit with a thin but succulent pericarp, deep rose pink, approximately 8 mm diameter, half enclosed by the enlarged and succulent calyx that is the same colour as the fruit. Flowering Nov.–Dec.; fruiting Dec.–Apr.(–Jun.).



Tas. (BEL, TCH), endemic. Occasional on the mountains of the Central Plateau and in the west of the state, to 1300 m elevation in subalpine shrubberies, and as an undershrub in *Eucalyptus* forest or woodland. This species has been collected once on Ben Lomond in 1895.

*Gaultheria lanceolata* has been considered to be a hybrid between *G. hispida* and *G. tasmanica* (e.g. Kirkpatrick 1997) though it was treated as a distinct species by Bush et al. (2009b). Species of *Gaultheria* readily hybridise in New Zealand (see Bush et al. 2009b) and further research is required to ascertain the status of *G. lanceolata*.

**4 *Gaultheria tasmanica*** (Hook.f.) D.J.Middleton, *Edinburgh J. Bot.* 47: 299 (1990) *Tasmanian Waxberry*  
*Pernettya tasmanica* Hook.f., *Lond. J. Bot.* 6: 268 (1847).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: 193, t. 65 (1971), as *P. tasmanica*; Kirkpatrick, *Alpine Tasmania* 54, Fig. 23c (1997); Whiting et al., *Tasmania's Natural Flora*, ed. 1, 154 (2004); Simmons et al., *A Guide to Flowers and Plants of Tasmania*, ed. 4., 27 (2008).

Small, spreading shrub, forming dense mats to 30 cm diameter, almost glabrous. Branches creeping with tips ascending. Leaves alternate, shortly petiolate; lamina 3–6(–8) mm long, 1.0–2.5 mm wide, narrow-elliptical, coriaceous, margin entire or remotely and obscurely toothed, apex blunt. Flowers solitary, in axils of upper leaves; pedicels 3–4 mm long, minutely bracteate. Corolla 3–4 mm long. Anthers without terminal awns. Fruit a succulent berry, red or yellowish or white, 6–8 mm diameter, subglobose, surrounded at base by the enlarged, succulent calyx which is the same colour as the fruit. Flowering Oct.–Dec.; fruiting Oct.–May.

Tas. (BEL, TCH), endemic. Local on the summits of mountains and subalpine moors, to approximately 1400 m elevation. Often found in cushion plants.

## ERICACEAE SUBFAM. 4 EPACRIDOIDEAE

Leaves alternate, often imbricate and crowded, ericoid or at least sclerophyllous, margins entire, serrate or dentate, epidermis lignified. Inflorescence terminal or axillary, perulate (covered in scales); bracts scarious. Flowers (4)5-merous. Corolla persistent or caducous. Stamens equal in number to the petals and alternate with them, or rarely 2 (*Oligarrhena*); anthers lacking awns, dehiscing by longitudinal slits, occasionally part length of the anther, or rarely by apical pore. Stigma lobed or capitate. Fruit either a dry and dehiscent loculicidal capsule, or a drupe with a dry, pithy, or succulent mesocarp rarely separating into pyrenes.

There are 7 tribes containing 39 genera and above 600 species. The number of genera and species often changes as a result of ongoing research. The subfamily Epacridoideae is mainly Australasian, but includes a few species in Malaysia and on Pacific Island groups and 1 in South America. In Tasmania 19 genera are represented by 108 species, of which 3 genera and 62 species are endemic.

Synonymy: Epacridaceae, Prionotaceae, Stypheliaceae.

Key to Tribes (largely based on Crayn et al. (1998)).

- |  |                 |
|--|-----------------|
| 1. Style inserted into an apical depression of the ovary; Fruit a loculicidal capsule  | 2               |
| 1: Style usually attenuate from the ovary; Fruit a drupe   | 6 Stypheliaceae |
| 2. Leaf bases broadly sheathing  | 3               |
| 2: Leaf bases not sheathing (but lamina may be stem clasping)  | 4               |
| 3. Leaf scars annular, persistent  | 1 Richeeae      |
| 3: Leaf scars absent, stems smooth   | 2 Cosmelieae    |
| 4. Leaf margins serrate or serrulate, venation reticulate, anthers bilocular, dehiscing by a single slit above the common septum | 3 Prionoteae    |
| 4: Leaf margins entire, venation major veins ± parallel, anthers unilocular, dehiscing by a single longitudinal slit             | 5               |

5. Flowers pedicellate above upper bracts  
 5: Flowers not pedicellate above upper bracts

4 Archerieae  
 5 Epacreae

## EPACRIDOIDEAE TRIBE 1 RICHEEAE

Leaves apetiolate, the lamina sheathing the stem at the base and leaving persistent annular scars when shed; style inserted in a depression at the top of the ovary, the ovary 5-locular, each locule with numerous ovules, axile placentation; fruit a woody loculicidal capsule.

A tribe of 3 genera, of which two, *Richea* (NSW, Vic., Tas.) and *Sphenotoma* (WA) are endemic in Australia, and the third *Dracophyllum*, is more widespread (NSW including Lord Howe Is., Tas., New Zealand, New Caledonia).

Wagstaff et al. (2010) found *Dracophyllum* to be paraphyletic and in need of revision. Venter (2021) used phylogenetic data from Wagstaff et al. to reduce *Richea* into synonymy within *Dracophyllum*. However, Venter relied on the phylogenetic tree from Wagstaff et al. (2010), which had failed to properly resolve the relationships between clades within the *Richea* / *Dracophyllum* group. The phylogenetic tree underpinning the name changes contained a large polytomy (several clades attached at the same point, so that their relationships to each other cannot be resolved), and was missing critical branch support data for clades that contained both *Richea* and *Dracophyllum*. Since the phylogenetic relationship between the two genera is still not clear, and *Richea* is a morphologically distinctive genus, this treatment continues to recognise both genera as separate and valid.

1. Corolla ovoid or conical, forming an operculum, the lobes not opening at anthesis  
 1: Corolla cylindrical or campanulate, the lobes spreading

6 *Richea*  
 7 *Dracophyllum*

## 6 RICHEA

*Richea* R.Br., *Prodr. Fl. Nov. Holland.* 555 (1810).

Synonymy: *Cystanthe* R.Br., *Prodr. Fl. Nov. Holland.* 555 (1810). *Pilitis* Lindl., *Intr. Nat. Syst. Bot.*, ed. 2, 443 (1836).

Shrubs or trees, glabrous; branches with prominent annular scars from fallen leaves, although old wood may lose this characteristic and acquire a rough bark. Leaves crowded along length of branches or confined to ends, spirally arranged, sessile, glabrous; bases stem-sheathing, abaxial surface parallel veined, main veins linked to upper and lower epidermis by columns of fibres, nodes multilacunar with 3 or more vascular traces; apex acute or subulate. Inflorescence terminal or axillary, anthotelic; axis glabrous or pubescent; hairs unicellular, non-glandular; flowers solitary in clusters or crowded in spikes or panicles; bracts 1 or numerous, subtending 1–20 flowers or clusters of flowers, often unequal in size or leaf-like, persistent or caducous; bracteoles 2–6, around the base of individual flowers, persistent or caducous. Sepals (4–)5, glabrous, persistent. Corolla tube ovoid or conical; lobes ± fused to form an operculum that splits transversely and is shed as an entire unit leaving a persistent basal ring, or rarely more persistent and the exerted stigma may project between the lobes (*R. milliganii*). Stamens (4–)5(–6), inserted on receptacle, articulated; filaments persistent until fruiting; anthers lacking appendages, dorsifixed, versatile or attached to upper half of anther, introrse, dehiscent by a single longitudinal slit, or rarely splitting down both surfaces as far as the filament (*R. procera*). Nectary of 5 distinct scales or absent. Ovary 5-locular, glabrous or pilose; locules with numerous ovules; placentation axile; style terete, inserted in depression in ovary; stigma 5 lobed; nectary of 5 distinct scales or absent. Fruit a dry, ovate, loculicidal capsule.

Thirteen species endemic to Australia; 1 in New South Wales, 2 in Victoria, 10 in Tasmania. Two naturally occurring hybrids have also been recognised.

Key reference: Menadue & Crowden (2000).

1. Inflorescence of simple clusters; flowers solitary, crowded in heads; bracts persistent (section *Cystanthe*)  
 1: Inflorescence of compound spikes or panicles; flowers in clusters along a central axis; bracts

2  
 5

caducous (section *Dracophylloides*)

2. Leaves 8–25 mm long; flowers in erect terminal heads	3
2: Leaves 20–40(–80) mm long; flowers in drooping terminal heads	1 <i>R. milliganii</i>
3. Leaves greater than 3 mm wide; nectary lobes absent	4
3: Leaves less than 2 mm wide; nectary lobes present	2 <i>R. acerosa</i>
4. Inflorescence maturing from the base up (acropetal); filaments distally thickened; anthers distinctly bilobed on dehiscence	3 <i>R. procera</i>
4: Inflorescence maturing from the top down (basipetal); filaments slender; anthers dehiscing by single slit	4 <i>R. sprengelioides</i>
5. Inflorescence a slender spike-like panicle with little lateral branching	6
5: Inflorescence a broad panicle with extensive lateral branching	7
6. Inflorescence compact with internodes of equal length; older branches with flaky bark	5 <i>R. scoparia</i>
6: Inflorescence loose with proximal internodes elongated; older branches with prominent annular scars	6 <i>R. gunnii</i>
7. Inflorescence axillary; leaves > 60 cm long	7 <i>R. pandanifolia</i>
7: Inflorescence terminal; leaves <35 cm long	8
8. Shrub 1.5–5.0 m tall; old branches with annular scars; corolla white	8 <i>R. dracophylla</i>
8: Shrub usually less than 1 m tall; old branches with rough bark; corolla pink, orange or red	9 <i>R. alpina</i>

**1 *Richea milliganii*** (Hook.f.) F.Muell., *Fragm.* (Mueller) 6(47): 69 (1868) [as '*R. Milligani*'] *Nodding Candleheath*  
*Pilitis milliganii* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 266, t.83 (1857) [as '*P. Milligani*']; *Cystanthe milliganii* (Hook.f.) F.Muell., *Fragm.* (Mueller) 1(2): 38 (1858) [as '*C. Milligani*']; *Dracophyllum tasmanicum* S.Venter, *Austral. Syst. Bot.* 34: 169 (2021).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 465, t. 251 (1978); Menadue & Crowden, *Austral. Syst. Bot.* 13: 778, Fig. 2 (2000).

Erect, sparsely branched shrub, 1.5–2.3 m tall. Branches bearing distinct annular leaf-scars. Leaves erect or spreading (softer than other *Richea* spp.), persisting and crowded at the ends of younger branches; lamina narrow-lanceolate, 2–4(–8) cm long, 3–6 mm wide, base sheathing approximately 5 mm deep, transversely oblong grading into a shoulder prior to the lamina, margins entire or scabrous, tapering to an acute apex. Inflorescence 2.5–3.5 cm long, approximately 2 cm wide, of 8–15 flowers in drooping terminal heads on main and lateral branches, maturing basipetally; pedicel less than 1 mm long, glabrous, subtended by leaf-like bracts; bracts 8–15, brown, persistent, 1.5–4.0 cm long, 5.0–6.5 mm wide, lanceolate, gradually tapering to an acute apex; bracteoles persistent, (2–)3(–4) at the base of each flower, 7–9 mm long, narrow, keeled, margins entire or minutely ciliolate. Sepals creamy-green, narrow elliptic-ovate, 6.5–8.5 mm long, margin entire or minutely ciliolate in the upper half, apex acute. Corolla creamy-yellow; operculum 12–17 mm long, 2.5–4.0 mm wide, separating and falling earlier in development than other *Richea*, narrowly conical, often flattened dorsiventrally, bluntly terminating in 5 short teeth between which the stigma often protrudes. Stamens 5, pale, straw-yellow; filaments 20–25 mm long; anthers approximately 2 mm long, versatile, rather membranous, after dehiscence folding back around filament prior to anthesis. Ovary globose, approximately 2 mm diameter, lobed, glabrous; nectary lobes oblong, truncate or emarginate, 1.5 mm long, below top of ovary; style slender, 20–25 mm long, level with anthers; stigma indistinct. Capsule 2.5–3.5 mm diameter. Flowering Jul.–Oct.

Tas. (TCH, TSR, TWE); endemic. Found mainly on the mountains of the south-west as far north as the Mt Read group in peaty soils amongst boulders near the summits, or in wet places in open montane heathland to c. 1000 m elevation. At lower elevations, found in subalpine woodlands and at the margins of scrub-forest often fringing buttongrass (*Gymnoschoenus sphaerocephalus*) plains.

**2 *Richea acerosa*** (Lindl.) F.Muell., *Fragm.* (Mueller) 6(47): 69 (1867) *Slender Candleheath*

*Pilitis acerosa* Lindl., *Intr. Nat. Syst. Bot.*, ed. 2, 443 (1836); *Cystanthe acerosa* (Lindl.) F.Muell., *Fragm.* (Mueller) 1(2): 38 (1858); *Dracophyllum laciniatum* S.Venter, *Austral. Syst. Bot.* 34: 169 (2021).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 1: 57, t. 17 (1967); Menadue & Crowden, *Austral. Syst. Bot.* 13: 780, Fig. 3 (2000).

Small, erect, spindly shrub, 60–120 cm tall. Older stems bare of leaves and with prominent annular leaf-scars. Leaves imbricate, mainly erect, sometimes spreading, confined to ends of stems; lamina linear-lanceolate, 8–14 mm long, 1–2 mm wide, base 2–3 mm deep, transversely oblong abruptly grading into lamina, margin scaberulent, apex subulate, tapering to a rigid, keeled point. Inflorescence of up to 10 flowers in erect, terminal heads, 0.7–1.2 cm long, to 1 cm wide, on main and lateral branches, in axils of red-brown bracts, maturing basipetally; pedicel less than 0.5 mm long, glabrous; bracts up to 10, persistent, 5–6 mm long, 2.5–3.0 mm wide, broadly ovate-cordate, margins ciliolate, sharply tapering to acute or acuminate apex; bracteoles persistent, 3–5 at the base of each flower, 2.5–3.0 mm long, strongly keeled, margin ciliolate. Sepals white, ovate, 3–4 mm long, approximately 1.5 mm wide, margin ciliolate, apex acute to acuminate. Corolla white, cream or pinkish; operculum bluntly conical, 5–6 mm long, approximately 2.5 mm wide. Stamens 5, creamy-white; filaments 4–6 mm long; anthers less than 1 mm long. Ovary globose, approximately 1.5 mm diameter, lobed, glabrous; nectary lobes deeply bibbed or lacinate, approximately same length of ovary; style slender, cylindrical, 1.0–1.5 mm long; stigma capitate, reaching 1/2–2/3 length of stamens. Capsule 2.5–3.0 mm diameter. Flowering Dec.–Feb.

Tas. (BEL, TCH, TSR, TWE); endemic. Found mainly on the Central Plateau, but also at Mt Field and Ben Lomond, growing in a variety of habitats from ridge tops amongst boulders, to slopes amongst grass and heath, or edging eucalypt woodlands, to just above 1400 m elevation. Most frequently found in poorly drained areas such as stream banks or plains or within bolster moor communities.

**3 *Richea procera*** (F.Muell.) F.Muell., *Fragm.* (Mueller) 6(47): 68 (1868) *Lax Candleheath*

*Cystanthe procera* F.Muell., *Fragm.* (Mueller) 1(2): 38 (1858); *Dracophyllum procerum* (F.Muell.) S.Venter, *Austral. Syst. Bot.* 34: 172 (2021).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 456, Fig. 104d,e (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 1: 57, t. 17 (1967); Menadue & Crowden, *Austral. Syst. Bot.* 13: 782, Fig. 4 (2000).

Erect, sparingly branched shrub, 60–300 cm tall. Older, bare stems with annular leaf scars. Leaves along branches, not crowded, spreading and recurved; lamina ovate-lanceolate, 8–20(–25) mm long, 4–9 mm wide, base broad, 2–10 mm deep, transversely oblong gradually narrowed into a cartilaginous lamina, margin serrulate, narrowly hyaline (less than 0.15 mm), tapering to an acute apex that is pungent but not rigid; older leaves with a flattened ridge apparent near the apex of the abaxial surface. Inflorescence 2–3 cm long, to 2 cm wide, in clusters in erect, terminal heads on main and lateral branches, maturing acropetally; flowers 12–20, in axils of bracts; pedicel less than 1 mm long, glabrous; bracts 12–20, persistent, leaf-like, green, turning to brown, 6–9 mm long; 2–6 persistent bracteoles 4.0–5.5 mm long, translucent-white, outer 2 prominently keeled with margins minutely serrulate, up to 4 sepal-like inner bracteoles. Sepals translucent-white with pink tips, ovate-lanceolate, 4–6 mm long, 1.5–2.0 mm wide, margins entire. Corolla dark pink near apex grading to white near base; operculum narrow conical, 8–9 mm long, 2.0–2.4 mm wide, flattened dorsiventrally. Stamens 5–6, yellow; filaments, 8–10 mm long, thickened and papillose in upper half; anthers 2.3–2.8 mm long, splitting longitudinally dorsally and ventrally as far as the filament then continuing down ventral surface only in very mature anthers. Ovary globose, 2.4–2.8 mm diameter, pilose, cusped; nectary absent; style slender; stigma indistinct, level with top of anthers. Capsule approximately 3.5 mm diameter. Flowering Oct.–early Dec.

Tas. (TCH, TSE, TSR, TWE); endemic. Found in central and southern regions at elevations above 400 m but below the sub-alpine region in scrubland and open forests. Locally nearly always in open areas on poorly drained soils or on grey sandy soils in boulder strewn areas. The species is quite distinctive, despite claims to the contrary, from *R. sprengelioides* (see discussion below).

**4 *Richea sprengelioides* (R.Br.) F.Muell., *Fragm.* (Mueller) 6(47): 68 (1868) (as '*R. sprengelioides*'))***Rigid Candleheath*

*Cystanthe sprengelioides* R.Br., *Prodr. Fl. Nov. Holland.* 555 (1810); *Dracophyllum sprengelioides* (R.Br.) S.Venter, *Austral. Syst. Bot.* 34: 175 (2021).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 456, Fig. 104a,b (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 1: 55, t. 16 (1967); Menadue & Crowden, *Austral. Syst. Bot.* 13: 784, Fig. 5 (2000).

Erect, sparsely branched shrub 30–120 cm tall, more compact in exposed situations. Older stems bare of leaves and having distinct annular scars. Leaves along branches not crowded, rigid, erect or spreading, barely recurved with flattened ridge below apex on abaxial surface; lamina broadly ovate-lanceolate, 8–12 mm long, 3–5 mm wide, base 1.5–2.5 mm deep, wedge-shaped, grading into coriaceous lamina, margin scaberulent or ciliolate, apex acute, pungent. Inflorescence approximately 2 cm long and wide, in erect terminal heads on main and lateral stems, maturing basipetally; flowers up to 20, in the axils of bracts; pedicel less than 0.5 mm long, glabrous; bracts brown, up to 20, leaf-like, persistent, broadly ovate-cordate, 4–7 mm long; bracteoles persistent, 4–5 mm long, 2–6 surrounding base of each flower, outer 2 keeled and winged. Sepals pale green, translucent, ovate-lanceolate, 4–5 mm long, approximately 1.5 mm wide, margin ciliolate. Corolla creamy-white, pale green near apex; operculum narrow conical with a shoulder below apex, 7–8 mm long, 2.8–3.3 mm wide. Stamens 5–6, yellow-cream; filaments slender, almost uniform in thickness, 5–6 mm long, glabrous or minutely papillose; anthers 2 mm long, opening by a single longitudinal slit from apex to base, versatile; pollen in tetrads. Ovary globose, 2.0–2.5 mm diameter, glabrous; nectary absent; style slender, 3–4 mm long, as long as or longer than stamens; stigma indistinct. Capsule 3–4 mm diameter. Flowering Nov.–Jan.

Tas. (BEL, TCH, TSE, TSR, TWE); endemic. Found in all mountainous regions of the west, south-west, north-east and Central Plateau, to c. 1500 m elevation. Predominantly alpine but extends to subalpine woodlands in rocky, boulder strewn areas.

*Richea sprengelioides* and *R. procera* have suffered from the perception that they are difficult to separate in the wild, or that they may merely be an altitudinal cline with *R. sprengelioides* at the higher elevations. However, there is a distinctive suite of characters that clearly separates them. *Richea sprengelioides* leaves are generally smaller and more rigid than *R. procera*. The inflorescence of *R. sprengelioides* matures basipetally and has creamy white flowers, whereas *R. procera* matures acropetally and the flowers are tipped with pink. The most distinctive character is that *R. procera* has thickened, papillose, yellow filaments and distinctly bilobed anthers, whereas in *R. sprengelioides* the filaments are smooth, slender, creamy-white and the anthers are not bilobed after dehiscence. *Richea procera* has a pilose ovary whereas in *R. sprengelioides* it is glabrous.

**5 *Richea scoparia* Hook.f., *Lond. J. Bot.* 6: 273 (1847)***Scoparia*

*Cystanthe scoparia* (Hook.f.) Kuntze, *Rev. Gen. Pl.* 2: 391 (1891). *Richea angustifolia* B.L.Burtt., *Curtis's Bot. Mag.*, Tab. 9632 (1942); *Dracophyllum persistentifolium* S.Venter, *Austral. Syst. Bot.* 34: 182 (2021).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: 195, t. 64 (1971); Stones & Curtis, *op. cit.*, 5: 349, t. 112 (1975), as *R. angustifolia*; Spencer, *Horticultural Flora of South-eastern Australia* 2: 478 (1997); Menadue & Crowden, *Austral. Syst. Bot.* 13: 788, Fig. 7 (2000).

Rigid, erect, much branched shrub commonly forming dense compact bushes, 40–100 cm tall in exposed places but to 3 m tall and looser in habit amongst tall vegetation. Older branches covered in peeling, flaking reddish-brown bark, leaf scars rarely evident. Leaves crowded along branches, erect or spreading to recurved, imbricate, rigid, persisting for a number of years, then decaying and turning brown while still on the branches, wings decaying before central portion, especially in very exposed plants; lamina narrow lanceolate, 3–7(–20) cm long and 2.5–5.0(–9.0) mm wide, base transversely oblong grading into a shoulder prior to the lamina, 6–12(–20) mm deep, margins scabrous, apex acute, pungent. Inflorescence 4–10(–14) cm long, approximately 2 cm wide, terminal, erect, dense, spike-like panicles, shortly stalked, maturing acropetally; axis and floral lateral branches pubescent, internodes between flower clusters approximately 3 mm

long resulting in a uniform inflorescence; flowers in clusters of 2–6(–14) subtended by bracts, subsessile; pedicels 1–2(–3) mm long; bracts 10–20, near base as long as the foliage leaves grading to approximately 1 cm long near apex, straw-brown, caducous, base of bracts broad, membranous; bracteoles 2–3, narrow, keeled, 3–4 mm long, caducous. Sepals colour of corolla or pale green, broadly ovate, 1.5–2.5 mm long and wide, margin entire, apex acute. Corolla pink to orange, dark red, or white with pink tips; operculum obovoid-oblong, 7–10 mm long, 3.0–3.5 mm at widest point, bluntly pointed and sometimes slightly depressed at apex. Stamens 5, dull red; filaments 3.5–5.0 mm long, articulated near the base; anthers approximately 1 mm long, versatile. Ovary depressed globose, 1.5–2.5 mm diameter, glabrous; nectary lobes elliptical-truncate, short, 0.75–1.0 mm high, approximately 1/2 ovary height; style 1.5–2.0 mm long, reaching 1/2–2/3 length of stamens; stigma capitate. Capsule 2–3 mm diameter. Flowering Jan.–Mar.

Tas. (BEL, TCH, TSE, TSR, TWE); endemic. Found in all the mountainous regions in the west, south-west, north-east and the Central Plateau, in a variety of montane habitats above 700 m elevation.

NOTE 1: *Richea scoparia* was confirmed as a variable species embracing *R. angustifolia* (Menadue & Crowden 1983). The morphological and chemical data from that study indicated a cline across the State from south-west to north-east. It also showed the *R. scoparia*/*R. angustifolia* complex separating into chemo-forms that broadly corresponded with the underlying geology. The two forms occurring on the same bedrock displayed the same complement of flavonols. The lack of distinctive morphological or chemical differences between the two species led to the recommendation that the latter be submerged within *R. scoparia*. *Richea angustifolia* was formally reduced to synonymy under *R. scoparia* by Menadue and Crowden (2000).

NOTE 2: Two naturally occurring hybrids of *R. scoparia* are recognised.

**5a *Richea xcurtisiae*** A.M.Gray, *Muelleria* 2: 143 (1971) [as '*R. curtisiae*']

*Hybrid Candleheath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: 247, t. 78 (1973), as *R. curtisiae*.

An erect, spreading or decumbent shrub 30–150 tall. Branches few, divaricate, clothed with persistent leaves, those on the lower stem dead and decaying. Leaves 10–20 cm long, narrow-lanceolate to lanceolate, spreading, recurved or somewhat erect, flexuous, base broad, sheathing and imbricate, margins cartilaginous, minutely and sharply serrate, apex tapering to a long acuminate point. Inflorescence a terminal panicle 10–20 cm long; fertile flowers occurring only on the upper floral axis, absent on the lower (or minute, vestigial and abortive); lower bracts of inflorescence similar to the foliage leaves although usually somewhat smaller and more erect, the base broadening widely and with narrow, membranous wings; upper bracts with a broad base and membranous wings, the apex tapering suddenly to an erect, acute point; fertile and abortive flowers subtended by 3 to 4 small caducous bracteoles 6–9 mm long, the outer ones with a broad base, the inner ones narrower and somewhat smaller, the base and middle of the larger bracteoles expanded and half-enclosing each flower, the apices of these bracteoles minutely hooked; peduncles 5- to 10-flowered, short, 2–4 mm long, longest peduncles at the base of the fertile portion of the inflorescence and becoming progressively shorter towards the apex; internodes between the lower peduncles lengthening slightly after the outer bracts have fallen. Sepals 5, broadly triangular, obtuse, 1–3 mm long. Corolla pink to orange in colour; operculum 6–8 mm long, narrowly obovoid to cylindrical-conical, occasionally somewhat flattened, its apex obtuse and with 5 minute obscure teeth. Anthers versatile, 3 mm long joined to the filament slightly below the middle and opening by a single longitudinal slit. Style half as long as the stamens; hypogynous scales 5, broadly ellipticoblong, truncate, half as long as the ovary. Fruit a 5-locular capsule 3 mm diameter, depressed at summit, with persistent style; seeds bright brown, lustrous, ellipsoid, slightly flattened 0.7–1.0 mm long. Flowering Dec.–Jan.

Tas. (TCH, TSR, TWE); endemic. Known only from scattered localities within Mt Field National Park, the Hartz Range, Mt Read, and the northern portion of Cradle Mountain National Park. Usually found as isolated specimens, at fairly high elevations ( $\pm$  1200 m) among populations of *R. scoparia* and the tall *R. pandanifolia* often in the shelter of a protecting boulder or bush at the margins of tarns and creeks. Phytochemical studies by Menadue and Crowden (2000) have confirmed the hybrid origin of *R. curtisiae*: *R. scoparia* being nominated as the seed parent and *R. pandanifolia* the pollen donor.

### 5b *Richea scoparia* × *R. dracophylla*

A new hybrid recently discovered (early October 2014) by Mrs. Sib Corbett, in a grove below the Organ pipes on Mt. Wellington. At the time of discovery, *R. dracophylla* was in flower, and nearby *R. scoparia* in advanced bud, so anthesis overlap between the two species is probable. Population estimates are of approximately 100 plants, and include typical *R. dracophylla*, grading through a mixture of intermediate forms into *R. scoparia*. The hybrids encompass the full range of possible morphologies between the putative parents. Intermediate forms have leaves that are narrower and shorter than *R. dracophylla* and recurved, but much larger than *R. scoparia*. The inflorescence is an interrupted racemose type, (panicle in *R. dracophylla*, compact racemose in *R. scoparia*), generally pink or slightly darker (red in Mt. Wellington *R. scoparia*, white in *R. dracophylla*) rarely white with a pink apex. Further work will be carried out.

### 6 *Richea gunnii* Hook f., Lond. J. Bot. 6: 273 (1847)

*Bog Candleheath*

*Cystanthe gunnii* (Hook.f.) Kuntze, Rev. Gen. Pl. 2: 391 (1891); *Dracophyllum gunnii* (Hook.f.) S.Venter, Austral. Syst. Bot. 34: 187 (2021).

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 1: 55, t. 16 (1967); Menadue & Crowden, Austral. Syst. Bot. 13: 792, Fig. 9 (2000).

Erect shrub, 30–100 cm tall, with divaricate branches. Older stems bare of leaves, with prominent annular scars. Leaves clustered in the top 5–20 cm of branches, imbricate, spreading and usually recurved, rigid; lamina lanceolate, 3–6 cm long, 5–7 mm wide, base approximately 6 mm deep, oblong, lacking distinct shoulder, margins scabrous, tapering to an acute, pungent apex. Inflorescence 3–10 cm long, 1.0–1.5 cm wide, terminal, erect, spike-like panicle, maturing acropetally; axis pilose, internodes 3–5 mm long, becoming shorter towards the apex, lateral floral branches minutely pilose, 2–5 mm long bearing clusters of 3–5 flowers subtended by bracts; bracts 10–22, brown, grading from 2.2 cm long at base of inflorescence to 0.8 cm long at apex, with broad bulbous base to 12 mm wide, tapering sharply to a point, caducous; pedicels approximately 1 mm long; bracteoles 2–3, narrow keeled, approximately 3 mm long, caducous. Sepals creamy-white, broadly ovate, orbicular, approximately 2 mm long and wide, margin entire, apex obtuse. Corolla white, often suffused pink near apex; operculum conical-ovoid, 3–5 mm long, 2–3 mm wide, blunt at apex. Stamens 5, dark red; filaments 2–3 mm long, articulated near the base; anthers 0.5–1.0 mm long, attached to the filament in the top half. Ovary globose, 1.0–1.5 mm diameter, glabrous; nectary lobes broad, less than 0.5 mm long, emarginate, alternating with the filaments, approximately 1/3 ovary height; style 1.5–2.0 mm long, reaching 2/3 length of filaments; stigma indistinct. Capsule approximately 2.5 mm diameter. Flowering Late Dec.–Feb.

Tas. (BEL, TCH, TSR); endemic. Found mainly on montane and subalpine regions of the Central Plateau, Mt Field, and also mountains of north-east in localised wet habitats within moors, alongside water courses and small lakes, to c. 1500 m elevation. Plants from the north-east, e.g. Blue Tier, present a different habit, being more erect with numerous tall branches. The inflorescences are mostly towards the short end of the size range.

### 7 *Richea pandanifolia* Hook.f., Bot. Antarct. Voy. III. (Fl. Antarct.) 1: 50 (1844)

*Pandani*

*Cystanthe pandanifolia* (Hook.f.) Kuntze, Rev. Gen. Pl. 2: 391 (1891); *Dracophyllum pandanifolium* (Hook.f.) S.Venter, Austral. Syst. Bot. 34: 189 (2021).

Tree 2–12 m tall, stunted and shrub-like in exposed places, but usually with a single, slender trunk or becoming sparsely branched if the apex is damaged, leaf scars rarely apparent and only where leaves have recently fallen, trunk with rough bark. Leaves crowded along branches, with dead leaves persisting down most or all of the trunk, or numerous branches with leaves persisting and confined to the ends of the branches; lamina rigid, coriaceous, drooping, 0.7–1.5 m long, 6–8 cm wide above the base, base transversely oblong tapering into lamina, 6–12 cm deep, margin cartilaginous with small distant teeth, causing impressions on superposed leaf during early development, apex subulate, tapering to a long, twisting point. Inflorescence of numerous flowers in axillary panicles, maturing acropetally, 15–25 cm long, 3–8 cm wide, more

or less hidden by the leaves, initially enclosed by lanceolate, leaf-like, caducous bracts; axis and lateral floral branches glabrous; flowers small, in clusters of 16–20 on stout, floral branches, 3–4 cm long, spreading, each cluster subtended by a bract; pedicels from less than 1 mm long to 2.5 mm long; bracts 14–30, 5–17 cm long; bracteoles 2–3, caducous, narrow, approximately 2 mm long. Sepals greenish-white or reddish, broad, almost truncate, 0.5–1.4 mm long, to 1 mm wide. Corolla greenish-white or reddish; operculum cylindrical-conical with flattened apex showing 5 lobes, 2.5–3.5 mm long, 2–3 mm wide. Stamens 5, greenish-white or reddish; filaments approximately 2.5 mm long; anthers approximately 1 mm long. Ovary depressed globose, approximately 1 mm high, 1.5 mm diameter, glabrous; nectary lobes truncate or emarginate, 1/2 depth of ovary, just visible above or enclosed by sepals; style short, 1.0–1.4 mm long, cylindrical; stigma rounded, reaching centre or just above top of anthers. Capsule 2.0–2.5 mm diameter, deep reddish-brown in colour, with all parts of the flower, except the operculum, persisting in the axils long after the seeds have been released. Flowering Late Nov.–Jan.

Tas. (TCH, TSR, TWE), endemic. Widespread in high rainfall areas in the west of the state. Grows in sub-alpine moorland and shrubbery and in forests in moist but well drained sites, often in gullies with an open eucalypt canopy or a rainforest overstorey, to c. 1300 m elevation.

- |   |                               |
|---|-------------------------------|
| 1. Tree to 12 m with single slender trunk, rarely two branches, and dead leaves persisting down the trunk     | 7a subsp. <i>pandanifolia</i> |
| 1: Tree to 6 m with numerous slender branches and leaves confined to the crown exposing trunk with rough bark | 7b subsp. <i>ramulosa</i>     |

**7a *Richea pandanifolia*** Hook.f. subsp. ***pandanifolia***

*Giant Grass Tree, Pandani*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 448, t. 145 (1978), as *R. pandanifolia*; Menadue & Crowden, *Austral. Syst. Bot.* 13: 794, Fig. 10a (2000).

Tree to 12 m tall (sometimes higher), usually with a single slender trunk, rarely two branches, dead leaves persisting down most of the trunk. Flowers broad, 3 mm wide, on short pedicels less than 1 mm long. Sepals 0.8 mm long, exposing nectary scales. Stigma reaching centre of the anthers. Flowering late Nov.–Jan.

Tas. (TCH, TSR, TWE); endemic. Occurs almost exclusively on ancient Pre-Cambrian bedrocks in high rainfall areas. Grows in sub-alpine moorland and shrubbery and in forests in moist but well drained sites, often in gullies with an open eucalypt canopy or a rainforest overstorey. Stunted forms occur on ridges and mountain tops and branched forms occur where there has been terminal bud damage.

**7b *Richea pandanifolia*** subsp. ***ramulosa*** Menadue, *Austral. Syst. Bot.* 13: 775 (2000) *Branching Pandani*

*Illustrations:* Menadue & Crowden, *Austral. Syst. Bot.* 13: 794, Fig. 10b; 796, Fig. 11 (2000).

Slender tree rarely exceeding 6 m, with several branches. Very few leaves persisting on the branches, and the lower trunk is covered in rough bark. Flowers slender, 2 mm wide, on pedicels 1.0–2.5 mm long. Sepals 1.4 mm long, nectary scales barely visible above them. Stigma projecting above level of anthers. Flowering late Nov.–Jan.

Tas. (TSR, TWE); endemic. Common along the banks of the lower Gordon and King rivers and in the adjacent rainforest, also in the upper Arve River valley, and on the slopes of Mt Murchison.

**8 *Richea dracophylla*** R.Br., *Prodr. Fl. Nov. Holland.* 555 (1810)

*Pineapple Candleheath*

*Cystanthe dracophylla* (Hook.f.) Kuntze, *Rev. Gen. Pl.* 2: 391 (1891). *Dracophyllum desgrazii* (Homb. ex Decne.) S.Venter, *Austral. Syst. Bot.* 34: 192–193 (2021).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 456, Fig. 104c (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 1: 53, t. 15 (1967); Menadue & Crowden, *Austral. Syst. Bot.* 13: 798, Fig. 12 (2000).

Erect, sparsely branched shrub 1.5–5.0 m tall. Older branches bare, with conspicuous annular scars. Leaves crowded near ends of stems, spreading, flexuous; lamina lanceolate, 15–33 cm long, 13–22 mm wide above base, tapering from the base to a slender point, base broadly oblong, 2.5–3.0 cm deep, margin scabrous



with small distinct teeth, apex subulate. Inflorescence a terminal panicle, 12–25 cm long, 3.0–4.5 cm wide, maturing acropetally; axis pubescent, lateral floral branches crowded, to 12 mm long, pubescent; bracts 16–32, pink, turning brown, caducous, 5–20 cm long, longer at the base of the inflorescence, shortening towards the apex, base 2.5–3.5 cm wide; flowers usually numerous, rarely 8–12, in clusters; pedicel slender, glabrous, 1.5–6.0 mm long; 3 small, narrow, membranous, caducous bracteoles 8–10 mm long. Sepals white, broadly triangular, 1.0–1.5 mm long. Corolla white; operculum obovoid-conical, 8–10 mm long, flattened dorsiventrally, 2–4 mm wide, apex bluntly pointed, sometimes opening through 5 minute lobes. Stamens 5–6, creamy-white; filaments approximately 6 mm long, articulated shortly above their insertion; anthers bibbed at the apex, 1.5 mm long, versatile; pollen in tetrads. Ovary dark red, globose, lobed, approximately 2 mm diameter, glabrous; nectary lobes elliptical-truncate, approximately 1/2 ovary length; style 2.0–2.5 mm long, tapering; stigma rounded, reaching 1/2 length of stamens. Capsule at first crimson but later hard and brown, approximately 3 mm diameter, style persisting. Flowering Sep.–Oct.

