



105 ERICACEAE ¹

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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 septicial 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 *al 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 naturalized 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.

1 This work can be cited as: Crowden RK & Duretto MF (2019). Ericaceae, **version 2019:2**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 78 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/treatments/ericaceae/>

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

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).

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| 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 naturalized 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 naturalized 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 naturalized in SA, NSW?, Vic.; native to southern Europe and Ireland. Sparingly naturalized near Legana (Midlands) and often persisting in abandoned gardens (e.g. near Strahan), from sea-level to c. 400 m alt. 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 naturalized 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 naturalized 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; naturalized in W Europe (where it is a widespread weed). A commonly planted species that has become naturalized at Queenstown

and Strahan. Found spreading near gardens and in *Melaleuca squarrosa*/*Pittosporum bicolor* scrub, from sea-level to c. 200 m alt.

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 naturalized 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 alt. 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, globoid, 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 naturalized 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 naturalized in Tasmania though some species are grown for their attractive flowers (see Spencer 1997) and are naturalized 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 green-tinged 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 naturalized 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 alt.

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

African Heath

Illustrations: 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 naturalized in SA; native to South Africa. An uncommon weed naturalized 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 naturalized 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 alt. 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 alt.

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 naturalized in WA, SA, Vic.; native to South Africa. Sparsely naturalized in the south-east, e.g. near Hobart, Orford and Conningham, from sea-level to c. 250 m alt.; 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 ½ 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 <i>G. depressa</i> |
| 3: Leaves 12–22 mm long, narrow-elliptical, lanceolate, apex acute; fruit a succulent pericarp, half-enclosed by succulent calyx | 3 <i>G. lanceolata</i> |

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 alt., 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 alt.

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 alt. 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 alt. 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 is certain to change 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 \pm parallel, anthers unilocular, dehiscing by a single longitudinal slit | 5 |
| 5. Flowers pedicellate above upper bracts | 4 Archerieae |
| 5: Flowers not pedicellate above upper bracts | 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).

- | | |
|--|----------------|
| 1. Corolla ovoid or conical, forming an operculum, the lobes not opening at anthesis | 6 Richea |
| 1: Corolla cylindrical or campanulate, the lobes spreading | 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 \pm 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, dehiscing 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 recognized.

Key reference: Menadue & Crowden (2000).

- | | |
|--|---|
| 1. Inflorescence of simple clusters; flowers solitary, crowded in heads; bracts persistent (section <i>Cystanthe</i>) | 2 |
| 1: Inflorescence of compound spikes or panicles; flowers in clusters along a central axis; bracts caducous (section <i>Dracophylloides</i>) | 5 |

- | | |
|--|----------------------------|
| 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*'].

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 alt. At lower altitudes, 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).

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 $\frac{1}{2}$ – $\frac{2}{3}$ 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 alt. 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).

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, up 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 altitudes 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).*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 alt. 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 altitudes. 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).*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 up 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 $\frac{1}{2}$ ovary height; style 1.5–2.0 mm long, reaching $\frac{1}{2}$ – $\frac{2}{3}$ 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 alt.

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 altitudes (\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. xcurtisiae*: *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).

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 up 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 pink-tinged 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 $\frac{1}{3}$ ovary height; style 1.5–2.0 mm long, reaching $\frac{2}{3}$ 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 alt. 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).

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, up 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, ½ 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 alt.

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

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).

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, up 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 ½ ovary length; style 2.0–2.5 mm long, tapering; stigma rounded, reaching ½ 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 alt.

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

Short Candleheath

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 alt. 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. *Dracophyllum* appears to be paraphyletic and requires revision (see Wagstaff *et al.* 2010).

Key Reference: Oliver (1929).

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|---|------------------------|
| 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 and up to 4m tall. Leaves densely crowded at the branch ends, up 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 tinged pink, crowded on short pedicels. Sepals lanceolate-oblongate, 3–4 mm long, keeled, margin ciliate 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 alt.

NOTE: There is an arborescent (up 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 up 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 seen 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 alt.

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 fertilized 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.

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| 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 <i>S. distichophylla</i> |
| 4: Erect, low, bushy plant, commonly an inhabitant of an alpine cushion (usually <i>Dracophyllum minimum</i> , occasionally <i>Donatia novae-zelandiae</i>), rarely separate; leaves spreading, not | 5 <i>S. minima</i> |

distichous; flowers white

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 ciliolate 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 altitudes to c. 1100 m alt. Re-examination of specimens held at HO showed (on the basis of anther coherence and style length) that past collections from the highest altitudes 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 altitudes in Tasmania, the actual altitude 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 up 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 ciliolate, 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, 0.9–1.1 mm high, 1.1–1.3 mm 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 alt., 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, up 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, 3.0–4.5 mm 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 exserted 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 altitude 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 suberect, 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 $\frac{2}{3}$ 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 alt.

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 alt., 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 Esperance. 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).

A shrub of variable habit, sometimes a dense matted bush, or long, slender branches penetrating beneath the outer bark of trees and so climbing to considerable heights (up to several metres) as an epiphyte. Branchlets pubescent. Leaves shortly petiolate, flat, 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 red, solitary, axillary, often pendulous on long slender pedicels near the branch ends; bracts very small and distant from the sepals on the lower part of the peduncle, acute and ciliate. Sepals ovate, approximately 4 mm long, acute, ciliate. Corolla tube cylindrical but constricted at the throat, 15–25 mm long; lobes very small, obtuse, recurved. Stamens hypogynous; filaments slender; anthers mostly adnate to the filament, bilocular, but opening by a single slit above the common septum. Ovary 5-locular, hirsute; nectary of 5 small scales; style slender, inserted in a deep depression at the top of the ovary, making the placentas almost basal. Fruit a loculicidal capsule. Flowering Mar.–May.

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

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. 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 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).

A straggling, half-climbing shrub 1–4 m high. Branches slender, branchlets shortly hispid. Leaves subsessile, 6–9 mm long, 2–3 mm wide, flat or slightly recurved, spreading, somewhat distichous, ovate to lanceolate to broadly elliptic, acute or acuminate and sharply pointed, margin minutely serrulate, with several veins slightly prominent on the upper surface. Flowers solitary in the axils of leaves at the ends of the branches or in a short terminal raceme; pedicels short, hairy, recurved; bracts small, at the base of the pedicel, usually caducous. Sepals approximately 3 mm long, ovate, obtuse, margin ciliolate. Corolla white or pink; tube 6–7 mm long, ventricose; lobes much shorter than the tube, spreading or recurved. Ovary hirsute; nectary annular, short, thick, or divided into 5 blunt scales; style filiform, exerted; stigma 5-lobed, somewhat flattened. Capsule shortly cylindrical, approximately 4 mm long. Flowering Oct-Dec.

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

A tall shrub or small tree 2–6 m tall. Stems and spreading branches stout, hirsute with short spreading hairs. Leaves subsessile, 6–10 mm long, 2–3 mm wide, flat or slightly recurved, more or less distichous, ovate, thick, smooth and shining, obscurely 1-nerved, margin minutely serrate-ciliate, apex acute with a short pungent point. Flowers in the upper axils forming a short, terminal, leafy raceme, often reduced to a single floret; pedicels short, hairy, recurved; bracts at the base of the pedicel small and ± persistent, the upper bracts larger and caducous. Sepals distant from the upper bracts, approximately 3–4 mm long, ovate, acute, margin ciliolate. Corolla white or pink; tube 6–7 mm long; ± cylindrical, but contracted at the throat; lobes shorter than the tube, recurved. Anthers on very short filaments, enclosed. Ovary glabrous; nectary lobed or divided into 5 separate scales; style as long as the corolla, slender; stigma 5-lobed, slightly flattened. Capsule shortly cylindrical, approximately 4 mm long. Flowering Nov.–Dec.

Tas. (KIN, TCH, TSR, TWE); endemic. Occasional in rain forests from sea-level to alpine heaths c. 1000 m alt.

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).

A much-branched shrub, erect or ascending, 15–100 cm tall; branchlets with scattered hairs, older parts of the stem with raised circular leaf scars. Leaves with short erect petioles, 3–4 mm long, 2–3 mm wide; lamina spreading, broadly ovate or almost orbicular, thick, often purplish in colour, margin entire or sometimes scarious in the upper part, apex mucronate but not pungent. Flowers shortly pedicellate, solitary or few together in the axils of leaves below the ends of the branches, usually on wood of the previous season; bracts at the base of the pedicel small, persistent. Sepals 5(–6–7), approximately 3 mm long, elliptical, blunt, minutely ciliolate with a rounded turgid protuberance at the region of attachment. Corolla pale reddish-pink, glabrous, waxy; tube approximately 6 mm long, cylindrical-ovoid; lobes 5(–7), small, suberect or spreading. Filaments adnate to the tube, the free part very short; anthers at the throat of the corolla tube. Ovary 5(–7)-locular; nectary annular, short, thick, lobed; placentae erect from the base of the axis, ovules numerous. Style as long as the tube of the corolla; stigma flattened and obscurely lobed. Fruit a woody capsule. Flowering Nov.–Dec.

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

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).

A stout, rigid, prostrate or bushy shrub 15–60 cm tall; branches erect or ascending or, in very exposed situations, prostrate or pressed against the surfaces of boulders, branchlets and leaves glabrous. Leaves subsessile, crowded, suberect, but not distichous; lamina, 3–8 mm long, 2–4 mm wide, ovate-elliptical, flat or slightly concave, 1–3 veins obvious abaxially, margin serrulate in the upper part, apex obtuse. Flowers in dense terminal racemes, the lower empty bracts small and persistent, the upper subtending ones larger and very deciduous; pedicels short. Sepals usually approximately 4 mm long, oblong-elliptical, blunt, ciliate. Corolla white; tube broad, almost campanulate, scarcely longer than the calyx; lobes short, somewhat spreading, but not recurved, bearded inside below the middle. Anthers on very short filaments, enclosed. Ovary glabrous; nectary of 5 short, thick, blunt scales; style scarcely half as long as the corolla tube; stigma 5-lobed, somewhat flattened. Flowering Dec.–Feb.

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

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).

An erect shrub up to 70 cm tall, branchlets papillose, the older branches bare. Leaves almost sessile, imbricate, sub-erect; lamina 2.5–6.0 mm long, 1.5–2.5 mm wide, ovate to broadly elliptic, slightly concave, glabrous, margin minutely toothed, apex acute extending to a blunt mucro. Flowers a few together on short terminal racemes; bracts deciduous; pedicels puberulent. Sepals distant from the bracts, brown, 2.5–3.0 mm long, 1 mm wide, broadly lanceolate, acute, glabrous. Corolla white; tube longer than the sepals, glabrous; lobes triangular, spreading, acute, shorter than the tube, glabrous or sparse hairs near the base. Anthers on short filaments attached just below the throat, projected slightly inwards, enclosed. Ovary glabrous; nectary a ring approximately $\frac{1}{4}$ the length of the ovary; style cylindrical, thick; stigma capitate, not reaching the anthers. Fruit a capsule. 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 alt.

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 $\frac{1}{2}$ way up or hypogynous; anthers usually versatile, attached to the filament in the middle or slightly above, or rarely fused in part; dehiscent 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.*

Shrubs usually erect and rigid but sometimes virgate in habit and rarely prostrate; branchlets pubescent, occasionally glabrous. Leaves shortly petiolate, alternate or ranked, spreading or imbricate, often persisting on old stems for several years, leaf scars raised and \pm prominent; the lamina concolorous, glabrous or with sparse hairs usually extending a short distance from the petiole, flat, or concave and partly stem clasping; midrib usually conspicuous and often keeled, other veins conspicuous abaxially to varying degrees, lamina shape and size often variable in individual plants of the one species, margin \pm entire, minutely serrulate or scabrous, apex acute, obtuse, mucronate and blunt, or acute, mucronate, acuminate and pungent. Flowers pentamerous, hermaphrodite, solitary, axillary, usually on short peduncles, but rarely the peduncle equals or exceeds the length of the flower, usually confined to clusters in the upper leaf axils, or may extend to varying lengths down the branches in open, leafy, spike-like arrangements, the particular arrangement frequently characterizing the individual species; bracts numerous, investing the peduncle, imbricate and grading in size and shape into the sepals. Sepals usually glabrous, rarely pubescent, mostly with ciliolate margins. Corolla tube cylindrical or campanulate, most commonly white but also red (to pink) or yellow (cream), shorter, equal to, or longer than the sepals, glabrous or with sparse hairs internally; lobes glabrous or micropapillate, erect or recurved, shorter or longer than the tube, imbricate (quincuncial) in the bud. Filaments adnate to the corolla except for a short free segment near the top of the tube; anthers versatile, usually attached at the centre, but occasionally nearer the top. Nectary of 5 distinct, rounded, triangular or trap-shaped scales. Ovary 5-locular; ovules numerous on axile placentas; style slender or with basal or medial swellings, inserted into a 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.

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. 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. At this stage of anthesis 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, e.g. *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".

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|---|----|
| 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 | 1 E. gunnii |
| 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 | 2 E. navicularis |
| 4: Leaves not ranked | 3 E. petrophila |
| 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 | 4 E. apseyensis |
| 7: Leaves ± straight, margin hyaline at least in part, 3–5(–7) veins conspicuous abaxially; dead corollas brown and persistent | 5 E. heteronema |
| 8. Corolla tube with 5 basal impressions; flowers often in secondary arrangement; style slender | 6 E. impressa |
| 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 | 7 E. lanuginosa |
| 9: Style and corolla tube glabrous | 8 E. paludosa |
| 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) | 9 E. curtisiae |
| 11: Style longer, the stigma may reach the base of the anthers (abundant in montane heathlands state-wide) | 10 E. serpyllifolia |
| 12. Bracts and sepals brown, shiny, hardening as flowers age | 11 E. corymbiflora |
| 12: Bracts and sepals green-white, pink tinged or pink striate, not hardening as flowers age | 13 |
| 13. Corolla tube bulbous above the middle, throat constricted; leaves semi-appressed, apex obtuse | 12 E. obtusifolia |
| 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 | 13 E. mucronulata |
| 14: Style long, the stigma at the top of the anthers | 14 E. franklinii |
| 15. Style short, the stigma included within the corolla tube | 16 |
| 15: Style long, the stigma exerted, 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 15 *E. marginata*
- 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 16 *E. limbata*
- 18: Sepals and bracts hirsute 17 *E. grandis*
- 18: Sepals and bracts glabrous 18 *E. myrtifolia*
- 19: Leaf apex acute, attenuate, pungent 20
- 19: Leaf apex acute or rounded or mucronate, blunt 24
- 20: Filaments approximately $\frac{1}{2}$ 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 *E. cerasicollina*
- 21: Sepals and bracts hirsute 20 *E. barbata*
- 22: Leaf base broadly obtuse or rarely cordate; lamina concave and stem clasping at the base, straight and \pm spreading above 21 *E. acuminata*
- 22: Leaf base narrowly obtuse or cuneate; lamina \pm flat or slightly concave but not stem clasping, spreading 23
- 23: Leaves lanceolate, recurved in the upper part (widespread in SE) 22 *E. tasmanica*
- 23: Leaves elliptic-ovate to obovate, flat, the apex barely pungent (known only from Southport Bluff) 23 *E. stuartii*
- 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 *E. graniticola*
- 25: Lamina ovate to oblanceolate, rarely lanceolate, usually < 4 mm long, straight 25 *E. moscaliana*
- 26: Leaves elliptic-lanceolate or narrow-oblong, 6 mm or longer, the apex a blunt, usually inturned mucro 26 *E. exserta*
- 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 *E. virgata*
- 27: Flowers few in small clusters at the branch tips; young branchlets glabrous 28 *E. glabella*

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).

An erect shrub to 1 m tall. Young branches rounded to ribbed, brown, pubescent, old stems bare, with inconspicuous leaf scars. Leaves evenly spaced, spreading to reflexed; petiole 0.5–1.0 mm long, glabrous or pubescent, appressed to stem; lamina 2.5–6.0 mm long, 2.6–6.0 mm wide, ovate to deltoid, glabrous, mainly straight, midrib forming a weak keel, veins 5–7, base cordate to sagittate, margins sometimes partly hyaline, ciliolate, apex acute with tip mucronulate or acuminate, pungent. Flowers denser near branch apex, then spreading down branches and well separated, erect; pedicel approximately 1 mm long; bracts white, ovate, glabrous, not keeled, margin ciliolate, apex acute. Sepals white, elliptic to ovate, 1.7–3.5 mm long, glabrous, margin entire to ciliolate, apex acute. Corolla white, caducous; tube campanulate, 1.5–2.5 mm long, 3–4 mm wide at the throat, shorter than the sepals, glabrous; lobes longer than the tube, flat, bases only just overlapping, apex obtuse. Filaments free, equal in length; anthers angled at the throat, red-brown, 0.5–0.7 mm long; pollen grains psilate. Ovary ribbed, glabrous; nectary scales triangular or truncate, $\frac{1}{2}$ ovary length; style cylindrical, shorter than the tube; stigma below base of anthers, \pm rounded. 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 alt.

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

Western Snowheath

A small much branched shrub up to 0.5 m tall. Young branches pubescent, old stems rough with raised leaf scars. Leaves crowded, appressed, imbricate in 5 ranks; petiole short, approximately 1 mm long, appressed; lamina 2.5–3.5 mm long, approximately 1 mm wide, ovate-elliptical, thick, concave, abaxial surface keeled, base acute tapering into the petiole, margin ciliolate, apex acute or acuminate, with a short incurved point. Flowers white, approximately 7 mm diameter, clustered at the branch tips, sub-sessile; pedicel < 1 mm long; bracts ovate-elliptic, keeled, margin ciliolate, apex acute. Sepals 3.0–3.5 mm long, broadly lanceolate, glabrous, margin ciliolate, apex acute to acuminate. Corolla caducous; tube campanulate, 2.5–3.0 mm long, 3.0–3.5 mm wide at the throat, shorter than the calyx, glabrous; lobes rounded, longer than the tube. Filaments \pm equal; anthers enclosed, approximately 1 mm long; pollen grains psilate. Ovary smooth, globose, glabrous; nectary scales broad, emarginate, forming a \pm continuous disk $\frac{1}{4}$ ovary length; style approximately 1 mm long, cylindrical; stigma round, approximately level with anthers. Flowering Jan.–Mar.

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

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).

A small erect shrub, 30–60 cm tall, with erect/ascending or decumbent/prostrate branches. Young stems rounded, puberulent, \pm hidden by leaves, old stems bare, with conspicuous leaf scars. Leaves sub-sessile, imbricate, evenly spaced; petiole < 0.5 mm long, appressed; lamina, straight, appressed to sub-erect, 1.1–3.3 mm long 0.7–1.7 mm wide, oblong to elliptic or ovate, glabrous, slightly inflexed at tip and keeled distally on under surface, midrib prominent, other veins inconspicuous, base obtuse, margin serrulate, apex acute with a blunt mucro. Flowers white, 6–7 mm diameter, crowded in terminal clusters, erect, sessile to subsessile; pedicel up to 1.0 mm long; bracts ovate, keeled, whitish, translucent, glabrous, turning brown on ageing, margins ciliolate, apex obtuse to acute. Sepals whitish, 2.3–2.8 mm long, 1.3–1.6 mm wide, broadly elliptic or ovate, glabrous, margin ciliate to ciliolate, apex sub-obtuse to obtuse. Corolla caducous; tube campanulate, 1.4–2.3 mm long, 1.9–2.3 mm wide at the throat, shorter than the calyx, glabrous; lobes 1.6–2.3 mm long, \pm flat, not overlapping at base, equal to tube, ovate or narrow-triangular, apex acute to narrow obtuse. Anthers 0.6–0.8 mm long, on filaments as long angled into throat of tube, enclosed; pollen grains psilate. Ovary smooth, globose, glabrous; nectary scales notched or truncate, $\frac{1}{3}$ ovary length; style < 0.5 mm long, cylindrical; stigma capitate, below base of anthers. Flowering Jan.–Feb.