Tas. (TSE, TSR); endemic. Found in south-eastern Tasmania, including Maria and Bruny Islands in a fairly restricted range of habitats in wetter areas of sclerophyll forests, to c. 900 m elevation.

**9 *Richea alpina*** Menadue, *Austral. Syst. Bot.* 13: 798, figs 13–14 (2000)

*Short Candleheath*

*Dracophyllum alpinum* (Menadue) S.Venter, *Austral. Syst. Bot.* 34: 195 (2021).

Low growing, sparsely branching shrub, with branches often covered by soil, 20–80(–100) cm tall, annular scars apparent immediately below leaves. Leaves crowded towards ends of branches, spreading, recurved, flexuous; lamina narrow-lanceolate to lanceolate, 8–13 cm long, 6–12 mm wide, tapering to a point, base broadly oblong, tapering into lamina, approximately 1 cm deep, margins minutely and sharply serrate, apex acute. Inflorescence of numerous flowers in terminal, broad, pyramidal panicles, 6–20 cm long, 5–14 cm wide, maturing acropetally; axis sparsely pubescent, internodes between lower floral branches lengthening after bracts have fallen; floral branches sparsely pubescent, bearing 5–18 flowers, subtended by leaf-like bracts; bracts 22–36, lower bracts similar to foliage leaves although smaller, more erect, with broader base and membranous wings, upper bracts shorter with apex tapering suddenly to an erect, acute point, caducous; pedicels, 2–4 mm long; bracteoles 2–3(–4), 3–4 mm long, linear, caducous. Sepals same colour as corolla, broadly triangular, obtuse, 1–3 mm long. Corolla pink, orange, or crimson; operculum 6–8 mm long, to 3.5 mm wide, narrowly obovoid to cylindrical-conical, occasionally flattened, apex obtuse with 5 minute, with obscure teeth. Stamens 5, red; filaments 3.0–4.5 mm long, attached to anthers slightly below the centre; anthers 1.0–1.5 mm long. Ovary depressed-globose, 2–3 mm wide, glabrous; nectary lobes broadly elliptic-oblong, truncate, half as long as the ovary; style 1–3 mm long; stigma rounded, reaching base of anthers. Capsule 2.5–3.5 mm diameter. Flowering Nov.–Jan.

Tas. (TSR, TWE); endemic. Found on mountains of the west and south-west on exposed alpine moor and low shrubbery, to c. 950 m elevation. Often forms solitary plants or low copses surrounded by *Empodisma minus*, with branches often covered over so that above ground parts appear separate and rosette-like (20–30 cm tall). Also found in subalpine shrubbery where the plants grow taller (70–100 cm tall), as they are more protected, and sparse branching may be seen.

## 7 DRACOPHYLLUM

*Dracophyllum* Labill., *Voy. Rech. Pérouse* 2: 211 (1800).

Tall, erect to low or prostrate shrubs, generally with a monocotyledonous habit, glabrous; branches with prominent annular scars from fallen leaves. Leaves crowded at the ends of branches or imbricate along them, sessile, bases stem-sheathing and falling to leave conspicuous annular scars on the denuded stem or branches; lamina narrow and usually very concave, linear or ovate-subulate, glabrous, concolorous, abaxial surface with conspicuous parallel veins. Inflorescence terminal or in the upper few axils, compound or sometimes a simple spike or solitary; bracts leaf-like or much reduced, falling or persistent. Sepals 5, persistent. Corolla tube cylindrical or campanulate; lobes 5 shorter than the tube, imbricate in the bud spreading at anthesis. Stamens 5, filaments inserted on the receptacle or ± adnate to the corolla tube, anthers attached at or above the middle, included. Nectary of 5 distinct scales. Ovary 5–locular, each locule

with numerous ovules on axile placentas; style inserted in a deep, tubular depression of the ovary; stigma lobed. Fruit a woody, loculicidal capsule.

A genus of approximately 50 species with a centre of diversity in New Zealand (36 spp.); 9 species are found in New Caledonia, and 6 species are endemic to Australia, of which 2 are present in Tasmania, 1 in north Queensland, and 4 in New South Wales including 1 on Lord Howe Island.

Key Reference: Oliver (1929).

- |   |                        |
|---|------------------------|
| 1. Erect stem or procumbent plant with ascending flowering stems; inflorescence a terminal panicle          | 1 <i>D. milliganii</i> |
| 1: Compact shrub, branches and leaves tightly packed, forming a "cushion plant"; flowers solitary, terminal | 2 <i>D. minimum</i>    |

**1 *Dracophyllum milliganii*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 2: 267, t. 845 (1830) [as '*D. Milligani*']  
Curly Mountainheath

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 5: 329, t. 102 (1975).

Erect shrub, the main stem sometimes branched, to 4m tall. Leaves densely crowded at the branch ends, to 1 m long, the base a broad sheath of the stem, the lamina gradually tapering throughout its length to a recurved, often coiled point, margins scaberulous. Inflorescence a stalked panicle 10–40 cm long; rachis pubescent; bracts with a very broad base and narrowing abruptly to a long point, which shortens progressively in bracts towards the top of the panicle and persists until anthesis; bracteoles small, narrow-lanceolate, deciduous. Flowers white, or suffused pink, crowded on short pedicels. Sepals lanceolate-oblong, 3–4 mm long, keeled, margin ciliolate near the apex. Corolla tube approximately equal with the sepals, contracted at the throat; lobes shorter than the tube, recurved. Filaments free, inserted on the receptacle; anthers at the throat of the tube. Ovary glabrous; nectary of 5 bilobed scales; style shorter than the corolla tube; stigma 5-lobed. Flowering Dec.–Jan.

Tas. (TSR, TWE); endemic. Found in exposed, wet places in montane shrubberies in the south-west of the state, to c. 1200 m elevation.

NOTE: There is an arborescent (to 6 m or more) form of *Dracophyllum* which occurs on mountains in Southern Tasmania, such as Mt. Rugby, where it grows around and amongst the boulders which lead to the summit. The authors believe it should be recognised as a separate taxon from *D. milliganii* Hook.f., although more study is required. Bentham's (1868) description of *D. milliganii* in his *Flora Australiensis* appears to correspond with this putative taxon, and refers to "a shrub attaining nearly the height of *Richea pandanifolia*, but more branching". In contrast, Hooker's protologue in *Flora Tasmaniae* (1857) describes *D. milliganii* saying "the whole plant forming a low, rigid tufted shrub, a foot high, branching from the base". The form of *D. milliganii* most commonly encountered in montane heaths, eg. Mt Field, is much more consistent with Hooker's description, having a single erect stem or a branching decumbent stem with short, erect flowering branches rarely more than 30 cm tall, bearing a densely crowded panicle to 30 cm long. In their respective Tasmanian Floras, both Rodway (1903) and Curtis (1963) attempt to combine Bentham's and Hooker's descriptions, and describe *D. milliganii* as a woody plant with the main axis erect and often unbranched, 15 cm – 4 m tall. The Mt Rugby taxon has, in general, a single erect main stem which may branch near the top, possibly due to fire or other damage to the apex. This is supported by the fact that many plants in the population had blackened stems, suggesting recent fire. The authors have not seen a fertile plant of the arborescent form, although an old inflorescence observed appears shorter, more open, and with fewer florets than Hooker's original description.

**2 *Dracophyllum minimum*** F.Muell., *Fragm.* (Mueller) 1(2): 39 (1858) Heath Cushionplant

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 5: 349, t. 112 (1975).

A much branched, compact shrub forming dense mounds (cushion plants), often 1 m or more in diameter and 30–50 cm in depth. Branchlets erect, 2–6 cm long, the upper parts covered with closely imbricate leaves. Leaves concave, thick, straight, with a broad sheathing base, margin minutely scaberulous, apex acute or ± subulate with a hard point. Flowers white, solitary, terminal, ± sessile, tightly enclosed by foliage

leaves so that only the lobes are exposed on the surface of the cushion. Sepals narrow-lanceolate, approximately 4–6 mm long. Corolla tube approximately as long as the calyx; lobes shorter than the tube, broad triangular with longitudinal folds at the base, spreading. Filaments inserted near the top of the tube. Nectary of 5 bilobed scales. Style shorter than the corolla tube. Flowering Jan.–Mar.

Tas. (TCH, TSR, TWE); endemic. Found in very wet places on the highest summits of the southern and western mountains, e.g. Mt Field and Cradle Mountain. Can be found on the highest point in Tasmania, Mt. Ossa, at 1615 m elevation.

## EPACRIDOIDEAE TRIBE 2 COSMELIEAE

Leaves apetiolate, the lamina sheathing the stem at the base; after shedding the stem is left smooth without any annular scars. Flowers solitary or in spikes or panicles. Style inserted in a depression at the top of the ovary, the ovary 5-locular, each locule with numerous ovules, axile placentation. Fruit a woody loculicidal capsule.

Three genera: *Andersonia* (35(+) spp.) and *Cosmelia* (1 spp.) endemic to Western Australia; *Sprengelia* (7 spp.) 6 sp endemic to south-eastern Australia, 1 also in New Zealand.

## 8 SPRENGELIA

*Sprengelia* Sm., *Kongl. Vetensk. Acad. Nya Handl.* 260 (1794).

Synonymy: *Ponceletia*, R.Br., *Prodr. Fl. Nov. Holland.* 554 (1810).

Erect or decumbent shrubs; older branches glabrous, smooth, without leaf scars.

Leaves imbricate in part, the base cylindrical and completely sheathing the stem, the upper part concave, spreading and tapering to an acute or acuminate point, concolorous, finely striate; the upper leaves grade into floral leaves or bracts. Flowers bisexual, usually solitary, though 2 or 3 together are not uncommon, very shortly pedunculate, terminal or terminating short, crowded, axillary branchlets, often forming dense ovate heads, individual flowers being subtended by several indistinguishable bracteoles grading into the sepals. Sepals 5, membranous or petaloid, pink, white or greenish, generally erect or spreading, the upper part often recurved, lanceolate, glabrous, ciliolate margins, approximately equal in length with the petals. Corolla pink or white, petals 5, glabrous, the tube usually much shorter than the lobes, and frequently splitting from the base soon after the fertilised ovary begins expansion, giving the impression of a clawed structure; lobes lanceolate, erect or spreading widely at anthesis. Stamens hypogynous, the lower part bent around the ovary, the upper part erect, bearing anthers at first connivent or cohering in a ring around the style, which may persist or the anthers may straighten and separate during anthesis; anthers papillose-hairy externally (very rarely glabrous), partly fused to the filament, bilocular, dehiscing by a single longitudinal slit above the common septum. Nectary absent. Ovary 5-locular with several ovules per locule; placentation axile; style filiform, inserted in narrow tubular depression in ovary; stigma small, lobed. Fruit a loculicidal capsule.

A genus of 7 species: 6 endemic to south-eastern Australia and 1 species in Australia and New Zealand; 5 species (4 endemic) in Tasmania.

- |   |                       |
|---|-----------------------|
| 1. The anthers and upper part of the filaments persistently connivent to the style during and after anthesis                                | 1 <i>S. incarnata</i> |
| 1: Filaments and anthers connivent to the style at the onset of anthesis, but separate and become erect or spreading as anthesis progresses | 2                     |
| 2. Flowers with sepals and petals spreading forming a star shaped flower  | 3                     |
| 2: Petals and sepals erect forming a cup shaped flower  | 4                     |
| 3. Plant rarely above 30 cm tall; flowers pink; stamens hirsute or rarely glabrous (montane area)   | 2 <i>S. montana</i>   |
| 3: Tall, robust plant, up to 2m tall; flowers white; stamens hirsute (sea level to montane in the SW)                                       | 3 <i>S. propinqua</i> |

4. Prostrate or low scrambling plant; leaves flattened against the stem, distichous; flowers pink **4 S. distichophylla**
- 4: Erect, low, bushy plant, commonly an inhabitant of an alpine cushion (usually *Dracophyllum minimum*, occasionally *Donatia novae-zelandiae*), rarely separate; leaves spreading, not distichous; flowers white **5 S. minima**

**1 *Sprengelia incarnata* Sm., Kongl. Vetensk. Acad. Nya Handl. Ser. 2, 15: 263 (1794)** *Pink Swampheath*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 455, Fig. 103 (1963); A.Eagle, *Trees and Shrubs of New Zealand*, Ser. 2, Plate 127. (1982); Albrecht, *Fl. Victoria* 3: 467, fig. 95e-f; oppo. 629, pl. 10e-g (1996).

An erect shrub, sometimes low and straggling, usually 15–100 cm tall, (–200 cm in sheltered habitats), rarely taller, glabrous. Older stems without leaf scars. Leaves imbricate, spreading, almost at right angles to the stem (the lamina of larger leaves is often recurved and in very lush plants the leaves become twisted or take on a spiral aspect); lamina relatively thin, lanceolate to narrowly ovate, concave, 4–20 (–50) mm long, 2–5 (–11) mm wide widening from the base, sheathing base 2.5–3.5 (–10) mm long, margin entire or ciliate where stem-clasping, gradually tapering to an acute, hard, often pungent point, mucro 0.4–0.6 mm long; floral leaves similar but smaller, the innermost with margin hyaline, shorter than calyx and forming an involucre around it. Flowers terminal or terminating short axillary branchlets (in large, very lush plants, the branchlets may show secondary branching), solitary or rarely 2 or 3 together, often crowded in tight clusters up to 20 or more, forming ovate heads; bracts and bracteoles numerous, grading from floral leaves to approximately 2.5 mm long, 1.3 mm wide, ovate, with margin hyaline and apex acuminate, ultimately mucronate. Sepals pink or white, generally spreading, somewhat scarious, glabrous, narrowly lanceolate, 4.1–4.8 mm long 0.9–1.2 mm wide, shortly united at the base. Corolla pink or white, approximately equal in length to the calyx, the petals almost free; tube short, 0.8–1.0 mm long, fully closed at onset of anthesis but soon thereafter starting to split in the lower part assuming a clawed appearance; lobes narrowly triangular, 3.8–4.4 mm long, acute, glabrous, rotately spreading and reflexed. Stamens inserted on receptacle; filament ± flattened; anthers 1.2–2.3 mm long, persisting in a coherent ring around style, papillose-hairy externally. Ovary approximately 1.1 mm wide x 0.9 mm high, ridged, glabrous; style filiform, 3.2–3.7 mm long, exceeding anthers; stigma small. Fruit approximately 2 mm diameter. Flowering Sep.–Nov.

Tas. (all regions except MIS); also SA, Qld, NSW, Vic., New Zealand. A widespread and abundant species especially in peaty heaths, from sea level to sub-alpine elevations to c. 1100 m elevation. Re-examination of specimens held at HO has shown (on the basis of anther coherence and style length) that past collections from the highest elevations in Tasmania lodged as *S. incarnata*, almost without exception are *S. montana* (non-flowering collections could not be verified). *S. incarnata* appears not to occur above middle elevations in Tasmania, the actual elevation limit varying across the state depending on rainfall and substrate.

**2 *Sprengelia montana* R.Br., Prodr. Fl. Nov. Holland. 555 (1810)** *Alpine Swampheath*

*Sprengelia incarnata* f. *montana* (R.Br.) Siebert & Voss, *Vilm. Ill. Blumengärtn.*, ed. 3 1: 610 (1896); *S. incarnata* var. *montana* (R.Br.) Domin, *Biblio. Bot.* 22(89): 1055 (1930). *Sprengelia incarnata pro parte excl. typ. sensu* W.M.Curtis, *The Student's Flora of Tasmania* 2: 454 (1963).

A small erect shrub to 30 (–50) cm tall, usually branched from the base. Older stems bare and without leaf scars, often growing in fairly dense tufts in or edging alpine cushion plants. Leaves imbricate; lamina thick and stiff, ovate, 3–8 mm long, 2–3 mm wide, keeled in the upper part, spreading to sub-erect, concave, widest at the shoulder, then tapering towards the often upturned apex, base sheathing the stem, 1.8–2.5 mm long, margin entire or ciliate, hyaline at least in the lower part, infolding and touching just below the apex, which is acute, blunt or with a short mucro. Flowers pink, up to 10, solitary or 1 or 2 together terminating short axillary branches, in very crowded heads at the branch tips; bracts ovate, graduating and reducing in size from the foliage leaves to approximately 2.5 x 3.0 mm, with a broad hyaline margin. Sepals narrow lanceolate, straight, 4.5–5.1 mm long, 1.2–1.5 mm wide, acute, spreading. Corolla tube very short, approximately 0.9–1.2 mm; lobes lanceolate, squarrose, 3.5–4.4 mm long 1.0–1.4 mm wide, glabrous, spreading. Staminal filaments inserted on the receptacle, ± thickened, bent around the ovary; anthers connivent to the style in the bud but separating and spreading on anthesis, 1.1–1.3 mm long, (glabrous–) sparsely to densely

hirsute. Ovary ribbed, 0.9–1.1mm high, 1.1–1.3mm wide, glabrous to pubescent; style slender, 1.8–3.0 mm long; stigma amidst the anthers. Flowering Nov.–Jan.

Tas. (BEL, TCH, TSR, TWE); endemic. Localised populations of *S. montana* are widespread in montane regions to c. 1300 m elevation, occurring in wet areas and often inhabiting or close to cushion plants. An unverified collection from the Baw Baw Range in Victoria is reported in Albrecht (1996).

### 3 *Sprengelia propinqua* A.Cunn. ex DC., *Prodr.* (DC.) 7(2): 768 (1839)

Western Swampheath

*Sprengelia incarnata* f. *propinqua* (A.Cunn. ex DC.) Siebert & Voss, *Vilm. Ill. Blumengärtn.*, ed. 3, 1: 610 (1896). *Sprengelia macrantha* Hook.f., *Lond. J. Bot.* 6. 273 (1847). *Sprengelia incarnata pro parte excl. typ. sensu* W.M.Curtis, *The Student's Flora of Tasmania* 2: 454 (1963).

An erect, robust shrub, with multiple branches from the base, to 2 m tall. Branches glabrous, older parts bereft of leaves, without leaf scars. Leaves imbricate, crowded on distal branches; lamina ovate, 6–20 mm long, 3–6 mm wide, concave, stiff, spreading to sub-erect, upturned towards apex, widest at shoulder, glabrous, lower surface striate, bases sheathing stem, 3–4 mm long, margin ciliolate near the apex, hyaline towards the base, apex tapering to a barely pungent mucro. Flowers white, terminating short branches (often with secondary branchlets), crowded in the upper axils; bracts ovate, similar to foliage leaves, but graduating from them to a smaller size 3.5–5.0 mm long, 3.0–4.5mm wide. Sepals narrowly lanceolate, straight, 7.6–8.4 mm long 1.5–1.9 mm wide, spreading. Corolla tube 1.4–2.0 mm long, becoming clawed at the base as a result of the ovary swelling after fertilization; lobes narrowly lanceolate, 6.2–7.9 mm long, 1.5–2.0 mm wide, spreading and reflexed. Staminal filaments inserted on receptacle, bent around ovary, upper part and anthers connivent to style in bud, but separating and spreading with the onset of anthesis; anthers 3–4 mm long, densely hairy. Ovary ridged, slightly pubescent, 0.9–1.1 mm high, 1.3–1.4 mm wide; style slender, 5.9–6.7 mm long; stigma exerted above anthers. Fruit a capsule. Flowering Nov.–Jan.

Tas. (TCH, TSR, TWE); endemic. Found in poorly drained shrubberies, heaths and sedge communities on precambrian silicates of high rainfall areas in the southwest from near sea level to an elevation of > 1000 m. It is frequently found in cohabitation with *S. incarnata* and there is evidence of intermediate forms and hybridization between these two species. More study is required.

### 4 *Sprengelia distichophylla* (Rodway) W.M. Curtis, *The Student's Flora of Tasmania* 2: 456 (1963)

Tiny Swampheath

*Sprengelia incarnata* var. *distichophylla* Rodway, *Tasman. Fl.* 124 (1903).

Small woody plant, prostrate or with branchlets erect or ascending. 3–5 cm. long. Leaves small, closely imbricate, 1.0–2.5 mm long, 0.5–1.0 mm wide, distichous, infolded, the central part thick with a rounded keel, the flat leafy branch 3–4 mm broad; lamina sub-erect, base with a wide margin and a narrow scarious wing, ciliolate, apex subulate. Flowers solitary, terminal on major branches. Sepals lanceolate, 4–5 mm long. Corolla campanulate; tube approximately 2 mm, long; lobes slightly longer, triangular, overlapping somewhat at the base. Stamens free and spreading at anthesis; filaments flattened, as wide as the anthers and adnate to them; anthers glabrous, the lobes at the base shortly prolonged in the mid-line forming a small point. Ovary glabrous; style approximately as long as the ovary, scarcely 2/3 the length of the petals. Flowering Nov.–Dec.

Tas. (TCH, TWE); endemic. Local, recorded only from fjaldmark areas on mountains of the south-west, and at Red Knoll, to c. 900 m elevation.

### 5 *Sprengelia minima* Crowden, *Telopea* 15: 62 (2013)

*Sprengelia* sp. Mt Field (A.M.Gray 1513) Tasmanian Herbarium. *Sprengelia propinqua* var. *demissa* F.Muell., *Fragm.* (Mueller) 1(2): 39 (1858).

*Illustrations:* loc. cit. Figs 2-5.

A small much branched shrub, either wholly contained within its cushion plant host, or with short branchlets prostrate on the surface. Leaves imbricate; lamina erect to sub-erect, 3–5 mm long, 1–2 mm wide, concave, broadest just above shoulder, thick, keeled in upper half, glabrous, weakly striate in lower part of both surfaces, base sheathing stem, 1.0–1.5 mm long, margins involute and touching below apex forming a solid cylinder, microciliate above and with a thin hyaline edge in lower part, tapering sharply for half its length then more gradually to a blunt mucro. Flowers white, solitary, terminal on main branches, rarely a single floret on a short, axillary branchlet; bracts similar to foliage leaves though grading to a lesser size 2.0–2.35 mm long 1.0–1.5 mm wide, those immediately subtending the flowers with a broad hyaline margin. Sepals broadly lanceolate, erect, 3.5–4.0 mm long, 1.0–1.5 mm wide, concave, acute. Corolla tube approximately 0.5 mm long; lobes 3.0–3.5 mm long, 0.5 mm wide, lanceolate-ovate, generally erect, slightly spreading at tips in older flowers, slightly wavy. Staminal filaments inserted on receptacle, flattened below then cylindrical, at first bent around style, but straightening and spreading with anthers as anthesis progresses; anthers papillose-hairy, 1.0–1.5 mm long. Ovary approximately 1 mm wide, 0.8 mm high, 5-locular, glabrous; style slender, deeply inserted in a depression at top of ovary, short 0.7–1.3 mm, stigma held below top of the anthers. Fruit a capsule. Flowering Dec.–Jan.

Tasmania (TSR, TWE); endemic. Found on Mt Field, the Hartz Range and elsewhere to c. 1350 m elevation, as an inhabitant of the bolster plants, *Dracophyllum minimum* F.Muell. and *Donatia novae-zelandiae* J.R. & G. Forst.

This taxon appears to be exclusively a cushion inhabitant. On Mt. Field (K Col & Mawson Plateau) it seems to be associated only with *Dracophyllum minimum*, but at Lake Esperence (Hartz Ra.) and elsewhere it also inhabits *Donatia novae-zelandiae*. Plants growing in *Dracophyllum minimum* (Mt. Field–dolerite) barely emerge above the surface contour of the host cushion, whilst those in *Donatia novae-zelandiae* (Lake Esperence, on Precambrian silicates) are more exposed, with several short, prostrate branchlets spreading on the cushion surface. The much branched stems within the cushion are bare or clothed with dead leaves, with only a few green leaves near the tips. This difference in growth habit may relate to the relative densities of the cushions.

NOTE: ***Sprengelia* sp.** Mt Read (R.K.Crowden 0802 006) Tas. Herbarium, *Telopea* 15: 57-65: 2013. A small shortly branched shrub, known only as an inhabitant of the alpine cushion plant *Donatia novae-zelandiae*, from a single location (Mt. Read, near the summit cairn). In habit similar to *S. minima* with short branchlets prostrate on the cushion surface, but becoming denser at the cushion margins, sometimes spilling over onto the substrate. Leaves similar in all respects to *S. minima*, imbricate, the base sheathing the stem 1.0–1.5 mm long, the lamina erect to sub-erect, 3–5 mm long, 1–2 mm wide, concave, broadest just above the shoulder, tapering sharply for half its length then more gradually to a blunt mucro, thick, keeled in the upper half, glabrous, weakly striate in the lower part of both surfaces, the margins involute and touching below the apex forming a solid cylinder, minutely ciliate above and with a thin hyaline edge in the lower part. Flowers not seen, the developing capsules solitary, terminal on the main branches. Bracts similar to the foliage leaves though grading to a lesser size 2.0–2.35 mm long 1.0–1.5 mm wide, those immediately subtending the capsules (flowers) with a broad hyaline margin. A single capsule containing (probably) mature seeds was still attached to the style, with coherent anthers, a significantly different state to *S. minima*. Further study of fertile material is required to determine whether this represents a true feature of the species or is just an aberration in this plant.

Within the cushions, the plants present an appearance similar to *S. minima* as found at Lake Esperence. It is prostrate and straggling over the surface of the cushion and with solitary flowers (capsules) terminating the main branches. However, at the cushion margins they present a larger, denser, prostrate form which may spread out from the cushion edge onto the surrounding substrate. Unfortunately only vegetative specimens have been observed to date, but on one plant, the detached remains of a single old flower showed anthers in a persistent ring around the style, as is usual in *S. incarnata*, rather than spreading as in *S. minima*. However, the corolla residue more likely resembles the remains of a cup-shaped rather than a star-shaped flower.

## EPACRIDOIDEAE TRIBE 3 PRIONOTEAE

Leaves petiolate with a dentate margin and reticulate venation. Flowers solitary, stamens hypogynous, style inserted in a depression at the top of the ovary (in *Lebetanthus* the depression almost reaching to the base of the ovary). Ovary 5-locular with few to numerous ovules in each, placentation axile or parietal. Fruit a woody loculicidal capsule.

A tribe of 2 genera, both monotypic: *Lebetanthus* Endl. is endemic to southern Chile and Patagonia, while *Prionotes* is endemic to Tasmania.

### 9 PRIONOTES

*Prionotes* R.Br., *Prodr. Fl. Nov. Holland.* 552 (1810).

Sub-erect shrubs or climbing epiphytes. Leaves with denticulate margins and reticulate venation. Flowers solitary, axillary. Anthers hypogynous. Ovary 5-locular, placentation axile

A monotypic genus endemic in Tasmania, closely related to the Patagonian monotypic genus *Lebetanthus*, and differing mainly in ovary morphology.

**1 *Prionotes cerinthoides*** (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 553 (1810)

*Climbing Heath*

*Epacris cerinthoides* Labill., *Nov. Holl. Pl.* 1: 43, t. 59 (1804).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 453, Fig. 102 (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 1: 68, t. 23 (1967).

Woody shrub of variable habit, sometimes dense and matted, or with long, slender branches penetrating beneath the outer bark of trees and so climbing to considerable heights (to 10 m) as an epiphyte. Branchlets red-brown, pubescent. Leaves alternate, spreading; petiole 1.2–1.4 mm long, pubescent; lamina flat, coriaceous, oblong or elliptic, approximately 6–14 mm long, 2–4 mm wide, glabrous, the adaxial surface shiny, abaxial surface dull and discoloured, venation (when visible) reticulate, margins thickened and dentate, a glandular hair at the tip of the teeth. Flowers pink or red, solitary, axillary, often pendulous; pedicels near the branch ends, shorter than the corolla; bracts small and distant from the sepals on the lower part of the peduncle, ovate, glabrous, margin ciliate, apex acute. Sepals ovate, 3.5–4.5 mm long, red-pink, ovate, glabrous, rarely pubescent near apex, margin ciliate, apex acute. Corolla caducous; tube 20–25(–30) mm long, cylindrical, sometimes constricted at the throat, glabrous outside and in; lobes shorter than the tube, spreading to recurved, broadly triangular, sparsely hairy at the base externally, apex acute. Stamens hypogynous; filaments thick; anthers, 1.5–1.8 mm long, adnate to the filament, bilocular, but dehiscing through short, paired apical slits. Ovary 5-locular, oblate, pilose; nectary of 5 small scales; style slender 20–25 mm long, inserted in a depression at the top of the ovary, stigma among the top of the anthers or exerted. Nectary approximately 1/3 as long as the ovary, scales truncated. Fruit a woody loculicidal capsule 8–10 mm long. Flowering Mar.–May.

Tas. (TCH, TSR, TWE); endemic. A widespread species in the west of the state where found in wet forests to sub-alpine elevations c. 1000 m elevation.

## EPACRIDOIDEAE TRIBE 4 ARCHERIEAE

Flowers pedicellate, solitary and axillary towards the ends of the branchlets, or in short terminal racemes, the bracts small and caducous; bracteoles confined to the base of the pedicels, usually caducous. Flowers 5-merous. Ovary deeply 5-lobed, style inserted in a deep apical pit reaching almost to the base of the ovary, placentas basal or sub-basal.

A monogeneric tribe.

Key reference: Crayn & Quinn (1998).

## 10 ARCHERIA

*Archeria* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 262 (1860).

Erect or spreading shrubs or small trees, often of a straggling habit. Leaves imbricate or nearly distichous, flat, shortly stalked or almost sessile, venation parallel. Inflorescence a short terminal raceme, either with each flower solitary within a floral leaf, or leafless, or flowers solitary and axillary towards the ends of branches; bracts and bracteoles several, the subtending ones small and deciduous, the basal ones more persistent. Flowers white or pink, bisexual, shortly pedicellate. Sepals 5, shorter than the corolla. Corolla caducous, shed soon after anthesis; tube broadly cylindrical or almost campanulate, often a slight constriction at the throat, glabrous or with pilose lobes; lobes short, imbricate in the bud, spreading or recurved at anthesis. Stamens epipetalous; anthers enclosed, the tips at the throat. Nectary annular or of 5 short, free scales. Ovary 5-locular with numerous ovules in each locule, borne on placentas arising near the base of the axis; style slender, included or shortly exerted, inserted in a deep depression which reaches nearly to the base of the ovary; stigma clavate or dilated and distinctly 5-lobed. Fruit a loculicidally dehiscent capsule.

A genus of 7 species: 5 endemic to Tasmania, 2 endemic to New Zealand.

- |  |                           |
|--|---------------------------|
| 1. Leaves thin, ± distichous, acute apex, slightly prickly   | 2                         |
| 1: Leaves somewhat thickened, irregular often crowded, apex blunt                                  | 3                         |
| 2. Ovary and capsule pubescent   | 1 <i>A. eriocarpa</i>     |
| 2: Ovary and capsule glabrous  | 2 <i>A. hirtella</i>      |
| 3. Flowers pink, axillary, glabrous, solitary or in short racemes                                  | 3 <i>A. comberi</i>       |
| 3: Flowers white, in terminal racemes  | 4                         |
| 4. Corolla lobes pilose; style short, the stigma close to the ovary                                | 4 <i>A. serpyllifolia</i> |
| 4: Corolla lobes glabrous or sparsely pubescent; style long, the stigma at the base of the anthers | 5 <i>A. minor</i>         |

**1 *Archeria eriocarpa*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 263, t. 80b (1857)     *Hairy Rainforest-heath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: 274, t. 92 (1973).

Erect, straggling shrub with few stems and an open habit, or a small tree, 100–400 cm tall. Branchlets round, green-yellow or red-brown, pubescent; leaf scars inconspicuous, rounded with a raised edge. Leaves persistent after death, alternate, often distichous, sub-erect or spreading; petiole sub-erect, rarely appressed, glabrous, 0.8–1.3 mm long; lamina concolorous, glabrous, 6–9 mm long, 2–3 mm wide, elliptic to lanceolate to ovate, flat or slightly concave near the base, straight or recurved in upper part or squarrose, major veins parallel, base cuneate, rarely obtuse, margin serrulate, apex acute or acuminate, pungent; adaxial surface smooth, midrib barely visible; abaxial surface with only midrib evident. Inflorescence terminal or in the upper axils, or rarely randomly scattered along branchlets, shortly racemose with 1–3(–5) florets, erect or pendant, peduncle compact, puberulent, straight or sometimes curved; bracts and bracteoles distinct from sepals, most except the lower ones deciduous, ovate, glabrous, margin entire, apex obtuse; flowers hermaphrodite, pedicellate above the subtending bracts, red/pink or rarely white, erect or pendant. Sepals ca. 3 mm long, red/pink, ovate, glabrous, apex acute, margin ciliolate. Corolla glabrous, tube 6–7 mm long, cylindrical with a throat constriction; tube throat open, the diameter narrower than the length of the tube; lobes shorter than the tube, erect, spreading or recurved, broadly triangular, apex obtuse. Nectary scales emarginate, to 1/2 the length of the ovary. Stamens 5, filaments terete, inserted at or just below tube throat, sometimes detached from tube and appearing hypogynous; filaments equal or longer than anther and dorsifixed near top; anthers approximately 0.6 mm long, erect, included or the tips barely showing. Ovary pilose, depressed, globose, ridged; style 5–6(–7) mm long, slender, glabrous; stigma amidst or at top of anthers or exerted. Flowering Oct.–Dec.

Tas. (TCH, TSR, TWE); endemic. Occasional in rainforest, particularly close to streams or in wet places, from sea level to and elevation of approximately 1000 m.



**2 *Archeria hirtella*** (Hook.f.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 263, t. 81 (1857)*Smooth Rainforest-heath**Epacris hirtella* Hook.f., *Lond. J. Bot.* 6: 271 (1847).*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: 275, t. 92 (1973).

Erect open or compact shrub or small tree, 2–6 m tall. Branchlets round, red-brown, villous. Older stems bare; leaf scars inconspicuous, rounded with a slightly raised edge. Leaves alternate or distichous, spreading, or sub-erect; petiole glabrous 0.7–0.9 mm long, appressed or sub-erect; lamina glabrous 6–10 mm long, 2–3 mm wide, ovate, slightly thickened, flat, or slightly concave near the base, straight, concolorous, major veins parallel, base cuneate, margin serrulate, apex acute to acuminate, pungent; adaxial surface smooth with venation obscure; abaxial surface with only midrib evident. Inflorescence 1–4(–5) florets on a short, raceme mainly in the upper axils or terminal on current season's branchlets, erect or sometimes pendant; flowers white or cream, hermaphrodite, pedicellate; peduncle compact, puberulent; bracts ovate, glabrous, margin ciliolate, apex obtuse, upper bracteoles caducous; pedicel shorter than corolla tube, straight or curved. Sepals glabrous, 3–4 mm long, white, sometimes streaked red/pink, ovate, margin ciliolate, apex acute. Corolla glabrous; tube 6–7 mm long, cylindrical with a throat constriction, tube throat open, narrower than tube length; lobes shorter than tube, spreading or recurved, broadly triangular, apex acute. Nectary scales rounded or emarginate, to 1/3 the length of the ovary. Stamens 5; filaments terete, inserted at or just below tube throat, shorter than anther, dorsifixed to anther near top; anthers 0.6–0.7 mm long, erect, included or the tips barely showing. Ovary depressed globose, ridged, glabrous; style approximately 0.6 mm long, slender, glabrous; stigma amidst or at top of anthers or exserted. Flowering Nov.–Dec.

Tas. (KIN, TCH, TSR, TWE); endemic. Occasional in rain forests, particularly close to streams, or in wet places, from sea level to alpine heaths at approximately 1000 m elevation.

**3 *Archeria comberi*** Melville, *Kew Bull.* 12: 389, Fig. 1 (1958)*Pink Summit-heath**Archeria comberi* Summerh. ex Orr, *Trans. & Proc. Bot. Soc. Edinburgh* 34: 472 (1948), *nom. inval.**Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 453, Fig. 101 (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 3: 161, t. 49 (1971).

Erect or rarely ascending compact shrub, 15–150 cms tall. Branchlets round, red-brown, pubescent or with scattered hairs or bristles, leaf scars conspicuous, rounded with a raised edge. Leaves alternate, spreading, often persisting on older stems; petiole 1–1.5 mm long, sub-erect, glabrous; lamina glabrous 3–4 mm long, 2–3 mm wide, often purplish in colour, ovate or orbicular, thickened, flat or slightly concave near the base, ± straight, concolorous, major veins parallel, base obtuse, margin entire or microserrulate, apex obtuse, with a blunt callus or mucro; adaxial surface smooth, venation obscure, or midrib only barely visible; abaxial surface glabrous with only the midrib conspicuous. Inflorescence axillary, usually on past seasons wood, a short compact raceme with (1–)2–3 florets, peduncle glabrous; flowers hermaphrodite, red/pink, shortly pedicellate; bracts ovate, glabrous, apex acute, margin entire, bracteoles caducous, a few lower ones persistent; pedicel shorter than tube, straight. Sepals 5(6–7), glabrous, approximately 3 mm long, red/pink, elliptic to ovate, margin entire, apex obtuse. Corolla glabrous; tube 5–6 mm long, urceolate or cylindrical with a throat constriction, tube throat open, narrower than tube length; lobes 5(6–7), shorter than the tube, spreading or recurved, narrowly triangular, glabrous, apex obtuse. Nectary scales rounded, to 1/2 the length of the ovary. Stamens 5; filaments terete, shorter than anthers, inserted at or just below tube throat, dorsifixed to anther above the mid-point; anthers approximately 0.5 mm long, erect, included or the tips barely showing. Ovary globose, glabrous; style 5–6 mm long, slender, glabrous; stigma amidst or at top of anthers, rarely exserted. Flowering Nov.–Dec.

Tas. (TCH, TSR, TWE); endemic. Local on mountain summits in alpine shrubberies to c. 1400 m elevation.

**4 *Archeria serpyllifolia*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 263, t. 80a (1857) *Thyme Summit-heath*  
*Epacris micranthera* F.Muell., *Fragm.* (Mueller) 6(47): 72 (1868).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: 161, t. 49 (1971).

Ascending or erect shrub, in exposed situations often creeping over the surface of boulders and rocky ground, 15–60–(100+) cm tall. Branchlets round, green-yellow, glabrous or pubescent, leaf scars conspicuous, rounded. Leaves alternate, persisting on older stems, mainly crowded on new branchlets, sub-erect or spreading; petiole 1.0–1.3 mm long, appressed or sub-erect, glabrous; lamina glabrous 3–8 mm long, 2–4 mm wide, elliptic-lanceolate to ovate, slightly thickened, flat or slightly concave, straight, concolorous, major veins parallel, base obtuse, margin serrulate in the upper part, apex obtuse with a callus or mucro, blunt; adaxial surface smooth with venation obscure; abaxial surface with only the midrib and 2 other major veins barely evident. Inflorescence terminal or axillary on current season's branchlets, racemose, flowers 2–8, hermaphrodite, white or cream, pedicellate; peduncle compact, glabrous; bracts ovate, glabrous, margin ciliolate, apex obtuse, upper bracteoles caducous, a few lower ones persisting; pedicel shorter than corolla, straight. Sepals glabrous, approximately 4 mm long, white often streaked red/pink, oblong or elliptic, margin ciliolate, apex acute. Corolla tube 4–5 mm long, cylindrical with a throat constriction, tube throat open, narrower than tube length, glabrous outside, inside sparse hairs extending from lobes; corolla lobes shorter than tube, erect or spreading, broadly triangular, bearded inside below the middle, apex obtuse. Nectary scales rounded to emarginate, to 1/3 the length of the ovary. Stamens 5; filaments terete inserted at or just below tube throat, shorter than anther, dorsifixed to anther near the top; anthers 0.5–0.6 mm long, erect, included. Ovary depressed globose, ridged; style glabrous, 1.5–2 mm long, cylindrical; stigma 5-lobed, included, close to ovary or less than 1/2-way up tube. Flowering Dec.–Feb.

Tas. (TCH, TSR, TWE); endemic. Local, often scrambling amongst boulders on the summits of mountains to c. 1400 m elevation.

**5 *Archeria minor*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 264 (1857) *Small Summit-heath*  
*Epacris microphylla* Hook.f., *Lond. J. Bot.* 6: 272 (1847); *Archeria serpyllifolia* var. *minor* (Hook.f.) Benth., *Fl. Austral.* 4: 246 (1868).

Erect compact shrub 20–70 cm tall. Branchlets round, red-brown, papillose, older stems mostly bare, leaf scars conspicuous, rounded with a raised rim. Leaves somewhat persistent, alternate, crowded on new branchlets, sub-erect; petiole approximately 0.6 mm long, appressed, glabrous; lamina glabrous, 2.5–6 mm long, 1.5–2.5 mm wide, elliptic to ovate, concolorous, somewhat thickened, flat or slightly concave, straight, major veins parallel, base cuneate to obtuse, margin serrulate, apex acute and mucronate, blunt; adaxial surface smooth, venation obscure; abaxial surface with midrib weakly evident. Inflorescence terminal, shortly racemose on current season's branchlets, consisting of (1–)3–5(–7) florets, rachis compact, puberulent; bracts ovate, glabrous, margin ciliolate, apex obtuse, upper bracteoles caducous a few lower ones persisting; pedicel shorter than or equal to corolla; flowers white or cream, hermaphrodite, pedicellate. Sepals glabrous, 2.5–3 mm long, red/pink, ovate, margin ciliolate, apex acute. Corolla tube 3.5–5 mm long, cylindrical with a throat constriction, throat open, narrower than tube length, glabrous outside and inside; lobes shorter than tube, spreading, broadly triangular, apex obtuse, mainly glabrous but sparsely puberulent near the base. Nectary scales emarginate, to 1/3 the length of the ovary. Stamens 5, filaments terete, inserted at or just below tube throat, shorter than the anthers, dorsifixed to anther above the mid-point, close to the top; anthers 0.6–0.7 mm long, erect or slightly angled inwards to the throat, included or the tips barely showing. Ovary depressed globose, ridged, glabrous; style 2.5–3.5 mm long, cylindrical, glabrous, stigma capitate, included in the top half of the tube, but not reaching the anthers. Flowering Jan.–Feb.

Tas. (TCH, TSR, TWE); endemic. Rare in damp places and seepages on the highest parts of Mt Field and the western mountains of the Central Plateau, to c. 1200 m elevation.

## EPACRIDOIDEAE TRIBE 5 EPACREAE

Erect or prostrate shrubs, or small trees. Leaves alternate. Flowers 5-merous, solitary, axillary, pedunculate, the peduncle clothed by numerous bracts which merge gradually with the sepals. Corolla tube cylindrical or campanulate, with or without a constriction at the throat; lobes spreading. Filaments attached near the top of the tube, or rarely approximately 1/2 way up or hypogynous; anthers usually versatile, attached to the filament in the middle or slightly above, or rarely fused in part; dehiscing by a single longitudinal slit or rarely by an abbreviated slit near the apex. Ovary 5-locular, each locule with numerous ovules, placentation axile; style inserted in the top of the ovary. Fruit a loculicidal capsule.

A tribe of 5 genera, 1 (*Lysinema*) endemic in Western Australia, 3 (*Budawangia*, *Rupicola*, *Woolisia*) endemic in New South Wales, and 1 (*Epacris*) in eastern Australia, extending to New Zealand and New Caledonia.

### 11 EPACRIS

*Epacris* Cav., *Icon. [Cavanilles]* 4: 25 (1797), *nom. cons.*

Erect, or sometimes virgate, rarely prostrate rigid shrubs. Branchlets pubescent to villous, or occasionally glabrous, older stems bare; leaf scars raised. Leaves simple, shortly petiolate, sometimes sessile, alternate, exstipulate; lamina glabrous or with sparse hairs or bristles which may extend a short distance from the petiole adaxially, lamina concolorous, mostly flat, or concave and partly stem clasping, straight or recurved in the upper part, margin  $\pm$  entire, sometimes hyaline, minutely serrulate or scabrous, rarely ciliate, apex obtuse and blunt to acuminate and pungent, sometimes mucronate or mucronulate; adaxial surface sometimes glossy, venation normally obscure; abaxial surface with midrib conspicuous and often keeled, other veins  $\pm$  conspicuous. Inflorescence a solitary flower, axillary, confined to clusters in the upper leaf axils, or extending  $\pm$  down the branches in a leafy, spike-like arrangement; peduncle short, rarely equalling or exceeding the length of the flower; bracts numerous, obscuring the peduncle, imbricate and grading in size and shape into the sepals, or rarely (particularly lower ones) spaced and not overlapping; flowers hypogynous, hermaphrodite, actinomorphic, sympetalous, pentamerous. Sepals glabrous, or sometimes pubescent, margins mostly ciliolate, rarely ciliate. Corolla white or in shades of red (pink) or yellow (cream); tube campanulate or cylindrical, with or without a central bulge, sometimes constricted at the throat, glabrous or with sparse hairs internally, rarely externally at the base of the lobes; lobes glabrous, erect or recurved, imbricate (quincuncial) in the bud. Hypogynous disc of 5 distinct, rounded, triangular or strap-shaped scales, or rarely lacking. Stamens inserted at the top of the corolla tube or rarely hypogynous; the free segment of the filament terete, dorsifixed to the anthers at or slightly above their mid-point, occasionally (those with hypogynous stamens) dorsally adnate; anthers dehiscing through a single longitudinal slit or through short pore-like slits near the apex. Ovary 5-locular, ovules numerous, placentation axile; style slender or with basal or medial swellings, inserted into a deep depression at the top of the ovary, length variable; stigma small, capitate or clavate. Fruit a woody, loculicidal capsule.

A genus of 55 species. Eastern Australia (52 endemic), New Zealand (3, of which 2 are endemic) and New Caledonia (1). Tasmania is a major centre of diversity of the genus with 28 species of which 22 are endemic.

**NOTE:** Projection of the anthers above the plane of the corolla lobes (exserted anthers) either wholly or in greater part is a characteristic feature in 14 of the 28 Tasmanian species of *Epacris* and therefore an important feature used in this key. To use the key properly it is necessary to understand the authors' definition of "exserted anthers". The character is best determined using newly opened flowers, preferably before anther dehiscence is completed, by holding the flowers at eye-level and sighting at right angles across the plane of the corolla lobes. In a newly opened flower the anthers are vertical. As anthesis progresses and after dehiscence, the dehiscent anthers may reflex and weigh down on the lobes, forcing them to flatten and widen below the normal "knee-joint" (especially in those species such as *E. franklinii* where the erect, unfused bases of the lobes, extend beyond the containment of the sepals). In these cases the anthers become more exposed and "otherwise included anthers" may be misinterpreted as "exserted". In dried or older specimens, comparison of filament to anther length may be used. Filaments longer than the anther will usually give an exserted anther. Filaments 1/2 to 2/3 anther length will usually be part exserted.

1. Anthers wholly included in the corolla tube, or the tips barely showing

2

1: Anthers exserted above the plane of the corolla lobes either in greater part or wholly	15
2: Corolla tube widely campanulate, the width at the throat equal to or greater than the length of the tube	3
2: Corolla tube ± cylindrical or narrowly campanulate, the width at the throat less than the length of the tube	5
3: Leaves usually > 5 mm long, ovate, cordate the base, stem clasping, concave and spreading above; apex acuminate and pungent	<b>1 E. gunnii</b>
3: Leaves usually < 5 mm long, linear to elliptic, keeled, the base obtuse, lamina appressed or partially spreading above; apex blunt	4
4: Leaves aligned in 5 distinct ranks	<b>2 E. navicularis</b>
4: Leaves not ranked	<b>3 E. petrophila</b>
5: Leaf apex acuminate and pungent	6
5: Leaf apex obtuse, shortly mucronate or acute but not pungent	10
6: Style short, the stigma below the anthers	7
6: Style long, the stigma at the top of or above the anthers	8
7: Leaves reflexed, margins ± entire, non-hyaline, the midrib prominent abaxially; corolla caducous	<b>4 E. apseyensis</b>
7: Leaves ± straight, margin hyaline at least in part, 3–5(–7) veins conspicuous abaxially; dead corollas brown and persistent	<b>5 E. heteronema</b>
8: Corolla tube with 5 basal impressions; flowers often in secondary arrangement; style slender	<b>6 E. impressa</b>
8: Corolla tube free of basal impressions; flowers in terminal clusters (often dense); style with a basal or central swelling	9
9: Style hirsute at centre; corolla tube with sparse hairs inside	<b>7 E. lanuginosa</b>
9: Style and corolla tube glabrous	<b>8 E. paludosa</b>
10: Leaves usually < 6 mm long, margin narrowly hyaline at least in part	11
10: Leaves usually > 6 mm long, margin entire and not hyaline	12
11: Style short, the stigma approximately midway up the tube (lowland plant of sedgeland-heaths and associated scrub in the west, between the Pieman and Arthur Rivers)	<b>9 E. curtisiae</b>
11: Style longer, the stigma may reach the base of the anthers (abundant in montane heathlands state-wide)	<b>10 E. serpyllifolia</b>
12: Bracts and sepals brown, shiny, hardening as flowers age	<b>11 E. corymbiflora</b>
12: Bracts and sepals green-white, suffused or striated pink, not hardening as flowers age	13
13: Corolla tube bulbous above the middle, throat constricted; leaves semi-appressed, apex obtuse	<b>12 E. obtusifolia</b>
13: Corolla tube not bulbous, no throat constriction; leaves spreading, apex acute or with a small mucro	14
14: Style short, the stigma below or at the base of the anthers	<b>13 E. mucronulata</b>
14: Style long, the stigma at the top of the anthers	<b>14 E. franklinii</b>
15: Style short, the stigma included within the corolla tube	16
15: Style long, the stigma exserted, at the top of or above the anthers	19
16: Leaves with a distinct hyaline margin	17
16: Leaf margin not hyaline	18
17: Leaves crowded, broadly lanceolate tapering to a fine point, grey-green, striate below; flowers numerous, densely clustered, partly hidden by the leaves; the stigma approximately midway up the corolla tube	<b>15 E. marginata</b>
17: Leaves more open and spreading than above, ovate, shortly acuminate, dark green, not conspicuously striate below; flowers usually separated and extending down the branches, emergent from the leaves; the stigma near the corolla throat	<b>16 E. limbata</b>
18: Sepals and bracts hirsute	<b>17 E. grandis</b>
18: Sepals and bracts glabrous	<b>18 E. myrtifolia</b>

19. Leaf apex acute, attenuate, pungent	20
19: Leaf apex acute or rounded or mucronate, blunt	24
20. Filaments approximately 1/2 to as long as the anthers; anthers part exerted above the plane of the corolla lobes	21
20: Filaments longer than the anthers; anthers wholly exerted	22
21. Sepals and bracts glabrous	19 <i>E. cerasicollina</i>
21: Sepals and bracts hirsute	20 <i>E. barbata</i>
22. Leaf base broadly obtuse or rarely cordate; lamina concave and stem clasping at the base, straight and ± spreading above	21 <i>E. acuminata</i>
22: Leaf base narrowly obtuse or cuneate; lamina ± flat or slightly concave but not stem clasping, spreading	23
23. Leaves lanceolate, recurved in the upper part (widespread in SE)	22 <i>E. tasmanica</i>
23: Leaves elliptic-ovate to obovate, flat, the apex barely pungent (known only from Southport Bluff)	23 <i>E. stuartii</i>
24. Leaf margin thickened, scabrous, scattered hairs over adaxial surface	25
24: Leaf margin not thickened, microserrulate, adaxial surface glabrous or sparse hairs extending from petiole	26
25. Lamina lanceolate, 4–6(–8) mm long, recurved	24 <i>E. graniticola</i>
25: Lamina ovate to oblanceolate, rarely lanceolate, usually < 4 mm long, straight	25 <i>E. moscaliana</i>
26. Leaves elliptic-lanceolate or narrow-oblong, 6 mm or longer, the apex a blunt, usually inturned mucro	26 <i>E. exserta</i>
26: Leaves lanceolate-ovate, ovate, rounded or obovate, mostly < 5mm, the apex obtuse or a short blunt mucro	27
27. Flowers numerous, typically in long, open, spicate arrangement extending far down the main stems, or more rarely in denser, shorter groupings on lesser branchlets; young branchlets hirsute	27 <i>E. virgata</i>
27: Flowers few in small clusters at the branch tips; young branchlets glabrous	28 <i>E. glabella</i>

**1 *Epacris gunnii* Hook.f., *Lond. J. Bot.* 6: 272 (1847)**

*Coral Heath*

*Epacris microphylla* subsp. *gunnii* (Hook.f.) Benth., *Fl. Austral.* 4. 240 (1868). *Epacris microphylla* sensu G.Bentham, *Fl. Austr.* 4. 240 (1868) [Tas. material]; L.Rodway, *Tasman. Fl.* 122 (1903), non R.Br. (1810).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig. 99b (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 2: 117, t. 41 (1969); Albrecht, *Fl. Victoria* 3: 471, fig. 96c (1996).

Erect or scrambling, much branched bushy shrub 30–100(–120) cm tall. Branchlets round, sometimes angled or ridged, pubescent to villous. Leaves ± evenly spaced along branches, spreading to reflexed; petiole 0.5–1.0 mm long, semi-appressed, glabrous to pubescent; lamina 2.5–4.5(–6) mm long, 2.6–6 mm wide, ovate to rhombic, concave, straight or rarely recurved in the upper part, stiff, not thickened, base cordate rarely obtuse, margin entire or microserrulate, or narrowly hyaline, apex acuminate, pungent, the tip often slightly upturned; adaxial surface with venation obscure, with a few sparse hairs extending from the petiole; abaxial surface with midrib and 4–6 other parallel main veins evident, glabrous. Inflorescences denser near the apex, becoming well spaced and extending down branchlets in long, open, leafy spike-like arrangements; peduncle straight, shorter than the corolla tube; bracts and bracteoles numerous, imbricate, grading into the sepals, ovate, glabrous, apex acute, margin ciliolate. Sepals glabrous, 1.7–3.5 mm long, white streaked red/pink, elliptic to ovate, margin ciliolate or entire, apex acute. Corolla caducous, white, (7–)8–10 mm diameter; tube 1.5–2.5 mm long, broadly campanulate, shorter than sepals, diameter of throat exceeding tube length, glabrous internally and externally; lobes broadly triangular, spreading, longer than the tube, glabrous, some basal overlap, apex obtuse or rounded, rarely acute. Nectary scales truncated triangular, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers dorsifixed about midpoint, 0.5–0.7 mm long, angled inwards to throat, included. Ovary globose, slightly depressed, glabrous; style 0.7–1.0 mm long, inserted in a deep depression at the top of the ovary, cylindrical, glabrous; stigma below anthers, close to ovary. Flowering Sep.–Dec.

Tas. (all regions except MIS); also NSW, Vic. In damp places and stream margins from sea level to mountain summits c. 1300 m elevation.

**2 *Epacris navicularis*** Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 112: 1 (1978)

*Western Snowheath*

Erect, much branched shrub, 20–50 cm tall. Branchlets erect, red-brown, round, puberulent, old stems bare, leaf scars cup-shaped, prominent. Leaves crowded, ± evenly spaced along branches and distinctly ranked, sub-erect; petiole 0.5–0.7 mm long, appressed, pubescent; lamina 2.5–3.5 long, 1 mm wide, oblong-elliptic to lanceolate, concave, straight, thickened, base cuneate, margin entire or ciliolate, apex acute and the tip usually inturned, blunt; adaxial surface with venation obscure, with some sparse hairs extending from petiole; abaxial surface glabrous with only the midrib conspicuous. Inflorescences few in upper axils on current season's wood; peduncle straight, shorter than corolla tube, bracts and bracteoles imbricate, grading into sepals, glabrous, elliptic to lanceolate, margin entire to ciliolate, apex acute; flowers white. Sepals 3–3.5 mm long, white, lanceolate to ovate, glabrous, margin ciliolate, apex acute. Corolla caducous, white, approximately 7 mm diameter; tube 2.5–3.0 mm long, campanulate, shorter than sepals, diameter of throat exceeding tube length, glabrous internally and externally; lobes broadly triangular, longer than tube, spreading, with some basal overlap, apex obtuse or rounded. Nectary scales emarginate, to 1/3 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers dorsifixed to filament about midpoint, approximately 1.0 mm long, angled inwards to throat, included. Ovary globose, glabrous; style approximately 1 mm long, cylindrical, glabrous; stigma below anthers, close to ovary. Flowering Jan.–Mar.

Tas. (TSR); endemic. Montane heaths of the Frankland Range and further south, to c. 1200 m elevation.

**3 *Epacris petrophila*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 261 (1857)

*Central Snowheath*

*Illustrations:* Albrecht, *Fl. Victoria* 3: 471, Fig. 96g (1996).

Erect, scrambling, virgate or much branched shrub, rarely decumbent, 30–60(–80) cm tall. Branchlets erect, round, red-brown, pubescent to villous, old stems bare, leaf scars conspicuous. Leaves mainly crowded on new branchlets, becoming evenly spaced along older branches, appressed rarely sub-erect; petiole generally absent (leaves sessile); lamina glabrous, 1.1–3.3 mm long, 0.7–1.7 mm wide, elliptic to lanceolate to ovate, rarely oblong, flat or slightly concave near the base, straight, thickened, base obtuse, margin entire or microserrulate, or ciliolate to almost fimbriate near the base, apex acute, tip inturned; adaxial venation obscure; abaxial surface with only midrib conspicuous, keeled distally. Inflorescences few, crowded in upper axils on new season's branchlets; peduncle straight, shorter than corolla tube; bracts and bracteoles numerous, imbricate, grading into the sepals, glabrous, ovate, margin ciliolate, apex acute or obtuse. Sepals glabrous, 2.3–2.8 mm long, white streaked with red/pink, sometimes browning with age, elliptic to ovate, margin ciliolate, rarely ciliate, apex obtuse. Corolla caducous, white, 6–7 mm diameter; tube 1.4–2.3 mm long, campanulate, shorter than sepals, diameter of throat exceeding tube length, glabrous internally and externally; lobes broadly triangular, longer than tube, not overlapping at base, apex acute, rarely obtuse or rounded. Nectary scales rounded, truncated, rarely emarginate, 1/3–1/2 the length of the ovary. Stamens attached near tube throat, filament longer than anther; anthers 0.6–0.8 mm long, dorsifixed to filament about midpoint, angled inwards to throat, included. Ovary globose, glabrous; style glabrous, less than 0.5 mm long, cylindrical; stigma below anthers, close to ovary. Flowering Dec.–Feb.

Tas. (TCH); also NSW, Vic. Montane shrubberies and grasslands of the Central Plateau, to c. 1200 m elevation.

**4 *Epacris apsleyensis*** Crowden, *Pap. & Proc. Roy. Soc. Tasmania* 120: 17, (1986)

*Apsley Heath*

*Illustrations:* *loc. cit.* Fig. 1a-c

Erect, open, little-branched shrub, often scrambling and twisting, (30–)50–100(–150) cm tall. Branchlets pubescent or rarely villous, rounded, red-brown, the older stems bare, leaf scars small, cup-shaped. Leaves mostly crowded on new branchlets, alternate, spreading; petiole approximately 1.0 mm long, semi-

appressed, pubescent; lamina (4.5–)5–9(–9.5) mm long, 2–3 mm wide, elliptic to lanceolate, flat or slightly concave near the base,  $\pm$  straight but often slightly recurved in the upper part, stiff but not thickened, base cuneate, margin entire or microserrulate, often thickened, rarely scaberulous, apex sharply acute or acuminate, pungent; adaxial surface with some sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, the midrib and 2 other parallel main veins evident. Inflorescences few in the upper axils, sometimes in denser clusters extending a short distance down the branchlets; peduncle  $\pm$  straight, shorter than corolla tube; bracts and bracteoles ovate, glabrous, margin ciliolate, apex acute, the lower bracteoles often loosely imbricate or slightly spaced. Sepals glabrous, 3–4 mm long, white or white streaked red/pink, lanceolate to ovate, margin entire, apex acute or acuminate. Corolla caducous, white, (7–)8(–9) mm diameter; tube 2–3 mm long, narrowly campanulate, slightly tapering to the base,  $\pm$  equal with sepals, diameter of throat less than tube length, glabrous internally and externally; lobes glabrous, broadly triangular, spreading, longer than the tube, the base with a pronounced inwards bulge which effectively reduces the diameter of the tube throat, apex acute. Nectary scales triangular or truncated, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filaments longer than anthers; anthers < 1 mm long, dorsifixed to filament about midpoint, erect, included and almost obscured by the basal bulge of each corolla lobe. Ovary globose, glabrous; style 1.0–1.5 mm long, cylindrical, glabrous, stigma included, close to the ovary or rarely at or close to the base of the anthers. Flowering Apr.–Jun.

Tas. (TSE); endemic. Local, a few small populations in dry sclerophyll forest, near the Apsley River, around Bicheno, to c. 250 m elevation.

**5 *Epacris heteronema*** Labill., *Nov. Holl. Pl.* 1: 42 (1804)

*Southwest Heath*

*Epacris heteronema* var. *planifolia* sensu G.Bentham, *Fl. Austral.* 4: 239 (1868), non Benth. (1868) (Tasmanian material).

Erect or scrambling, much branched shrub, sometimes branches few and habit open, 30–200 (–1150, see subsp. *gigantea*) cm tall. Branchlets erect or spreading, pubescent. Leaves crowded on new branchlets, becoming evenly spaced along mature branches, spreading or sub-erect; petiole glabrous to pubescent, 1.0–1.5 mm long, semi-appressed; lamina 5–12 mm long, 3–6 mm wide, elliptic to ovate, concave or rarely flat, straight, stiff not thickened, base obtuse or cuneate, rarely cordate, margin entire or microserrulate, scaberulous, hyaline in the upper part, apex acuminate and pungent; adaxial surface with a few sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, with midrib and 2 or 4–6 other parallel main veins evident. Inflorescences few in upper axils, or in denser clusters extending a short distance down the branches; peduncle straight, equal to corolla tube; bracts and bracteoles numerous, glabrous or hirsute, ovate, margin ciliolate, apex obtuse, grading into the sepals, upper ones imbricate but becoming loosely spaced lower down. Sepals glabrous or hirsute, 4–5 mm long, white streaked red/pink, elliptical-lanceolate, margin ciliolate, apex acute. Corolla white, 7–9 mm diameter, persistent, dying and turn brown on the plant; tube glabrous internally and externally, 3–4.5 mm long, narrowly campanulate, slightly tapering towards the base, approximately as long as sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, shorter than tube, overlapping somewhat basally, apex obtuse or rounded. Nectary scales rounded, to 1/3 the length of the ovary. Stamens attached near tube throat; filaments terete, shorter than anthers; anthers 0.7–0.8 mm long, dorsifixed to filament about midpoint, erect, included. Ovary glabrous, globose; style glabrous, 1.3–2 mm long, bulging near base then tapering to stigma; stigma at or close to base of the anthers but below them. Flowering Sep.–Dec.

Tas. (TCH, TSR, TWE); endemic. The two subspecies are both widespread from sea-level to c. 1000 m elevation, particularly in the southwest and west, but each appears to favour slightly different habitats. *Epacris heteronema* var. *heteronema* is more likely to be found in sedge-heathlands, whereas var. *gigantea* tends to occupy the scrub fringes of forests.

1. Bracts and sepals entirely glabrous

5a var. *heteronema*

1: Bracts and sepals hirsute

5b var. *gigantea*



**5a *Epacris heteronema* Labill. var. *heteronema***

*Illustrations:* Stapf., *Bull. Misc. Inform. Kew* 1910(7): 217, Figs. 1-5, (1910); Curtis, *The Student's Flora of Tasmania* 2: 444, Fig 99h (1963).

Shrub to 0.3–1.0 m tall. Bracts glabrous. Sepals glabrous.

Tas. (TCH, TSR, TWE), endemic. Favouring sedge-heathlands.

**5b *Epacris heteronema* var. *gigantea* F.Muell., *Fragm. (Mueller)* 4(27): 127 (1864)**

Shrub 0.3–1(–11.5, see below) m tall. Bracts hirsute. Sepals hirsute.

Tas. (TCH, TSR, TWE), endemic. Favouring the scrub fringes of forests. Type material of this taxon, from Mount La Perouse, has associated notes that indicate that plants of this subspecies reached 20–35 feet (c. 11.5 m) in height and had stems 4–6 inches (10–15 cm) in diameter: this would be a world record for an *Epacris* species. Author (RK Crowden) has a photograph of a plant in the Gordon R. forest which is approximately 5m tall, the stem 4-6 cm in diameter.

**6 *Epacris impressa* Labill., *Nov. Holl. Pl.* 1: 43 (1804)**

*Common Heath*

*Epacris rusciflora* R.Br, *Prodr. Fl. Nov. Holland.* 550 (1810); *E. impressa* f. *rusciflora* (R.Br.) Siebert & Voss, *Vilm. Ill. Blumengärtn.*, ed. 3 1: 609 (1896); *E. impressa* var. *rusciflora* Meredith, *Bush Friends in Tasmania, front-piece*, 5 (1891), *nom. illeg.*; *E. impressa* var. *rusciflora* (R.Br.) Rodway, *Tasman. Fl.* 121 (1903). *Epacris ceriflora* Graham, *Edinburgh New Philos. J.* 13: 168 (1832) [as '*E. ceraeflora*']; *E. impressa* f. *ceriflora* (Graham) Siebert & Voss, *op. cit.* [as '*E. impressa* f. *ceraeflora*']; *E. impressa* var. *ceriflora* (Graham) Rodway, *op. cit.* [as '*E. impressa* var. *ceraeflora*']. *Epacris nivalis* Graham, *op. cit.* 15(29): 183 (1833); *E. nivea* DC., *Prodr. (DC.)* 7(2) 762 (1839), *nom. illeg.*; *E. impressa* var. *nivea* Hook.f., *Bot. Antarct. Voy. Ill. (Fl. Tasman.)* 1(4): 257 (1857). *Epacris variabilis* Paxton, *Paxton's Mag. Bot.* 125 (1837), *nom. illeg.*; *E. impressa* var. *variabilis* Hook.f., *op. cit.* *Epacris campanulata* DC., *op. cit.* 7(2): 761 (1839); *E. impressa* var. *campanulata* (DC.) Hook.f., *op. cit.* *Epacris impressa* var. *ovata* Benth., *Fl. Austral.* 4: 235 (1868). *Epacris impressa* f. *diemenica* Gand., *Bull. Soc. Bot. France* 47: 307 (1900). *Epacris impressa* f. *lucida* Gand., *op. cit.* *Epacris impressa* f. *milliganii* Gand., *op. cit.* [as '*E. impressa* f. *Milligani*']. *Epacris impressa* var. *rosea* Guilf., *Australian Plants suitable for gardens, parks, timber reserves, etc.* 153 (1911).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 446, Fig. 100 (1963); Albrecht, *Fl. Victoria* 3: 471, Fig. 96h (1996).

Erect or scrambling, virgate shrub, usually with little branching and an open habit, 20–100(–150) cm tall. Branchlets puberulent, erect or spreading, rounded, red-brown, ribbed or angled in cross section, older stems bare, leaf scars inconspicuous, cup-shaped. Leaves ± evenly spaced along branches, spreading or reflexed; petiole pubescent, approximately 0.5 mm long, appressed or semi-appressed; lamina 4–14 mm long, 1–2.2(–2.8) mm wide, lanceolate to ovate, flat or slightly concave, recurved in upper part or squarrose, rarely straight, stiff but not thickened, base cuneate, margin entire or microserrulate, apex acute or acuminate with a pungent mucro; adaxial surface glabrous or with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences single and ± randomly distributed along current season's branchlets, or in clusters in the upper axils, or extending down the branchlets in long leafy spike-like arrangements, often secund or pendulous; peduncle usually straight, sometimes curved, shorter than the corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute, bracteoles imbricate, grading into sepals. Sepals glabrous, white or pink (usually the same colour as the corolla), 2–5 mm long, elliptic, lanceolate or ovate, margin ciliolate, apex acute. Corolla glabrous, white or red/pink, or bicoloured, sometimes candy-striped, 4–6 mm in diameter, but flowers vary greatly in shape and size, usually caducous, but may persist after anthesis and die, turning brown on the plant; tube 6–18 mm long, cylindrical, often with a central bulge or constricted at the throat, or narrowly campanulate, longer than sepals, with 5 invaginations (impressions) at the base, immediately above the ovary and alternating with the stamens, diameter of throat less than tube length; lobes broadly triangular, shorter than tube, often recurved, with some basal overlap, apex obtuse or rounded. Nectary scales

emarginate or truncated, to 1/3 the length of the ovary. Stamens attached near tube throat; filament shorter than anther; anthers 1.0–2.0 mm long, dorsifixed to filament about midpoint or sometimes above the midpoint, erect, included. Ovary globose, glabrous; style glabrous, (3.0)–7.0–16 mm long, slender; stigma amongst anthers at tube throat, or exerted above them, or very rarely below anthers close to ovary. Flowering year round, peak flowering season varies by location.

Tas. (all regions except MIS); also SA, NSW, Vic. Widespread in heaths, open forests and woodlands, to approximately 500 m elevation, rarely higher. A variable taxon for which a large number of horticultural forms have been described (see APNI); only names relevant to the Tasmanian flora have been listed above.

**7 *Epacris lanuginosa*** Labill., *Nov. Holl. Pl.* 1: 42, t. 57 (1804)

*Woolly Style Heath, Swamp Heath*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig 99d (1963); Albrecht, *Fl. Victoria* 3: 471, Fig. 96j (1996).

Erect or scrambling virgate shrub, with little branching and an open habit, or much branched, 30–150(–200) cm tall. Branchlets puberulent, or villous, ribbed, brown, older stems bare, leaf scars conspicuous, cup-shaped. Leaves crowded, imbricate on new branchlets, becoming evenly spaced along older branchlets, sub-erect to spreading, the youngest sometimes appressed; petiole pubescent, 0.5–1.0 mm, appressed; lamina 6–8(–13.5) mm long, 1–2 mm wide, linear, elliptic to lanceolate, flat, or slightly concave near the base, straight, stiff, not thickened, base cuneate, margin ciliolate rarely ciliate, apex acute with a long aristate pungent tip, rarely the tip slightly upturned; adaxial surface glabrous except for a few sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences in clusters near tips of current season's branchlets, often extending down in a dense "drum-head" arrangement; peduncle straight, shorter than corolla tube; bracts glabrous, ovate, rarely lanceolate, margin ciliolate or ciliate, apex acute, bracteoles numerous, imbricate, grading into sepals. Sepals glabrous, usually brown, 4.8–7.0 mm long, lanceolate, margin ciliate, rarely ciliolate, apex acute. Corollas persistent, white, after anthesis dying and turning brown on the plant, 7–8 mm diameter; tube sparsely hairy internally, glabrous externally, 4.0–6.5 mm long, cylindrical, or with a slight central bulge, usually longer than the sepals but sometimes ± equalling them, diameter of throat less than tube length; lobes glabrous, broadly triangular, shorter than tube, with some basal overlap, apex obtuse or rounded. Nectary scales narrow triangular or strap shape, the apex near the top of the ovary. Stamens attached near tube throat; filament shorter than anther; anthers 0.7–1.5 mm long, dorsifixed to filament about midpoint, erect, included. Ovary globose, sometimes ribbed, at least partly pubescent; style equal to or longer than the tube, 5.0–6.5 mm long, with a slight central swelling, hairs present at the swelling, stigma exerted. Flowering Sep.–Dec.

Tas. (all regions except MIS); also SA, Vic. Widespread in damp places from sea-level to c. 1100 m elevation.

**8 *Epacris paludosa*** R.Br., *Prodr. Fl. Nov. Holland.* 551 (1810)

*Swamp Heath, Flinders Heath*

*Epacris bawbawiensis* Stapf., *Bull. Misc. Inform. Kew* 1910(7): 217, (1910).

*Illustrations:* Stapf., *Bull. Misc. Inform. Kew* 1910(7): 217, figs 12–16 (1910).

Erect, usually much branched shrub, sometimes open and with few branches, (30–)50–120(–200) cm tall. Branchlets pale brown, rounded, puberulent, old stems glabrous, dark brown, leaf scars prominent. Leaves alternate, mainly crowded on new branchlets, then ± evenly spaced along older stems, spreading or sub-erect, some reflexed; petiole glabrous or pubescent, 0.6–0.8 mm long, appressed or semi-appressed; lamina 5–11 mm long, 1.5–3 mm wide, elliptic to lanceolate, flat or slightly concave, straight or slightly recurved in the upper part, stiff, not thickened, base cuneate, margin entire or microserrulate, ciliolate, or rarely scaberulous, apex acuminate and pungent; adaxial surface glabrous or with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences densely clustered at the tips of new season's branchlets or spreading a short distance down the stems; peduncle ± straight, shorter than corolla tube; bracts glabrous, lanceolate to ovate, margin ciliolate, apex acute, bracteoles numerous, imbricate, grading to sepals. Sepals glabrous, white streaked red/pink, 4.6–5.0 mm long, elliptic to lanceolate, margin entire or ciliolate, apex acute. Corolla white,

persistent, dying and turning brown on the plant, 6–10 mm diameter; tube glabrous, 4–5 mm long, narrowly campanulate, slightly tapering to base, longer than sepals, diameter of throat less than tube length; lobes narrow triangular, shorter than tube, with little or no overlap at base, apex acute rarely obtuse or rounded. Nectary scales triangular, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filament shorter than anther; anthers 1.0–1.5 mm long, dorsifixed to filament about midpoint, erect, included. Ovary glabrous, globose; style slightly bulbous near centre, 5.0–6.5 mm long; glabrous, stigma amongst anthers at tube throat, rarely exerted. Flowering Oct.–Dec.

Tas. (FUR, TNS); also NSW, Vic. Common on Flinders Island and also known from one single population from the Leven River, in mainland Tasmania. Found in swampy areas, from sea level to mid elevations c. 750 m.