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

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

Apsley Heath

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

An erect sparsely branched shrub, sometimes reaching 1.5 m in height but mostly less than 1 m tall. Young stems smooth, leaf scars inconspicuous, with sparse to dense hairs. Leaves alternate, spreading, scattered and barely persisting on older branches; petiole short, approximately 1 mm, semi-appressed to stem, both surfaces concave, the adaxial surface pubescent with sparse hairs extending onto the base of the lamina, abaxial surface glabrous; lamina jointed with petiole, 5–9 mm long, 2–3 mm wide, lanceolate-elliptic, ± straight or slightly reflexed in upper part, adaxial surface glabrescent, abaxial surface glabrous, midrib keeled and conspicuous, 2 other veins distinct, base cuneate, margin slightly thickened, scaberulent, apex acute, tip a short pungent point. Flowers white, erect, sub-sessile, mostly clustered towards branch tips, but with a tendency to spread a short distance down branches in compact leafy spikes; bracts white, streaked with pink, ovate, glabrous, slightly keeled near tip, margin ciliolate near tip, apex acute. Sepals white, streaked with pink, 3–4 mm long, ovate-lanceolate, margin ciliolate near tip, apex acuminate. Corolla tube white, narrowly campanulate, 2–3 mm long, 1.0–1.5 mm wide at throat, ± equal with the sepals, glabrous; lobes triangular, longer than the tube, with a basal bulge which reduces the diameter of the tube throat, the distal segments flat or slightly wavy, 3–4 mm long, 2–3 mm wide overlapping at joints, apex obtuse. Anthers less than 1 mm long, on longer filaments, but enclosed within the corolla tube and almost obscured by the lobe basal bulge. Ovary rounded, smooth, glabrous; nectary scales triangular, apices truncate, approximately $\frac{1}{3}$ length of ovary; style approximately 1.0–1.5 mm long, usually slightly bulbous near centre, glabrous; stigma clavate, below base of 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 alt.

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).

A stout, much branched shrub, 0.3–1(–11.5, see var. *gigantea*) m tall. Young branches round/ribbed, pubescent, old stems retaining leaves for a considerable distance, then with broad raised leaf scars. Leaves crowded, often imbricate; petiole broad, up to 1.5 mm long, semi-appressed, abaxially glabrous, adaxially pubescent; lamina erect to spreading, 5–12 mm long, 3–6 mm wide, narrowly to broadly ovate or elliptical, flat or concave, glabrous, with 3–5 conspicuous veins below, base obtuse to cordate, margin narrowly hyaline, scabrid/denticulate, apex acuminate with pungent mucro. Flowers white, 7–9 mm diameter, in terminal clusters, erect; pedicels 1–2 mm long; bracts whitish, red tinged, to 3 mm long, ovate, glabrous or hirsute with ciliolate margins, broadly acute. Sepals whitish, red tinged, 4–5 mm long, 1.2–1.7 mm wide, lanceolate or narrowly elliptic, glabrous. Corolla persistent; tube 3.0–4.5 mm long, cylindrical, usually equal to the calyx; lobes spreading or reflexed, ovate, approximately 3 mm long, shorter than the tube, overlapping at the base, apex obtuse. Anthers < 1 mm long, enclosed, just visible at the throat, on filament that is shorter than anther, attached to centre and inserted well below lobe base; pollen grains psilate. Ovary globose, 1.0–1.2 mm diameter, smooth, glabrous; nectary scales rounded, $\frac{1}{4}$ – $\frac{1}{3}$ ovary length; style 1.3–2.0 mm long, bulging near base, stigma rounded, below base of anthers. Flowering Sep.–Nov.

Tas. (TCH, TSR, TWE); endemic. The two subspecies are both widespread from sea-level to c. 1000 m alt., 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).

A slender, erect loosely branched shrub, 0.2–1.5m tall. Young branches ribbed, and tomentose, old stems bare, with leaf scars. Leaves sub-sessile, evenly spaced, spreading to recurved; petiole < 0.5 mm long, appressed to stem, pubescent; lamina 4–14 mm long, 1.0–2.8 mm wide, linear-lanceolate to ovate-lanceolate, concave, reflexed, thin-textured with a thickened midrib, abaxial surface glabrous, a few scattered short hairs on adaxial surface, base acute or rounded, margin not thickened, entire or obscurely serrulate, apex tapering gradually, acute or acuminate, mucronate, pungent. Flowers creamy-white to pink to red, along the length of the upper branches, very variable in shape and size, often secund; pedicels short, 0.5–2.0 mm long, often recurved; bracts ovate to broadly triangular, acute, glabrous, margin ciliate. Sepals 2–5 mm long, 1.2–1.7 mm wide, elliptic-ovate to lanceolate, usually the same colour as the corolla, acute, glabrous, margin ciliolate. Corolla mostly caducous; tube cylindrical, 6–18 mm long, longer than the calyx, glabrous, with 5 impressed cavities (invaginations) at the base, immediately above the ovary, alternating with the stamens; lobes 1.0–3.8 mm long, erect to spreading, not overlapping at the base, obtuse. Anthers 1–2 mm long, enclosed within the throat of the tube, nearly sessile on filaments 0.1–0.3 mm long, attached above the middle; pollen grains psilate. Ovary globose, smooth, glabrous; nectary scales $\frac{1}{4}$ – $\frac{1}{2}$ ovary length, truncate, invaginated/retuse; style (3–)7–16 mm long, cylindrical, slender; stigma capitate, enclosed or level with the throat or well exerted. Flowering variable throughout the year, with flush periods for individual populations.

Tas. (all regions except MIS); also SA, NSW, Vic. Widespread in heaths, open forests and woodlands, up to approximately 500 m alt., 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).

An open branched, erect shrub, 0.3–2.0m tall. Young branches ribbed, brown, with sparse to dense hairs, older stems bare, with raised leaf scars. Leaves semi-appressed to spreading, evenly spaced down branches; petiole 0.5–1.0 mm long, pubescent, appressed to stem; lamina 6.0–8.0(–13.5) mm long, 1–2 mm wide, linear or elliptic to lanceolate, abaxial surface glabrous, sparsely hairy near base on adaxial surface, straight but inflexed near tip, only weakly keeled, 1–3 veins conspicuous, base tapering into petiole, margin entire to partly ciliate, to serrulate, apex acute with long aristate tip. Flowers white, 7–8 mm diameter, erect, clustered in upper axils of branches, rarely spreading down branches to 15 cm; pedicel 0.8–2.0 mm long; bracts ovate to lanceolate, glabrous with ciliate margin, whitish-brown, apex acute. Sepals in most cases exceeding the length of the corolla tube, translucent, white, lanceolate, 4.8–7.0 mm long, glabrous, margin ciliate, apex acute. Corolla persistent; tube cylindrical, 4.0–6.5 mm long, throat 1.5 mm diameter, inner surface pubescent; lobes shorter than the tube, 2.8–4.0 mm long, flat, bases cordate, overlapping, apex obtuse. Anthers brown, 0.7–1.5 mm long, enclosed, on free filaments 0.1–0.5 mm long; pollen grains psilate. Ovary ribbed, globose, 1.0–1.5 mm diameter, puberulent; nectary scales narrow triangular to strap-like, $\frac{2}{3}$ (+) ovary length; style \pm cylindrical to bulbous near the centre, pilose central portion; style equal to or longer than the tube, 5.0–6.5 mm long, exceeding anthers; stigma capitate, exerted. Flowering. Sep.–Dec.

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

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).

An erect multibranched shrub, generally to 1m tall but reaching 2 m tall. Young branchlets pale brown, rounded, puberulent, old stems glabrous, dark brown with prominent leaf scars. Leaves erect, crowded at branchlet ends, then spreading and irregularly spaced; petiole 0.6–0.8 mm long, glabrescent, appressed to semi-appressed; lamina 5–11 mm long, 1.5–3.0 mm wide, lanceolate to elliptical, glabrous, flat or slightly concave, 1–3-veined, midrib prominent, base acute, tapering into petiole, margin entire or minutely ciliate (scabrid), apex acute, mucronate, pungent. Flowers white, 6–10 mm diameter, erect, clustered in upper axils of branches, rarely spreading down branches to c.15 cm; pedicel approximately 1 mm long; bracts cream, ovate to ovate-lanceolate, glabrous, margin entire or ciliate. Sepals cream, red-tinged, 4.6–5.0 mm long, 1.0–1.5 mm wide, narrow ovate to elliptical, glabrous, acute, margin entire or partially ciliate. Corolla persistent; tube 4–5 mm long, 2–3 mm diameter at throat, cylindrical, usually exceeding the calyx, glabrous; lobes shorter than the tube, broadly ovate, 2.5–4.0 mm long, overlapping at base, apex obtuse. Anthers red, just visible at throat, 1.0–1.5 mm long, on short filaments < 0.5 mm long, attached to centre; pollen grains psilate. Ovary smooth, depressed globose, approximately 1 mm long, 1.5 mm wide; nectary scales triangular, blunt, $\frac{1}{3}$ – $\frac{1}{2}$ as long as the ovary; style slightly bulbous near centre, 5.0–6.5 mm long; stigma capitate, level with top of anthers or exerted. Capsule enclosed by brown bracts and sepals which open wide, style persistent. 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 altitudes c. 750 m.

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

Erect shrub 0.5–2(–5) m tall, branching from the base into several slender stems. Branchlets pubescent, older stems rough with raised leaf scars. Leaves semi-appressed to spreading; petiole 0.5–1.0 mm long, puberulent on the adaxial surface, glabrous beneath; lamina 3–6 mm long, 2.5–4.5 mm wide, broadly obovate, orbicular or broadly ovate, flat or slightly concave, thick, adaxial surface glabrous except for a few short hairs spreading onto the petiole, abaxial surface glabrous with 3–5 weak nerves, slightly keeled distally with the short callous tip incurved, margin narrow, hyaline, scaberulous, apex blunt to broadly acute. Flowers mostly clustered at the ends of branches; pedicels 1.0–1.5 mm long; bracts ovate or ovate-elliptical, ciliolate. Sepals pink striate, 3–4 mm long, ovate-elliptical, margin ciliolate, apex obtuse. Corolla 2.5–3.5 mm long; tube narrow campanulate; lobes obtuse, 2.5–3.0 mm long, shorter than or almost equal to the tube. Stamens included; filaments 0.2–0.35 mm long; anthers 0.8–1.2 mm long. Ovary globose, nectary of 5 blunt scales; style short, approximately 0.5 mm long, thick; stigma below the 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 alt.

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).

An erect bushy shrub up to 1m tall, with prostrate habit in exposed alpine environments. Young stems red-brown, ridged, pubescent, old stems grey brown, scaly, bare of leaves, leaf scars small, triangular, not conspicuous. Leaves crowded, spreading; petiole semi-appressed, < 1 mm long, puberulent or glabrous; lamina 2.5–4.2 mm long, 1.7–2.4 mm wide, ovate to orbicular, glabrous, 1(–3) veins prominent, keeled midrib, base attenuate to obtuse, margin may be thickened, scabrid, flat or slightly concave, apex broadly acute to obtuse, mucronate but not pungent. Flowers white, 6–9 mm diameter, erect, mainly clustered in terminal heads; pedicel approximately 2 mm long; bracts pale green or creamy-white, red tinged, to 3.6 mm long, glabrous or rarely hirsute, margin hyaline or ciliolate, apex acute; bracts ovate. Sepals pale green or creamy-white, red tinged 3.0–3.4 mm long, 1.3–2.0 mm wide, lanceolate or oblong elliptic. Corolla persistent; tube cylindrical, 2–4 mm long, 1.5–2.8 mm wide, just longer than the calyx; lobes 2.5–3.0 mm long, ovate, shorter than the tube, barely overlapping at the base, apex obtuse. Anthers red-brown, 0.8–1.2 mm long, enclosed, just visible in the throat, subsessile, on filaments $\frac{1}{4}$ anther length, attached just above centre and inserted below lobes; pollen grains psilate. Ovary globose, approximately 1 mm diameter, smooth, glabrous; nectary scales broadly triangular, $\frac{1}{4}$ ovary length; style 1.2–1.8 mm long, slightly bulging towards the base; stigma capitellate, usually near base of anthers. Flowering Nov.–Jan.

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

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).

An open straggling shrub to 1 m tall (usually < 60 cm). Young branches rounded, brown, pubescent, older stems with prominent leaf scars. Leaves semi-appressed, imbricate, evenly-spaced, more crowded towards the apex; petiole 0.5–1.0 mm long, abaxial surface pubescent appressed; lamina 3.0–7.6 mm long, 1.6–3.0 mm wide, elliptic, abaxial surface glabrous, sparse hairs near petiole on adaxial surface, straight with inflexed tip, base cuneate, margin entire or ciliolate in lower half, narrowly hyaline, apex broadly acute. Flowers creamy white, 8–10 mm diameter, erect, clustered in upper axils; pedicel distinct, 2.8–6.2 mm long, sparsely hairy; bracts brown, hard, horny-textured, glabrous, broadly ovate to elliptic, margin ciliolate, apex obtuse to acute. Sepals brown, narrowly ovate, 5.0–7.5 mm long, 1.7–3.4 mm wide, elliptic, glabrous, margin ciliolate, apex broadly acute. Corolla persistent; tube shorter than the sepals, 3.7–5.7 mm long, cylindrical,

narrowly tapering; lobes wavy, \pm equal with tube, base cordate, apex acute. Anthers brown, approximately 1 mm long, enclosed, attached to short filaments 0.3–0.6 mm long; pollen grains psilate. Ovary globose, ribbed, glabrous; nectary scales widely ovate-triangular, $\frac{1}{3}$ – $\frac{1}{2}$ ovary length; style bulbous near centre, 3.0–4.5 mm long; stigma capitate, reaching top of anthers. Flowering Nov.–Dec.

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

12 *Epacris obtusifolia* Sm. *Exot. Bot.* 1: 77. t. 40 (1805)

Blunt-leaf Heath

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

An erect shrub, 1.2–1.9 m tall. Branches slender, erect, rounded or ribbed, brown, sparsely hairy to hairy, leaves mostly persisting on older stems, but where absent stems are scaly red-brown with prominent leaf scars. Leaves evenly spaced along stems, semi-appressed often appearing imbricate; petiole 0.6–1.5 mm long, appressed to stem, glabrous or with few hairs on adaxial side; lamina 5.0–9.5 mm long, 1.3–2.5 mm wide, elliptical or lanceolate or oblanceolate, glabrous, 2–4-veined, margins entire, apex acute with incurved tip, rounded. Flowers cream, 5–6 mm diameter, erect, evenly spaced down upper branches (often secund); pedicel 1.0–2.5 mm long; bracts 20–24, ovate, whitish, glabrous, margin ciliate or ciliolate. Sepals whitish, 3.3–5.0 mm long, shorter than the tube, elliptical to ovate, glabrous, margin ciliolate, apex acute. Corolla persistent; tube cylindrical, 4–6 mm long, constricted at the throat; lobes 1.5–2.2 mm long, flat, not overlapping at the base, much shorter than the tube, apex obtuse. Anthers brown, 0.7–1.0 mm long, enclosed, \pm sessile on very short filaments; pollen grains psilate. Ovary smooth, oblong; nectary scales strap like, $\frac{1}{2}$ ovary length; style cylindrical or slightly bulbous above the centre; stigma capitate \pm level with anthers, enclosed or just exerted. Capsule brown, oblong, 3 mm high, style often persistent with knob like stigma. 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 alt.

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 shrub, or sprawling in flood zone, to 1.5 m tall. Young stems ridged, deep brown, moderately densely pilose, old stems becoming glabrous, with small triangular leaf scars. Leaves 9–11 mm long, 1.5–2.0 mm wide, semi spreading; lamina narrowly lanceolate, glabrous, \pm straight, concave above, prominent midrib below, 2 lateral veins barely visible, base tapering gradually into the petiole, margins slightly thickened, entire, rounded, tapering to an acute tip with a short sharp mucro. Flowers white, few in upper axils, or spreading a short distance down the branches; pedicels approximately 2.1 mm long; bracts whitish or pink tinged, 1.7 x 0.9 mm at base, ovate, slightly keeled near top, glabrous, margins ciliolate, tip acute. Sepals whitish or pink tinged, 4.3 mm long, 1.3 mm wide, lanceolate-narrowly ovate, margin ciliolate, apex acute. Corolla tube cylindrical, slightly longer than the sepals; lobes shorter than the tube, overlapping at the base, apex acute. Anthers enclosed, approximately 1 mm long, on short filaments attached above the midpoint and inserted at base of lobes; pollen grains psilate. Ovary 0.8 mm long, 0.5 mm wide, shortly cylindrical, glabrous nectary scales rounded, $\frac{1}{4}$ ovary length; style 1.2 mm long, glabrous with slight medial swelling; stigma below the base of the anthers. 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 altitudes.

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).

An erect spreading shrub up to 2 m tall. Young stems mostly glabrous or occasionally sparingly pubescent. Leaves with petioles 0.9–1.1 mm long; lamina 8–11 mm long, 1.3–1.4 mm wide, lanceolate or elliptic, nearly flat or slightly concave near the petiole, midrib only prominent below, margin minutely dentate, apex acute, with a short usually inturned mucro. Flowers many, in small clusters at the tips of numerous short, axillary branches; pedicels long, curved, bract-clothed; bracts ovate and keeled in upper part, apex narrowly ovate. Sepals approximately 4 mm long, 1.5 mm wide, ovate, margin ciliolate, apex broadly acute. Corolla tube cylindrical, as long as or slightly longer than the sepals, but longer than the lobes. Anthers enclosed. Ovary glabrous; style tapering from the base, or with a slight central swelling; stigma at the top of the anthers. 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 alt. 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).

An erect, rigid, branched shrub, 0.3–1.2 m tall. Young branches rounded, yellow-brown, pubescent although usually obscured by crowded leaves, old stems rough with prominent leaf scars. Leaves densely crowded, evenly spaced down branches; petiole broad, 0.7–1.2 mm long, crescentic, adaxial surface glabrous, abaxial surface pubescent; lamina sub-erect to spreading, (6.0–)10.0(–15.0) mm long, 2.5–3.5 mm wide, lanceolate to obovate, slightly concave, widely or \pm recurved, glabrous, with numerous parallel veins (8+), base cordate, margin hyaline, entire or minutely ciliolate, apex acute, tip aristate and pungent. Flowers white, approximately 9 mm diam, erect, densely clustered and also spreading down the branches; pedicel short, 1.5–2.0 mm long; bracts 22–26, whitish, ovate, glabrous, margins ciliolate, apex acute but blunt. Sepals whitish, 2.7–3.8 mm long, lanceolate to elliptic, glabrous, margins ciliate/ciliolate, apex acute. Corolla caducous; tube just shorter than the calyx, 2.2–3.3 mm long, campanulate, glabrous; lobes longer or just equal to the tube 3.0–3.4 mm long, \pm flat, cordate, broadly acute. Anthers brown, 0.8–1.5 mm long, exserted, erect, on filaments 0.7–0.8 mm long; pollen grains verrucate. Ovary smooth, globose, glabrous; nectary scales rounded, triangular, $\frac{1}{2}$ ovary length; style short, below base of anthers (stigma approximately $\frac{1}{2}$ – $\frac{2}{3}$ corolla tube), cylindrical or thickened near base, stigma capitellate. Flowering Jan.–Apr.