**9 *Epacris curtisiae*** Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 122: 115, Fig. 1 (1988)

*Winifred's Heath, Northwest Heath*

Erect shrub 50–100(–250) cm tall. Branchlets erect, puberulent, red-brown, rounded, older stems rough with raised leaf scars. Leaves alternate, somewhat crowded on new branchlets, becoming evenly spaced along mature branches, spreading or sub-erect; petiole 0.5–1.0 mm long, semi-appressed, pubescent; lamina 3.0–6.0 mm long, 2.5–4.5 mm wide, elliptic-ovate to obovate or rounded, flat, or slightly concave, straight, stiff, slightly thickened, base cuneate, margin entire or microserrulate, scaberulous, or distally hyaline, apex obtuse, tip inturned; adaxial surface mostly glabrous, a few hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences clustered in upper axils of new season's branchlets or spreading a short distance down the stems; peduncle straight, shorter than corolla tube; bracts glabrous, elliptical to ovate, margin ciliolate, apex obtuse, lower bracteoles loosely imbricate or spaced, upper ones grading into the sepals. Sepals glabrous, white streaked red/pink, 3.0–4.0 mm long, elliptic to ovate, margin ciliolate, apex obtuse. Corolla persistent, white, dying and turning brown on the plant, 7–8.5 mm diameter; tube glabrous, 2.5–3.5 mm long, narrowly campanulate, slightly tapering to base, equalling or slightly shorter than sepals, diameter of throat less than tube length; lobes broadly triangular, spreading, as long as or rarely shorter than tube, with some basal overlap, apex obtuse or rounded. Nectary scales triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament shorter than anther; anthers 0.8–1.2 mm long, dorsifixed to filament about midpoint, erect, included. Ovary glabrous, globose or slightly depressed; style glabrous, approximately 0.5 mm long, cylindrical; stigma below anthers, usually close to the ovary but sometimes closer to base of anthers. Flowering Aug.–Nov.

Tas. (TWE); endemic. Buttongrass plains and scrub between the Pieman and Arthur Rivers, usually on peaty soils, to c. 400 m elevation.

**10 *Epacris serpyllifolia*** R.Br., *Prodr. Fl. Nov. Holland.* 551 (1810)

*Alpine Heath*

*Epacris serpyllifolia* Rodway, *Tasman. Fl.* 121 (1903), orth. var.

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig. 99g (1963).

Erect, scrambling, virgate or much branched shrub, 30–60(–100) cm tall, in exposed alpine environments often appressed to boulders. Branchlets erect or spreading, puberulent, red-brown, ridged, older stems grey brown, scaly, bare of leaves, leaf scars small, triangular, not conspicuous. Leaves crowded on new branchlets, becoming ± evenly spaced along older stems, sub-erect to spreading; petiole glabrous or pubescent, 0.7–0.9 mm long, semi-appressed; lamina 2.5–4.2 mm long, 1.7–2.4 mm wide, elliptic to ovate to orbicular, flat or slightly concave straight, base obtuse or cuneate, margin entire or microserrulate to ciliolate, scabrid, hyaline in part, thickened, apex obtuse with a blunt callus or mucro; adaxial surface mainly glabrous but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib alone or midrib and 2 other parallel main veins evident. Inflorescences clustered in upper axils of new season's wood or extending a short distance down the branchlets; peduncle straight, shorter than corolla tube; bracts glabrous, ovate, margin ciliolate, apex obtuse, bracteoles numerous, imbricate, grading into sepals. Sepals white streaked red/pink, glabrous, 3.0–3.4 mm long, ovate, margin entire or ciliolate, apex acute. Corolla persistent, white, dying and turn brown on the plant, 6–9 mm diameter; tube glabrous,

2.0–4.0 mm long, narrowly campanulate, slightly tapering to the base, slightly longer than the sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, spreading or recurved, shorter than tube, with some basal overlap, apex obtuse or rounded. Nectary scales triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament much shorter than anther; anthers 0.8–1.2 mm long, dorsifixed to filament about midpoint, erect, included. Ovary glabrous, globose or slightly depressed; style glabrous, 1.2–1.8 mm long, swollen in lower part; stigma at or close to base of anthers. Flowering Nov.–Jan.

Tas. (BEL, TCH, TSE, TSR, TWE); endemic. A widespread species found in montane heaths to c. 1400 m elevation.

**11 *Epacris corymbiflora*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 261. t. 78b (1857) *Buttongrass Heath*  
*Epacris myrtifolia* var. *corymbiflora* (Hook.f.) Rodway, *Tasman. Fl.* 121 (1903).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: 175, t. 56 (1971).

Erect, often straggling shrub 30–60(–100) cm tall. Branchlets puberulent, erect, rounded, brown, older stems with prominent leaf scars. Leaves crowded and somewhat imbricate on new branchlets, becoming evenly spaced along older branches, sub-erect or appressed; petiole pubescent, 0.5–1.0 mm long, appressed; lamina 3.0–7.6 mm long, 1.6–3 mm wide, elliptic, flat, or slightly concave near the base, straight, base obtuse, margin entire or microserrulate, or ciliolate to fimbriate near base, hyaline usually in the upper part, apex obtuse sometimes tip inturned; adaxial surface, mostly glabrous, with a few sparse hairs extending from petiole, venation obscure; abaxial surface glabrous or rarely puberulent, midrib and 4–6 other parallel main veins evident. Inflorescences few in upper axils or in denser clusters at branchlet tips, or extending a short distance down the stems; peduncle straight, equalling or rarely longer than the corolla tube; bracts elliptic to ovate, glabrous, brown, margin ciliolate to ciliate, apex obtuse, bracteoles numerous, imbricate, grading into the sepals. Sepals glabrous, indurated, 5.0–7.5 mm long, brown, elliptic to lanceolate, margin ciliolate, apex obtuse. Corollas persistent, white or cream, dying and turning brown on the plant, 8–10 mm diameter; tube glabrous, 3.7–5.7 mm long, narrowly campanulate, slightly tapering to base, shorter than sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, ± as long as the tube, spreading to slightly recurved, with some basal overlap, apex obtuse or rounded. Nectary scales triangular, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filament shorter than anther; anthers approximately 1.0 mm long, dorsifixed to filament about midpoint, erect, included. Ovary glabrous, globose, or slightly depressed; style glabrous, 3.0–4.5 mm long, swollen in mid to lower part; stigma amongst or at top of anthers at tube throat. Flowering Nov.–Jan.

Tas. (TSR, TWE); endemic. Found in button grass plains and scrub in the south-west, south of the Pieman River, to c. 1300 m elevation.

**12 *Epacris obtusifolia*** Sm. *Exot. Bot.* 1: 77. t. 40 (1805) *Blunt-leaf Heath*  
*Illustrations:* Albrecht, *Fl. Victoria* 3: 471, Fig. 96k (1996).

Erect, sparsely-branched, open shrub 20–100(–120) cm tall. Branchlets puberulent, rarely villous, erect, rounded or ribbed, brown, stems are scaly red-brown with prominent leaf scars. Leaves crowded on new growth, then ± evenly spaced along branchlets, often persisting on older stems, sub-erect often imbricate; petiole glabrous or pubescent 0.9–1.5 mm long, appressed; lamina 5–7(–9.5) mm long, 1.3–2.5 mm wide, elliptic-lanceolate to oblanceolate, flat, or slightly concave near the base, straight, base cuneate, margin entire or microserrulate, to ciliolate, apex obtuse and the tip inturned; adaxial surface mostly glabrous but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 2 or sometimes 4–6 other parallel main veins evident. Inflorescences extending down new season's branchlets in long leafy spike-like arrangements, often secund or pendulous; peduncle straight or curved, shorter than corolla tube; bracts glabrous, lower ones loosely imbricate or spaced, or all bracteoles imbricate, ovate, margin ciliolate to ciliate, apex acute to rounded; sepals white greenish suffused or streaked red/pink, 3.3–5.0 mm long, elliptic to ovate, glabrous, margin ciliolate, apex acute. Corollas generally persistent, white or cream, 5–6 mm diameter, after anthesis dying and turning brown on the plant, but some florets may fall

early; corolla tube glabrous, 4.0–6.0 mm long, cylindrical, usually with a central bulge, longer than the sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, shorter than tube, spreading, with no or little overlap at base, apex obtuse or rounded, sometimes recurved. Stamens attached near tube throat; filament shorter than anther; anthers 0.7–1.0 mm long, dorsifixed to filament above the midpoint, erect, included. Ovary glabrous, oblate; style glabrous, 3.5–6.5 mm long, slender; stigma exerted. Nectary scales narrow triangular to strap shape, or rarely triangular, 1/3 to 1/2 the length of the ovary. Flowering Oct.–Jan.

Tas. (all regions except MIS); also SA, Qld, NSW, Vic. A widespread species found in swamps and moist places from sea-level to approximately 600 m elevation.

**13 *Epacris mucronulata*** R.Br., *Prodr. Fl. Nov. Holland.* 552 (1810)

*Southern River-heath*

*Illustrations:* Crowden, *Muelleria* 18: 69, Fig. 1c, f (2003); Crowden, *Muelleria* 25: 118, Fig. 1a (2007).

Erect, little branched, open shrub, or rarely much branched with a more compact habit, (30–)50–100(–150) cm tall. Branchlets erect, puberulent to villous, round and ridged, deep brown, old stems glabrescent, with small triangular leaf scars. Leaves evenly spaced along mature branches, spreading, rarely sub-erect; petiole 0.6–1.0 mm long, semi-appressed, glabrous or pubescent; lamina 9.0–11.0 mm long, 1.5–2 mm wide, lanceolate, flat or slightly concave, straight, base cuneate, margin entire or microserrulate, slightly thickened, apex acute or acuminate with a short pungent mucro; adaxial surface glabrous, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences few in upper axils, or spreading a short distance down the new season's branchlets; peduncle straight, sometimes curved, shorter than corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute, lower bracteoles loosely imbricate or spaced. Sepals white, streaked red/pink, glabrous, 4.0–4.3 mm long, lanceolate to ovate, margin entire to ciliolate, apex acute. Corolla caducous, white, 8–10 mm diameter; tube glabrous, 4.3–4.9 mm long, longer than the sepals, narrowly campanulate, slightly tapering from base, diameter of throat less than tube length; lobes glabrous, broadly triangular, shorter than tube, spreading, with some basal overlap, apex obtuse or rounded. Nectary scales triangular, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filament shorter than or  $\pm$  as long as the anther; anthers approximately 1 mm long, dorsifixed to filament above the midpoint, erect, included. Ovary glabrous, globose or slightly depressed; style glabrous, approximately 1.2 mm long, swollen in lower part; stigma below anthers, about mid-way up the tube. Flowering Aug.–Oct.

Tas. (TSR, TWE); endemic. Found in riverine scrub, on the banks of the middle Gordon River and the large rivers of the south-west, at low elevations.

**14 *Epacris franklinii*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 261, t. 79a (1857)

*Western River-heath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 443, t. 142 (1978), as *E. mucronulata*; Crowden, *Muelleria* 18: 69, Fig. 1b, e (2003).

Erect, branching shrub 30–150(–200) cm tall. Branchlets erect or spreading, glabrous or puberulent, round, red-brown, older stems becoming bare with conspicuous cup-shaped leaf scars. Leaves mainly crowded on new branchlets, spreading; petiole pubescent, or glabrous, 1.1–1.3 mm long, semi-appressed, rarely spreading; lamina 8–11 mm long, 1.3–1.4 mm wide, elliptic to lanceolate, flat or slightly concave near the base, straight or slightly recurved in upper part, base cuneate, margin minutely dentate, apex acute, blunt, the tip sometimes inturned; adaxial surface mostly glabrous but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, with only the midrib conspicuous. Inflorescences few in the upper axils of current season's growth, sometimes extending a short distance down the branchlet, with numerous short, axillary branchlets often providing for a very floriferous display; peduncle straight or slightly curved, shorter than corolla tube; bracts glabrous, ovate, margin entire, apex acute, bracteoles numerous, imbricate, grading into sepals. Sepals white streaked red/pink, glabrous, 3.0–4.0 mm long, ovate, margin ciliolate, apex acute to obtuse. Corolla caducous, white, 7–9 mm diameter; tube glabrous, 4.0–4.5 mm long, longer than sepals, narrowly campanulate, slightly tapering to base, diameter of throat less than tube length; lobes glabrous, broadly triangular, shorter than tube, spreading to recurved, with minimal basal

overlap, apex obtuse or rounded. Nectary scales rounded or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament shorter than or rarely equal with anther; anthers 0.8–0.9 mm long, dorsifixed to filament about midpoint, erect or may reflex after dehiscence (when the old anthers reflex, they weigh down on the unfused bases of the lobes, which in this case are above the containment of the sepals, causing them to spread, thus further exposing the anthers; this condition has been misinterpreted by some as exerted anthers, when they are in fact included). Ovary glabrous, globose; style glabrous, approximately 3.5 mm long, swollen in the central to lower part; stigma amongst anthers at tube throat. Flowering Oct.–Dec.

Tas. (TNS, TWE); endemic. Found in riverbank vegetation along the Meander, Mersey, Pieman, Maxwell, Gordon, Franklin and King River systems, to c. 400 m elevation. The plants grow above the normal river flow levels, but are subject to inundation during floods. See Crowden (2004) for detailed discussion on the application of this name and several informal names (viz. *E. aff. exserta*, *E. aff. mucronulata*, *E. "Union Bridge"*) that have been used for specimens of this species collected from the Meander and Mersey Rivers.

**15 *Epacris marginata*** Melville, *Kew Bull.* 7: 175, Fig. 1 (1952)

*Rigid Heath*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig. 99a (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 4: 243, t. 76 (1973).

Erect, much branched shrub with a compact habit, sometimes sparsely branched and more open, 30–80(–120) cm tall. Branchlets erect, villous, rounded, yellow-brown, the surface normally obscured by crowded leaves, older stems rough with prominent leaf scars. Leaves crowded on new and older branches, spreading or sub-erect; petiole pubescent, 0.7–1.2 mm long, semi-appressed; lamina 6–10(–15) mm long, 2.5–3.5 mm wide, lanceolate to ovate, concave, straight, base cordate, sagittate or obtuse, margin ciliolate, hyaline, apex acuminate, pungent; adaxial surface mostly glabrous, but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous or rarely puberulent, midrib and 4–6 other parallel main veins evident. Inflorescences crowded, partially obscured by leaves, extending down new season's branchlets in long, leafy spike-like arrangements; peduncle ± straight, shorter than corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute, bracteoles tightly imbricate. Sepals white, 2.7–3.8 mm long, elliptic to lanceolate, glabrous, margin ciliolate, rarely ciliate, apex acute. Corolla caducous, white, 8–9 mm diameter; tube glabrous, 2.2–3.3 mm long, just shorter than the calyx, narrowly campanulate, slightly tapering to the base, diameter of throat less than tube length; lobes broadly triangular, longer than or ± equal to the tube, spreading, with some basal overlap, apex broadly acute. Nectary scales rounded or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament about equal with anther; anthers 0.8–1.5 mm long, dorsifixed to filament about midpoint, erect, exerted. Ovary glabrous, globose; style glabrous, 1.0–1.5 mm long, cylindrical or slightly tapering to stigma; stigma below anthers, close to ovary. Flowering; January - April.

Tas. (TSE); endemic. Local in coastal heaths on the Tasman Peninsula, on Mt Bishop and Clark, Maria Island, and on the Thumbs Range, to c. 700 m elevation.

**16 *Epacris limbata*** K.J.Williams & F.Duncan, *Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 95, pl. 1 (1991)

*Bordered Heath*

*Illustrations:* *loc.cit.*, p. 96, Plate 1.

Erect, usually much branched shrub with an open or compact habit, 50–200(–300) cm tall. Branchlets red-brown, erect, villous, round, older stems rough, sparsely hairy and mainly bare of leaves, leaf scars conspicuous, cup-shaped. Leaves crowded and somewhat imbricate on new branchlets, ± evenly spaced along mature branches, spreading or sub-erect; petiole villous 0.4–0.9 mm long, appressed; lamina 4.3–8.1 mm long, 3–5.6 mm wide, ovate, concave, straight or slightly recurved in upper part, base cordate and stem-clasping, rarely obtuse, margin entire or microserrulate or ciliolate, hyaline, apex acuminate and pungent; adaxial surface glabrous but with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 4–6 other parallel main veins evident. Inflorescences in clusters near branchlet tips or extending down branchlets in long leafy spike-like arrangements; peduncle ± straight, shorter than

corolla tube; bracts glabrous, lanceolate to ovate, margin ciliolate, apex acute or acuminate, bracteoles closely imbricate, grading into the sepals. Sepals white streaked red/pink, glabrous, 3.5–5.8 mm long, elliptic to ovate, margin ciliolate, apex acute or acuminate. Corolla caducous, white, 7–10 mm diameter; tube glabrous 2.2–3.5 mm long, narrowly campanulate, slightly tapering to the base, shorter than the sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, longer than tube, with some basal overlap, apex acute. Nectary scales rounded or triangular, 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filament longer than or rarely  $\pm$  as long as the anther; anthers 1.0–1.5 mm long, dorsifixed to filament about midpoint, erect, exerted. Ovary glabrous, globose or oblate; style glabrous, 0.9–1.3 mm long, tapering to stigma; stigma at or close to base of anthers. Flowering Nov.–Jan.

Tas. (TSE); endemic. Local in swamp areas near the Apsley River on the East Coast, at 200 to c. 300 m elevation.

**17 *Epacris grandis*** Crowden, *Pap. & Proc. Roy. Soc. Tasmania* 120: 19, Fig. 1d, e (1986)

*Tall Heath*

*Illustrations: loc. cit.* Fig. 1d, e

Erect, sparsely-branched, open shrub, rarely with more lateral branches and a more compact habit, (50–)100–150(–250) cm tall. Branchlets red to red-brown, pubescent, erect, smooth, rounded, older stems bare, leaf scars small, barely visible. Leaves evenly spaced, spreading or sub-erect; petiole pubescent, 1.3–2.0 mm long, semi-appressed; lamina 10–15 mm long, 3–4 mm wide, lanceolate, flat or slightly concave, straight, base obtuse, margin entire or microsculptate or scaberrulous, apex acuminate and pungent, sometimes slightly inflexed; adaxial surface glabrous or with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 4–6 other parallel main veins evident. Inflorescences extending down branchlets in long leafy spike-like arrangements; peduncle  $\pm$  straight, rarely curved, equal to or longer than corolla tube; bracts villous, ovate, margin ciliolate, apex acute, lower bracteoles loosely imbricate. Sepals white or pink-streaked, villous, 4.0–6.0 mm long, lanceolate, margin ciliolate, apex acute. Corolla caducous, white, 8–11 mm, diameter; tube glabrous internally, sparsely hairy on outer surface near throat, hairs extending onto undersurface of lobes, 4–5 mm long, narrowly campanulate, slightly tapering to base, rarely cylindrical or with a central bulge, about equal with the sepals, diameter of throat less than tube length; lobes broadly triangular,  $\pm$  equal or slightly shorter than tube, with some basal overlap, spreading, apex obtuse. Nectary scales rounded triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament longer than anther; anthers approximately 1.5 mm long, dorsifixed to filament about midpoint, erect, exerted. Ovary glabrous, globose; style glabrous, 1.8–2.0 mm long, slightly bulbous at the base, stigma positioned below anthers, close to ovary. Flowering Nov.–Jan.

Tas. (TSE); endemic. Local in seepages in scrubby sclerophyll vegetation and on riverbanks on the east coast near Bicheno, to c. 500 m elevation.

**18 *Epacris myrtifolia*** Labill., *Nov. Holl. Pl.* 1: 41, t. 55 (1804)

*Cliff Heath*

*Illustrations: Stones & Curtis, The Endemic Flora of Tasmania* 3: 177, t. 62 (1971).

Erect, much branched shrub, or sometimes open and sparsely branched, 30–150(–180) cm tall. Branchlets red-brown, puberulent, erect or spreading, rounded, older stems bare of leaves, rough, dark brown, leaf scars raised. Leaves crowded on new branchlets then evenly spaced along older stems, spreading or sub-erect; petiole pubescent, 1.0–3.0 mm long, semi-appressed or rarely spreading; lamina glabrous, 5.0–9.5 mm long, 3.0–6.5 mm wide, elliptic to ovate, flat or slightly concave, straight, stiff, not thickened, base obtuse, margin entire or minutely denticulate, rarely thickened, apex obtuse to acute or acuminate with a blunt to prickly mucro; adaxial surface venation obscure; abaxial surface with midrib and 2 other parallel main veins evident. Inflorescences axillary in dense clusters near branchlet tips on current season's wood, or extending down branchlets for some distance; peduncle straight or slightly curved, shorter than corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute or obtuse, bracteoles numerous, imbricate, grading into sepals. Sepals white streaked red/pink, glabrous, 4–5 mm long, lanceolate, margin ciliolate, apex acute. Corolla caducous, white, 7–10 mm diameter; tube glabrous, 3.5–4.5 mm long, narrowly campanulate, slightly tapering to base, about equal to or just shorter than the sepals, diameter of throat less than

tube length; lobes glabrous, broadly triangular,  $\pm$  equal to or just shorter than the tube, spreading, with some basal overlap, apex obtuse or rounded. Nectary scales rounded or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament longer than anther; anthers 1.3–1.5 mm long, dorsifixed to filament about midpoint, erect, exerted. Ovary glabrous, globose or slightly depressed; style glabrous, 1.6–2.0 mm long, swollen in lower part; stigma below anthers close to ovary. Fruit persisting for more than a season. Flowering Sep.–Dec.

Tas. (TSE, TSR, TWE); endemic. Found in heaths along the south coast, Tasman Peninsula and Bruny Island, to c. 300 m elevation.

**19 *Epacris cerasicollina*** Crowden, *Muelleria* 25: 124, (2007)

*Dolerite Heath*

*Illustrations:* loc. cit. figs. 1b, d;

Erect, sparsely branched open shrub, sometimes more densely branched, 50–150(–200) cm tall. Branchlets red-brown, puberulent or villous, erect, rounded, older stems mostly bare of leaves, leaf scars crescentic, small. Leaves crowded on new branchlets, becoming more evenly spaced along older branchlets, spreading or sub-erect; petiole pubescent, 0.8–1.0 mm long, semi-appressed; lamina 3–8 mm long, 2–4 mm wide, lanceolate to ovate, flat or slightly concave near the base, usually straight, but sometimes recurved in upper part, base cuneate, margin entire or irregularly crenulate or scaberulous, apex acuminate and pungent; adaxial surface mostly glabrous but with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences few in upper axils or in denser clusters and spreading a short distance down current season's branchlets; peduncle straight or slightly curved, about equal to corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute and sometimes reflexed, bracteoles numerous, imbricate, grading into sepals. Sepals white streaked red/pink, glabrous, 2.8–4.0 mm long, lanceolate to ovate, margin ciliolate, apex acute to acuminate, often reflexed or twisted particularly in some southern populations (eg. near Hermitage and Green Hills). Corolla caducous, white, 6.8–7.5 mm diameter; tube glabrous, 2.9–4.1 mm long, narrowly campanulate, slightly tapering to the base, about equal with sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular, longer than corolla tube, spreading, with some basal overlap, apex obtuse or rounded. Nectary scales rounded or truncated, to 1/3 the length of the ovary. Stamens attached near tube throat; filament about equal with anther; anthers 1.1–1.7 mm long, dorsifixed to filament just above midpoint, erect, top half exerted above the plane of the lobes. Ovary glabrous, globose or slightly depressed; style glabrous, 3.1–4.2 mm long, swollen in lower part; stigma exerted. Flowering (Jul–)Aug.–Oct.(–Nov.)

Tas. (TSE); endemic. Found on the east coast, north of Triabunna to near Seymour, and inland on the East Coast Range and its western slopes, to c. 600 m elevation.

**20 *Epacris barbata*** Melville, *Kew Bull.* 7: 176, Fig. 2 (1952)

*Bearded Heath*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig. 99e (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 2: 117, t. 41 (1969).

Erect, open or sometimes a much branched shrub (40–)60–150(–200) cm tall. Branchlets mostly erect, sometimes spreading, red-brown, puberulent or villous, rounded, old stems may retain some leaves, leaf scars inconspicuous. Leaves evenly spaced along mature branches, spreading; petiole pubescent, 0.5–1.7 mm long, appressed or semi-appressed; lamina 5–13(–15) mm long, 2–5 mm wide, elliptic-lanceolate to ovate, flat or slightly concave near the base, straight, sometimes slightly thickened, especially in those coastal plants exposed to sea spray, base obtuse or cuneate, margin slightly thickened, entire or microserrulate, or ciliolate to fimbriate near the base, apex acute or rarely acuminate with a pungent mucro; adaxial surface mostly glabrous but with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 4–6 other parallel main veins evident. Inflorescences in clusters near current season's branchlet tips, or extending to varying distances down the branchlets in leafy spike-like arrangements; peduncle straight,  $\pm$  equal to corolla tube; bracts silky villous, lanceolate to ovate, margin ciliolate, apex acute to acuminate, bracteoles numerous, imbricate, grading into sepals. Sepals white or white streaked red/pink, villous, 4.5–7.0 mm long, elliptic to ovate, margin ciliolate, apex acute. Corolla caducous, white,



10–13 mm diameter (the largest flowers of the short-tubed *Epacris*); tube glabrous, 4.5–6.5 mm long, narrowly campanulate, slightly tapering to base, about equal with sepals, diameter of throat less than tube length; lobes glabrous, broadly triangular,  $\pm$  equal to tube, spreading, with some basal overlap, apex obtuse or rounded. Nectary scales truncated or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filament  $\pm$  equal with anther; anthers 1.4–2.0 mm long, dorsifixed to filament about midpoint, erect, half-exserted the top half of the anther clearly above the plane of the lobes. Ovary glabrous, globose or slightly depressed; style glabrous, 4.5–6.5 mm long, swollen in lower part; stigma amongst the anthers or exserted above them. Flowering Aug.–Nov.

Tas. (TSE); endemic. Found on granite sands and boulder fields on the Freycinet Peninsula, Schouten Island, as well as the coastal cliffs around Cape Tourville, to c. 500 m elevation.

**21 *Epacris acuminata*** Benth., *Fl. Austral.* 4: 240 (1868)

*Claspleaf Heath*

*Epacris mucronulata sensu* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 258 (1857), *p.p.*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444, Fig. 99c (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 4: 243, t. 76 (1973).

Erect, much branched shrub (10–)30–100(–150) cm tall. Branchlets erect or spreading, red-brown, puberulent, round, leaf scars cup-shaped and inconspicuous amongst rough bark. Leaves mainly crowded towards the branchlet ends, some persisting on older branches, spreading to sub-erect, often reflexed; petiole pubescent, 0.7–1.0 mm long, semi-appressed; lamina (2–)4–7(–9) mm long, 1–4(–4.5) mm wide, elliptic-ovate to ovate, concave, the wings of sub-erect leaves stem-clasping,  $\pm$  straight or recurved in upper part, base cordate or sagittate, rarely obtuse, margin entire or microserrulate, narrowly hyaline in the upper part and minutely scarious, apex acute to acuminate, pungent; adaxial surface mostly glabrous but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 4–6 other parallel main veins evident. Inflorescences clustered in upper axils on new season's branchlets, (many small axillary branchlets may provide a spectacular display); peduncle  $\pm$  straight, shorter than corolla tube; bracts glabrous, elliptic-ovate, margin ciliolate, apex obtuse; bracteoles numerous, imbricate, grading into sepals. Sepals glabrous, whitish with translucent margins, and with reddish-brown longitudinal streaks, 3.0–4.0 mm long, elliptic to lanceolate, margin ciliolate, apex narrowly obtuse. Corolla caducous, white, (7–)7.5–9 mm diameter; tube glabrous, 2.5–5.0 mm long, narrowly campanulate, slightly tapering to the base,  $\pm$  equal with sepals; diameter of throat less than tube length; lobes glabrous, narrow triangular, slightly wavy, about equal to tube, spreading, with some overlap at the base, apex acute. Nectary scales rounded-triangular, to 1/3 the length of the ovary. Stamens inserted near the tube throat; filaments equal to or longer than anther; anthers 0.6–0.8 mm long, dorsifixed to filament about midpoint, erect, exserted. Ovary glabrous, globose or slightly depressed; style glabrous, 3.5–6.0 mm long, swollen in lower part; stigma amongst anthers or exserted beyond them. Flowering Aug.–Dec.

Tas. (TCH, TNM, TSE, TSR); endemic. Found in woodlands and grasslands of the central midlands to Inter-laken. Also in the south-east and Derwent Valley on stream banks, and on Mt. Wellington and its foothills, to c. 1000 m elevation.

**22 *Epacris tasmanica*** W.M.Curtis, *Taxon* 18: 244 (1969)

*Eastern Heath*

*Epacris squarrosa* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1(4): 259 (1857), *nom. illeg.*; *E. serpyllifolia* var. *squarrosa* (Hook.f.) Benth., *Fl. Austral.* 4: 240 (1868).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 444 Fig. 99f (as *E. squarrosa*) (1963); Stones & Curtis, *The Endemic Flora of Tasmania* 2: 114, t. 60b (1969); Crowden, *Muelleria* 25: 118, Fig. 1c; 125, Fig. 5 (2007).

Erect, much branched, shrub, sometimes open with just 1 or 2 stiff main branches, (40–)50–100(–200) cm tall. Branchlets brown, puberulent to villous, erect, rounded, older stems mostly bare of leaves, leaf scars crescentic, conspicuous. Leaves crowded on new branchlets, becoming  $\pm$  evenly spaced along older branches, spreading, or sub-erect; petiole pubescent, < 1.0 mm long, semi-appressed; lamina 3.0–8.0 mm long, 2.0–3.5 mm wide, elliptic to lanceolate, flat or slightly concave, recurved in upper part, or  $\pm$  straight,

base cuneate, margin entire or irregularly crenulate or scabrid, or thickened, apex acute to acuminate and pungent; adaxial surface mostly glabrous but with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences clustered in upper axils or extending down branchlets to varying degrees, in leafy spike-like arrangements; peduncle straight or curved, shorter than corolla tube; bracts glabrous, ovate, margin ciliolate, apex acute or acuminate, bracteoles imbricate, grading into sepals. Sepals white, streaked red/pink, glabrous or very rarely pubescent (occasional plants in populations at Bangor and Prosser Gorge), 3–7 mm long, lanceolate to ovate, margin ciliolate, apex acute. Corolla caducous, white, 7–10 mm diameter; tube glabrous, 2.5–5.0 mm long, narrowly campanulate, slightly tapering to the base, about equal with the sepals, diameter of throat less than tube length; lobes glabrous, narrow triangular, longer than tube, spreading, not overlapping at base, apex acute. Nectary scales rounded, to 1/3 the length of the ovary, rarely 1/3 to 1/2 the length of the ovary. Stamens attached near tube throat; filament longer than anther; anthers 0.8–1.0 mm long, dorsifixed to filament about midpoint, erect, fully exerted. Ovary glabrous, globose; style glabrous, 3.5–6.0 mm long, swollen in lower part; stigma exerted. Flowering (Mar.–)Jul.(–Oct.).

Tas. (TSE); endemic. Found in woodlands and coastal heaths of the south-east, in the Longley–D’Entrecasteaux Channel area and between Orford and the Tasman Peninsula, inland to Brown Mountain, to c. 600 m elevation.

**23 *Epacris stuartii*** Stapf., *Bull. Misc. Inform. Kew* 1910(7): 217, figs 17–21 (1910)

*Southport Heath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 443, t. 142 (1978).

Erect, compact, or scrambling and open shrub, (30–)50–100 cm tall. Branchlets brown, puberulent, erect, rounded, rarely spreading, old stems mostly bare of leaves, leaf scars small and inconspicuous. Leaves ± evenly spaced along branches, sub-erect to spreading; petiole 0.3–1.2 mm long, appressed, glabrous or pubescent; lamina 4.0–7.0(–9.0) mm long, 2.5–6.0 mm wide, elliptic to ovate, flat or slightly concave near the base, ± straight or slightly recurved in the upper part, thick and somewhat fleshy, base obtuse or cuneate, margin entire or microserrulate, or irregularly dentate in older leaves, apex acute with a prickly but barely pungent mucro; adaxial surface glossy, mostly glabrous but with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences clustered in upper axils of new season’s branchlets, or extending a short distance down branchlets; peduncle straight, shorter than corolla tube; bracts and bracteoles tightly imbricate, grading into the sepals, glabrous, ovate, margin entire, apex acute. Sepals glabrous, 3.2–5.0 mm long, white streaked red/pink, lanceolate to ovate, margin entire or ciliolate, apex acute. Corolla caducous, white, 7–10 mm in diameter; tube 3.2–5.0 mm long, narrowly campanulate, slightly tapering to base, about equal with sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, ± equal to or just shorter than tube, spreading, glabrous, some basal overlap, apex obtuse or rounded. Nectary scales rounded, to 1/3 the length of the ovary, rarely to 1/2 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers dorsifixed about midpoint, approximately 1 mm long, erect, fully exerted. Ovary globose, glabrous; style 4.0–5.5 mm long; swollen in lower part, glabrous; stigma exerted. Flowering Aug.–Oct.

Tas. (TSE); endemic. Rare in the south-east, sea-cliff faces and heaths at Southport Bluff, all near sea-level.

**24 *Epacris graniticola*** Crowden, *Muelleria* 25: 126, (2007)

*Granite Heath*

*Epacris* sp. *Graniticola* (A.Moscal 4210) Crowden.

*Illustrations:* loc. cit. Fig. 5

Erect or scrambling, much branched shrub 30–100(–150)cm tall, often heavily browsed to a low, almost matlike habit. Branchlets brown, pubescent to villous, erect or spreading, rounded; old stems mostly bare of leaves; leaf scars small, inconspicuous. Leaves crowded on new branchlets, becoming evenly spaced along older branches, spreading to reflexed; petiole 0.6–0.8 mm long, semi-appressed, pubescent; lamina 2–5.5 mm long, 1.3–2.9 mm wide, lanceolate to ovate, slightly concave near the base, squarrose, or almost straight

and slightly recurved in the upper part, base obtuse, margin minutely denticulate, scaberulous or thickened, apex acute and barely pungent; adaxial surface almost glabrous with sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 4–6 other parallel main veins evident. Inflorescences few in upper axils of young branchlets, or in denser clusters extending a short distance down; peduncle straight or slightly curved, shorter than the corolla tube; bracts and bracteoles imbricate, grading into sepals; ovate, glabrous, margin ciliolate, apex acute. Sepals 2.0–3.9 mm long, white, streaked red/pink, lanceolate to ovate, glabrous, margin ciliolate, apex obtuse. Corolla caducous, white, 8–10 mm diameter; tube 2.1–3.8 mm long, narrowly campanulate, slightly tapering to the base, about equal to the sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, longer than or  $\pm$  equal to tube, spreading, glabrous, some basal overlap, apex obtuse or rounded. Nectary scales rounded or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat; filaments longer than anther, anthers dorsifixed about midpoint, 1.0–1.45 mm long, erect, exerted. Ovary globose, glabrous; style 2.3–5.8 mm long, swollen in lower part, glabrous, stigma exerted. Flowering Sep.–Nov.

Tas. (BEL, FUR); endemic. Found on granite mountains in the north-east, e.g. South Mt Cameron, Mt Stronach and at Rossarden, on seepage zones on exposed rock and among boulders, to c. 600 m elevation.

**25 *Epacris moscaliana*** Crowden, *Muelleria* 25: 127, (2007)

*Seepage Heath*

*Epacris* sp. Puzzler Gorge (A.Moscal 808) Tasmanian Herbarium.

*Illustrations: loc. cit.* Fig. 5

Scrambling, virgate, much branched shrubs 30–50(–150) cm tall. Branchlets rounded, erect or spreading, greenish-brown, puberulent, rarely glabrous or villous, old stems may retain some leaves for several years, leaf scars small but conspicuous. Leaves evenly spaced along branches, spreading or sub-erect; petiole 0.7–1.2 mm long, semi-appressed, glabrous or pubescent; lamina 2.1–3.5(–5) mm long, 1.3–2.9 mm wide, elliptic-lanceolate to ovate, oblanceolate or obovate, rounded, flat or slightly concave near the base, straight, base cuneate, margin entire or microserrulate, hyaline in the upper part, sometimes thickened, apex acute or obtuse with a short, blunt mucro, the tip often inturned; adaxial surface glabrous or with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences clustered in the upper axils on young branchlets, or extending a short distance down; peduncle straight, shorter than the corolla tube; bracts and bracteoles tightly imbricate, grading into sepals, ovate, glabrous, margin ciliolate, apex obtuse. Sepals glabrous, 2.0–5.0 mm long, white streaked red/pink, lanceolate to ovate, margin ciliolate, apex acute. Corolla caducous, white, 7–9 mm diameter; tube 2.0–4.7 mm long, narrowly campanulate, slightly tapering to base, about equal with the sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, longer than the tube, spreading, glabrous, some basal overlap, apex obtuse or rounded. Nectary scales truncated, to 1/3 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers 1.0–1.5 mm long, dorsifixed about midpoint, erect, exerted. Ovary globose or slight depressed, glabrous; style 2.5–7 mm long, swollen in lower part, glabrous; stigma exerted. Flowering Oct.–Dec.

Tas. (TSE, TNM, TNS); endemic. Swamp margins and riverine on the St Pauls and Nile rivers, and in sheltered areas on Gog Range and Mt Claude, to c. 700 m elevation.

**26 *Epacris exserta*** R.Br., *Prodr. Fl. Nov. Holland.* 551 (1810)

*South Esk Heath*

*Illustrations: Stones & Curtis, The Endemic Flora of Tasmania* 3: 175, t. 56 (1971); Crowden, *Muelleria* 18: 69, Fig. 1a, d (2003).