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 alt.

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

Bearded Heath

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

An erect shrub with long slender branches 0.5–2(–3) m tall. Young stems pubescent, older stems rough sparsely hairy and mainly bare of leaves. Leaves crowded towards ends of branches; petiole 0.4–0.9 mm long, densely villous, appressed to stem; lamina spreading, 4.3–8.1 mm long 3.0–5.6 mm wide, broadly ovate, glabrous, concave, 5–7 veins conspicuous, midrib keeled distally, base cordate, stem clasping, margin narrowly hyaline, minutely serrulate, apex acuminate with pungent mucro 0.4–1.2 mm long. Flowers white, erect, crowded in leaf axils sometimes forming long leafy spicate heads, 5–40 cm long; pedicels 1.2–2.4 mm long; bracts translucent, pink striate, ovate to broadly lanceolate, glabrous, margin ciliolate, apex acute to acuminate. Sepals translucent to white, pink striate, 3.5–5.3 mm long, 1.1–1.8 mm wide, ovate-elliptical, margin ciliate/ciliolate, apex acuminate. Corolla caducous; tube cylindrical, tapering to the base, 2.2–3.5 mm long, shorter than the calyx, glabrous; lobes longer than the tube, 3.0–5.8 mm long, overlapping at the base, apex acute. Anthers 1–2 mm long, exserted, on filaments as long or longer than the anthers, 0.8–1.5 mm long; pollen grains verrucate. Ovary smooth, globose, 0.6–1.2 mm long, 0.8–1.4 mm wide, glabrous;

nectary scales bluntly triangular, $\frac{1}{3}$ ovary length; style cylindrical or slightly thickened near the base, 0.9–1.3 mm long; stigma rounded, below 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 alt.

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

Tall Heath

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

An erect shrub up to 2.5 m tall. Young stems smooth, red to red-brown, pubescent. Leaves spreading and evenly spaced on older parts of the stem; petiole short, 1–2 mm long, semi-appressed to stem, adaxial surface concave, glabrescent, abaxial surface concave and glabrous; lamina 10–15 mm long, 3–4 mm wide, lanceolate to broadly lanceolate, flat or slightly concave near base, sometimes with a slightly inflexed tip, both surfaces glabrous, midrib not keeled (or slightly so near tip), 5 or more veins conspicuous on abaxial surface, base obtuse, margin slightly scabrous, apex acute, tip aristate and pungent. Flowers white, erect, extending down branches in long leafy spikes; pedicel approximately 4 mm long; bracts ovate, hirsute, margin ciliate, apex acute. Sepals white, pink streaked, 4–6 mm long, 1.0–1.5 mm wide, lanceolate, hirsute, margin ciliate, apex acute. Corolla white; tube \pm campanulate, 4–5 mm long, approximately 4 mm wide at throat, glabrous internally, sparse hairs on outer surface near throat, extending onto undersurface of lobes; lobes flat, 5–6 mm long, 3–4 mm wide, overlapping at the joints, apex obtuse. Anthers brown, large, approximately 1.5 mm long, 0.5 mm wide, exerted on filaments approximately 2 mm long. Ovary rounded, smooth, glabrous; nectary scales triangular with rounded apices approximately $\frac{1}{3}$ length of ovary; style shorter than the tube, approximately 2 mm long, glabrous, slightly bulbous near base; stigma clavate. 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 alt.

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).

An erect, robust shrub, 0.3–1.8 m tall. Young stems rounded, pubescent, old stems toward centre of shrub bare of leaves with raised leaf scars and rough dark brown bark. Leaves crowded but evenly spaced down lateral branches, spreading; petiole semi-appressed to spreading, 1–3 mm long, pubescent; lamina 5.0–9.5 mm long, 3.0–6.5 mm wide, elliptic to broadly ovate, glabrous, flat or slightly concave, 3–5 veins (ribbed in dry specimens), base rounded, margin entire or minutely denticulate, apex obtuse to acute or acuminate with short, blunt mucro. Flowers white, 7–10 mm diameter, erect forming spike like clusters down the stem; pedicel 1.0–2.5 mm long; bracts white tinged with red, ovate, glabrous, margin minutely ciliate, apex obtuse to acute. Sepals white tinged with red-pink, 4–5 mm long, lanceolate, glabrous, margin minutely ciliate, apex acute. Corolla caducous; tube 3.5–4.5 mm long, tapering towards the base, just shorter than the sepals; lobes 3.7–4.3 mm long, just slightly less or equal to the tube, flat, overlapping at the base, apex obtuse. Anthers reddish-brown, exerted, 1.3–1.5 mm long; pollen grains verrucate. Ovary smooth, globose, glabrous, style slightly bulbous near base, 1.6–2.0 mm long; nectary scales rounded to triangular $\frac{1}{4}$ – $\frac{1}{3}$ ovary length; stigma rounded, below base of anthers. Capsule persists at least into the second year growing 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 alt.

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

Dolerite Heath

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

Shrub of several stiff, erect stems, 0.5–1.5(–2) m tall. Young stems rounded, hirsute, old stems mostly bare of leaves. Leaves semi-erect, generally crowded on new wood at the branch tips; petiole < 1 mm, sub-erect to spreading, glabrous; lamina 3–8 mm long, 2–4 mm wide, lanceolate to ovate-lanceolate, slightly concave

near the base, reflexed in upper part, midrib prominent with 3(–5) veins abaxially, base narrowly obtuse tapering into petiole, margins \pm entire or irregularly crenulate or scabrid, apex attenuate and pungent. Flowers white, in small tight clusters at the branch tips, although rarely extending in tight overlapping spikes a short distance (up to 10 cm) down some lateral branches; pedicel 2.5–4.0 mm, slightly curved; bracts pale, ovate, keeled in upper part, glabrous, ciliolate margins, apex obtuse in abaxial bracts, more acute and sometimes reflexed in upper ones. Sepals pale or pink striate, lanceolate to lanceolate-ovate, margin ciliolate, apex acute or acuminate, sometimes twisted, particularly in some southern populations (e.g. near Hermitage & Green Hills). Corolla caducous; tube slightly campanulate, 2.9–4.1 mm long; lobes slightly longer and overlapping at the base, apex obtuse. Anthers red, 1.1–1.7 mm long, barely longer than the subtending filaments (0.7–1.0 mm long) so that only the upper part is exerted above the plane of the lobes. Ovary smooth; nectary scales truncate, approximately $\frac{1}{4}$ depth of ovary; style 3.1–4.2 mm, bulbous near the base; stigma at or above the top of the anthers. Capsule greenish brown, $< \frac{1}{2}$ length of the sepals, the sepals and dry capsule segments open only minimally when the capsule ripens; style persistent. Flowering Aug.–Oct.

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 alt.

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).

An open shrub 0.6–2.0 m tall with long stems branching from near the base. Young stems rounded, sparsely to densely villous, old stems retaining leaves, leaf scars inconspicuous. Leaves scattered; petiole semi-appressed, 0.5–1.7 mm long, pubescent to villous; lamina flat, spreading, slightly concave near the base, 5–13 mm long, 2–5 mm wide, elliptic to lanceolate to ovate, glabrous, with a few hairs on adaxial surface extending from the petiole, 3–5 veins, base acute to obtuse, margins slightly thickened, entire, sometimes ciliolate in abaxial half, apex acute with a pungent mucro. Flowers white, 10–13 mm diameter, mainly clustered in upper axils of stem, either crowded along ends of branches or in terminal sub-globose heads, erect; pedicel 2–4 mm long; bracts ovate, whitish, silky villous, margins ciliate, apex acute or acuminate. Sepals elliptic to ovate, white with red edges, villous, 4.5–7.0 mm long, margins ciliolate, apex acute. Corolla tube narrowly campanulate, tapering to the throat, 4.5–6.5 mm long, 3–4 mm wide, glabrous, just shorter than, or equal to the calyx; lobes 4.5–7.0 mm long, broadly triangular ovate and rounded, wavy, overlapping at the base. Anthers half exerted, 1.4–2.0 mm long, on erect filaments 0.7–1.3 mm long; pollen grains psilate. Ovary globose, glabrous, approximately 1.5 mm diameter; nectary scales truncate-triangular, $\frac{1}{4}$ length of ovary; style bulbous in the lower half, 4.5–6.5 mm long; stigma capitellate, exerted, level with centre or top of anthers. 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 alt.

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).

An erect bushy shrub, 0.1–1.5 m tall. Young branches rounded, erect, occasionally spreading, pubescent, yellow-brown, old stems retaining few leaves, leaf scars inconspicuous. Leaves spreading to reflexed; petiole subsessile, < 1.0 mm long, stem-clasping, semi-appressed, adaxial surface glabrous, abaxial surface with sparse hairs; lamina 2–9 mm long, 1.0–4.5 mm wide, ovate, glabrous except for sparse hairs near the petiole, concave, veins numerous (5+), base obtuse to \pm cordate, stem-clasping, margin narrowly hyaline and minutely scarious, apex acute or acuminate, cuspidate, pungent. Flowers white, 7.5–9.0 mm diameter, erect, few, crowded in the upper axils, subsessile; pedicel approximately 0.2 mm; bracts whitish, reddish-

brown or pink-red tinged, ovate, keeled, glabrous, margin ciliate-ciliolate, apex obtuse. Sepals whitish with translucent margins, or tinged reddish-brown, 3–4 mm long, elliptic-ovate, glabrous, margin ciliolate, apex acute. Corolla caducous; tube 3–4 mm long, equal with the calyx, slightly tapering to the base; lobes 2.5–4.0 mm long, approximately equal with the tube, wavy, \pm overlapping basally, apex acute. Anthers erect, exserted, 0.7–1.5 mm long, on filaments as long as or longer than the anthers; pollen grains verrucate. Ovary smooth, globose, 1.2 mm diameter, glabrous; nectary scales rounded, $\frac{1}{3}$ – $\frac{1}{2}$ ovary length; style 4–5 mm long, tapering, slightly bulging towards the base; stigma capitellate, exserted, level with or beyond anthers. 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 alt.