Erect, sparsely branched shrub 50–130(–150) cm tall. Branchlets erect, round or ridged, deep red-brown, pilose; old stems becoming glabrous and bare of leaves, leaf scars small, triangular. Leaves mainly crowded on new branchlets, or at ends of older branches before they become denuded of all leaves, spreading; petiole approximately 1 mm long, semi-appressed, pubescent; lamina 7–18 mm long, 2–2.5 mm wide, elliptic-oblong to oblanceolate, flat or slightly concave near the base, straight or slightly recurved in upper part, base cuneate, margin entire or microserrulate sometimes thickened, apex acute, not pungent, tip

inturned; adaxial surface with sparse hairs extending from the petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences few, clustered in upper axils of new season's growth, or extending a short distance down the branchlets; peduncle straight, shorter than corolla tube, bracts and bracteoles loosely imbricate or spaced, grading into sepals, ovate, glabrous, apex obtuse, margin ciliolate. Sepals glabrous, 3.7–4.5 mm long, white streaked red/pink, lanceolate, margin ciliolate, apex acute. Corolla caducous, white, 7–10 mm diameter; tube 3.5–4.7 mm long, narrowly campanulate, slightly tapering to base, about equal with sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, equal to or slightly longer than the tube, spreading, glabrous some basal overlap, apex acute. Nectary scales truncated, to 1/2 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers 0.9–1.2 mm long, dorsifixed about midpoint, erect, exerted. Ovary globose or slightly depressed, glabrous; style 3.5–4.1 mm long, swollen in lower part, glabrous; stigma among anthers or exerted. Flowering Oct.–Dec.

Tas. (TNS); endemic. Rare in the Cataract Gorge, South Esk River, on the North Esk upstream of Corra Lynn, and in the gorge of the Supply River, to c. 300 m elevation.

**27 *Epacris virgata*** Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 260. t. 79 (1860)

*Pretty Heath*

*Epacris exserta* var. *virgata* (Hook.f.) Benth., *Fl. Austral.* 4: 238 (1868). *Epacris* sp. Dans Hill (S.J.Jarman HO32456) Tas Herbarium. *Epacris* sp. 1 Alans Hill (S.J.Jarman s.n. (HO32456)) Tas Herbarium.

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 2: 115, t. 40a (1969), as *E. tasmanica*; Stones & Curtis, *op. cit.*, 3: 177, t. 62 (1971).

Erect or scrambling, virgate, or much branched, compact shrub 30–100(–150) cm tall. Branchlets erect, rounded/ribbed, sparsely to densely hispid. Leaves crowded on new branchlets, ± evenly spaced and often persisting on older stems, spreading or sub-erect; petiole 0.5–0.7 mm long, semi-appressed, pubescent; lamina 3.0–7.5 mm long, 2.0–4.0 mm wide, elliptic-lanceolate to ovate, to oblanceolate, flat or slightly convex near the base, straight, base obtuse or cuneate, margin entire or minutely denticulate or ciliolate, apex acute to obtuse, not pungent; adaxial surface with a few sparse hairs extending from petiole, venation obscure; abaxial surface glabrous, midrib and 2 other parallel main veins evident. Inflorescences well-spaced along new season's branchlets in leafy, open spike-like arrangements, rarely in clusters near branchlet tips; peduncle straight, shorter than corolla tube; bracts and bracteoles tightly imbricate and grading to sepals, ovate, glabrous, margin ciliolate, apex acute. Sepals glabrous, 2.0–5.0 mm long, white streaked red/pink, lanceolate to ovate, margin ciliolate, apex acute. Corolla caducous, white, 7–9 mm diameter; tube 2.0–5.0 mm long, narrowly campanulate, slightly tapering to base, ± equal with sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, rarely narrow triangular, longer than tube, spreading, glabrous, very slight overlap at base, apex obtuse or rounded. Nectary scales rounded, to 1/3 the length of the ovary. Stamens attached near tube throat; filaments longer than anther; anthers 1.0–1.5 mm long, dorsifixed about midpoint, erect, exerted. Ovary globose, glabrous; style 2.5–6.5 mm long, swollen in lower part, glabrous; stigma exerted. Flowering Aug.–Oct.

Tas. (TNM, TSE); endemic. Restricted to damp woodlands and swampy areas on ultramafic geology in the Beaconsfield/Andersons Creek/Dans Hill area in northern Tasmania.

**28 *Epacris glabella*** Jarman, *Aspects of Tasmanian Botany—a tribute to Winifred Curtis* 100, Fig. 2 (1991)

*Smooth Heath*

*Illustrations*: loc. cit. Fig.2.

Branchlets erect or spreading, red-brown, glabrous or with a few short scattered hairs. Leaves somewhat crowded on new branchlets, becoming ± evenly spaced along older branches, spreading, rarely sub-erect; petiole 0.6–1.2 mm long, appressed to sub-erect, glabrous; lamina 3.5–7 mm long, 2–3.5 mm wide, elliptic-ovate or obovate, rounded, flat or slightly concave near the base, straight, slightly thickened, glabrous, base cuneate, margin entire or microserrulate becoming serrulate towards the apex, apex acute to obtuse, blunt,

the tip often inturred; adaxial surface often glossy, venation obscure; abaxial surface venation with only midrib visible. Inflorescences few in the upper axils, or sometimes extending shortly down new season's branchlets; peduncle straight, shorter than the corolla tube; bracts and bracteoles tightly imbricate, grading to the sepals, elliptic to ovate, glabrous, margin ciliolate, apex acute. Sepals 3–4 mm long, white streaked red/pink, elliptic to lanceolate, glabrous, margin ciliolate, apex acute. Corolla caducous, white, 7–9 mm diameter; tube 2.5–3.5 mm long, narrowly campanulate slightly tapering to base, about equal with sepals, diameter of throat less than tube length, glabrous internally and externally; lobes broadly triangular, longer than the tube, spreading to slightly recurved, glabrous, some basal overlap, apex acute. Nectary scales rounded or triangular, to 1/3 the length of the ovary. Stamens attached near tube throat, filaments longer than anther; anthers 1.2–1.7 mm long, dorsifixed about midpoint, erect, exerted. Ovary globose or slightly depressed, glabrous; style 2.5–4.5 mm long, swollen in lower part, glabrous; stigma exerted. Flowering: September - November.

Tas. (TWE); endemic. Rare, only recorded from three locations on the West Coast where it grows on serpentine soils, in *Eucalyptus nitida* dry sclerophyll woodland near the Heazlewood River and in heathland/scrub vegetation at Serpentine Hill near Renison Bell, and on rock faces at the outlet to the second Splits, Gordon River, to c. 500 m elevation.

## EPACRIDOIDEAE TRIBE 6 STYPHELIAE

Erect or prostrate shrubs. Leaves alternate, rarely opposite; inflorescence solitary, racemose or spicate, flowers subtended by numerous imbricate bracts, or by a single bract and 2 bracteoles; corollas hirsute or glabrous; ovary 1–11 locular, a solitary pendulous ovule in each locule; style extended from the top of the ovary, not in a depression. Fruit a drupe, the mesocarp dry, pithy or succulent.

A tribe of 22 genera found in all Australian states, New Zealand, New Guinea, Pacific Rim countries and some Pacific islands. 15 genera in Tasmania. A phylogeny of the tribe is presented by Quinn et al. (2003).

1. Staminal filaments long, anthers exerted or reflexed	2
2: Staminal filaments short, anthers included	6
2. Corolla lobes glabrous	12 <b>Monotoca</b>
2: Corolla lobes hirsute to some degree	3
3. Flowers in compact rounded clusters (condensed spikes) on bare stems or amongst old leaves, usually on past season's wood; flowers green or suffused purple, the corolla cylindrical or with a central bulge, the lobes with a tuft of stiff hairs at the apex	13 <b>Acrotriche</b>
3: Flowers axillary or terminal, either solitary or in spikes or racemes, borne usually on present season's wood; Corolla lobes hirsute inside, but without stiff hairs at the apex	4
4. Plant forming a prostrate mat. Fruit with a succulent mesocarp	14 <b>Styphelia</b>
4: Plant an erect or scrambling shrub, not mat-forming. Fruit with a pithy mesocarp	5
5. Leaves concolorous. Fruit separating into pyrenes	15 <b>Trochocarpa</b>
5: Leaves glaucous beneath. Fruit with a pithy mesocarp, the locules fused into a single woody stone	16 <b>Cyathodes</b>
6. Tufts of long stiff hairs at the base of the lobes project into the tube beyond the base of the anthers	17 <b>Brachyloma</b>
6: Corolla lobes hirsute or papillose, the basal tufts of long stiff hairs lacking	7
7. Flowers subtended by 1 bract and 2 bracteoles	8
7: Flowers subtended by 4 or more bracts/bracteoles	13
8. Flowers morphologically distinct and functionally unisexual, the male flowers larger; plants dioecious	18 <b>Acrothamnus</b>
8: Flowers apparently hermaphrodite and morphologically similar; plants monoecious	9
9. Flowers glabrous, pedicellate above the subtending bracts	19 <b>Lissanthe</b>
9: Flowers hirsute to some degree, sessile in the subtending bracts	10

10. Leaves alternate without any evident clustering, bud scales deciduous	11
10: Leaves in annual clusters (pseudowhorls); bud scales persistent	12
11. Anthers with evident sterile tips	20 <i>Leucopogon</i>
11: Anthers without sterile tips	14 <i>Styphelia</i>
12. Leaf clusters distinctly verticillate, bud scales morphologically different from leaves	21 <i>Androstoma</i>
12: Leaf clusters not clearly verticillate; bud scales morphologically similar to leaves	22 <i>Planocarpa</i>
13. Flowers morphologically distinct and functionally unisexual, the male flowers larger; plants dioecious	23 <i>Leptecophylla</i>
13: Flowers apparently hermaphrodite and morphologically similar; plants monoecious	14
14. Leaves concolorous	24 <i>Pentachondra</i>
14: Leaves glaucous beneath	15
15. Flowers creamy-white; corolla tube usually less than 1 cm	26 <i>Montitega</i>
15: Flowers red or bicoloured yellow/green; corolla tube usually 1–2 cm long	16
16. Flowers red; corolla tube c. 1 cm long	14 <i>Styphelia</i>
16: Flowers yellow and green; corolla tube more than 1 cm long	25 <i>Stenanthera</i>

## 12 MONOTOCA

*Monotoca* R.Br., *Prodr. Fl. Nov. Holland.* 546 (1810).

Shrubs to small trees, branchlets scabrous to finely bristly. Leaves petiolate or nearly sessile, oblong-linear, elliptic-oblong, ovate to obovate to  $\pm$  circular, discolorous the abaxial surface glaucous with few to many sub-parallel-palmate veins; apex a callus or mucro or acuminate. Flowers small, mostly morphologically distinct and functionally unisexual, and the plants dioecious, in few-flowered axillary or sub-terminal spikes or racemes, each flower sessile or shortly pedicellate within the subtending bract, with 2 bracteoles immediately subtending the sepals, bracteoles often caducous. Corolla white, cream or pale yellow, caducous, shed soon after anthesis; tube short, widely campanulate or rotate, 4–5-partite, glabrous; lobes approximately as long as the tube, valvate in the bud, erect or with slightly recurved tips at anthesis, glabrous. Nectary entire, lobed or of separate scales. Stamens with filaments as long as anthers, filiform, inserted at or just below corolla tube throat, anthers  $\pm$  exerted or spreading with the lobes. Ovary 1–2–4-locular, each locule with a single pendulous ovule; style short; stigma small, lobed. Fruit a small somewhat fleshy drupe.

An endemic Australian genus of approximately 18 species, found in all states except The Northern Territory. Tasmania has 6 species, 3 endemic. The genus has recently been reviewed, and some Western Australian species have been transferred to the new genus *Dielsiodoxa*.

1. Flower spikes terminal on main or short axillary branches	1 <i>M. elliptica</i>
1: Flower spikes axillary, sometimes reduced to a single floret	2
2. Leaf apex obtuse with a blunt callous point; leaves oblanceolate to obovate	2 <i>M. submutica</i>
2: Leaf apex a pungent mucro; leaves narrow-oblong, elliptic, or oblanceolate	3
3. Procumbent or ascending shrub, rarely above 30 cm tall; leaves convex; drupe spherical, creamy white	3 <i>M. empetrifolia</i>
3: Erect shrub, often reaching 2+ m tall; leaves flat or slightly convex; drupe ovoid, greyish-green, or spherical, pink or purple	4
4. Drupe spherical, pinkish or purple, approximately 2–4 mm diameter	4 <i>M. linifolia</i>
4: Drupe ovoid, greenish-yellow, 1–3 mm long	5
5. Leaves flat or slightly convex, many longitudinal or palmate veins evident abaxially; flowers few in short axillary spikes, often obscured amongst the leaves	5 <i>M. glauca</i>
5: Leaves convex or the margins revolute, midrib and 2–4 main longitudinal veins evident abaxially, several minor veins running to the margin; flowers conspicuous in spikes extending down main branches	6 <i>M. scoparia</i>

**1 *Monotoca elliptica*** (Sm.) R.Br., *Prodr. Fl. Nov. Holland.* 546 (1810)

Tree Broomheath

*Styphelia elliptica* Sm., *Spec. Bot. New Holland* 1: 49 (1793). *Lissanthe mucronata* DC., *Prodr.* (DC.) 7(2): 743 (1839).

*Illustrations*: Gordon in A.J.Ewart, *Handb. For. Trees* t. 204 (1925); Albrecht, *Fl. Victoria* 3: 492, fig. 100g-i (1996).

Erect, much-branched shrub or small tree, (100–)150–300(–600) cm tall. Branchlets round, ridged or angled, red-brown, glabrous or pubescent, leaf scars inconspicuous. Leaves alternate, sub-erect or spreading; petiole short, < 1.0 mm long, appressed, glabrous; lamina almost concolorous, elliptic to oblanceolate, flat or slightly convex, 10–25 mm long, 3–7 mm wide, base cuneate, margin entire or microserulate, apex obtuse with a barely pungent callus or mucro; adaxial surface smooth, glabrous; abaxial surface barely glaucous, striate-veined, major veins palmate. Inflorescence a compact raceme with (1–)3–5(–8) florets, terminal and axillary on upper leaves, a few extending further down branchlets or short axillary branchlets, on current season's wood; rachis pubescent; flowers pentamerous; peduncle shorter than corolla, straight or curved; bracts small, ovate, glabrous or puberulent, margin ciliate, apex obtuse, caducous, or the most distal ones sometimes persistent and leaf-like. Calyx sessile on subtending bracts; sepals 0.8–1.5 mm long, glabrous, white to green, ovate, margin ciliate, apex obtuse. Corolla cream or yellowish; tube campanulate, 1.4–2.2 mm long (female), 1.8–3.4 mm (male); lobes glabrous, about equal with tube, erect, rarely spreading, broadly triangular, apex obtuse. Nectary scales triangular, to 1/2 the length of the ovary. Stamens 5, filaments shorter than anthers, dorsifixed about mid-point; anthers 1.1–1.9 mm long, erect, exerted. Ovary globose to ovoid, glabrous, unilocular; style approximately 0.4 mm long, glabrous, stigma amidst or at top of anthers. Fruit green or greenish, yellow, orange, or red, spherical, mesocarp succulent, 3–4 mm long. Flowering Aug.–Oct.

Tas. (FUR, TSE); also Qld, NSW, Vic. Local in coastal heaths of the east and north, to c. 200 m elevation.

**2 *Monotoca submutica*** (Benth) Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 112: 1 (1978)

*Monotoca scoparia* var. *submutica* Benth., *Fl. Austral.* 4: 231 (1868); *M. scoparia* var. *submutica* Rodway, *Tasman. Fl.* 120 (1903), *nom. illeg.*

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 5: 331, t. 53 (1975), as *M. scoparia* var. *submutica*.

Erect, woody, much-branched shrub, (15–)20–300(–500) cm tall. Branchlets round rarely ridged or angled, red-brown, pubescent, leaf scars inconspicuous. Leaves alternate, spreading, rarely sub-erect; petiole 0.9–1.3 mm long, appressed or sub-erect, pubescent; lamina discolorous, elliptic to obovate, flat or slightly convex, 6–12 mm long, 2–3.5 mm wide, the margins slightly revolute, base cuneate, margin entire or microserrulate, apex obtuse with a blunt callus or mucro; adaxial surface smooth, glabrous or with sparse hairs extending from petiole; abaxial surface glaucous, midrib and 2 other major veins evident, major veins  $\pm$  parallel (or almost palmate). Inflorescence a short, compact spike with (1–)2–4 florets, axillary near tips of current season's branchlets, the lowermost spikes often solitary; rachis puberulent; flowers pentamerous; peduncle shorter than or equal to corolla, often recurved; bracts ovate, glabrous, margin ciliate, apex obtuse. Sepals 0.9–1.2 mm long, white suffused pale green or pale yellow, ovate, glabrous, margin ciliate to ciliate, apex obtuse. Corolla white or cream, eventually yellowing; tube campanulate, 0.3–0.4 mm long (female), approximately 0.6 mm long (male); lobes glabrous, longer than the tube, spreading, broadly triangular, apex acute. Nectary scales rounded, to 1/2 the length of the ovary. Stamens 5, filaments equal to or barely longer than anthers, dorsifixed at or just above mid-point; anthers approximately 0.6 mm long, erect, exerted. Ovary globose to ovoid, glabrous, unilocular; style 0.4–0.5 mm long, glabrous, stigma at top of tube. Fruit yellow to orange or red, ovoid (rounded), mesocarp succulent, 2–4 mm long. Flowering Nov.–Jan.

Tas. (BEL, TSE, TSR, TWE); endemic. A widespread species in southern and western Tasmania, growing in subalpine forests and in wet forests to c. 1000 m elevation. There are two recognised subspecies; apart from the distinct separation in flowering times, and habitat, the differences between the two varieties are slight and mainly matters of degree, but nonetheless they each present a distinct appearance.

NOTE: Specimens that are consistent with *Monotoca submutica* var. *submutica* in plant size and habit, but generally taller and more sparsely branched, and flowering during autumn, winter and early spring, have been collected through eastern Tasmania at a range of elevations. Populations are highly variable, and provide a virtual continuum of morphologies and flowering times between var. *submutica* and var. *autumnalis*. Further study is required.

1. Much-branched, compact shrub 1–3(–5) m tall, or a small tree; flowering in spring 2a var. *submutica*  
 1: Small, erect shrub, 15–40 cm tall; flowering in autumn 2b var. *autumnalis*

**2a *Monotoca submutica* (Benth) Jarman var. *submutica***

*Mountain Broomheath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 5: 331, t. 103 (1975), as *M. scoparia* var. *submutica*.

Much-branched, compact shrub 1–3(–5) m tall, or a small tree. Flowering in spring.

Tas. (BEL, TSE, TSR, TWE); endemic. Widespread occurrence in southern and western Tasmania, growing in subalpine forests and in wet forests.

**2b *Monotoca submutica* var. *autumnalis* Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 112: 1 (1978)**

*Roundleaf Broomheath*

Small, erect shrub, rarely above 30 cm tall. Flowering in autumn.

Tas. (TSR); endemic. Rare and known only from moraine slopes at Mount Field. Apart from the distinct separation in flowering times, and habitat, the differences between the two varieties are slight and mainly matters of degree, but nonetheless they each present a distinct appearance.

**3 *Monotoca empetrifolia* R.Br., *Prodr. Fl. Nov. Holland.* 547. (1810)**

*Mat Broomheath*

*Styphelia empetrifolia* (R.Br.) F.Muell., *Pap. & Proc. Roy. Soc. Tasmania* 86 (1874).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 5: 331, t. 103 (1975).

Low-growing, prostrate or ascending shrub 15–30 cm tall, often hugging the face of boulders in montane shrubberies. Branchlets round, red-brown, pubescent, leaf scars inconspicuous. Leaves alternate, spreading or reflexed; petiole 0.7–0.9 mm long, appressed to sub-erect, pubescent adaxially, glabrous abaxially; lamina discolorous, elliptic to lanceolate, convex, 4–6 mm long, 0.8–1.3 mm wide, base obtuse, margin entire or microserrulate, revolute, apex acute with a pungent mucro; adaxial surface shiny and coriaceous, glabrous; abaxial surface glaucous, midrib and 2 or 4, other major veins evident, venation parallel. Inflorescence a compact spike with 1–5 florets often hidden by the leaves, axillary on upper leaves, a few extending further down branchlets, on current season's wood; rachis pubescent; flowers tetramerous; peduncle shorter than corolla, straight; bracts ovate, glabrous, margin ciliolate, apex obtuse; bracteoles small, persistent. Calyx sessile on subtending bracts; sepals 0.9 mm long, glabrous, white, suffused greenish or yellowish, ovate or rounded, margin ciliolate, apex obtuse. Corolla white; tube campanulate, c. 0.6 mm long (female), c. 0.9 mm long, (male); lobes glabrous, equal with tube, erect, or spreading, broadly triangular, apex obtuse. Nectary scales shape rounded, to 1/2 the length of the ovary. Stamens 4, filaments shorter than anthers, dorsifixed just above mid-point, inserted at or just below tube throat; anthers approximately 0.8 mm long, erect, exerted. Ovary globose, pilose, 1- or rarely 2-locular; style approximately 0.3 mm long, pilose, stigma in top half of tube. Fruit white to greenish-grey, spherical, mesocarp succulent, approximately 3 mm diameter. Flowering Sep.–Nov.

Tas., (BEL, TCH, TSE, TSR, TWE); endemic. Frequent in montane heaths on mountain summits, often scrambling over boulders, to c. 1500 m elevation.

**4 *Monotoca linifolia* (Rodway) W.M.Curtis, *The Student's Flora of Tasmania* 2: 442 (1963)**

*Monotoca lineata* var. *linifolia* Rodway, *Tasman. Fl.* 120 (1903).



Erect, woody shrub, usually compact, sometimes open, or small tree up to 4 m tall. Branchlets round, red-brown, glabrous or pubescent, leaf scars inconspicuous. Leaves alternate, spreading; petiole 0.6–1.5 mm long, appressed or sub-erect, pubescent or glabrous; lamina discolorous, oblong to elliptic, convex, 5–12 mm long, 2–4 mm wide, base obtuse, margin entire or microserrulate, slightly revolute, apex acute with a pungent mucro, rarely obtuse; adaxial surface smooth, glabrous; abaxial surface glaucous, striate-veined, venation palmate. Inflorescence a short spike with (1–)3–5(–7) florets, terminal and axillary, extending down branchlets on current season's wood; rachis puberulent; flowers tetramerous or pentamerous; peduncle shorter than or equal to corolla, straight or curved; bracts ovate, glabrous, apex obtuse, margin ciliolate; flowers often pendant. Sepals 0.7–1.2 mm long, white, suffused green or yellow, ovate, glabrous, margin ciliolate, apex obtuse. Corolla white or cream; tube campanulate, c. 0.8 mm long (female), or c. 1.0 mm long (male); lobes glabrous, longer than the tube, erect or spreading, broadly triangular, apex acute. Nectary scales narrow triangular or strap-shape, 1/2 as long to equal the length of the ovary. Stamens 4 or 5, filaments longer than or approximately equal to anther, dorsifixed at or just above mid-point, inserted at or just below tube throat; anthers approximately 0.4 mm long, erect, exerted. Ovary globose, glabrous, (1)2–4-locular; style 0.4 mm long, glabrous, stigma exerted. Fruit red to pink or purple, ovoid to spherical, mesocarp succulent. Flowering Aug.–Nov.

Tas. (TCH, TSE, TSR, TWE); endemic. Fairly widespread and common in middle-elevation forests on the Central Plateau, the west and south, to c. 1200 m elevation.

1. Tall shrub up to 2 m tall; flowers tetramerous; ovary (1)2 locular 4a subsp. *linifolia*  
 1: Medium, much-branched shrub, mostly < 1 m tall; flowers pentamerous; ovary (1)2(–4)-locular 4b. subsp. *algida*

**4a *Monotoca linifolia* (Rodway) W.M.Curtis subsp. *linifolia*** *Nodding Broomheath*

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 455, t. 148 (1978), as *M. linifolia*.

Description as per key.

Tas. (TSE, TSR); endemic. Sporadic occurrence in wet forests and riverine scrub of southern Tasmania.

**4b *Monotoca linifolia* subsp. *algida* Jarman, *Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 95, pl. 1 (1991)**

*Alpine Nodding Broomheath*

*Illustrations:* loc. cit. Fig.3. A-G.

Description as per key.

Tas. (TCH, TSR, TWE); endemic. Fairly widespread and common in middle-elevation forests on the Central Plateau and the west. It is also on Mount Field.

**5 *Monotoca glauca* (Labill.) Druce, *Bot. Exch. Club Soc. Brit Isles (report for 1916) Suppl.* 2: 636 (1917)**

*Goldey Wood*

*Styphelia glauca* Labill., *New Holl. Pl.* 1: 45, t. 61 (1805). *Monotoca lineata* R.Br., *Prodr. Fl. Nov. Holland.* 547 (1810); Albrecht, *Fl. Victoria* 3: 492, fig. 100m-o (1996).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 6: 455, t. 148 (1978)

Erect, much-branched shrub to small tree, 50–400(–700) cm tall. Branchlets round, red-brown, pubescent, leaf scars conspicuous. Leaves alternate, often in false whorls, sub-erect or spreading; petiole 0.9–1.2 mm long, appressed or sub-erect, pubescent; lamina discolorous elliptic to oblanceolate, flat or slightly convex, (8–)12–27 mm long, 6–12(–14) mm wide, base cuneate, margin entire or microserrulate, revolute, apex acute with a prickly to pungent mucro; adaxial surface smooth, glabrous; abaxial surface glaucous, striate-veined, major veins palmate. Inflorescence an open spike with 2–4(–7) florets, axillary on current season's wood, the lowermost often solitary, small and very transient; rachis puberulent; peduncle shorter or longer than corolla, straight or curved; flowers erect or pendant, pentamerous; bracts ovate, glabrous, margin ciliolate, apex acute; bracteoles sessile or sometimes distant from bracts, minute, caducous. Sepals approximately

0.8 mm long, glabrous, white suffused green or yellow, ovate, margin ciliolate, apex obtuse. Corolla white or cream; tube urceolate to campanulate, c. 0.4 mm long, (female), or campanulate, 0.6 mm long (male); lobes glabrous, longer than the tube, spreading, broadly triangular, apex acute. Stamens 5, filaments as long as anthers, inserted at or just below tube throat, dorsifixed near top; anthers 0.6 mm long, erect, exerted. Ovary globose, glabrous, unilocular; style c. 0.3 mm long, glabrous, stigma exerted. Fruit very ephemeral, greyish-green, ovoid-spherical, mesocarp succulent, approximately 2 mm long. Flowering Dec.–Feb.

Tas. (all regions except MIS); also Vic. Widespread and frequent in coastal scrub and forests to middle elevations, from sea-level to c. 1100 m elevation.

**6 *Monotoca scoparia* (Sm.) R.Br., Prodr. Fl. Nov. Holland. 547 (1810)**

*Prickly Broomheath*

*Styphelia scoparia* Sm., *Spec. Bot. New Holland* 1: 48: (1795). *Monotoca patens* A.Cunn. ex DC., *Prodr.* (DC.) 7: 756 (1839). *Monotoca propinqua* A.Cunn. ex DC., *op. cit.*

*Illustrations:* Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1027, Fig. 507b (1986); Albrecht, *Fl. Victoria* 3: 492, fig. 100j-l (1996).

Erect, much-branched shrub, 50–150(–200) cm tall. Branchlets round, red-brown, pubescent, leaf scars inconspicuous. Leaves alternate, sub-erect or spreading; petiole 0.7–0.9 mm long, appressed or sub-erect, adaxially pubescent, glabrous abaxially; lamina discolorous, linear, oblong-elliptic or oblanceolate, flat or convex, 8.0–12.0 mm long, 1.3–2.4 mm wide, base cuneate, margin entire or microserrulate, slightly revolute, apex acute with a pungent mucro; adaxial surface smooth, glabrous or sparsely pubescent near petiole; abaxial surface glaucous, midrib and 2 other major veins evident, with shorter veins radiating to the margins; major venation parallel. Inflorescence a terminal and axillary spike of up to 6 florets, well-spaced on current season's wood; rachis puberulent; peduncle shorter than or equal to corolla, straight; flowers pentamerous; bracts almost as long as the sepals, ovate, glabrous, margin ciliolate, apex obtuse; bracteoles small, membranous, persistent, sessile on subtending bracts. Sepals 1.2 mm long, glabrous, suffused white with green or yellow, ovate, margin ciliolate, apex obtuse. Corolla white; tube campanulate, 0.6–0.7 mm long (female), 1.0–1.3 mm long (male); lobes puberulent or glabrous, longer than tube, erect or spreading, broadly triangular, apex acute. Nectary scales triangular, to 1/2 the length of the ovary. Stamens 5, filaments about equal with anthers, inserted at or just below tube throat, dorsifixed at the mid-point; anthers c. 0.9 mm long, erect, exerted; Ovary ovoid, glabrous, unilocular; style 0.3 mm long, glabrous, stigma at top of tube. Fruit pale yellow to orange, ovoid, mesocarp succulent or slightly pithy, 2.0–2.3 mm long. Flowering Jul.–Sep.

Tas. (FUR); also SA, Qld, NSW, Vic. Known from a few localised populations in sandy coastal heaths in the east and north and on Flinders Island, all near sea-level.

### 13 ACROTRICHE

*Acrotriche* R.Br., *Prodr. Fl. Nov. Holland.* 547 (1810).

Low, rigid shrubs, intricately branched, branchlets finely pubescent to hirsute. Leaves spreading, usually rigid. Inflorescence a number of small flowers crowded in a sessile or shortly pedunculate, rounded head or cluster (a condensed spike), axillary amongst leaves of previous season's growth or on bare wood. Flowers hermaphrodite, caducous, green to greenish-white, sometimes suffused pink, 5-merous and sessile, each subtended by 1 bract and 2 tightly imbricate bracteoles. Corolla tube straight or funnel-shaped, or inflated in the centre, longer than both the calyx and the lobes; lobes narrow, valvate in the bud then spreading in the open flower, each lobe with a tuft of stiff hairs at the apex, initially inflexed and erect later, also with a tuft of hairs or a hairy cushion at the base which almost closes the throat of the corolla tube. Filaments terete, inserted at the top of the tube, the anthers exerted and erect at first, later hanging down outside and between the lobes. Nectary a cup-shaped disk, obtusely lobed. Ovary globose, 2–10-locular with a single pendulous ovule in each locule; style conical or cylindrical, short, the stigma enclosed. Fruit a semi-succulent drupe, spherical or flattened at the top, the style persisting. The stone may separate into separate parts if pressure is applied, but not readily into pyrenes as in *Trochocarpa* and *Pentachondra*.

An Australian genus of 15 species, found in all states except The Northern Territory; 3 species in Tasmania.

**Key references:** Paterson (1960); Quinn et al. (2005).

- |  |                       |
|--|-----------------------|
| 1. Leaf apex obtuse, or with a small mucro, blunt, abaxial surface with 3 prominent parallel veins, the outer ones with short veins radiating to the margins | 1 <i>A. cordata</i>   |
| 1: Leaf apex tapering to a long, sharp point, abaxial surface with 5–7(–9) parallel veins, but without short ones radiating to the margins                   | 2                     |
| 2. Leaves glabrous or slightly scabrous near the petiole, the margins ± entire   | 2 <i>A. affinis</i>   |
| 2: Both surfaces of leaves with scattered long hairs, the margins serrulate and with sparse hairs  | 3 <i>A. serrulata</i> |

**1 *Acrotriche cordata*** (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 548 (1810) *Coast Ground Berry*

*Styphelia cordata* Labill., *Nov. Holl. Pl.* 1: 46, t. 63 (1805). *Acrotriche ovalifolia* R.Br., *Prodr. Fl. Nov. Holland.* 548 (1810). *Acrotriche ovalifolia* var. *oblongifolia* Benth., *Fl. Austral.* 4: 228 (1868).

*Illustrations:* Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1015, Fig. 503b (1986); Albrecht, *Fl. Victoria* 3: 488, fig. 99d-f (1996).

Erect, compact shrub 20–120(–150)cm tall. Branchlets round, red-brown, pubescent, leaf-scars conspicuous. Leaves alternate, crowded on new branchlets, sub-erect or spreading; petiole 1.2–1.8 mm long, appressed or sub-erect, pubescent; lamina discolorous, oblong or ovate, sometimes thickened, flat or slightly concave near the base, 5–12 mm long, 2–5 mm wide, base obtuse, margin ± entire or microserrulate, apex obtuse, blunt with a short callus or mucro; adaxial surface smooth and glossy, glabrous or sparsely hairy near petiole; abaxial surface slightly glaucous, midrib prominent and 4 parallel main veins evident with other veins radiating from the outer pair to the margins. Inflorescence a spherical cluster (condensed spike) of 3–8 florets on old wood, occasionally on current season's wood; rachis compact, ± erect, hirsute; peduncle shorter than or equal to corolla tube, ± straight; bracts glabrous or hairy along the keel, ovate, margin entire, apex obtuse; bracteoles similar to sepals. Sepals glabrous, 1.5–2.0 mm long, green, ovate, margin ciliate, apex obtuse. Corolla pale green, caducous; tube glabrous, 2.0–5.0 mm long, cylindrical, rarely bulged in the middle or urceolate; lobes shorter than tube, spreading, narrowly triangular, flat, with a cushion of hairs at the base, constricting the throat, apex obtuse, with a cluster of stiff hairs. Stamens 5, filaments inserted at or just below tube throat, longer than anthers, dorsifixed about mid-point; anthers c. 0.3 mm long, exerted, reflexed after anthesis, causing the anthers to lie flat between the lobe bases. Nectary scales rounded or truncated, to 1/2 the length of the ovary. Ovary glabrous, 4–5 locular; style 1.2 mm long, tapered, glabrous; stigma included, near middle of corolla tube. Fruit white to greenish-grey or yellow to orange, spherical, succulent, c. 3 mm diameter. Flowering Jun.–Aug.

Tas. (FUR); also WA, SA, Vic. Found in coastal scrub and heath on the western side of Flinders Island and some neighbouring islands, from near sea-level to c. 400 m elevation. Leaf variation is not very apparent in Tasmanian populations, but in some mainland areas, it may be quite appreciable, ranging from elliptical-oblong to ovate-oblong. This variation prompted earlier botanists to consider var. *oblongifolia*. However, in her revisional treatment of the genus, Paterson (1960), discounts the variation.

**2 *Acrotriche affinis*** DC., *Prodr.* (DC.) 7(2): 757 (1839) *Ridged Ground Berry*

*Illustrations:* Paterson, *Proc. Linn. Soc. New South Wales* 85: Fig. 21-27 (1960); Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1015, Fig. 503a (1986); Albrecht, *Fl. Victoria* 3: 488, fig. 99p-r (1996).

Low prostrate shrub (5–)10(–25) cm tall, often forming a mat > 1 m wide. Branchlets round, green-yellow, pubescent or scabrous. Leaves alternate, spreading to reflexed; petiole 0.8–1.0 mm long, appressed or sub-erect, glabrous or pubescent; lamina scarcely discolorous, lanceolate, flat or slightly convex, 3–10(–12) mm long, 1–2.5 mm wide, base obtuse, margin entire or serrulate or sparsely ciliate, slightly recurved, apex acute tapering to a fine point, prickly rather than pungent; adaxial surface smooth, glabrous, or rarely scabrous or sparsely hairy near the base; abaxial surface weakly glaucous, midrib plus 4, (6) more parallel veins evident. Inflorescence a spherical cluster (condensed spike) of (3–)4–8(–10) florets, ± erect, axillary on old wood, occasionally on current season's wood; rachis compact, puberulent; peduncle shorter than or equal to

corolla, ± straight; bracts glabrous, narrowly ovate, margin ciliolate, apex obtuse; bracteoles distinct from sepals. Sepals glabrous, 1–2.5 mm long, suffused purple near apex, ovate, margin entire or barely ciliolate near apex, apex obtuse. Corolla green suffused purple, or rarely green; tube glabrous, 2–4 mm long, urceolate or cylindrical with a central bulge; lobes shorter than or equal to tube, spreading, narrowly triangular, flat, with a spongy mass of hairs at the base projecting into throat, apex acute, with stiff hairs. Stamens 5, filaments longer than anthers, inserted at or just below the tube throat, dorsifixed about mid-point; anthers approximately 0.5 mm long, initially erect, exserted, then reflexed and lying flat between corolla lobe bases. Nectary scales rounded, to 1/2 the length of the ovary. Ovary globose, densely hairy above the nectary, 4, 5 or 6-locular; style 0.7–1.3 mm long, tapered, glabrous; stigma included, in top half of corolla tube. Fruit green or green suffused with purple, spherical, succulent, glabrous or slightly hispid, c. 3 mm diameter. Flowering Jul.–Sep.

Tas. (KIN, TWE); also SA, Vic. Sporadic in coastal heaths and shrublands along the northern part of the west coast, at or near sea-level.

**3 *Acrotriche serrulata*** (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 547 (1810)

*Honey Pots, Ants' Delight*

*Styphelia serrulata* Labill., *Nov. Holl. Pl.* 1: 45, t. 62 (1805). *Acrotriche patula* sensu J.D.Hooker, *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 253, non R.Br. (1810).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 434, Fig. 96c,d (1963); Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1015, Fig. 503g (1986); Albrecht, *Fl. Victoria* 3: 488, fig. 99s-u (1996); Spencer, *Horticultural Flora of South-eastern Australia* 2: 473 (1997).

Low, almost prostrate or mat-forming shrub, 10–20 cm tall, spreading to 1 m or more in diameter. Branchlets round, red-brown, pubescent, leaf scars conspicuous. Leaves alternate, crowded on new branchlets, spreading to reflexed; petiole 0.6 mm long, sub-erect, pubescent adaxially, glabrous or rarely pubescent abaxially; lamina discolorous, linear-lanceolate, flat to convex, 4.0–20 mm long, 0.6–2.0 mm wide, base obtuse, margin serrulate with occasional stiff hairs, apex acute, mucronate and pungent; adaxial surface sparsely hairy near petiole, or lightly hispid; abaxial surface glaucous, hispid, midrib prominent plus + 2 or 4 other major parallel veins. Inflorescence a rounded cluster (condensed spike) of 4–10 florets, axillary on old wood; rachis compact, hirsute; peduncle shorter than corolla, ± straight; bracts glabrous or with sparse hairs on keel, often with a tuft of hairs near the apex, ovate, margin ciliolate, apex acute; bracteoles distinct from sepals. Sepals glabrous or pubescent near apex, 1–2.5 mm long, white, suffused green or yellow or purple, ovate, margin ciliolate, apex obtuse. Corolla green, sometimes suffused purple; tube glabrous, 2–4 mm long, urceolate or cylindrical with a central bulge, or rarely cylindrical with a throat constriction, usually filled with nectar; lobes shorter than tube, erect to spreading, narrowly triangular with a hairy scale at the base, constricting the tube throat, apex obtuse with a group of stiff hairs. Stamens 5, filament inserted at or just below tube throat, longer than anther, dorsifixed about mid-point; anthers 0.6–0.7 mm long, erect, exserted, reflexed at anthesis causing the anther to lie flat at the lobe base. Nectary scales rounded, to 1/2 the length of the ovary. Ovary globose, pilose to hirsute, 5, 6 or 7-locular; style 0.7–1.3 mm long, cylindrical or tapered, glabrous or weakly pilose near ovary; stigma included, in the top half of corolla tube. Fruit green or suffused with purple, spherical, usually hispid, succulent, c. 3 mm diameter. Flowering Jul.–Sep.

Tas. (BEL, FUR, TCH, TNM, TNS, TSE, TSR); also SA, NSW, Vic. Widespread in heaths and dry forests, from low elevation to c. 900 m elevation. Tasmanian populations of *A. serrulata* are reasonably consistent and relatively easy to separate from *A. affinis* which in all Tasmanian populations seen (by RKC) has glabrous concolorous leaves with an entire margin. The interveinal grooves also appear to be shallower than in Victorian plants.

## 14 STYPHELIA

*Styphelia* Sm., *Spec. Bot. New Holland* 1: 45: (1795).

Erect, spreading or prostrate shrubs; branchlets glabrous or hairy; leaf scars ± inconspicuous. Leaves sessile or shortly petiolate, flat, ovate, oblong, elliptic or obovate, often slightly discolorous with fine multi-striate

venation, margins entire or toothed, usually with an aristate tip. Flowers pentamerate, bisexual, anthesis occurring on hardened current or previous season's wood, axillary, solitary with a bract-like rudiment immediately below the bracteoles, or 2–3 in a much reduced spike terminated by a bract-like rudiment, peduncle very short; bracts several, grading upwards in size to the larger bracteoles which are imbricate with the sepals, all ciliolate. Sepals usually coloured as the corolla, ciliate near apex. Corolla tube cylindrical elongated, hairy inside at the throat and with 5 tufts of hairs, sometimes confluent in a ring below the middle, or rarely glabrous; lobes valvate in bud, linear to narrowly triangular, bearded inside, revolute and exposing the stamens. Anthers exerted on long, slender filaments. Nectary annular or of distinct scales. Ovary 5-locular with 1 ovule per locule; style filiform, glabrous, longer than corolla tube; stigma small and lobed. Fruit an ovoid drupe with a dry or slightly pulpy mesocarp and a hard bony endocarp.

An Australian genus of 149 species found in all states. Crayn et al. (2020) recently re-circumscribed the genus, transferring 135 species of *Astroloma*, *Coleanthera*, *Croninia* and *Leucopogon* into *Styphelia*.

Key reference: Powell et al. (1992);

- |   |                        |
|---|------------------------|
| 1. Flowers subtended by a persistent or caducous, sometimes leaf-like bract and two bracteoles  | 2                      |
| 1: Flowers subtended by a total of more than 3 bracts and bracteoles which can be difficult to distinguish from each other, and grading in size to the sepals | 3                      |
| 2. Leaves erect, flat, > 15 mm long   | 4 <i>S. esquamata</i>  |
| 2: Leaves spreading to ascending, < 15 mm long, convex  | 3                      |
| 3. Flowers in short axillary spikes   | 3 <i>S. ericoides</i>  |
| 3: Flowers solitary or rarely paired  | 5 <i>S. nesophila</i>  |
| 4. Corolla red or orange; stamens not or barely exerted from corolla tube   | 2 <i>S. humifusa</i>   |
| 4: Corolla cream to yellow-green; stamens distinctly exerted from corolla tube  | 1 <i>S. adscendens</i> |

### 1 *Styphelia adscendens* R.Br., *Prodr. Fl. Nov. Holland.* 537 (1810)

*Golden Heath*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 423, Fig. 96 (1963); Powell et al., *Fl. S. Austral.* [J.M.-Black], ed. 4, 2: 1027, Fig. 507d (1986); Albrecht, *Fl. Victoria* 3: 482, fig. 98m-o (1996); Spencer, *Horticultural Flora of South-eastern Australia* 2: 479 (1997).

A prostrate shrub, forming mats to 80 cm diameter. Branchlets wiry, pubescent. Leaves crowded, 8–30 mm long, 2–4 mm wide, elliptical to oblanceolate, ± flat or the margins slightly recurved, abaxial surface weakly glaucous with numerous veins evident, glabrous, margins minutely scabrous or ciliolate, apex tapering to a fine, pungent tip. Flowers pale yellowish-green, axillary, solitary or 2 together on very short peduncles; bracts and bracteoles ovoid, the upper ones larger approximately 3–6 mm long, apex apiculate. Sepals 8–13 mm long, lanceolate to ovate, apex apiculate. Corolla cylindrical or slightly obconical, approximately twice the length of the sepals, a ring of hairs near the base and scattered longer ones above; lobes lanceolate, densely bearded inside. Ovary glabrous; nectary of 5 free scales. Drupe ovoid with a thin, succulent mesocarp, 5-locular. Flowering Jun.–Aug.

Tas. (BEL, FUR, KIN, TNS, TSE, TSR, TWE); also WA, SA, NSW, Vic. Widespread and abundant in dry woodlands and heaths, mostly at low elevations to c. 300 m elevation. Tasmanian plants are always prostrate and mat forming. However, plants in Victoria (e.g. at The Grampians) are often sub-erect reaching heights of 60 cm.

### 2 *Styphelia humifusa* (Cav.) Pers., *Syn. Pl. (Persoon)* 1: 174 (1805)

*Native Cranberry, Cranberry Heath*

*Astroloma humifusum* (Cav.) R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810); *Ventenatia humifusa* Cav., *Icon. [Cavanilles]* 4(1): 28, t. 348 (1797). *Astroloma denticulatum* R.Br., *op. cit.*; *A. denticulata* (R.Br.) Spreng., *Syst. Veg.* 1: 658 (1824); *A. humifusum* var. *denticulatum* (Cav.) Guilf., *Australian Plants suitable for gardens, parks, timber reserves, etc.* 65 (1911).

*Illustrations:* Cochrane et al., *Flowers and Plants of Victoria*, Fig. 34 (1968), as *S. humifusa*; Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1017, Fig. 504b (1986); Albrecht, *Fl. Victoria* 3: 482, fig. 98g-i (1996); Spencer, *Horticultural Flora of South-eastern Australia* 2: 474 (1997).

Usually prostrate shrub forming mats 30–40 cm across, glabrous or the branches finely pubescent. Leaves spreading or erect, 5–12 mm long, 1–3 mm broad, linear to oblanceolate; petiole appressed or sub-erect, glabrous; lamina flat to convex, glabrous or scabridulous, abaxial surface striate-veined, margin ciliate with stiff bristles, apex mucronate or tapering to a pungent point. Flowers red, solitary or rarely 2 or 3 close together, axillary, on short pedicels, often ± hidden amongst the leaves; bracts approximately 8, the innermost largest, 2.0–2.5 mm long, almost orbicular, glabrous, apex mucronate. Sepals, 4.3–7.0 mm long, 1.7–2.6 mm wide, ovate, to ovate-oblong, often puberulent inside at the base, apex obtusely mucronate. Corolla red; tube cylindrical, 7–12 mm long, nearly twice as long as the calyx, constricted at base and/or apex, with 5 tufts of hairs inside, forming a ring a little below the middle, and more or less hairy at the throat; lobes with inner surface bearded, flat to recurved, (–erect), narrow-triangular, approximately 4 mm long, apex glabrous, mucronate-acute. Filaments 0.4–1.3 mm long, flat; anthers 1.3–2.4 mm long, attached near the top. Ovary globose 1.0–1.5 mm, glabrous; nectary cup-shaped; style slender, 5–15 mm long; stigma exserted, large, globular. Drupe greenish, 8–10 mm long, ovoid, the flesh sweet, edible. Flowering Feb.–May.

Tas. (BEL, FUR, KIN, TNM, TSE, TSR); also SA, NSW, Vic. Widespread in heaths, grasslands and woodlands at low elevations, occasionally to c. 750 m elevation.

### 3 *Styphelia ericoides* Sm., *Spec. Bot. New Holland* 1: 48 (1795)

*Pink Beardheath*

*Leucopogon ericoides* (Sm.) R.Br., *Prodr. Fl. Nov. Holland.* 543 (1810); *Leucopogon ericoides* var.  $\alpha$  Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 250 (1857). *Styphelia trichocarpa* Labill., *Nov. Holl. Pl.* 1: 47, t. 66 (1805); *Leucopogon trichocarpa* (Labill.) R.Br., *op. cit.*; *L. ericoides* var.  $\beta$  Hook.f., *op. cit.*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 437, Fig. 97b (1963); Powell et al., *Fl. S. Austral.* [J.M.-Black], ed. 4, 2: 1022, Fig. 505e (1986).

A heath-like shrub variable in habit, low and diffuse to erect to 2 m. Branchlets glabrous to pubescent or shortly pilose. Leaves subsessile or very shortly stalked, 4–15 mm long, 0.5–2.5 mm wide, oblong-linear to elliptic, but sometimes narrow and acute, obtuse, mucronate, entire, concolorous, glabrous to pubescent, the abaxial surface faintly striate, margins recurved to revolute, apex broadly acute with a blunt mucro. Flowers white (rarely pale pink), often a strong pink in the bud, up to 6 in tight axillary spikes, which may extend a considerable distance down the branches giving the appearance of long, leafy raceme; bracteoles ovate, keeled, glabrous, approximately half as long as the calyx, apex acute. Sepals 1.5–2.0 mm long, ovate, glabrous or rarely pubescent, apex acute. Corolla tube longer than the calyx 1.5–2.5 mm long; lobes shorter to longer than the tube, spreading or recurved, densely bearded on the inner surface, often brown below. Anther attached at the top, without sterile tips. Ovary 5-locular, smooth or ridged, pubescent or hairy, or rarely glabrous, tapering to a style which is almost as long as the corolla tube; nectary lobes 5, free or slightly cohering. Drupe ovoid, often curved, and ± prominently ridged and sparsely hairy. Flowering Sep.–Nov.

Tas. (all regions except MIS); also SA, Qld, NSW, Vic. Widespread and abundant especially in sandy and peaty heaths, to c. 1000 m elevation.

NOTE on Cape Tourville population. An erect, sparsely branched shrub, 60cm -1m; rare in a few coastal locations (eg. Cape Tourville, Granville Harbour), usually subjected to sea spray. One location, now extinct, was on the beach of the now drowned Lake Pedder. In general aspect it resembles a small *S. ericoides*, but differs in the leaves, which are thicker and broader, the margins less recurved; the flower spikes do not extend so far down the branchlets and have fewer florets, and the flowers are partially hidden amongst the leaves. The ovary and inner part of the corolla tube are pubescent, comparatively less so, or glabrous, in *S. ericoides*. Further research is required.

**4 *Styphelia esquamata* (R.Br.) Spreng., Syst. Veg. 1: 658 (1824)**

Swamp Beardheath

*Leucopogon esquamatus* R.Br., *Prodr. Fl. Nov. Holland.* 546 (1810); *Phanerandra esquamata* (R.Br.) Stschegl., *Bull. Soc. Imp. Naturalistes Moscou* 32(1): 20 (1859). *Styphelia fastigiata* Spreng., *Syst. Veg.* 4(2): *Cur. Post.* 67 (1827); *Leucopogon fastigiata* (Spreng.) G. Don, *Gen. Hist.* 3: 779 (1834).

*Illustrations:* Powell et al., *Fl. Victoria* 3: 508, Fig. 103y-aa (1996).

An erect, slender shrub up to 1m tall. Branchlets glabrous or minutely pubescent. Leaves erect, 10–22 mm long, 2–4 mm wide, crowded, sometimes imbricate, flat or slightly twisted, elliptic to lanceolate to oblanceolate, glabrous, discolorous, the abaxial surface finely striate, base tapering to a broad petiole approximately 1 mm long, margin  $\pm$  entire, or minutely toothed towards the apex, apex acuminate with a pungent mucro. Flowers white, solitary plus rudiment or often 2 together in upper leaf axils; bracts and bracteoles 1.2–1.5 mm long, broadly ovate, glabrous, apex obtuse. Sepals 2–3 mm long, ovate, glabrous, apex obtuse. Corolla tube shorter than the sepals, 1.0–1.5 mm long, glabrous; lobes approximately twice as long as the tube, recurved in upper part, densely bearded, apex acute. Anthers without sterile tips attached near the middle. Ovary oblong, 2-locular, glabrous; nectary absent; style longer than the ovary, slightly exerted from the corolla-tube; fruit obovoid, approximately 4 mm long, glabrous, brown. Flowering Sep.–Nov.

Tas. (FUR); also NSW, Vic. Local in swampy areas on Flinders Island, to c. 300 m elevation.

**5 *Styphelia nesophila* (DC.) Sleumer, Blumea 12(1): 153 (1964)**

Sharp Beardheath

*Pentachondra mucronata* Hook.f., *Lond. J. Bot.* 6: 270 (1847); *Leucopogon stuartii* F.Muell. ex Sond., *Linnaea* 26: 249 (1854). *Leucopogon nesophilus* DC., *Prodr.* (DC.) 7(2): 752 (1839). *Leucopogon bellignians* Raoul, *Ann. Sci. Nat., Bot. sér. 3*, 2: 118, t. 13 (1844). *Styphelia fraseri* (A.Cunn. ex DC.) F.Muell., *Fragm.* (Mueller) 6(47): 56 (1868); *Leucopogon fraseri* A.Cunn. ex DC., *Prodr.* (DC.) 7(2): 753 (1839). *Leucopogon Frazeri* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 251 (1857), orth. var.

*Illustrations:* Powell et al., *Fl. Victoria* 3: 508, Fig. 103p-r (1996).

Prostrate shrub, up to 10 cm tall with short ascending or erect branches, glabrous or pubescent. Leaves 4–8 mm long, 1.0–2.5 mm wide, linear-oblong to oblanceolate, slightly imbricate, flat or barely convex, discolorous, glabrous, the abaxial surface with 3 (+) distinct veins, margin toothed towards the apex, apex acuminate, pungent. Flowers white, axillary, solitary (usually with a rudiment) on a short peduncle; bracteoles 1–2 mm long, broadly ovate, glabrous, apex minutely mucronate. Sepals 2.5–3.5 mm long, broadly lanceolate, glabrous, apex acute, or obtuse with a minute point. Corolla tube approximately twice as long as the calyx, 5–7 mm long; lobes approximately half as long as tube, spreading, the inner surface bearded, apex acute. Anthers without sterile tips, attached approximately in the middle. Ovary glabrous, 5-locular; nectary deeply lobed; style shortly exceeding corolla tube, pilose at base. Fruit pale yellow, 3–4 mm diameter, spherical, glabrous, succulent. Flowering Oct.–Dec.,

Tas. (TCH, TSE); also NSW, Vic., New Zealand. Found in upland grassland and on margins of swamps, to c. 1200 m elevation.

**15 TROCHOCARPA**

*Trochocarpa* R.Br., *Prodr. Fl. Nov. Holland.* 548 (1810).

Synonymy: *Decaspora* R.Br., *Prodr. Fl. Nov. Holland.* 658 (1810).

Shrubs or small trees with slender spreading branches, glabrous or pubescent; Leaves shortly petiolate, often distichous and clustered near the branch tips, flat, concolorous, glabrous, several longitudinal veins visible abaxially. Flowers white to red, pentamerous, bisexual or rarely unisexual, several together or rarely solitary, drooping, in short spikes, either terminal or in the axils of the previous year's leaves, each flower sessile within the small subtending bract and two bracteoles, the bracts at the base of the spikes sterile. Corolla tube cylindrical or campanulate, glabrous or with reflexed hairs inside at the throat; lobes triangular,

shorter than the tube, valvate or imbricate distally in bud, spreading or recurved (rarely revolute) glabrous or the inner surface bearded. Stamens with filaments inserted in the top of the tube; filaments short, filiform erect or recurved between lobes; anthers attached at or near the top, exerted. Nectary lobed or separating into 5–10 distinct scales. Ovary 8–11-locular, with 1 ovule per locule, glabrous; style glabrous, rather thick usually short; stigma small, lobed. Fruit a globular or depressed drupe, the mesocarp pulpy, the endocarp separating or separable into 10 (or fewer by abortion) distinct pyrenes.

A genus of approximately 12 species in Malesia and Australia (7–8 endemic spp.); 4 species are endemic in Tasmania.

- |   |                          |
|---|--------------------------|
| 1. Flowers red or rarely white in terminal cylindrical spikes: corolla bearded inside at the throat                         | 2                        |
| 1: Flowers white, in ± spherical spikes which are terminal or axillary towards the ends of short branches; corolla glabrous | 1 <i>T. gunnii</i>       |
| 2. Leaves ovate, 2–4 mm long  | 2 <i>T. thymifolia</i>   |
| 2: Leaves ovate-lanceolate or narrow-elliptical, 8–20 mm long, distichous   | 3                        |
| 3. Branchlets glabrous; erect shrub 3–4 m tall (local in the extreme south)   | 3 <i>T. disticha</i>     |
| 3: Branchlets pubescent; semi-prostrate, spreading shrub (widespread on mountains of the south, west & Central Plateau)     | 4 <i>T. cunninghamii</i> |

**1 *Trochocarpa gunnii*** (Hook.f.) Benth., *Fl. Austral.* 4: 167 (1868)

*Fragrant Purpleberry*

*Decaspora gunnii* Hook.f., *Lond. J. Bot.* 6: 270 (1847).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: 257, t. 83 (1973).

An erect, bushy shrub or small tree to 4 m tall, glabrous or the branchlets pubescent. Leaves alternate and sometimes sub-distichous, 5–12 mm long, 3–4 mm wide, ovate-elliptical, the abaxial surface strongly ribbed, the young leaves often bright red in colour, margin minutely scabrous, apex obtuse, blunt. Flowers white, few together in short, terminal or axillary spikes; bracts and bracteoles approximately 1/2 as long as the calyx. Sepals approximately 1.5 mm long, ovate, apex obtuse. Corolla tube campanulate, shortly exceeding the sepals; lobes short sub-erect to spreading, glabrous. Anthers exerted. Ovary globose attenuate with broad base of style; nectary truncate; style tapering; stigma near top of corolla tube. Drupe flattened dorsiventrally, approximately 5 mm diameter, pithy, purple to white in colour, under slight pressure breaking into separate pyrenes. Flowering Dec.–Mar.

Tas. (TCH, TSR, TWE); endemic. Widespread in the south and west in the scrub borders of temperate rain-forest, to 1100 m elevation.

**2 *Trochocarpa thymifolia*** (R.Br.) Spreng., *Syst. Veg.* 1: 660 (1824)

*Thymeleaf Purpleberry*

*Decaspora thymifolia* R.Br., *Prodr. Fl. Nov. Holland.* 548 (1810).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 2: 94, t. 30 (1969).

A low, bushy shrub, up to 75 cm tall, often spreading against the sheltered sides of boulders. Branchlets pubescent. Leaves petiolate, initially erect then sharply recurved, 2–4 mm long, ovate to broadly oblong, convex, the midrib only prominent underneath, apex obtuse or with a callous tip. Flowers red, in dense terminal cylindrical, recurved spikes, up to 2 cm long; bracts and bracteoles very short, broad, persistent, margin ciliolate. Sepals 1.0–1.5 mm long, broad, obtuse, the same colour as the corolla. Corolla tube approximately 2 mm long, campanulate; lobes triangular, erect to spreading, shorter than the tube, bearded inside. Anthers exerted. Ovary globose, squat; nectary of 5 scales, free or sometimes cohering, approximately 1/2 the length of the ovary; style thick, tapering to slightly lobed stigma. Drupe purplish, ovoid-spherical approximately 8 mm diameter, pithy, easily disintegrates into separate pyrenes. Flowering Dec.–Jan.

Tas. (BEL, TCH, TSR, TWE); endemic. Abundant near the summits of mountains in the south, west and north-east, to c. 1400 m elevation.



**3 *Trochocarpa disticha* (Labill.) Spreng., Syst. Veg. 1: 660 (1824)***Spreading Purpleberry*

*Cyathodes disticha* Labill., *Nov. Holl. Pl.* 1: 58, t. 82 (1805); *Decaspora disticha* (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 548 (1810). *Trochocarpa disticha* var. *microphylla* F.Muell., *Pap. & Proc. Roy. Soc. Tasmania* 63 (1874).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 55: 349, t. 112 (1975).

A tall shrub up to 5 m tall, with few slender spreading branches. Young branchlets glabrous, marked by longitudinal grooves below the insertion of the leaves. Leaves shortly petiolate, twisting to offer a distichous arrangement of two opposite rows, 3–8 mm long, ovate-lanceolate to narrow lanceolate, glabrous, broadly acute, 3–5 veins show underneath, the young leaves often reddish in colour. Flowers insipid reddish, in loose or dense terminal, recurved spikes, 10–15 mm long; bracts and bracteoles small, broad, persistent, bracteoles approximately 1/2 the length of the sepals. Sepals 2–3 mm long, ovate, striate. Corolla tube campanulate, 3–4 mm long; lobes shorter than the corolla, narrow-triangular, recurved, glabrous above, with a tuft of hairs at the base that are reflexed into the tube. Anthers exerted. Ovary ovoid, glabrous; nectary lobed; style shorter than the ovary; stigma slightly lobed. Drupe pale to deep purple, pithy, somewhat flattened, 6–10 mm diameter, separating readily into pyrenes. Flowering Sep.–Oct.

Tas. (TSR); endemic. Sporadic in wet forests in the extreme south of the state, mostly below 400 m, but occasionally to c. 800 m elevation.

**4 *Trochocarpa cunninghamii* (DC.) W.M.Curtis, The Student's Flora of Tasmania 2: 463 (1963)***Straggling Purpleberry*

*Decaspora cunninghamii* DC., *Prodr.* (DC.) 7(2): 758 (1839) [as '*D. Cunninghami*']; *Trochocarpa disticha* var. *cunninghamii* (DC.) Benth., *Fl. Austral.* 4: 166 (1868).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 2: 95, t. 30 (1969).

A straggling shrub, often procumbent and capable of generating adventitious roots, but sometimes appearing to climb adjacent vegetation, up to 1 m long; Branchlets pubescent, dark coloured. Leaves alternate but twisting to offer an apparent distichous arrangement, 7–10 mm long, ovate, the young leaves often red in colour, margin minutely scabrous or ciliolate, apex acute, blunt. Flowers red-white, very variable in number from 1 or 2 to 20+ in terminal, cylindrical spikes up to 2 cm long; bracts and bracteoles small, ovate, persistent. Sepals 2–3 mm long, ovate, striate. Corolla tube approximately 4 mm long; lobes shorter than the tube, sub-erect to spreading, glabrous except for a tuft of hairs at the base which projects into the tube. Anthers exerted. Ovary to ovoid-attenuate with broad base of style; nectary 5 broad, rounded overlapping; style tapering to stigma; stigma projecting to top of corolla hairs. Drupe flattened dorsiventrally, bluish-purple, 10–13 mm diameter, if pressed will separate into distinct nutlets. Flowering Sep.–Dec.

Tas. (TCH, TSR, TWE); endemic. Common in wet sclerophyll and rainforest of the south and west, to c. 1200 m elevation.

**16 CYATHODES**

*Cyathodes* Labill., *Nov. Holl. Pl.* 1: 57, t. 81 (1805).

Synonymy: *Epacris* J.R.Forst. & G.Forst., *Char. Gen. Pl.*, ed. 2 pl 19 (1776), *p.p.*, *nom. reject.*

Low, diffuse or erect, compact shrubs to 3 m tall, rounded, pubescent; leaf scars raised, prominent. Leaves clustered in false whorls, spreading; lamina thin, flat; the tip usually mucronate; glabrous, or scaberulous in the upper half; margin entire, abaxial surface with interveinal papillae, glaucous, striate, the marginal veins branching; petiole spreading, puberulent on the adaxial surface. Inflorescence terminal and axillary, solitary in the leaf axils of the distal leaf clusters. Flowers white, erect, sub-sessile, subtended by paired, keeled bracts, with numerous closely imbricate bracteoles grading in size to the sepals hermaphrodite. Corolla tube cylindrical or sub-urceolate, exceeding the calyx, sparsely pubescent inside; lobes revolute, shorter than the tube, narrowly triangular, pubescent. Stamens 5; filaments inserted at the top of the tube, exerted, thick; anthers attached near the apex, linear. Nectary annular and truncate. Ovary spherical, (5–)6–10-

locular, with one ovule per cell, glabrous or rarely with sparse hairs; style straight, glabrous, attenuate from the ovary; stigma lobed. Fruit a flattened spherical drupe, with a hard bony endocarp and pithy mesocarp, red, purple, or rarely white; glabrous.

A Tasmanian endemic genus of three species.

Key references: Weiller (1996a,b, 1999).

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|--|------------------------|
| 1. Low diffuse shrub; leaves obovate; fruit red  | 1 <i>C. straminea</i>  |
| 1: Compact shrub or small tree; leaves ovate; fruit purple or rarely white   | 2                      |
| 2. Leaves large and broad, corolla not constricted at the throat; filaments erect; ovary 7–10-locular                    | 2 <i>C. platystoma</i> |
| 2: Leaves smaller and narrower, corolla sub-urceolate, constricted at the throat; filaments spreading; ovary 5–8-locular | 3 <i>C. glauca</i>     |

**1 *Cyathodes straminea*** R.Br., *Prodr. Fl. Nov. Holland.* 539 (1810)

*Spreading Cheeseberry*

*Styphelia straminea* (R.Br.) Spreng., *Syst. Veg.* 1: 656 (1824). *Cyathodes macrantha* Hook.f., *Bot. Antarct. Voy. Ill. (Fl. Tasman.)* 1(4): 245 (1857); *C. straminea* var. *macrantha* (Hook.f.) Rodway, *Tasman. Fl.* 113 (1903).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 1: 67, t. 22 (1967) (Incorrectly labelled as *C. glauca*).

A diffuse shrub. Branchlets densely pubescent, rising in false whorls and spreading widely. Leaves 7.1–15.6 mm long, 2.9–4.5 mm wide; petiole puberulent on upper surface; lamina oblanceolate or narrowly obovate to elliptic, adaxial surface glabrous, lower surface glaucous, with 7–19 conspicuous veins prominent in the abaxial half of the leaf, apex broadly acute to obtuse, often scarious, straight or incurved. Flowers white, solitary, clustered in upper axils; pedicels 2.5–3.9 mm long; bracts broadly ovate, apices obtuse, glabrous; bracteoles 10–18 per flower; bracteoles and sepals glabrous or puberulent on both surfaces, the outer surface often with short, dense, appressed hairs, striate. Sepals 4–7 mm long, 2.2–3.5 mm wide, ovate to elliptic. Corolla tube urceolate, constricted at the throat, 5.0–8.8 mm long, longer than the lobes, externally glabrous or pubescent or with a few hairs only at the base of the lobes, internally sparsely hairy; lobes recurved, pubescent inside. Anthers erect and exerted, on filaments 0.8–1.4 mm long. Ovary 7–10-locular; nectary continuous, or separating into scales; style 3.4–4.6 mm long. Drupe red, pithy, flattened dorsiventrally. Flowering Jan.–Feb.

Tas. (TCH, TSR, TWE); endemic. Found in open shrubland amongst dolerite boulders at elevations above 1000 m in the central, western and south-eastern districts of Tasmania. Commonly associated with *Eucalyptus coccifera*, *Orites revolutus*, *Ozothamnus* and *Richea* species.

**2 *Cyathodes platystoma*** C.M.Weiller, *Austral. Syst. Bot.* 9: 502, (1996)

*Tall Cheeseberry*

*Illustrations:* loc. cit., Fig. 9.

A tall shrub to 3 m tall. Branchlets brown. Leaves with petiole 2–8 mm long; lamina oblanceolate to lanceolate, 36–62 mm long, 5.6–8.2 mm wide, adaxial surface usually glabrous or puberulent near the base, abaxial surface with 12–40 veins, apex broadly acute to obtuse, tip apiculate or mucronate, usually scarious. Flowers white, solitary, few crowded in upper axils; pedicels 2.0–2.6 mm long; bracts broadly acute to obtuse, sparsely puberulent; bracteoles broadly ovate to elliptic, puberulent. Sepals broadly ovate to elliptic, puberulent, 4.6–6.2 mm long, 2.7–3.7 mm wide. Corolla tube cylindrical, scarcely constricted at the throat, 6.0–6.3 mm long and 2.5–3.5 mm wide; lobes shorter than the tube, pubescent. Anthers erect and exerted on erect filaments 1.2–2.5 mm long. Ovary 7–10-locular; nectary continuous; style within tube. Drupe pithy, purple, flattened dorsiventrally, 6–12 mm diameter. Flowering Nov.–Jan.

Tas. (TSE); endemic. Known only from the Tasman Peninsula and the southern-most part of Forestier Peninsula, south-eastern Tasmania. Found in wet and dry sclerophyll forest, as well as rocky ridges to c. 500 m elevation. The differences between this species and *C. glauca* are mainly differences of degree. The leaves in *C. platystoma* are much larger, but the differences in corolla throat constriction and the vestiture of bracts and sepals are not absolute.

**3 *Cyathodes glauca*** Labill., *Nov. Holl. Pl.* 1: 57, t. 81 (1805)

Cheeseberry, Purple Cheeseberry

*Trochocarpa glauca* (Labill.) Spreng., *Syst. Veg.* 1: 660 (1824). *Styphelia billardierei* F.Muell., *Fragm.* (Mueller) 6(47): 43 (1867), *nom. illeg.*

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 1: 67, t. 22 (1967) (Incorrectly labelled *C. straminea*).

A compact shrub, or a small tree up to 3 m tall. Branchlets and leaves mostly in pseudowhorls. Leaves with petiole 1.4–3.2 mm long; lamina 13–47.9 mm long, 2.4–5.4 mm wide, oblanceolate to lanceolate, adaxial surface glabrous, abaxial surface with 7–19 conspicuous veins, margins entire, apex broadly acute, scarious. Flowers white, solitary crowded in the upper axils on pedicels 1.5–3.0 mm long; bracts triangular, obtuse, usually glabrous; bracteoles 10–18 per flower; bracteoles ovate, usually sparsely puberulent toward the apex or glabrous, weakly striate. Sepals broadly elliptic, usually sparsely puberulent toward the apex or glabrous, weakly striate, 4.0–5.2 mm long, 2.2–3.0 mm wide, obtuse, ciliolate. Corolla tube thin, sub-urceolate, constricted at the throat, 6.5–8.2 mm long; lobes 3.2–3.8 mm long, externally glabrous, internally sparsely hairy, the hairs extending into the upper part of the tube. Anthers erect and exserted on filaments 1.2–1.8 mm long, often spreading. Ovary globose, slightly flattened, (5–)6(–8)-locular; nectary continuous, truncate; style within the tube. Drupe purple or rarely white, flattened dorsiventrally, 6–12 mm diameter. Flowering Dec.–Jan.

Tas. (BEL, FUR, TCH, TSE, TSR); endemic. Widespread, except in the western part of the state, and occurring in eucalypt dominated vegetation to c. 1200 m elevation.

**17 ACROTHAMNUS**

*Acrothamnus* Quinn, *Austral. Syst. Bot.* 18: 451 (2005).

Erect, sometimes bushy shrubs. Leaves alternate, spreading; lamina blunt; veins not strongly raised on abaxial surface; fibre bundles abaxial to veins and touching the abaxial epidermis. Inflorescences restricted to near the ends of branches, terminal and/or in upper axils, with few to several flowers and terminating in a bud-like rudiment. Flowers subtended by a bract and a pair of keeled bracteoles, unisexual except *A. spathaceus*. Sepals with stomata only on the adaxial surface. Corolla lobes hairy (rarely minutely papillate in *A. montanus*), at least on the distal half. Anthers emarginate, half-exserted or in the throat of the corolla tube, attached in the upper half to short, thin filaments inserted near the sinus of the corolla tube. Ovary and style glabrous; pollen shed as permanent tetrads often showing irregular abortion to triads, diads and occasional monads. Fruit a fleshy drupe.

A genus of at least 5 species distributed on the tops of hills and mountains in New Zealand, eastern Australia, New Guinea, Java, Malesia Borneo; 2 species in Tasmania.

Key reference: Quinn et al. (2005).

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|--|----------------------|
| 1. Corolla lobes densely papillose; mature fruit shed on ripening  | 1 <i>A. hookeri</i>  |
| 1: Corolla appearing glabrous though minutely papillose (under a microscope); fruit persists on the plant and ripens over winter | 2 <i>A. montanus</i> |

**1 *Acrothamnus hookeri*** (Sond.) Quinn, *Austral. Syst. Bot.* 18: 452 (2005)

Mountain Beard-heath

*Leucopogon obtusatus* Hook.f., *Lond. J. Bot.* 6: 269 (1847) *nom. illeg.*; *Leucopogon hookeri* Sond., *Linnaea* 26: 248 (1854); *Styphelia hookeri* F.Muell., *Fragm.* (Mueller) 6(47): 44 (1868), *nom. illeg.* *Leucopogon suaveolens* Hook.f., *Hooker's Icon. Pl.* 9: sub. t. 898 (1851); *Styphelia suaveolens* (Hook.f.) Warb., *Reisen in Celebes* 2: 329 (1905); *Acrothamnus suaveolens* (Hook.f.) Quinn, *Austral. Syst. Bot.* 18: 452 (2005). *Leucopogon colensoi* Hook.f., *Bot. Antarct. Voy. II. (Fl. Nov.-Zeal.)* 1: 165 (1853); *Cyathodes colensoi* (Hook.f.) Hook.f., *Handb. New Zeal. Fl.* 1: 177 (1864); *Acrothamnus colensoi* (Hook.f.) Quinn, *op. cit.*

*Illustrations* (as *L. hookeri*): Curtis, *The Student's Flora of Tasmania* 2: 434, Fig. 96b (1963); Albrecht, *Fl. Victoria* 3: 504, fig. 102m-o (1996).

Erect diffuse or bushy shrub, rarely exceeding 1 m in height. Branchlets with dense short hairs, minutely scabrous. Leaves crowded, sub-erect or spreading; petioles 0.5–1.2 mm long, hispid; lamina, 4–10 mm long, 1.0–2.5 (–4) mm wide, narrow oblong to elliptic, usually convex, discolorous, the adaxial surface glabrescent, rarely scabrous, abaxial surface glaucous, with wax coated papillae between the veins, longitudinally 3-nerved, the outer 2 with short diverging branches, base cuneate, margins entire or minutely scabrous-ciliate near the apex, apex obtuse, often with a short blunt callus. Inflorescence a 2–8 flowered spike, 4–10 mm long, solitary and terminal, or several together in upper axils; rachis puberulent, up to 6 mm long, with several small bracts near the base. Flowers sessile, erect, unisexual, white; bract ovate, approximately 1 mm long; bracteoles 2, ovate-lanceolate, keeled, approximately 1.2 mm long, margin ciliolate, apex obtuse and partly overlapping the sepals. Sepals resembling bracteoles but larger, 1.5–3.0 mm long, ovate, margin ciliolate, apex obtuse. Corolla tube slightly longer than the calyx, males slightly larger than females (male 2.2–3.0 mm long, female 1.8–2.0 mm long); lobes narrowly triangular, slightly shorter than the tube, sub-erect to spreading (to recurved in mature flowers), the inner surface covered with white woolly hairs, papillose, the density variable according to locality, apex acute. Anthers oblong, 0.7–1.0 mm long attached above the middle, without sterile tips, the tips slightly exerted above the tube, rudimentary in female flowers. Ovary 5–6-locular, globose; nectary lobed or rarely annular; style attenuate from ovary, glabrous, 0.6–0.8 mm long. Fruit a spherical fleshy drupe, usually reddish in colour, glabrous, which ripens quickly and falls before winter. Flowering Nov.–Jan.