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 sparsely branched shrub reaching 2.0 m in height, but usually < 1m. Young stems and branchlets brown with sparse to dense hairs, older stems mostly bare of leaves. Leaves spreading, somewhat crowded on new season's wood; petioles short < 0.5 mm, pubescent, semi-appressed; lamina 3–8 mm long, 2.0–3.5 mm wide, lanceolate to lanceolate-elliptic, glabrous or with sparse hairs extending from the petiole, slightly concave, reflexed in upper part, the midrib keeled, 3(–5) veins evident abaxially, margins entire or irregularly crenulate or scabrid, apex acute tapering to a pungent mucro. Flowers white on short straight pedicels, 1.0–2.8mm, erect, mostly clustered towards the ends or extending a short distance down the branches; bracts creamy white, glabrous, ovate, margins ciliolate, apex rounded in the lower ones, the upper ones more acute. Sepals pale or striated pink, 3–7 mm, as long as or slightly longer than the corolla tube, lanceolate-ovate, glabrous (rarely hirsute, in Bangor & Prosser Gorge), margin ciliolate, apex acute, sometimes almost acuminate. Corolla tube 2.5–5.0 mm long, campanulate, caducous; lobes spreading, somewhat wavy, longer than the tube, 3.5–5.5 mm long, the bases often cordate, overlapping. Anthers red, long, wholly exserted above the plane of the corolla lobes, on long filaments 1.2–1.8 mm long. Ovary smooth, approximately 1.0 mm high, round, glabrous; nectary scales truncate, approximately $\frac{1}{4}$ depth of ovary; style 3.5–6.0 mm long, glabrous, distinctly bulbous in the lower half; stigma capitate, exserted. Capsule green, usually < $\frac{1}{2}$ length of sepals, the dry sepals and capsule segments open only minimally when the capsules ripen, the style persistent. Flowering Mar.–Jul.(–Oct).

Tas. (TSE); endemic. Found in woodlands and coastal heaths of the south-east between Orford and the Tasman Peninsula and inland to Brown Mountain, to c. 600 m alt.

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).

A compact erect shrub, 0.5–1.0 m tall. Young branches brown, rounded, pubescent, old stems mostly bare of leaves. Leaves evenly spaced; petiole 0.6–1.2 mm long, appressed to stem, abaxial surface glabrous, few hairs on adaxial surface; lamina 4–9 mm long, 2.5–6.0 mm wide, elliptic-ovate, flat, spreading to slightly reflexed, thick and semi-fleshy, surface glossy, abaxial surface glabrous, adaxial surface glabrous but with few sparse hairs just above petiole, veins 1–3, base obtuse, margin rounded, entire, irregularly denticulate in older leaves, apex acute, tip acuminate or mucronulate, pungent. Flowers white, 7.0–10 mm diameter, generally crowded in upper axils but may spread down the stems up to 20 cm, erect; pedicel 2.0 mm long; bracts pale green tinged with red, ovate, glabrous, acute. Sepals white tinged with red, 3.2–5.0 mm long, ovate-lanceolate, glabrous margins entire or minutely ciliolate, apex acute. Corolla caducous; tube 3.2–5.0 mm long, cylindrical or tapering to the base, just longer than or equal to the calyx, glabrous; lobes 3–5 mm

long, equal or just shorter than the tube, flat, not overlapping at the base, apex rounded. Anthers exerted, approximately 1 mm long, on filaments equal or longer than the anthers; pollen grains verrucate. Ovary smooth, globose, approximately 1 mm diameter, glabrous; nectary scales rounded, $\frac{1}{4}$ ovary length; style slightly bulbous in lower half, 4.0–5.5 mm long; stigma rounded, exerted, level with top of anthers. 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

A generally erect, multistemmed shrub, which may reach 1.5 m in height in sheltered locations, but often heavily browsed to a low, bushy, almost mat-like habit. Young stems and branchlets, brown, rounded, hirsute, old stems mostly bare of leaves. Leaves erect and spreading, reflexed in the upper part; petiole < 1 mm; lamina 2.0–5.5 mm long, 1.3–2.9 mm wide, ovate-lanceolate to ovate, glabrous except for sparse hairs extending from the petiole, midrib and 3–5 veins evident abaxially, the base obtuse and tapering sharply onto the petiole, somewhat thickened, margin thickened, scabrous or minutely denticulate, apex acute, mucronate, blunt. Flowers white, in terminal clusters on the main and short lateral branches, or extending a few centimetres down the major branches; bracts pale, ovate, keeled in the upper part, glabrous, margin ciliolate, apex acute. Sepals white or pink striate, 2.0–3.9 mm long, lanceolate-ovate, glabrous, margin ciliolate, apex broadly acute. Corolla tube barely campanulate, approximately equal to or slightly less than the sepals, glabrous, caducous. Anthers red, 1.0–1.45 mm long, exerted, on filaments which are longer. Ovary smooth, round, glabrous; nectary scales rounded triangles, approximately $\frac{1}{3}$ the height of the ovary; style 2.3–5.8 mm long, slender, with a basal swelling; stigma rounded at the top of or above the anthers. Capsule green, less than $\frac{1}{2}$ sepals length; sepals and dry capsule open widely when the capsules ripen; style persistent. 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 amongst boulders, to c. 600 m alt.

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

Seepage Heath

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

Illustrations: loc. cit. Fig. 5

A virgate, sometimes low, bushy shrub, rarely more than 50 cm tall in exposed locations, but reaching up to 1.5 m in sheltering scrub. Young stems greenish-brown, sparsely hairy to pubescent, old stems may retain some leaves for several years. Leaves well-spaced on young branches, erect, flat and semi-spreading; petioles approximately $\frac{1}{3}$ – $\frac{1}{2}$ the length of the leaves; lamina 2.1–3.5(–5) mm long, 1.3–2.9 mm wide, (narrow lanceolate to) oblanceolate to ovate or rounded, both surfaces glabrous, the midrib very prominent abaxially, margin thickened, \pm entire or microserrulate, apex broadly acute or obtuse with a short blunt mucro. Flowers white, erect, in small, terminal clusters, or rarely extending a few centimetres down the stems in tight, overlapping spikes; bracts pale or pink tinged, ovate, margin ciliolate, apex obtuse. Sepals pink tinged, 2–5 mm long, ovate-lanceolate, approximately equal or slightly longer than the tube, margin ciliolate, apex acute. Corolla tube \pm campanulate, 2.0–4.7 mm long, glabrous, caducous; lobes longer than the tube, spreading, overlapping slightly at the base, apex rounded. Anthers red 1.0–1.5 mm long, subtended by filaments which are longer and project the anthers well above the plane of the lobes. Ovary rounded, smooth, approximately $\frac{1}{3}$ as long as sepals; nectary scales truncate $\frac{1}{4}$ – $\frac{1}{3}$ ovary; style slender with a slight basal swelling, 2.5–7.0 mm long; stigma exerted usually above the anthers. Capsule green, approximately $\frac{1}{2}$ sepal length. Sepals and dry capsule segments open widely when the capsule ripens; style \pm persistent. Flowering Nov. 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 alt.

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 stiff shrub up to 1.5 m tall. Young stems ridged, deep red-brown, pilose, old stems becoming glabrous and bare of leaves, leaf scars small triangular. Leaves spreading; petioles approximately 1 mm long, sub-erect, puberulent; lamina 7–18 mm long, 2.0–2.5 mm wide, oblanceolate to oblong or elliptic, glabrous, flat, \pm straight or slightly recurved, margin entire, slightly thickened, tapering to an acute, blunt, usually inflexed tip. Flowers white, clustered at tips; pedicels approximately 2.5 mm long; bracts whitish or pink striate, ovate, glabrous, margins ciliolate, apex acute. Sepals approximately 4.0 mm long, 1.5 mm wide, lanceolate, glabrous, margin ciliolate, apex acute, rounded. Corolla tube narrow campanulate, approximately equal with the sepals, 3.7 mm long, 2.4 mm wide at throat; lobes approximately equal or slightly longer than the tube, spreading, apex acute. Anthers exerted on filaments which are longer. Ovary rounded, smooth, approximately $\frac{1}{3}$ as long as the sepals; nectary scales truncate, approximately $\frac{1}{4}$ ovary; style slender, swollen towards the base; stigma exerted. Sepals and dry capsule open widely on ripening. 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 alt.

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). *Epacris* sp. 1 Alans Hill (S.J.Jarman s.n. (HO32456)).

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).

An erect wiry shrub, branching near the base, reaching 1.5(–2.0) m in height, though usually less than 1 m. Young stems rounded/ribbed, with sparse to dense hairs, leaves often persisting on older stems. Leaves semi-erect, spaced; petiole semi-appressed, < 1 mm long, pubescent, few hairs extending onto adaxial lamina; lamina 3.0–7.5 mm long, 2–4 mm wide, ovate to elliptic (rarely lanceolate), thin, flat to slightly convex, straight to semi-reflexed, midrib weakly keeled, 1 vein conspicuous rarely 3, base obtuse tapering into petiole, margin entire or minutely denticulate, apex acute with pungent mucro. Flowers white, erect, well-spaced and extending down branches in long spikes up to 30 cm, clustered on shorter lateral branches; pedicel 0.5 mm long; bracts cream, ovate, glabrous, margin ciliolate, apex acute. Sepals cream often pink tinged, 2–5 mm long, lanceolate-ovate, margin entire or partly ciliolate, apex acute, rounded. Corolla caducous; tube tapering to the base, glabrous, 2–5 mm long, equal to or just shorter than the sepals; lobes longer than tube, 3–5 mm long, bases often slightly overlapping. Anthers red, well exerted, 1.0–1.5 mm long on free filaments longer than the anthers; pollen grains verrucate. Ovary smooth, globose; nectary scales rounded or truncate, $\frac{1}{4}$ – $\frac{1}{3}$ ovary length; style 2.5–6.5 mm long slender or slightly bulbous in the lower half; stigma rounded, exert, level with or exceeding anthers. Capsule green, usually < $\frac{1}{2}$ sepal length, sepals and dry capsule segments open widely when the capsule ripens, style \pm persistent. Flowering Aug.–Oct.