Tas. (BEL, TCH, TNM, TSE, TSR); also Qld, NSW, Vic., New Zealand, New Guinea, Borneo, Java. Common in woodlands in the north-east, east and on the Central Plateau, to c. 1300 m elevation.

**2 *Acrothamnus montanus*** (R.Br.) Quinn, *Austral. Syst. Bot.* 18: 452 (2005)

*Snow Beard-heath*

*Lissanthe montana* R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810). *Styphelia montana* (R.Br.) F.Muell., *Fragm.* (Mueller) 6(47): 45 (1868); *Leucopogon montanus* (R.Br.) J.H.Willis, *Vict. Naturalist* 73: 56 (1956).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 434, Fig. 96a (as *Lissanthe montana*) (1963); Albrecht, *Fl. Victoria* 3: 504, Fig. 102p-r (1996).

A small shrub 20–60 cm tall, much branched, usually erect. Branchlets minutely scabrous. Leaves crowded; petioles 0.5–1.3 mm long; lamina ± erect, oblong, glabrous, 4.5–10.0 mm long, 1.2–2.3 mm wide, flat to slightly concave toward apex, rarely slightly convex toward base, abaxial surface glaucous and with 3 central ± parallel veins, margins entire and finely toothed near apex, apex rounded or blunt or with a short blunt callus point. Inflorescence a 4–6 flowered spike, solitary and terminal, or several together in the upper axils; rachis pubescent, with several small, ovate bracteoles near the base. Flowers white, sessile; bract subovate, pubescent, approximately 0.7 mm long; bracteoles 2, ovate, keeled, 0.7–0.9 mm long, overlapping the base of the sepals, apex obtuse. Sepals 1.5–1.9 mm long, orbicular, margin ciliolate, apex obtuse. Corolla 2.5–3.5 mm long; lobes spreading, almost equal to tube, glabrous (or the inner face micropapillate when viewed under a microscope). Anthers at the tube throat. Ovary 5-locular; nectary sinuate or shortly lobed; style short, 0.5–0.6 mm long, subulate, broad at the base and tapering. Fruit a drupe, overwintering and persisting on the plant until the following summer, the mature fruit glabrous, spherical, red, fleshy, 3–4 mm diameter. Flowering Dec.–Feb.

Tas. (BEL, TCH, TSR, TWE); also Vic. Montane heaths on Mount Wellington, Mount Field and the Central Plateau, to c. 1400 m elevation.

## 18 LISSANTHE

*Lissanthe* R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810).

Erect to spreading or bushy shrubs, usually less than 60 cm tall; branchlets scabrous to pubescent. Leaves petiolate, ovate or oblong, discolorous, abaxial surface with a few parallel veins, apex mucronate or aristate, margins entire. Inflorescence terminal or in the upper leaf axils, a spike or raceme or when reduced to a single floret the rachis ends with a rudiment. Flowers white or pink in bud, bisexual, variable in number, each one subtended by 1 bract and 2 bracteoles and pedicellate above the subtending bracteole. Corolla 5-

merous, longer or shorter than the calyx, urceolate to cylindrical, hairy inside in the top half; lobes triangular, valvate in the bud, later sub-erect to recurved, shorter than the tube, glabrous or villous inside. Stamens with short terete filaments inserted near the top of the tube, anthers enclosed within the corolla tube or the short erect base of the lobes. Nectary annular, 5-toothed or lobed. Ovary 3–9-locular each with a single pendulous ovule; style pubescent or papillose, cylindrical, shorter than the corolla tube. Fruit a drupe with a fleshy mesocarp.

An Australian genus with 10 species that is present in all states except The Northern Territory.

Key reference: Crayne et al. (2003).

**1 *Lissanthe strigosa*** (Sm.) R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810), subsp. ***subulata*** (R.Br.) Powell, *Telopea* 5: 741 (1994) *Peach Heath, Peachberry Heath*

*Lissanthe subulata* R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810).

*Illustrations:* Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1027, Fig. 507a (1986); Albrecht, *Fl. Victoria* 3: 488, fig. 99a-c (1996).

A bushy shrub sometimes low and spreading, but usually erect, rarely exceeding 60 cm. Branchlets pubescent. Leaves shortly petiolate, spreading to erect, 4–17 mm long, 0.5–2.2 mm wide, linear-lanceolate to lanceolate, flat or slightly convex, adaxial surface shiny and with sparse hairs, abaxial surface glaucous and deeply 1–3 ribbed, the apex tapering to a fine, pungent point. Flowers white or often pink in bud, 2–5 in axillary racemes, usually more in the terminal one, each flower shortly pedicellate above the subtending bract; bracts approximately 0.5–1.0 mm long. Sepals pinkish, approximately 0.7–1.6 mm long, ovate to ovate-orbicular, obtuse, puberulent near the base. Corolla white or pink-striped; tube cylindrical and somewhat narrowed at the throat, 2.0–4.5 mm long, the inner surface with scattered hairs above the middle; lobes shorter sub-erect, glabrous. Stamens with short filaments joined to the top of the corolla tube; anthers attached above the middle, included. Ovary 5–7 locular, pubescent; nectary 5-lobed; style pubescent, nearly as long as the tube. Fruit a depressed-globose drupe, ± fleshy, pubescent. Flowering Nov.–Dec.

Tas. (BEL, FLI, TNM, TSE, TSR); also SA, Qld, NSW, Vic. Widespread and abundant in the eastern half of the island of Tasmania in dry places, to c. 500 m elevation.

## 19 BRACHYLOMA

*Brachyloma* Sond., *Pl. Preiss.* 1: 304 (1845).

Erect, compact or diffuse shrubs. Leaves subsessile or shortly petiolate, ± flat, glaucous beneath, with subparallel-palmate veins, those furthest from midvein with branches radiating to margin. Flowers white, bisexual, solitary or sometimes up to 4 in spikes, axillary, peduncles short; bracts few or absent, bracteoles 2. Corolla tube cylindrical to broadly campanulate-bulbous, usually exceeding sepals, glabrous inside except for 5 clusters of hairs descending into the tube from tufts or fringed scales at the base of each lobe, alternating with stamens; lobes glabrous, more or less imbricate in the bud, erect to recurved in flower, papillose to pubescent inside. Filaments very short, flattened, inserted near the top of the tube; anthers 1-locular, attached above the middle, wholly or partially included in the tube. Nectary truncate or 5-lobed, readily separating into distinct scales. Ovary glabrous, 3–10-loculate, with 1 ovule in each locule; style short, glabrous to papillose/puberulent, slender; stigma lobed. Fruit a small depressed or globular drupe, the mesocarp somewhat pulpy.

An Australian genus of 7 species found in all states except The Northern Territory; 2 species in Tasmania. Hooker (1857) lists *Lissanthe daphnoides* (Sm.) R.Br. (basionym: *Styphelia daphnoides* Sm.) for Tasmania while Bentham (1868) and Rodway (1903) list it under the currently accepted name *Brachyloma daphnoides* (Sm.) Benth. Bentham (1868) indicated he had not seen any material from Tasmania and that the single specimen cited by Hooker (1857) was incorrectly labelled. Curtis (1963) did not mention *B. daphnoides* and the species is not considered to be part of the Tasmanian flora.

1. Branches erect or spreading; leaves lanceolate, tapering to a long pungent point, alternate but closely clustered on the short axillary flowering shoots; corolla tube scarcely as long as the sepals **1 B. depressum**
- 1: Branches prostrate or ascending; leaves ovate-lanceolate with a short pungent point; corolla tube twice as long as the sepals **2 B. ciliatum**

**1 *Brachyloma depressum*** (F.Muell.) Benth., *Fl. Austral.* 4: 173 (1868)

*Spreading Heath*

*Lissanthe depressa* F.Muell., *Fragm.* (Mueller) 1(2): 36 (1858); *Styphelia depressa* (F.Muell.) F.Muell., *Fragm.* (Mueller) 6(47): 42 (1858), *nom. illeg. non* (R.Br.) Spreng.

*Illustrations:* Albrecht, *Fl. Victoria* 3: 476, Fig. 97c (1996).

A rigid much-branched shrub with slender wiry branches, up to 80 cm tall. Branchlets puberulent. Leaves subsessile, alternate but closely clustered, 5–15 mm long, 1–3 mm wide, lanceolate or linear-lanceolate, flat, adaxial surface glabrous, abaxial slightly glaucous, apex tapering to a pungent point. Flowers white, solitary at each node, but clustered at the base of short flowering branches, on short pedicels with 2 sepaloid bracteoles immediately below the calyx; subtending bracts mostly caducous; bracteoles 2.0–3.5 mm long, lanceolate, acuminate. Sepals 2.0–3.5 mm long, lanceolate, apex acuminate. Corolla tube cylindrical, scarcely as long as the sepals, glabrous internally except for 5 tufts of reflexed hairs between the anthers; lobes slightly longer than the tube, broad, imbricate in the bud, glabrous, apex acuminate. Anthers nearly sessile, attached apically near the throat of the corolla-tube, included. Ovary 5-locular, tapering abruptly to a short, glabrous style; nectary of 5 short scales. Flowers Sep.–Nov.

Tas. (FUR, TSE); also Vic. Local on the east and north coasts and in the islands of Bass Strait. Found in heath or woodland in rocky or sandy areas, mostly near sea-level, but occasionally to 600 m elevation.

**2 *Brachyloma ciliatum*** (R.Br.) Benth., *Fl. Austral.* 4: 173 (1868)

*Fringed Heath*

*Lissanthe ciliata* R.Br., *Prodr. Fl. Nov. Holland.* 541 (1810); *Styphelia ciliata* F.Muell., *Fragm.* (Mueller) 6(47): 42 (1868). *Brachyloma ciliatum* var. *intermedium* Rodway, *Tasman. Fl.* 115 (1903) [see comment below].

*Illustrations:* Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1017, Fig. 504c (1986); Albrecht, *Fl. Victoria* 3: 476, fig. 97d (1996).

A low, diffuse or prostrate shrub, with ascending and spreading branches, up to 20 cm long. Branchlets puberulent to villous. Leaves shortly petiolate, 5–10 mm long, 1–3 mm wide, ovate, elliptical or oblong-lanceolate, flat, discolorous, upper surface glabrescent, abaxial surface with 3 parallel main veins and pinnate lateral veins, margin often slightly recurved and minutely denticulate-ciliate, apex with a short, pungent point. Flowers white, solitary in the axils of the leaves formed early in the growing season on very short pedicels and without any bracts except the 2 sepaloid bracteoles embracing the calyx; bracteoles 1.2–2.0 mm long. Sepals 1.5–2.5 mm long, ovate, apex acute. Corolla tube longer than the calyx, 3–4 mm long, cylindrical, glabrous internally except for 5 tufts of reflexed hairs between anthers; lobes imbricate in the bud, shorter than the tube, triangular, tapering, papillose, spreading to recurved. Anthers on short filaments attached near the apex, included, sometimes bearded in the lower half. Ovary 5–6-locular; nectary 5-lobed; style short, usually < 1 mm long, glabrous. Flowering Oct.–Dec.

Tas. (FUR, KIN, TCH, TNM, TSE); also SA, Vic. Locally frequent in sandy heaths near the east and north coasts, mostly at or near sea-level, occasionally to c. 400 m elevation. *Brachyloma ciliatum* var. *intermedium*, represented by a single specimen collected near Low Head, is described by Rodway (1903) as a shrub nearly 2 m tall. Leaves and flowers are similar to those of the type but the lobes of the corolla are somewhat narrower. This taxon is placed in synonymy here but warrants further study. The extreme height of the plant as recorded by Rodway (1903) is assumed to be an error as plants in that area today do not exceed 20 cm.

## 20 LEUCOPOGON

*Leucopogon* R.Br., *Prodr. Fl. Nov. Holland.* 541 (1810).

Prostrate, low and bushy or tall shrubs, occasionally small trees; branchlets glabrous to villous; Leaves alternate, sometimes imbricate, erect or reflexed, flat, concave or convex or the margins recurved, aristate or with a callus tip, mostly concolorous, the adaxial surface glabrous or pubescent, the abaxial surface somewhat striate and often slightly glaucous, margins entire or ciliate to finely toothed. Flowers usually white or red, usually small, solitary or in spikes or racemes terminal and/or axillary, the rachis always ending in a floral rudiment; flowers appear hermaphrodite, but in a few species are known to be at least gynodioecious, each flower with 1 bract and 2 bracteoles immediately subtending the sepals, peduncles short or long and usually pubescent; bracts and bracteoles ovate to circular, glabrous except for ciliate margins. Sepals similar to bracts but larger. Corolla 5-merous; tube shorter or longer than the calyx, cylindrical or campanulate, glabrous or minutely pubescent inside near the throat, the lower hairs of the lobes sometimes deflexed into the tube; lobes valvate in the bud, then spreading to recurved, often longer than the tube, white bearded inside densely or rarely in the lower portion only. Stamens inserted at the throat, filaments shorter than anthers, filiform; anthers wholly or partially enclosed in the tube or erect base of the corolla-lobes, in some species the anthers with short sterile tips. Nectary cup-shaped, truncate, toothed, lobed or formed of 5 distinct scales. Ovary 2-5(-6)-locular, with 1 ovule per locule, glabrous; style long or short, glabrous, slender and terete or thicker near the base and tapering to the usually lobed stigma. Fruit a drupe with a fleshy or dry mesocarp.

A genus of approximately 250 species, all but approximately 30 endemic in Australia, present in all states, the remainder extending from Malesia, north-west to Indo-China, and south-east to New Zealand. Tasmania has 10 species, 1 endemic. Bentham (1868) lists *Leucopogon rufus* Lindl. for Tasmania in error.

- |  |                         |
|--|-------------------------|
| 1. Leaves flat, mostly 12 mm long or longer  | 2                       |
| 1: Leaves concave or the margins reflexed, usually < 12 mm long  | 4                       |
| 2. Floral spike interrupted; drupe red   | 1 <i>L. affinis</i>     |
| 2: Floral spike dense; drupe white or yellowish  | 3                       |
| 3. Leaves up to 2 cm long (rarely longer), spreading; drupe globular, creamy-white   | 2 <i>L. parviflorus</i> |
| 3: Leaves mostly 3-4 cm long, ± erect; drupe flattened dorsiventrally, yellow  | 3 <i>L. australis</i>   |
| 4. Leaves sub-erect to erect, concave or the margins involute  | 4 <i>L. virgatus</i>    |
| 4: Leaves sub-erect to spreading, ± flat or the margins recurved   | 5                       |
| 5. Plant of erect habit, mostly > 30 cm tall   | 5 <i>L. collinus</i>    |
| 5: Plant of diffuse, prostrate or decumbent habit, usually < 10 cm tall  | 6                       |
| 6. Leaf margin ciliate-denticulate; branchlets scabrous to hispid; flowers in terminal spikes; fruit apex rounded with persistent style  | 6 <i>L. oreophilus</i>  |
| 6: Leaf margin long ciliate; branchlets sericeous; flowers in terminal or upper-axillary spikes; fruit flat-topped or apically depressed | 7 <i>L. pilifer</i>     |

**1 *Leucopogon affinis* (Sm.) R.Br., Prodr. Fl. Nov. Holland. 541 (1810)**

*Lance Beardheath*

*Styphelia lanceolata* Sm., *Spec. Bot. New Holland* 1: 49 (1793); *Leucopogon lanceolatus* R.Br., *Prodr. Fl. Nov. Holland. 541 (1810) nom. illeg.* *Leucopogon richei* var.  $\gamma$  Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 249 (1857). *Styphelia affinis* (R.Br.) Spreng., *Syst. Veg.* 1: 657 (1824).

*Illustrations* (as *L. lanceolatus*): Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1024, Fig. 506b (1986); Powell et al., *Fl. Victoria* 3: 504, Fig. 102a-c (1996).

Erect shrub or small tree, up to 4 m tall. Branchlets glabrous or minutely pubescent. Leaves sub-sessile or shortly petiolate, erect or spreading, 15-50 mm long, 3-8 mm wide, elliptic to lanceolate to narrowly ovate, flat or barely convex, concolorous, finely striate, the margin entire or microserrulate towards the apex, apex obtuse or with a callous point. Flowers variable in number (1-∞) on slender, interrupted spikes, terminal or in the upper axils, the spikes as long as or exceeding the leaves; bracts and bracteoles broadly ovate, glabrous, approximately half as long as the calyx, apex obtuse, the bracteoles shortly keeled. Sepals 1-2 mm long, ovate, glabrous, apex obtuse. Corolla tube 1.0-1.8 mm long, pubescent near throat inside, barely exceeding the calyx; lobes slightly longer than tube, densely bearded, apex acute. Anthers approximately

1.5 mm long, with prominent, recurved sterile tips, half-exserted, attached by a short filament immediately below the sterile tip to the top of the corolla-tube. Ovary 2–3-locular, glabrous, tapering into a short style < 0.5 mm long; nectary of 5 truncate scales. Drupe red, succulent, 2–3 mm long, ellipsoid or obovoid, smooth-surfaced, glabrous. Flowering Aug.–Nov.

Tas. (FUR, KIN); also SA, Qld, NSW, Vic. Found in coastal and sclerophyll scrub on the Bass Strait islands, far northwest coast, and in Latrobe, to c. 100 m elevation.

**2 *Leucopogon parviflorus*** (Andrews) Lindl., *Edwards's Bot. Reg.* 18: t. 1560 (1833) *Coast Beardheath*

*Styphelia parviflora* Andrews, *Bot. Repos. (dup)* t. 287 (1805); *Leucopogon richei* var. *parviflorus* (Andrews) Hook.f, *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 249 (1857) [as ' *L. richei* var.  $\beta$  *parviflora*']. *Styphelia richei*, Labill., *Nov. Holl. Pl.* 1: 44, t. 60 (1805); *Leucopogon richei* (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 541 (1810); *L. richei* var.  $\alpha$  Hook.f., *op. cit.*

*Illustrations:* Powell et al., *Fl. S. Austral.* [J.M.Black], ed. 4, 2: 1024, Fig. 506c (1986);

An erect shrub or small tree, up to 4 m tall, quite glabrous or the branchlets pubescent. Leaves erect to spreading, on a very short petiole, 11–29 mm long, 2.4–7.5 mm wide, narrowly elliptic to oblanceolate, flat to slightly convex, discolorous, abaxial surface glaucous and finely striate, apex broadly acute or with a small callous. Flowers white, 6–13, in densely clustered terminal and near-terminal spikes as long as or longer than the leaves; peduncles pubescent; bracts and bracteoles white, broadly ovate, the bracteoles slightly keeled, about half as long as the calyx. Sepals approximately 2 mm long, ovate, margin ciliolate, apex obtuse. Corolla tube approximately as long as the sepals; lobes longer than the tube, acute, the inner surface densely bearded. Anthers attached above the middle, with prominent sterile tips, half-exserted. Ovary 4–5-locular, glabrous, tapering into a short style; nectary 5-lobed. Drupe spherical, approximately 4.5 mm diameter, creamy-white and fleshy when ripe. Flowering Sep.–Nov.

Tas. (FUR, KIN, TNM, TNS, TSE, TWE); also WA, SA, Qld, NSW, Vic., New Zealand (Chatham Islands). Grows on coastal sand dunes and in coastal heath; widespread and common under 100 m elevation.

**3 *Leucopogon australis*** R.Br., *Prodr. Fl. Nov. Holland.* 541 (1810) *Spike Beardheath*

*Styphelia australis* (R.Br.) F.Muell., *Fragm.* (Mueller) 6(47): 43 (1868).

*Illustrations:* Powell et al., *Fl. Victoria* 3: 504, Fig. 102g-i (1996).

A tall, slender shrub up to 2 m tall, coumarin-scented. Branches erect, glabrous. Leaves sub-erect, 2–4 cm long, approximately 5 mm wide, lanceolate or oblanceolate, flat, or slightly convex or with margins recurved, abaxial surface weakly glaucous with 5–7 fine but distinct longitudinal veins, apex acute or with a callus point. Flowers white, mostly numerous and densely packed in terminal and upper axillary spikes, the spikes as long as or longer than the leaves; rachis hirsute; bracts and bracteoles ovate, the bracteoles slightly keeled, 0.8–1.5 mm long, approximately half as long as the calyx, glabrous, apex obtuse. Sepals 1–2 mm long, ovate, glabrous, apex obtuse. Corolla tube approximately equal with the calyx; lobes slightly longer, the inner surface densely bearded, apex acute. Anthers with prominent sterile tips, the filaments attached immediately below and the tips half-exserted. Ovary 5(–6)-locular, glabrous, abruptly contracted into a short style; nectary 5-lobed. Fruit a drupe, depressed-globular, pithy, yellowish, approximately 4 mm diameter. Flowering Sep.–Nov.

Tas. (FUR, KIN, TNM, TWE) also WA, SA, Vic.Tas. Local in coastal heaths of the north and northeast, common on Flinders Is, to c. 250 m elevation.

**4 *Leucopogon virgatus*** (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 543 (1810) *Common Beardheath*

*Styphelia virgata* Labill., *Nov. Holl. Pl.* 1: 46, t. 64 (1805).

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 438, Fig. 98 (1963); Powell et al., *Fl. S. Austral.* [J.M.-Black], ed. 4, 2: 1024, Fig. 506e (1986).



A low, decumbent or diffuse shrub, up to approximately 50 cm tall. Branchlets ascending or erect, wiry, glabrous to pubescent. Leaves erect; petiole to 1 mm long; lamina 2–25 mm long, 1–5 mm wide, narrowly lanceolate to ovate, concave, glabrous, concolorous, abaxial surface with 3 central  $\pm$  parallel veins, margins entire to minutely serrulate, tapering into a rigid but not pungent point. Flowers white (pink in bud), 3–7 crowded in terminal or upper axillary spikes, or appearing axillary from the shortness of the flowering branchlets; bracts small; bracteoles ovate, keeled, approximately half as long as the calyx. Sepals 2.0–2.5 mm long, ovate, glabrous or shortly pubescent toward the apex, apex obtuse. Corolla tube shorter than the calyx, 1.6–2.2 mm long, villous inside near the throat; lobes equal to tube or slightly longer, the inner surface densely bearded, apex acute. Anthers attached a little below the short sterile tips, enclosed by the erect bases of the corolla lobes. Ovary broad, 5-locular; nectary truncate or obtusely lobed; style short. Drupe small, spherical, approximately 2 mm diameter, almost dry, greenish-black. Flowering Sep.–Dec.

Tas. (BEL, FUR, KIN, TNM, TSE, TWE); also SA, NSW, Vic. Widespread and abundant in poor dry soils in the north and east of the state, mostly below 400 m, occasionally to 700 m elevation.

1. Leaves mostly > 7mm, lanceolate to narrowly lanceolate, usually glabrous, apex acuminate, pungent

4a var. *virgatus*

1: Leaves 2–7 mm long, ovate, often subvelvety, apex acute, not pungent

4b var. *brevifolius*

**4a *Leucopogon virgatus* (Labill.) R.Br. var. *virgatus***

*Twiggy Beardheath*

*Illustrations:* Powell et al., *Fl. Victoria* 3: 499, Fig. 101a-c (1996).

Branchlets and leaves glabrous, rarely minutely pubescent, with longer scattered hairs. Leaves (5–)7–25 mm long, lanceolate to narrowly lanceolate, acuminate, with a  $\pm$  pungent apex. Flowering Oct.–Dec.

Tas. (BEL, FUR, KIN, TSE, TWE); also SA, NSW, Vic. Widespread and abundant in poor dry soils in the north and east of the state.

**4b *Leucopogon virgatus* var. *brevifolius* Benth., *Fl. Austral.* 4: 202 (1869)**

*Shortleaf Beardheath*

*Illustrations:* Powell et al., *Fl. Victoria* 3: 499, Fig. 101d-f (1996).

Branches and leaves commonly appearing greyish from a short, dense, even layer of erect hairs. Leaves 2–7 mm long, ovate, often subvelvety, apex acute, not pungent. Flowering Sep.–Nov.

Tas. (FUR, TNM, TSE); also SA, Vic. Dry woodland-grassland areas in the northern midlands and eastern half of the state.

**5 *Leucopogon collinus* (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 543 (1810)**

*White Beardheath*

*Styphelia collina* Labill., *Nov. Holl. Pl.* 1: 47, t. 65 (1805); *Leucopogon collinus* var. *billardierei* DC., *Prodr.* (DC.) 7(2): 748 (1839), *nom. illeg.*; *L. collinus* var. *brownii* DC., *op. cit.*, *nom. illeg.* *Leucopogon ciliatus* A.Cunn. ex DC., *op. cit.*, 746. *Leucopogon ciliatus* var.  $\alpha$  Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 251 (1857). *Leucopogon collinus* f. *cinereus* Gand., *Bull. Soc. Bot. France* 47: 307 (1900). *Leucopogon collinus* f. *spiciger* Gand., *op. cit.* *Leucopogon collinus* f. *thymifolius* Gand., *op. cit.*

*Illustrations:* Curtis, *The Student's Flora of Tasmania* 2: 437, Fig. 97a (1963); Powell, *Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 111, Fig. 3 (1991).

Erect, slender or compact shrub, 30–100 cm tall with virgate branches. Branchlets glabrous to pubescent to hispid. Leaves erect or spreading (reflexed); petiole 0.3–1.0 mm long; lamina, 3–13 mm long, 1.0–2.7 mm wide, varied in shape, ovate, oblong or elliptic,  $\pm$  flat with margins recurved, or entire, glabrous,  $\pm$  concolorous, abaxial surface striate-veined, margins usually coarsely ciliate to toothed towards apex, apex blunt or with a short, callous point. Flowers white, 5-many, plus a rudiment in dense, terminal spikes or in the uppermost axils terminating short leafy axillary branches; bracts and bracteoles 0.5–1.5 mm long, ovate, small, apex obtuse. Sepals approximately 1–2 mm long, broad, glabrous, apex obtuse. Corolla approximately equal with the sepals, 2.0–2.5 mm long; lobes equal to or slightly longer than the tube, spreading, usually recurved, the inner surface densely bearded, apex acute. Anthers with recurved sterile tips attached imme-

diately below the tips. Ovary 2-locular, glabrous, tapering into a very short style; nectary truncate. Drupe ellipsoid, ridged, 2.5 mm long, glabrous, almost dry, greenish-black. Flowering Sep.–Nov.

Tas. (all regions except MIS); also SA, NSW, Vic. Widespread and abundant in dry places, and in sandy and peaty heaths, to c. 900 m elevation.

**6 *Leucopogon oreophilus*** J.M.Powell, *Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 108 (1991)  
Highland Beardheath

*Leucopogon ciliatus* var.  $\beta$  Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 251 (1857),

*Illustrations: loc. cit.* 109, Fig. 1 (1991).

A diffuse mat-forming, decumbent shrub. Branches up to 10 cm long, hispid. Leaves crowded, mostly at the branch tips, erect, elliptic, 2.7–6.3 mm long, 1.2–2.2 mm wide, flat to slightly concave, concolorous, glabrous, 3-veins prominent abaxially, margins ciliolate, apex obtuse with a callous tip. Flowers white, 3–6 plus a rudiment together in short terminal spikes; bracts and bracteoles approximately 1 mm long, ovate, glabrous, apex obtuse. Sepals approximately 1.5 mm long, elliptic, glabrous, margins ciliolate, apex obtuse. Corolla tube shorter than the sepals, glabrous; lobes longer than the tube, recurved, the inner surface densely bearded. Anthers attached immediately below the long sterile tips. Ovary approximately 0.5 mm diameter, 2-locular, spherical, glabrous, tapering into a short style; nectary of 5 scales. Drupe oblong dry, exceeding the sepals, the style persistent. Flowering Nov.–Feb.

Tas. (TCH, TSR, TWE); endemic. Found in peaty soil and rock crevices on the Central Plateau and Western mountains, to 1100 m elevation.

**7 *Leucopogon pilifer*** N.A.Wakef., *Vict. Naturalist* 73: 58 (1956) [as '*L. peliferus*'] Trailing Beardheath

*Leucopogon ciliatus* var.  $\beta$  Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 251 (1857), p.p. *Styphelia pilifera* (N.A.Wakef.) J.H.Willis, *Vict. Naturalist*. 1(3): 141 (1967).

*Illustrations: Powell, Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 109, Fig. 2 (1991).

Dwarf, procumbent, mat-forming shrub, branches 2–10 cm long. Branchlets glabrous or pubescent. Leaves erect to sub-erect, 3–7 mm long, 0.7–1.3 mm wide, elliptic or lanceolate, flat to slightly convex, glabrous, discolorous, abaxial surface weakly glaucous and finely veined, margins ciliate, apex acute. Flowers white, 4–9 plus a rudiment in crowded, short terminal or upper-axillary spikes; bracts and bracteoles 1.0–1.5 mm long, ovate, glabrous, margins ciliolate, apex acute. Sepals approximately 1.5 mm long, ovate, keeled towards the apex, glabrous, margins ciliolate, apex acute. Corolla tube c.1 mm long, shorter than the sepals, glabrous; lobes approximately equal or longer than the tube, spreading, the inner surface densely bearded, extending inside the tube to the base of the anthers, apex acute. Anthers with sterile tips, attached immediately below the tip. Ovary 3-locular, glabrous, tapering into a short style; nectary of 5-lobes. Drupe ellipsoidal, exceeding the calyx, approximately 2 mm long, glabrous, dry, style persistent. Flowering Oct.–Dec.

Tas. (TCH); also NSW, Vic. In grasslands and moist places in the Central Highlands, to c. 1200 m elevation.

## 21 ANDROSTOMA

*Androstoma* Hook.f., *Bot. Antarct. Voy. I. (Fl. Antarct.)* 1(3): 44 (1844).

Prostrate, ascending or straggling shrubs. Leaves alternate, more or less spreading, often separated into false whorls or clusters by the bud scales which persist for several years; lamina more or less convex adaxially, discolorous, with mostly 3 parallel veins that are strongly ribbed abaxially, the surface densely papillose between the veins; fibre bundles abaxial to veins contacting the abaxial epidermis. Inflorescences terminal, bearing 2–4 flowers and ending in a bud-like rudiment. Flowers white, subtended by a bract and 2 prominently keeled bracteoles, not pedicellate above the bracteoles. Sepals bearing stomata on the adaxial surface and also a few within hair-bearing clefts on the abaxial surface. Corolla lobes hairy at least on the distal half;

anthers emarginate, apically attached to a short thin filament that is inserted just below the sinus of the corolla tube. Ovary 3–5-locular, glabrous; style glabrous, short and broadly attenuate from the ovary.

A genus of 2 species: 1 species in each of New Zealand and Tasmania.

Key references: Weiller (1996c), Quinn et al. (2005).

**1 *Androstoma verticillata*** (Hook.f.) C.J.Quinn, *Austral. Syst. Bot.* 18: 450 (2005) *Clustered Beardheath*

*Pentachondra verticillata* Hook.f, *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 256, t. 77b (1857); *Trochocarpa verticillata* (Hook.f.) F.Muell., *Pap. & Proc. Roy. Soc. Tasmania* for 1874: 86 (1875); *Styphelia milliganii* F.Muell., *Sec. Syst. Census Austral. Pl.* 178 (1889) [as 'S. Milligani']; *Leucopogon milliganii* (F.Muell.) Rodway, *Tasman. Fl.* 118 (1903) [as 'L. milligani'].

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 5: 349, t. 112 (1975), as *Leucopogon milliganii*.

A low, much branched shrub, the branchlets ascending to 50 cm tall, covered in the younger internodes with persistent scarious bud scales. Leaves clustered in false whorls indicative of yearly growth increments, shortly petiolate, 4–6 mm long, linear, thick, the adaxial surface, glabrous, shiny, the lower with a dense covering of white hairs, slightly convex and the margins revolute, apex apiculate. Flowers white, usually 2 or 3 together with a rudiment in a short, terminal spike which appears to become axillary as it is pushed aside by the developing new leaf bud; bracts and bracteoles lanceolate, nearly as long as the sepals, margin ciliate, apex acuminate. Sepals 3–4 mm long, narrow-elliptical, margin ciliolate, apex acute and mucronate. Corolla tube approximately equal with the calyx, lobes shorter, spreading, the inner surface densely bearded. Filaments attached at the throat, the anthers enclosed. Ovary 5–6-locular, abruptly narrowed into a short style; nectary of 5 distinct scales. Fruit a pithy drupe, flattened dorsiventrally, red. Flowering Jan.–Mar.

Tas. (TCH, TSR, TWE); endemic. Local on the higher peaks of the south and west; in alpine heath and low shrubberies, to c. 1300 m elevation.

## 22 PLANOCARPA

*Planocarpa* C.M.Weiller, *Austral. Syst. Bot.* 9: 510 (1996).

Shrubs to 1 m tall. Leaf-bud bracts persistent, becoming grey. Plants hermaphrodite or gynodioecious. Leaves simple, crowded towards the ends of the branches in annual clusters, absent or scattered on older branches, erect to spreading, oblong to ovate, flat or slightly convex, the margin sometimes recurved, abaxial surface puberulent, glaucous and striate (*P. petiolaris* and *P. sulcata*), or glabrous and sub-glaucous (*P. nitida*). Inflorescence axillary near the ends of the branches on short erect peduncles terminated by a rudimentary bud. Flowers cream, erect, solitary or in short spikes of 1–3 flowers, sub-sessile, each flower subtended by 1 bract, and 2 bracteoles; bract, bracteoles and sepals imbricate, ovate, obtuse, glabrous with ciliolate margins. Corolla 5-merous; tube equal to or exceeding the calyx, cylindrical, internally glabrous or puberulent; lobes spreading, glabrous or densely bearded, shorter than the tube. Stamens inserted at the throat of the tube; filaments attached to the anther above the middle; anthers enclosed within the corolla by the erect base of the lobes. Nectary annular, glabrous. Ovary 5–8-locular with a single pendulous ovule per locule; style straight, attenuate from the ovary, short with the stigma at or below anther level; stigma small. Fruit a drupe, a depressed sphere, red or red-black, with a hard bony endocarp and a thick pulpy mesocarp.

A genus of 3 species endemic to Tasmania.

Key reference: Weiller (1996b).

1. Corolla tube equal to calyx, corolla usually glabrous or with isolated hairs; fruit red-black and shiny; abaxial leaf surface subglaucous
- 1: Corolla tube longer than calyx, corolla densely pubescent; fruit red or red-black, dull or shiny; abaxial leaf surface glaucous

1 *P. nitida*

- 2: Abaxial leaf surface with 7–9 veins, adaxial surface shallowly grooved at the base, margin flat; gynoecium densely puberulent; fruit red or red-black, dull 2 *P. petiolaris*
- 2: Abaxial leaf surface with 5 veins, adaxial surface with a central groove, margin recurved; gynoecium glabrous; fruit red, shiny 3 *P. sulcata*

**1 *Planocarpa nitida*** (Jarman) C.M.Weiller, *Austral. Syst. Bot.* 9: 517 (1996) *Black Cheeseberry*

*Cyathodes nitida* Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 107: 53, Fig. 1 (1972).

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 6: 413, t.127 (1978) (as *Cyathodes nitida*).

A compact hermaphroditic shrub to 40 cm tall. Stems erect or in false whorls, brown or grey-brown, branchlets slightly ribbed, pubescent. Leaves sub-erect; petiole 0.9–1.6 mm long, puberulent; lamina 5.5–7.8 mm long, 1.6–2.0 mm wide, ovate, thick, convex, or flat, adaxial surface glabrous or sparsely puberulent with hairs extending from the base up the centre of the leaf, 1–3 shallow grooves evident, abaxial surface subglaucous or glabrous, with 3–5 faintly striate veins, margin recurved, glabrous or occasionally ciliate towards apex, apex acute or obtuse, scarious in older leaves, tip pungent. Flowers cream, solitary; pedicel 1.0–1.8 mm long; bract and bracteoles ovate or oblong, the midrib abaxially inconspicuous. Sepals 2.9–3.6 mm long, 2.0–2.1 mm wide, ovate or oblong, the midrib abaxially inconspicuous, sparsely puberulent inside toward the apex. Corolla tube equal to calyx, thin, campanulate, 2.8–3.3 mm long, sparsely pubescent internally; lobes spreading, shorter than the tube, glabrous or sparsely pubescent. Anthers included. Ovary spherical or a flattened sphere, 1 mm high, glabrous, 5–7-locular; nectary continuous; style glabrous, included within the tube, tuberculate. Drupe red-black, shiny, flattened dorsiventrally, 5–7 mm diameter. Flowering Oct.–Nov.

Tas. (TCH); endemic. The species has a restricted distribution on the Central Plateau where found in open woodland and amongst rocks at approximately 1200 m elevation.

**2 *Planocarpa petiolaris*** (DC.) C.M.Weiller, *Austral. Syst. Bot.* 9: 514 (1996) *Alpine Cheeseberry*

*Leucopogon petiolaris* DC., *Prodr.* (DC.) 7(2): 753 (1839); *Cyathodes petiolaris* (DC.) Druce, *Bot. Exch. Club Soc. Brit Isles (report for 1916) Suppl.* 2: 618 (1917); *Styphelia petiolaris* (DC.) Sleumer, *Blumea* 12: 154 (1963). *Cyathodes adscendens* Hook.f., *Lond. J. Bot.* 6: 268 (1847); *C. ascendens* Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 245, t. 74a (1847), *orth. var.*

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 6: 413, t. 127 (1978), as *Cyathodes petiolaris*.

A diffuse or compact gynodioecious shrub 50–100 cm tall. Stems erect, branchlets slightly ribbed, puberulent, leaf scars prominent. Leaves erect, loosely imbricate; petioles 1.7–2.7 mm long, puberulent on adaxial surface; lamina 6.3–8.8 mm long, 2.2–3.3 mm wide, oblong to ovate, thick, flat, glabrous, adaxial surface puberulent at base, abaxial surface glaucous, striate with 7–9 conspicuous veins, margin entire, apex broadly acute to obtuse, scarious. Flowers cream, solitary or in a short spike of 2–3 flowers, on pedicels 1–2 mm long; bracts 0.7–0.9 mm long, 0.6–0.9 mm wide; bracteoles glabrous or rarely sparsely puberulent. Sepals 2.4–3.2 mm long, 1.7–2.3 mm wide, glabrous or rarely sparsely puberulent. Corolla tube equalling or exceeding calyx, thick, cylindrical, 2.6–3.5 mm long, puberulent internally, the hairs deflexed at the throat; lobes 1.4–2.1 mm long, internally densely hairy, apex prominently thickened, acute. Anthers included. Ovary spherical to somewhat flattened, with a short dense hair cover, 6–8-locular; nectary truncate; style puberulent in lower part, 0.8–1.6 mm long, tuberculate. Drupe red or red-black, pithy, surface dull, glabrescent, dorsiventrally flattened, 4–7 mm diameter. Flowering (Oct.–)Nov.–Dec.(–Jan.)

Tas. (TCH, TSR); endemic. Restricted to the high elevation (usually above 1200 m) dolerite regions of the south-east and Central Plateau in open shrubberies and amongst rocks.

**3 *Planocarpa sulcata*** (Mihaich) C.M.Weiller, *Austral. Syst. Bot.* 9: 516 (1996) *Grooved Cheeseberry*

*Cyathodes sulcata* Mihaich, *Aspects of Tasmanian Botany — a tribute to Winifred Curtis* 99, Fig. 1 (1991).

*Illustrations*: loc. cit., p. 100, Fig. 1.

Low compact hermaphroditic or gynodioecious shrub with ascending branches up to 40 cm tall. Stems glabrous, branchlets puberulent. First leaves of new season's growth distinctive, 7.5–9.5 mm long, 2.1–2.5 mm wide, margin of upper half of leaf scarious; following leaves sub-erect to spreading; petiole 1.5–2.5 mm long, adaxial surface puberulent; lamina 8–11 mm long, 2–3 mm wide, oblong-ovate; adaxial surface green, more or less shiny, puberulent at the base, abaxial surface glaucous, striate, with 3–5 veins and thick sculptured hairs, margin slightly recurved, glabrous or occasionally ciliolate toward the apex, apex apiculate in young leaves, blunt and the scarious in old leaves. Flowers cream, usually solitary but occasionally two together; pedicels 0.8–2.0 mm long; bracts 0.7–0.8 mm long, 0.6–1.0 mm wide; bracteoles non-imbricate, uniform in size, 1.6–2.0 mm long, 0.7–2.0 mm wide. Sepals 2.4–3.2 mm long, 1.6–2.2 mm wide. Corolla tube equal to or exceeding the calyx, thick, cylindrical, 2.5–2.7 mm long (female), 2.7–4.2 mm long (hermaphrodite), pubescent inside; lobes 1.5–2.1 mm long, triangular, erect to spreading, internally densely bearded on the lower 2/3–1/2, glabrous above, apex acute. Anthers included. Ovary spherical to somewhat flattened, 0.8 mm high, 1.3 mm wide, 5–8-locular, glabrous; nectary in distinct scales 0.5 mm high, truncate; style glabrous, 0.9–1.4 mm long, tuberculate. Drupe red, smooth and shiny, transverse-elliptic in side view, 5–7 mm wide. Flowering Oct.–Nov.

Tas. (TCH, TSR, TWE); endemic. Restricted to the western mountains at elevations above approximately 950 m in alpine heath, shrubberies and herb fields.

## 23 LEPTECOPHYLLA

*Leptecophylla* C.M.Weiller, *Muelleria* 12: 196 (1999).

Synonymy: *Epacris* J.R.Forst. & G.Forst., *Char. Gen. Pl.*, ed. 2 pl. 19 (1776), *p.p.*, *nom. reject.* *Ardisia* Gaertn., *Fruct. Sem. Pl.* 2: 78 (1791), *nom. illeg.*, *non Sw.* (1788).

Low or erect, dioecious, usually compact shrubs to 2 m tall, rarely trees to 6 m tall; stems glabrous with rough, scaly, grey to brown bark. Leaves alternate, spreading or sub-erect, the abaxial surface glaucous and striate, the tip usually pungent. Inflorescence terminal and axillary. Flowers effectively unisexual, solitary or in short spikes in the leaf axils, subtended by paired, keeled bracts and numerous usually closely imbricate bracteoles, these cream to green, usually glabrous, and broadly ovate with a rounded obtuse apex. Bracteole and sepal margins ciliolate. Sepals 5. Corolla white or cream, 5-merous; tube campanulate or sub-urceolate or cylindrical, exceeding or approximately equalling the calyx, glabrous or pubescent inside; lobes valvate in bud, narrowly triangular, spreading, internally glabrous, with a few scattered hairs, or densely bearded. Stamens 5, alternating with the corolla lobes; filaments inserted at the top of the tube, short, the anthers enclosed in the tube or half-exserted; attached to the filament near the apex, linear. Nectary annular and truncate, or lobed and toothed. Ovary 5–7-loculate, 1 ovule per locule; style attenuate from the ovary, or from a shallow depression, short with the stigma at or below anther-level, or long with a conspicuous bend near the middle and the stigma exserted; stigma small, capitate or lobed. Fruit a more or less spherical drupe, with apex slightly flattened, red, pink or white, mesocarp thick and pulpy, endocarp hard and bony, calyx and style persistent, often retained on the plant into the next flowering season.

A genus of 15 species found in Tasmania, Victoria, New Zealand and several Pacific Island groups. Tasmania has 6 species, 5 of which are endemic.

Key reference: Weiller (1999); Jarman & Kantvilas (2017).

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|--|-------------------------|
| 1. Flowers with a short, broad corolla tube: in pollen-producing flowers, the length of the tube equal to or less than the diameter at the widest point; tube bulbous in shape | 1 <i>L. pogonocalyx</i> |
| 1: Corolla tube relatively long in relation to its diameter: in pollen-producing flowers, at least 1.5 times as long as the width; tube barrel-shaped or cylindrical           | 2                       |
| 2. Style long, at least twice the height of the ovary  | 3                       |
| 2: Style short, less than twice the height of the ovary  | 4                       |
| 3. Corolla lobes with long straggling hairs; bracts distant, bracteoles scarcely reaching the sepals   | 2 <i>L. divaricata</i>  |
| 3: Corolla lobes glabrous, rarely with one or two hairs; bracts and bracteoles overlapping   | 3 <i>L. pendulosa</i>   |

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|--|------------------------|
| 4. Leaves longer than 7 mm                                   | 5                      |
| 4: Leaves shorter than 7 mm                                  | 6 <i>L. parvifolia</i> |
| 5. Inside of corolla lobes densely hairy                     | 4 <i>L. abietina</i>   |
| 5: Inside of corolla glabrous or with scattered sparse hairs | 5 <i>L. oxycedrus</i>  |

**1 *Leptecophylla pogonocalyx* C.M.Weiller, *Muelleria* 12: 206, Fig. 4 (1999)**

*Bearded Pinkberry*

*Illustrations:* C.M.Weiller, *Muelleria* 12: 206, Fig. 4 (1999).

Dioecious, compact or tall shrubs 0.5–2.0(–5.0) m tall. Branchlets puberulent to pubescent. Leaves evenly spaced, usually spreading or somewhat reflexed; petiole erect, 0.5–1.8 mm long, appressed to sub-erect, glabrous or puberulent on the adaxial surface; lamina 5–17(–23) mm long, 1.2–1.9 mm wide, narrowly ovate, adaxial surface glabrous or puberulent at base, abaxial surface glaucous, striate, 5-veined, margin flat or slightly recurved, glabrous or ciliolate only towards the apex, apex acute, pungent. Flowers solitary, mainly axillary on current season branches; pedicels erect or recurved, 3 mm long (male), 1.7–2.4 mm long (female); bracts ovate, 0.5–0.8 mm long, 0.6–1.0 mm wide, glabrous or puberulent at apex, margin glabrous or ciliolate at the apex, apex obtuse; bracteoles 10–22 per flower, imbricate, 1.6–2.7 mm long, 1.4–2.0 mm wide, ovate, broadly acute or obtuse, the apex occasionally with a short mucro, glabrous or puberulent. Sepals 2.1–3.1 mm long, 1.4–2.1 mm wide, ovate, broadly acute or obtuse, the apex occasionally with a short mucro, glabrous or puberulent. Corolla tube campanulate, equal to or shorter than the calyx, 1.9–2.5 mm long (male), 1.6–2.4 mm long (female), glabrous; lobes shorter than tube, glabrous, apex acute. Anthers of male flowers half-exserted. Ovary spherical, glabrous, 4–6-locular; nectary separating into distinct scales with pressure, or in distinct scales, margin entire, toothed or rounded, glabrous or occasionally with hairs; style straight, glabrous, attenuate from the ovary, 0.9–1.3 mm long (female); stigma 0.1 mm high. Drupe pink, spherical, 5–10 mm diameter. Flowering Nov.–Dec.

Tas. (TSR, TWE); endemic. In southern and western Tasmania, from sea-level to elevations over 1000 m. *Leptecophylla pogonocalyx* subsp. *pogonocalyx* and subsp. *decipiens* are normally straightforward to separate based on the degree of pubescence of their bracts and sepals. However their ranges overlap in north-western parts of the Central Plateau and parts of the West Coast. In this area it becomes increasingly difficult to separate the subspecies as the degree of pubescence intergrades.

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|--------------------------------|------------------------------|
| 1. Sepals and bracts pubescent | 1a subsp. <i>pogonocalyx</i> |
| 1: Sepals and bracts glabrous  | 1b subsp. <i>decipiens</i>   |

**1a. *Leptecophylla pogonocalyx* (C.M.Weiller) Jarman subsp. *pogonocalyx***

*Illustrations:* C.M.Weiller, *Muelleria* 12(2): 206 Fig. 4 (1999); Jarman & Kantvilas, *Swainsona* 31: 14, Fig. 13.

Bracts puberulent at the apex. Sepals pubescent on outer surface. Flowering Oct.–Dec.

Tas. (TSR, TWE); endemic. Confined to the southern and western region of Tasmania, usually at elevations above 600 m.

**1b. *Leptecophylla pogonocalyx* subsp. *decipiens* Jarman, *Swainsona* 31: 13 (2017)**

*Illustrations:* Jarman & Kantvilas, *Swainsona* 31: 14, Fig. 13, 14.

Bracts glabrous or minutely puberulent with tiny, inconspicuous hairs at the apex. Sepals glabrous or minutely puberulent with a small patch of tiny inconspicuous hairs at the apex. Flowering Oct.–Dec.

Tas. TNS, TWE; endemic. Restricted to north-western Tasmania, in wet forest and scrub; also in rainforest and disturbed areas such as road banks, from sea-level to 1000 m elevation. The name *Leptecophylla juniperina* has been frequently misapplied to this taxon in Tasmania by many authors since Roemer & Schultes (1819).

**2 *Leptecophylla divaricata*** (Hook.f.) C.M.Weiller, *Muelleria* 12: 207 (1999)

Spreading Pinkberry

*Lissanthe divaricata* Hook.f., *Lond. J. Bot.* 6: 269 (1847); *Cyathodes divaricata* (Hook.f.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 1: 246, t. 74b (1857). *Styphelia remota* Sleumer, *Blumea* 12: 156 (1964).

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 2: 103, t. 34 (1969), as *Cyathodes divaricata*.

Dioecious, slender shrubs to 2 m tall. Stems erect, branchlets rounded, scabrous. Leaves evenly spaced, spreading or occasionally reflexed; petiole erect, 1.0–1.5 mm long, appressed to stem, puberulent; lamina 9.2–12.7 mm long, 1.2–1.5 mm wide, narrowly ovate, convex, adaxial surface glabrous or occasionally puberulent near base, abaxial surface glaucous, striated with 5 conspicuous parallel veins, margin recurved, glabrous, scaberulous or ciliolate, apex acute, tip pungent. Flowers solitary, terminal and axillary, pendulous from bud; pedicel 3.1–5.8 mm long (male), 2.0–7.3 mm long (female), the male flowers pedicellate above the subtending bracteoles; bracts 0.7 mm long, 0.4–0.6 mm wide, ovate, glabrous or occasionally puberulent outside, ciliolate on the margins, apex acute; bracteoles 8–29 per flower, loosely imbricate below calyx, 1.1–1.8 mm long, 1.1–1.5 mm wide, ovate with the midrib abaxially inconspicuous, glabrous. Sepals 1.6–2.9 mm long, 1.4–1.7 mm wide, ovate with the midrib abaxially inconspicuous, glabrous. Corolla tube exceeding calyx, thin, cylindrical, 5.5–6.7 mm long (male), U-shaped 3.8–5.0 mm long (female), sparsely pubescent internally; lobes shorter than tube 1.7–2.2 mm long (male), 1.9–2.5 mm long (female), externally glabrous, internally with long sparse hairs distributed evenly, apex acute. Anthers of male flowers half-exserted; female rudiments enclosed. Ovary spherical, 0.8–1.3 mm high, 0.9–1.5 mm wide, glabrous, 5–6-locular; nectary continuous with truncate or toothed shortly hairy margin; style usually bent, seated in an apical depression, 3.7–5.0 mm long (female), glabrous or pubescent near the middle; stigma lobed. Drupe pale to dark pink, spherical, 7–12 mm diameter, apically depressed, glabrous. Flowering Mar.–Sep.

Tas. (TSE), endemic. Growing on dry rocky hillsides in open eucalypt forests of the eastern part of the state, to c. 800 m elevation.

**3 *Leptecophylla pendulosa*** (Jarman) C.M.Weiller, *Muelleria* 12: 209 (1999)

Drooping Pinkberry

*Cyathodes pendulosa* Jarman, *Pap. & Proc. Roy. Soc. Tasmania* 112: 2 (1978).

Dioecious, diffuse or compact shrubs to 1.5 m tall. Stems erect, branchlets pubescent. Leaves evenly spaced, spreading; petiole erect, 0.4–1.0 mm long, appressed to stem, glabrous or occasionally puberulent on the adaxial surface; lamina 3.8–7.9 mm long, 0.9–1.8 mm wide, narrow ovate, flat, adaxial surface glabrous, abaxial surface glaucous, striated with 3–5 conspicuous veins, margin flat or slightly recurved, ciliate, apex acute, tip pungent. Flowers solitary, usually terminal only but also axillary, erect or pendulous from bud; pedicel 2.3–4.0 mm long; bracts 0.4–0.7 mm long, 0.3–0.6 mm wide, ovate, weakly keeled, puberulent outside, margins ciliolate, apex obtuse; bracteoles 13–37 per flower, imbricate, 1.7–2.9 mm long, 1.3–2.0 mm wide, ovate, glabrous or sparsely pubescent. Sepals 2.6–3.6 mm long, 1.2–2.2 mm wide, ovate to elliptic, with the midrib abaxially inconspicuous, glabrous or sparsely pubescent. Corolla tube exceeding calyx, thin, 3.2–4.3 mm long (male), 2.8–3.5 mm long (female), U-shaped, glabrous; lobes shorter than tube, externally glabrous or rarely with a few hairs at the base of the lobes, internally glabrous, apex acute. Anthers enclosed. Ovary spherical, 1.0–1.4 mm high, 1.0–1.4 mm wide (female), glabrous, 4–6-locular; nectary continuous, glabrous, with toothed upper margin; style bent, glabrous, seated in an apical depression, 2.1–2.9 mm long (female); stigma lobed. Drupe pink, spherical, 6–10 mm diameter, apically depressed, glabrous. Flowering May–Jul.

Tas. (BEL, TSE); endemic. Occurring in rocky, open eucalypt woodland in the east and north-east, to 1100 m elevation.

**4 *Leptecophylla abietina*** (Labill.) C.M.Weiller, *Muelleria* 12: 211 (1999)

Seaspray Pinkberry

*Styphelia abietina* Labill., *Nov. Holl. Pl.* 1: 48, t. 68 (1805); *Cyathodes abietina* (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810).

*Illustrations*: Stones & Curtis, *The Endemic Flora of Tasmania* 3: 185, t. 61 (1971), as *Cyathodes abietina*.

Dioecious, compact, erect shrubs 1–2 m tall. Branchlets densely puberulent. Leaves evenly spaced, sub-erect; petiole erect, 1.8–3.1 mm long, appressed to stem, sparsely puberulent; lamina 12.3–18 mm long, 1.9–2.7 mm wide, narrowly ovate, flat, adaxial surface green, glabrous or with sparse hairs toward the base, abaxial surface glaucous, with short trichomes fringing shallow grooves and up to 7 veins, margin flat, glabrous or ciliolate toward the apex, apex short and hard. Flowers solitary, terminal and axillary on erect pedicels 3.5–4.2 mm long (male), 2.4–3.0 mm long (female); bracts broadly ovate, 0.8–1.0 mm long, 0.8–1.1 mm wide, margin usually glabrous, apex obtuse; bracteoles 6–26 per flower, imbricate, 2.1–2.6 mm long, 1.9–2.4 mm wide, broadly ovate, glabrous, conspicuously striate when dry, apex obtuse. Sepals 2.8–3.8 mm long, 2.0–2.6 mm wide, broadly ovate, glabrous, conspicuously striate when dry, apex obtuse. Corolla tube thick, fleshy, exceeding calyx, campanulate, 4.0–4.5 mm long (male), 3.0–3.2 mm long (female), upper half sparsely pubescent internally; lobes 2.0–3.1 mm long, externally glabrous or with a few short hairs at the base, internally densely bearded. Anthers of male flowers 1.8–2.6 mm long, half-exserted. Ovary spherical, glabrous, 4–7-locular; nectary separating into scales with pressure, margin toothed; style glabrous, attenuate from the ovary, 1.4–1.8 mm long (female); stigma lobed. Drupe pale to dark pink, 7–12 mm diameter slightly flattened sphere, surface dull. Flowering Oct.–Dec.

Tas. (KIN, TSR, TWE, TSE); endemic. Restricted to the exposed rocky coasts of the south-east, south and west, and neighbouring islands, at or near sea-level between Southport Bluff in the south-east and Granville Harbour on the West Coast. Also recorded from Walker Island off the north-west coast and South Arm in the south-east.

##### 5 *Leptecophylla oxycedrus* (Labill.) Jarman, *Swainsona* 31: 1 (2017)

Coast Pinkberry

*Styphelia oxycedrus* Labill., *Nov. Holl. Pl.* 1: 49, t. 69 (1805); *Cyathodes oxycedrus* (Labill.) R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810); *Lissanthe oxycedrus* (Labill.) Spreng., *Syst. Veg.* 1: 660 (1824); *Cyathodes acerosa* var. *oxycedrus* (Labill.) Cheeseman, *Man. New Zealand Fl.* 411 (1906); *Cyathodes juniperina* var. *oxycedrus* (Labill.) Allan, *Fl. New Zealand* 1: 516 (1961); *Leptecophylla juniperina* subsp. *oxycedrus* (Labill.) C.M.Weiller, *Muelleria* 12: 205 (1999).

*Illustrations:* Albrecht, *Fl. Victoria* 3: 482, Fig. 98w–y (1996) (as *Cyathodes oxycedrus*).

Dioecious, erect, compact woody shrub 3–5 m tall. Branchlets pubescent. Leaves spreading; petiole 0.4–1.0 mm long, appressed, pubescent; lamina lanceolate to ovate, 7–24 mm long, 1.5–2.5 mm wide, flat or slightly convex, straight, with major veins parallel, base cuneate, margin ciliolate, slightly revolute, apex acute or acuminate, pungent; adaxial surface smooth, glabrous somewhat scabrous, venation obscure; abaxial surface glaucous, striate, midrib and 4(–6) other major veins evident. Inflorescence solitary, sometimes in small clusters, mainly in upper axils of current season's growth; flowers functionally unisexual. Pedicels erect or pendulous, shorter than or equal to the corolla. Bracts numerous, imbricate, ovate, glabrous, margin ciliolate, apex obtuse. Sepals glabrous, white suffused greenish or yellowish, 1.8–3.0 mm long, elliptic to ovate, margin ciliolate, apex obtuse. Corolla white, usually persistent, rarely caducous; tube urceolate to cylindrical, 2.6–4.0 mm long (male), or urceolate, 2.3–2.8 mm long (female), glabrous outside, glabrous or sparsely hairy inside; lobes shorter than tube, spreading to recurved, broadly triangular, glabrous, rarely sparsely hairy on the outer base of the lobes, apex acute. Stamens 5; filaments terete, shorter than anthers, inserted at or just below the tube throat, dorsifixed to anthers just above the mid-point; anthers 1.6–1.8 mm long (male), erect, included or the top half exserted. Ovary globose, glabrous, 5–6-locular; style glabrous, 1.0–1.3 mm long, attenuate from ovary, tapering; stigma near the top of the tube; nectary scales triangular, up to but usually less than 1/3 as long as the ovary. Fruit red or pink, spherical, slightly flattened, 6–10 mm diameter. Flowering (Aug.–)Sep.–Oct.(–Nov.).

Tas. (FUR, KIN, TSR, TWE); also Vic. Restricted to the exposed, rocky coasts of southern and western Tasmania, the Bass Strait Islands and southern Victoria, at or near sea-level. The name *Leptecophylla juniperina* (a species endemic to New Zealand) has been frequently misapplied to this taxon in Tasmania by many authors since Roemer & Schultes (1819).



**6 Leptecophylla parvifolia** (R.Br.) Jarman, *Swainsona* 31: 7 (2017)

Mountain Pinkberry

*Cyathodes parvifolia* R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810); *Lissanthe parvifolia* (R.Br.) Spreng., *Syst. Veg.* 1: 660 (1824); *Styphelia parvifolia* (R.Br.) F.Muell., *Pap. Proc. Roy. Soc. Tasmania* 86 (1874); *S. oxycedrus* var. *parvifolia* (R.Br.) Sleumer, *Blumea* 12: 156 (1964); *Leptecophylla juniperina* subsp. *parvifolia* (R.Br.) C.M.Weiller, *Muelleria* 12: 204 (1999).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 2: 105, t. 35 (1969) (as *Cyathodes parvifolia*).

Dioecious, erect, compact woody shrub, 60–120 cm tall. Branchlets pubescent. Leaves spreading to reflexed; petiole 0.5–0.7 mm long, appressed or sub-erect, glabrous; lamina lanceolate, 5.0–6.0 mm long, 1.4–1.7 mm wide, flat or convex, straight, major veins  $\pm$  parallel, base cuneate, margins  $\pm$  entire or microserrulate, slightly revolute, apex acute with a pungent mucro; adaxial surface smooth, glabrous venation obscure; abaxial surface glaucous, with interveinal wax-coated papillae, midrib and 2 other major veins evident. Inflorescence solitary, axillary near the top of current season's growth, a few flowers terminal; flowers functionally unisexual, dimorphic; pedicels longer than the corolla,  $\pm$  straight. Bracts numerous, the lower ones spaced, ovate, glabrous, margin ciliolate, apex obtuse. Sepals glabrous, white suffused greenish or yellowish, 1.7–2.3 mm long, elliptic to ovate, margin ciliolate, apex obtuse or rounded. Corolla caducous, shed soon after anthesis; tube cylindrical (rarely urceolate), 2.1–3.5 mm long (male), or urceolate, 1.6–2.0 mm long (female); lobes shorter than tube, spreading to recurved, broadly triangular, glabrous, apex acute. Stamens 5; filaments terete, shorter than anthers, inserted at or just below tube throat, dorsifixed to anther above the mid-point; anthers approximately 1.2 mm long (male), erect, included or the top half exerted. Ovary globose, glabrous, 4–5-locular; style glabrous, approximately 1.0 mm long, attenuate from ovary, slightly bent, tapering; stigma amidst or at top of anthers; nectary scales triangular, up to 1/2 as long as the ovary. Fruit a drupe, red to pink, or rarely white to greenish-grey, spherical, 5–9 mm diameter. Flowering Oct.–Dec.

Tas. (BEL, TCH, TNS, TSE, TSR, TWE); endemic. Sub-alpine woodlands and grasslands of eastern and south-eastern mountains and the Central Plateau, to 1400 m elevation.

**24 PENTACHONDRA**

*Pentachondra* R.Br., *Prodr. Fl. Nov. Holland.* 540 (1810)

Small shrubs, sometimes prostrate; branchlets glabrous to villous. Leaves usually crowded, sessile or shortly petiolate, concolorous to slightly discolorous, abaxial surface with few to many parallel veins. Flowers white, bisexual or unisexual, solitary or rarely 2 or 3 together on very short spikes which terminate in a rudiment, terminal and in the upper axils of branchlets, or terminating short lateral branches, bracts at the base of inflorescences several, grading in size to 2 bracteoles that are inserted immediately below the sepals. Corolla 5-merous, cylindrical or narrowly urceolate and exceeding or equal to the calyx, sparsely hairy inside; lobes narrow triangular, valvate in bud, spreading to recurved in open flower, white-bearded inside. Filaments slender, short with the anthers  $\pm$  enclosed in the corolla tube. Nectary of scales either entirely distinct or more or less cohering. Ovary 5–11-locular, 1 ovule per locule, glabrous or pubescent; style short or long; stigma lobed. Fruit a drupe, the stone separating into separate nutlets.

4 species in Australia, 1 extending to New Zealand; 3 species in Tasmania, 2 endemic.

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|--|-------------------------|
| 1. Plant of erect habit; corolla tube approximately equal to the calyx, sometimes shorter, lobes much longer than the tube       | 1 <i>P. involucrata</i> |
| 1: Plant of prostrate habit; corolla tube much longer than the calyx, lobes shorter than the tube                                | 2                       |
| 2. Leaves half-spreading, elliptical-ovate, glabrous, margins ciliolate; fruit red, conspicuous                                  | 2 <i>P. pumila</i>      |
| 2: Leaves erect and often appressed, narrow-elliptical or linear, margins with spreading hairs; fruit mostly hidden, rarely seen | 3 <i>P. ericifolia</i>  |

**1 *Pentachondra involucrata*** R.Br., *Prodr. Fl. Nov. Holland.* 549 (1810)

Forest Frillyheath

*Styphelia involucrata* (R.Br.) Spreng, *Syst. Veg.* 1: 655 (1824); *Trochocarpa involucrata* (R.Br.) F.Muell., *Fragm.* (Mueller) 6(47): 57 (1868); *Decaspora involucrata* (R.Br.) Kuntze, *Rev. Gen. Pl.* 2: 391 (1891).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 4: 257, t. 83 (1973).

An erect, fairly diffuse shrub, up to 1 m tall. Branchlets pubescent. Leaves crowded, subsessile, 8–20 mm long, broadly elliptical to ovate, ± flat, sometimes pubescent, prominently veined on both surfaces, margins ciliate, apex broadly acute. Flowers white, axillary, solitary but often 2–3 grouped together, near the ends of short branches; bracts several, small, the uppermost subtending a rudiment, the second the flower, approximately 1/2 the length of the sepals. Sepals 2–3 mm long, ovate, margin ciliate. Corolla tube as long as the calyx; the lobes much longer, spreading and recurved, densely bearded. Anthers exerted. Ovary and the base of the long style pubescent; nectary of 5 (sometimes cohering) triangular scales. Drupe tiny and hidden in the persistent base of the sepals, separating into pyrenes. Flowers Mar.–May.

Tas. (TCH, TSE, TSR); endemic. Sporadic and local in occurrence on Mount Wellington and subalpine regions in the south and south-west, to c. 1100 m elevation, and at lower elevations in the Huon valley, and at sea-level at Eaglehawk Neck and Freycinet.

**2 *Pentachondra pumila*** (J.R.Forst. & G.Forst.) R.Br., *Prodr. Fl. Nov. Holland.* 549 (1810)

Carpet Frillyheath

*Epacris pumila* J.R.Forst. & G.Forst., *Char. Gen. Pl.* t. 10 (1775).

*Illustrations:* Albrecht, *Fl. Victoria* 3: 482, Fig. 98s-v (1996).

Prostrate shrub forming mats to approximately 1 m diameter and rooting at the nodes. Branchlets ± glabrous, the tips often ascending. Leaves crowded, 3–6 mm long, oblong or elliptic, glabrous, flat or very slightly concave, concolorous, the abaxial surface showing 3–7 conspicuous veins, margins ciliolate, apex obtuse with a callous tip. Flowers white, ± sessile, solitary at the ends of short branchlets; bracts and bracteoles small, < 1 mm long, ovate, the terminal one subtending a rudiment. Sepals approximately 2 mm long, ovate-orbicular, margin ciliolate, apex blunt. Corolla tube cylindrical to narrowly-urceolate, approximately twice as long as the sepals, the outer surface glabrous, bearded inside; lobes 2.0–2.5 mm long, spreading or recurved, densely bearded. Anthers half-exserted. Ovary glabrous; nectary of 5 separate scales; style long; dead flowers also may persist longer than one season. Drupe globose, red, separates readily into pyrenes. Flowering Dec.–Mar.

Tas. (BEL, TCH, TSR, TWE); also NSW, Vic., New Zealand. Grows on mountain summits in heaths, to c. 1500 m elevation. Two distinct fruit sizes occur, the smaller (c. 3–4 mm diameter) is most common, the larger (up to 8 mm diameter) is infrequent and in localised populations.

**3 *Pentachondra ericifolia*** Hook.f., *Lond J. Bot.* 6: 271, t 77a (1847) [as '*P. ericaefolia*']

Fine Frillyheath

*Trochocarpa ericifolia* (Hook.f.) F.Muell., *Pap. & Proc. Roy. Soc. Tasmania* 86 (1874); *Styphelia ericifolia* F.Muell., *Sec. Syst. Census Austral. Pl.* 180 (1889).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 3: 193, t. 65 (1971).

A small heath-like shrub. Branches procumbent or ascending, 15–60 cm long and with numerous ascending branchlets which are glabrous or pubescent. Leaves erect and often closely appressed, densely crowded, subsessile, 3–6 mm long, narrow-linear, slightly concave, concolorous, striate below, margins and petiole often ciliate, apex with a blunt callous point. Flowers white, solitary, sessile, axillary, but often several in groups near the ends of the short branchlets; bracts small, < 1 mm long, the two uppermost longer, the last subtending a rudiment. Sepals 2–3 mm long, broadly elliptical, margin ciliolate. Corolla tube cylindrical, 4–5 mm long, the outer surface with short scattered hairs, pubescent inside; lobes narrow-triangular, shorter than the tube, spreading and recurved, the inner surface densely bearded. Anthers half-exserted. Ovary glabrous; nectary of 5 separate scales; style long. Drupe small, at maturity remains hidden within the base of the sepals and rarely seen. Flowering Feb.–Apr.

Tas. (BEL, TCH, TSE); endemic. Locally abundant in montane habitats of the Central Plateau between Marlborough and Lake St Clair, to c. 1100 m elevation; also recorded from Mount Dromedary near Hobart, and near Rossarden.

## 25 STENANTHERA

*Stenantha* R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810)

Low, erect or prostrate shrubs, commonly mat-like; branches scabrous to pubescent. Leaves crowded, sessile to shortly petiolate, mainly narrowly ovate, lanceolate or linear, often discolourous with abaxial surface paler or glaucous, and with fine striate parallel or radiating venation, acute to acuminate, usually with pungent tip. Flowers red or yellow-green, bisexual, axillary, solitary or 2–3 on short peduncles clothed with bracts or almost sessile in a much reduced spike, on hardened current or previous seasons wood; bracts several, broadly ovate to orbicular, glabrous or minutely pubescent and with ciliolate margins, grading in size to 2 inner and larger bracteoles immediately subtending sepals the uppermost bract usually with a rudimentary bud apex. Sepals 5, often coloured, ciliate. Corolla tube elongated, cylindrical or slightly ventricose, glabrous inside or with 5 tufts or a ring of hairs towards the base; lobes linear or lanceolate, lobes shorter than the tube, valvate in bud, erect at the base round the anthers, spreading or recurved at the top, usually bearded but sometimes only at the base. Staminal filaments short, flattened to terete, inserted in the throat; anthers narrowly oblong to linear attached above the middle or near the top, included. Nectary cup-shaped or annular, truncate or obscurely lobed. Ovary 5-locular, with 1 ovule in each locule; style slender, equal to or longer than the corolla tube; stigma capitate. Fruit a drupe with a dry or slightly pulpy mesocarp and a hard bony endocarp.

An endemic Australian genus of 2 species in the south-eastern States; 1 species in Tasmania.

Recently separated from the now-defunct genus *Astroloma*.

**1 *Stenantha pinifolia*** R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810)

*Pine Heath*

*Styphelia pinifolia* (R.Br.) Spreng., *Syst. Veg.* 1: 659 (1824); *Astroloma pinifolium* (R.Br.) Benth., *Fl. Austral.* 4: 159 (1868).

*Illustrations:* Cochrane et al., *Flowers and Plants of Victoria*, t. 117, col. (1968); Albrecht, *Fl. Victoria* 3: 482, fig. 98d-f (1996).

A small rigid shrub, in Tasmania mostly prostrate, but elsewhere sometimes erect or ascending 20–100 cm tall. Branchlets pubescent, bearing numerous needle-like leaves which are crowded along the upper parts of the branches but fall from the lower parts leaving small, raised scars. Leaves sub-sessile, ascending to spreading; petiole tiny, appressed, glabrous; lamina dense, 9.5–25 mm long, 0.3–0.6(–1.0) mm wide, narrow-linear, scabrous, abaxial surface usually with only midrib visible, margins revolute, apex mucronate. Flowers sub sessile and solitary in the leaf axils, often crowded at the base of the branchlets; bracts approximately 8, 0.5–8.0 mm long; bracteoles 7–9 mm long broad, the innermost more than half as long and embracing the calyx, apex obtuse or broadly acute. Sepals 9–12 mm long, ovate, thin, scarcely striate, pubescent, margin shortly ciliate, apex obtuse. Corolla tube yellow (in NSW red), the upper part usually greenish, cylindrical, exceeding sepals, 15–18 mm long, the inner surface with scattered hairs and a dense scalar mass at the top, no basal hairs or scales; lobes green, approximately 6 mm long, spreading or recurved, lanceolate, the inner surface bearded near the tip. Filaments short and very flat; anthers attached near the top, 1.1–1.3 mm long. Ovary globose; nectary truncate or shortly lobed; style approximately 11–16 mm long. Drupe 10–15 mm long, ovoid to globose. Flowering Jun.–Sep.

Tas. (BEL, FUR, KIN, TCH, TSE, TWE); also NSW, Vic. Sporadic in sandy heaths near the coast (mainly east and north) and inland, e.g. at Royal George and Interlaken, to c. 800 m elevation.

## 26 MONTITEGA

*Montitega* C.M.Weiller, *Austral. Syst. Bot.* 23: 328 (2010)

Much branched, prostrate shrubs forming dense mats, often several plants coalescing to cover large areas. Leaves alternate, crowded or in false whorls at the ends of branches, glabrous above, densely hairy beneath with 1 or 3 (rarely 5) conspicuous veins. Flowers pedicellate, solitary in the upper axils without a rudimentary bud; corolla lobes shorter than the tube, densely hairy. Ovary 5-locular. Fruit a succulent drupe.

A monotypic genus found in Tasmania and New Zealand.

**1 *Montitega dealbata*** (R.Br.) C.M.Weiller, *Austral. Syst. Bot.* 23: 328 (2010) *Carpet Cheeseberry*

*Cyathodes dealbata* R.Br., *Prodr. Fl. Nov. Holland.* 539 (1810); *Styphelia dealbata* (R.Br.) Spreng., *Syst. Veg.* 1: 659 (1824).

*Illustrations:* Stones & Curtis, *The Endemic Flora of Tasmania* 2: 103, t. 34 (1969), as *Cyathodes dealbata*.

A diffuse or prostrate shrub, with many slender tangled branches forming a mat which may reach 1+ m in diameter. Leaves shortly petiolate, crowded usually near the branch ends; lamina 2–4 mm long, rigid, linear-oblong, abaxial surface glaucous with a very conspicuous midrib and rarely 1 or 2 other pairs of veins, apex obtuse with a short blunt, incurved point, or sometimes the margin of the upper part and the mucro scarious and deciduous. Flowers axillary, solitary on very short peduncles; bracts several, grading into but not equalling the sepals. Sepals 2–3 mm long, ovate, margin ciliate, apex obtuse. Corolla tube cylindrical, longer than the sepals, puberulent inside above the middle; lobes small sub-erect to spreading, bearded inside. Filaments inserted below the top of the tube; anthers attached above the middle, included. Ovary 5-locular, each locule with a single ovule; nectary obtusely 5-lobed; style short. Fruit a globular drupe, orange-red, approximately 5 mm diameter, mesocarp fleshy. Flowering, Nov.–Dec.

Tas. (BEL, TCH, TSE, TSR, TWE); also New Zealand. Abundant on the summits of mountains of the south-west, west and the highest parts of the Central Plateau, to c. 1500 m elevation.

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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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