Tas. (TNM, TSE); endemic. Found in damp woodlands and swampy areas around Beaconsfield and Lilydale in the north, Longley and Kingston areas and the Tasman Peninsula in the south, to c. 400 m alt.

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

Smooth Heath

Illustrations: loc. cit. Fig.2.

Shrub 1–2 m tall, with erect slender branches. Branchlets glabrous or with a few short scattered hairs. Leaves half spreading; petiole 0.6–1.2 mm long, glabrous, or puberulent on the adaxial surface; lamina 3.5–

7.0 mm long, 2.0–3.5 mm wide, obovate to broadly elliptical to ovate, flat or slightly concave, thick, shiny, adaxial surface glabrous or with a few short hairs at the base, abaxial surface glabrous, slightly keeled in the upper part, margin entire or rough towards the apex and serrulate, apex acute or obtuse with a very short incurved tip. Flowers solitary, axillary; pedicels 2–3 mm long; bracts 10–20, 0.6–3.0 mm long, 0.6–2.0 mm wide, ovate, margins ciliate, apex acute. Sepals 3–4 mm long, 1.6–2.0 mm wide, narrowly ovate to elliptical, margins ciliate, apex acute. Corolla white; tube funnel-shaped, 2.5–3.5 mm long; lobes ovate, 3–5 mm long, 3.0–3.5 mm wide, apex obtuse. Stamens exerted; anthers 1.2–1.7 mm long; filaments 1.5–2.0 mm long. Ovary globose, 1.2–1.4 mm diameter; nectary of 5 broad blunt scales, $\frac{1}{3}$ ovary length; style 2.5–4.5 mm long. Flowering Sep.–Nov.

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 alt.

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 |
| 1: Staminal filaments short, anthers included | 7 |
| 2. Corolla lobes glabrous | 12 <i>Monotoca</i> |
| 2: Corolla lobes hirsute to some degree | 3 |
| 3. Medium shrub with concolorous leaves that have conspicuously ciliate margins.
Corolla white, lobes conspicuously hirsute | <i>Pentachondra involucrata</i> |
| 3: Plant not as above | 4 |
| 4. Flowers in compact rounded clusters (condensed spikes) on bare stems or amongst old leaves, usually on past season's wood, green or purple tinged, the corolla cylindrical or with a central bulge, the lobes with a tuft of stiff hairs at the apex | 13 <i>Acrotriche</i> |
| 4: 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 | 5 |
| 5. Plant forming a prostrate mat; fruit with a succulent mesocarp | 14 <i>Styphelia</i> |
| 5: Plant an erect or scrambling shrub, not mat-forming; fruit with a pithy mesocarp | 6 |
| 6. Leaves concolorous; fruit separating into pyrenes | 15 <i>Trochocarpa</i> |
| 6: Leaves glaucous beneath; fruit with a pithy mesocarp, the locules fused into a single woody stone | 16 <i>Cyathodes</i> |
| 7. Flowers subtended by 1 bract and 2 bracteoles | 8 |
| 7: Flowers subtended by 4 or more bracts/bracteoles | 13 |
| 8. Flowers unisexual and morphologically distinct, the male flowers larger; plants dioecious | 17 <i>Acrothamnus</i> |

- | | |
|---|-------------------------|
| 8: Flowers apparently hermaphrodite and morphologically similar; plants monoecious | 9 |
| 9: Flowers glabrous, pedicellate above the subtending bracts | 18 <i>Lissanthe</i> |
| 9: Flowers hirsute to some degree, sessile in the subtending bracts | 10 |
| 10: Tufts of long stiff hairs at the base of the lobes project into the tube beyond the base of the anthers | 19 <i>Brachyloma</i> |
| 10: Corolla lobes hirsute or papillose, lacking basal tufts of long stiff hairs | 11 |
| 11: Leaves in annual clusters; bud scales persistent | 12 |
| 11: Leaves alternate without any evident clustering; bud scales deciduous | 20 <i>Leucopogon</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 unisexual and morphologically distinct, 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 red or bicoloured yellow/green, corolla tube usually 1–2 cm long | 25 <i>Astroloma</i> |
| 15: Flowers creamy-white, corolla tube usually < 1cm | 26 <i>Montitega</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 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. Flowers white, cream or pale yellow. Corolla 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; filaments as long as anthers, filiform, the anthers \pm exerted or spreading with the lobes. Nectary entire, lobed or of separate scales. Ovary 1–2-locular, each locule with a single ovule, glabrous; style short, glabrous; 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 *M. glauca*
- 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 *M. scoparia*

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).

An erect, bushy dioecious shrub or small tree up to 6 m tall. Branchlets minutely pubescent. Leaves shortly petiolate, sub-erect to mostly spreading, 10–25 mm long, 3–7 mm wide, elliptic to oblanceolate, flat or slightly convex, glabrous, the abaxial surface glaucous and finely striate-veined. Flowers 5-merous, cream or pale yellow, up to 15 in short dense racemes usually terminal or crowded in the upper axils of the main branches, or smaller racemes to solitary flowers further down the branches or on side axillary branchlets; bracts subtending the raceme small, ovate, concave, caducous, or the most distal ones sometimes persistent and leaf-like; bracteoles approximately half as long as the calyx. Sepals 0.8–1.5 mm long, broad, apex obtuse. Corolla tube campanulate, approximately 2 mm long (female flowers) up to 4 mm (male); lobes spreading, shorter than the tube, glabrous (or rarely minutely papillose). Anthers exerted. Ovary unilocular, tapering into a short style; nectary of 5-lobes. Drupe ovoid somewhat fleshy, 3–4 mm long, yellow-orange at maturity. Flowering Aug.–Oct.

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

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*.

An erect, compact, dioecious shrub 1–3 m tall, or sometimes a small tree up to 5 m tall. Branchlets puberulent. Leaves petiolate, sub-erect, 6–12 mm long, 2.0–3.5 mm wide, elliptical to obovate, flat or slightly convex, abaxial surface glaucous with almost palmate venation, the margin scarcely recurved, apex obtuse with a callous tip. Flowers white (yellowing later), 2–4 in short axillary spikes, the lowermost often solitary, 5-merous; pedicel usually recurved. Sepals broadly ovate, c. 1 mm long, margin ciliate. Corolla tube approximately 1 mm long, equal with the calyx; lobes longer than the tube, spreading. Anthers exerted. Ovary unilocular; nectary of 5 lobes. Drupe ovoid-spherical, yellow to orange, 2–4 mm diameter.

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 alt. 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.

1. Bushy shrub 1–3 m tall, or a small tree; flowering in spring 2a var. *submutica*
 1: Small, erect shrub, rarely above 30 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*.

Bushy shrub 1–3 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.

NOTE: Sleepy Bay population. An unusual location at sea level on the relatively dry east coast, for a species normally found at high altitudes in the high rainfall west and southwest of the state. It is dioecious and appears similar morphologically to *M. submutica* var. *submutica*, but differs in habit (erect, sparsely branched shrub, up to 2 m), habitat (heathy coastal woodland on deep sand) and flowering time (August–September). Further study is required.

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).

A low, diffuse or prostrate much-branched, dioecious shrub, often hugging the face of boulders in montane shrubberies. Branchlets minutely pubescent. Leaves more petiolate than in the other species; lamina 4–6 mm long, spreading or reflexed, narrow-oblong, convex, glabrous, the abaxial surface glaucous, apex mucronate and pungent. Flowers white, 4-merous, up to 5 in short axillary spikes, usually underneath and hidden by the leaves; bracts and bracteoles small, ovate, persistent. Sepals approximately 1 mm long, almost orbicular, apex obtuse. Corolla tube campanulate, equal to (female) or slightly longer (male) than the sepals; lobes triangular, approximately as long as the tube, spreading. Anthers exerted. Ovary unilocular (rarely bilocular), pubescent; nectary of 5 oblong scales; style short. Drupe spherical, approximately 3 mm diameter, fleshy, pale yellow or white when ripe. 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 alt.

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).

An erect dioecious shrub, up to 4 m tall. Branchlets puberulent. Leaves shortly petiolate, spreading, 5–12 mm long, 2–4 mm broad, narrow-oblong to elliptic, flat with recurved margins to convex, glabrous, the abaxial surface glaucous, apex acute, mucronate, mostly pungent. Flowers up to 10 in axillary spikes, creamy-white; bracts small, caducous; bracteoles close to calyx. Sepals < 1 mm long, ovate. Corolla tube approximately as long as the calyx, rotate, 4- or 5-merous; lobes broad and spreading. Anthers exerted. Ovary 1–2-locular, tapering into a short style; nectary of 4 oval scales. Drupe spherical, pink-violet in colour when ripe. Flowering Aug.–Nov.

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

1. Tall shrub up to 2 m tall; flowers tetramerous; ovary (1)2 locular

4a subsp. *linifolia*

1: Medium, bushy 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-altitude 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)

An erect, bushy, dioecious shrub or small tree to 7 m tall. Branchlets puberulent. Leaves shortly petiolate, when young or rapidly growing often in false whorls, sub-erect to spreading, elliptic to oblanceolate, flat to convex, glabrous, abaxial surface glaucous and striate-veined, apex mucronate and usually pungent. Flowers white, up to 10 (mostly fewer) in open axillary spikes, the lowermost often solitary, small and very transient; bracts minute, caducous; bracteoles slightly separated from the base of the calyx, < 1 mm long. Sepals approximately 1 mm long, orbicular. Corolla tube, rotate-campanulate, 1.0–1.5 mm long (female), 1.5–2.5 mm long (male); lobes glabrous, spreading, longer than the tube. Anthers exerted. Ovary unilocular, tapering into a short style; nectary of 5 lobes. Drupe approximately 2 mm long, ovoid, greyish-green when ripe, very ephemeral. Flowering Dec.–Feb.

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

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).

An erect, bushy, dioecious shrub to 2 m, branchlets minutely pubescent. Leaves oblong-linear to elliptic, convex, glabrous, abaxial surface glaucous with many fine striate veins, apex mucronate and pungent. Flowers cream to pale yellow, up to 10 in tight axillary spikes, or the lowermost solitary, 5-merous; bracts small, membranous, persistent; bracteoles almost as long as the sepals. Sepals 1–2 mm long, apex obtuse. Corolla tube campanulate 1.3–2.8 mm long (female), 2–4 mm long (male), glabrous; lobes as long as the tube, sub-erect to spreading, glabrous or rarely with a few papillae. Anthers exerted. Ovary unilocular, tapering to a short style. Drupe ovoid, 2.0–2.3 mm long, pale yellow when ripe. Flowering Jul.–Sep.

Tas. (FUR); also SA, Qld, NSW, Vic. Known from a few localized 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 green to greenish white, sometimes pink tinged, 5-merous and sessile, each within a subtending bract and 2

bracteoles. Corolla tube straight or funnel shaped or inflated in the centre, longer than both the calyx and the lobes; the 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 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 bushy shrub, 20–100 cm tall. Young branches lightly pubescent or puberulent. Leaves sub-erect, or spreading, ovate to oblong, 5–12 mm long, 2–5 mm wide; petiole, sub-erect, pubescent; lamina thick, flat, both surfaces glabrous, the upper shiny, the lower paler and dull with 3 prominent parallel veins and other veins radiating from the outer pair to the margins, base generally obtuse, margins entire, the apex generally obtuse with a short blunt mucro. Inflorescence a 3–8 flowered spike; rachis hirsute; bracts and bracteoles broadly ovate, glabrous keel in top half. Sepals approximately 1.5 mm long, ovate, glabrous. Corolla pale green, tube 2–5 mm long, often slightly inflated at the centre, the lobes narrow-triangular, with a cushion of hairs at the base, apex rounded with a tuft of stiff hairs that are approximately 1 mm long, or ⅓ length of lobe. Ovary with 4–5 locules, glabrous; nectary lobed, covering lower part of ovary; style approximately 1 mm long. Fruit globular depressed, semi-succulent, pale green-yellow. 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 alt. 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).

An erect, much branched and matted shrub 20–60(–100) cm tall (in Tasmania, rarely exceeding 25 cm), but spreading to cover 1m² or more. Young stems puberulent. Leaves 3–12 mm long, 1.0–2.5 mm wide, lanceolate to broadly lanceolate, spreading or reflexed; petiole sub-erect, with sparse hairs; lamina thick and rigid, flat or slightly concave, adaxial surface shiny, glabrous or slightly scabrous near the base, abaxial surface paler, with a prominent midrib and 5–9 unbranched, sub-parallel veins, separated by deep grooves which are sparsely villous, base obtuse, margins flat or slightly recurved, smooth to scabrous-ciliate (to

serrulate), apex acute, tapering to a sharp point (1 mm). Inflorescence a spherical cluster, 2–7 mm long, with 4–10 flowers; bracts approximately 0.5 mm long, broadly ovate, margin ciliolate, apex acute; bracteoles 1.0–1.5 mm, margins glabrous. Sepals pink tinged near apex, 1.0–2.5 mm long, 1.1–1.3 mm wide, sub-cordate, glabrous. Corolla tube green or greenish-white or the middle of the tube, purple-tinged, 2–4 mm long, often slightly inflated near the middle, hairs at the throat arising from large spongy cushions; lobes green, narrow-triangular, 1.5–2.0 mm long, shorter than the tube, with stiff hairs at the apex that are approximately $\frac{1}{4}$ as long as the lobe. Ovary with 4–6 locules, 0.7–0.9 mm high, slightly angled, densely hairy above the nectary, glabrous or pubescent in lower part; nectary lobed, approximately $\frac{1}{2}$ length of ovary; style slightly conical, 0.7–1.3 mm (persistent on mature fruit). Drupe depressed-globose, pubescent. 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).

A low shrub forming a dense mat-like bush up to 20(–30) cm tall and spreading up to 1 m diameter. Young branchlets pubescent. Leaves crowded, spreading, 4–20 mm long, 0.6–2.0 mm wide; petiole appressed or sub-erect, glabrous; lamina linear-lanceolate, flat, adaxial and abaxial surfaces both with scattered long hairs, the abaxial surface with 3–5 prominent veins, separated by shallow grooves with glaucous scales or hairs, base obtuse, margin flat, serrulate with numerous long hairs, apex acute, tapering to a long point (1 mm). Inflorescence tight clusters of 5–10 flowers; bracts triangular-ovate, keeled in upper part, approximately 1 mm long, with ciliolate margins; bracteoles larger, approximately 1.5 mm often with a tuft of hairs near the apex. Sepals green or purple-tinged, approximately 2 mm long, ovate, margin entire, apex obtuse and sparsely pubescent. Corolla tube green often tinged purplish when in bud and in the centre of the tube, 4–5 mm long, approximately twice as long as the calyx and the lobes, with a central bulge, usually filled with nectar; lobes narrow with a hairy scale at the base, margin recurved. Ovary with 5–7 locules, ribbed, puberulent in upper part, lower part covered by a lobed nectary. Drupe a depressed sphere, greenish-grey, hispid approximately 3 mm diameter Flowering Jul.–Oct.

Tas. (BEL, FUR, TCH, TNM, TNS, TSE, TSR); also SA, NSW, Vic. Widespread in heaths and dry forests, from low altitude to c. 900 m alt. 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 \pm inconspicuous. Leaves sessile or shortly petiolate, flat, ovate, oblong, elliptic or obovate, often slightly discolourous 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 14 species found in all states except The Northern Territory.

Key reference: Powell *et al.* (1992);

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 up 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 ciliate, 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 altitudes to c. 300 m alt. 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.

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, | 4 <i>T. cunninghamii</i> |

west & Central Plateau)

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 $\frac{1}{2}$ 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 alt.

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 $\frac{1}{2}$ 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 alt.

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 $\frac{1}{2}$ 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 alt.

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. Cunninghamii*']; *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 alt.

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. III. (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 altitudes above 1000 m in the central, western and south-eastern districts of Tasmania. Commonly associated with *Eucalyptus coccifera*, *Orites revolutus*, *Helichrysum* 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 alt. 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 exerted 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 alt.

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 exerted 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 6mm 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 alt.

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 alt.

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

Basionym for species: *Styphelia strigosa* Sm., *Spec. Bot. New Holland* 1: 49 (1793). Basionym for subspecies: *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 alt.

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. (basonym: *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.

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| 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 <i>B. depressum</i> |
| 1: Branches prostrate or ascending; leaves ovate-lanceolate with a short pungent point; corolla tube twice as long as the sepals | 2 <i>B. ciliatum</i> |

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 alt.

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 alt. *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, or lacking (*L. esquamatus*). Ovary 2–5(–6)-locular, with 1 ovule per locule, glab-

rous; 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.

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| 1. Leaf apex acuminate, pungent; anthers without a sterile tip | 2 |
| 1: Leaf apex acute, mucronate, or with a short callous tip, blunt; anthers with or without a sterile tip | 3 |
| 2. Prostrate or decumbent plant; flowers solitary | 1 <i>L. fraseri</i> |
| 2: Erect plant; flowers 2 or 3 together (or 1 + a rudiment) | 2 <i>L. esquamatus</i> |
| 3. Leaves flat, mostly 12 mm long or longer | 4 |
| 3: Leaves concave or the margins reflexed, usually < 12 mm long | 6 |
| 4. Floral spike interrupted; drupe red | 3 <i>L. affinis</i> |
| 4: Floral spike dense; drupe white or yellowish | 5 |
| 5. Leaves up to 2 cm long (rarely longer), spreading; drupe globular, creamy-white | 4 <i>L. parviflorus</i> |
| 5: Leaves mostly 3–4 cm long, ± erect; drupe flattened dorsiventrally, yellow | 5 <i>L. australis</i> |
| 6. Leaves sub-erect to erect, concave or the margins involute | 6 <i>L. virgatus</i> |
| 6: Leaves sub-erect to spreading, ± flat or the margins recurved | 7 |
| 7. Plant of erect habit, mostly > 30 cm tall | 8 |
| 7: Plant of diffuse, prostrate or decumbent habit, usually < 10 cm tall | 9 |
| 8. Floral spikes terminal or crowded on a few short axillary branchlets near the branch tips; anthers with sterile tips | 7 <i>L. collinus</i> |
| 8: Floral spikes axillary, ± open, extending down main branches; anthers without sterile tips | 8 <i>L. ericoides</i> |
| 9. Leaf margin ciliate-denticulate; branchlets scabrous to hispid; flowers in terminal spikes; fruit apex rounded with persistent style | 9 <i>L. oreophilus</i> |
| 9: Leaf margin long ciliate; branchlets sericeous; flowers in terminal or upper-axillary spikes; fruit flat-topped or apically depressed | 10 <i>L. pilifer</i> |

1 *Leucopogon fraseri* A.Cunn. ex DC., *Prodr.* (DC.) 7(2): 753 (1839)

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 bellignianus* 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 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, discoloured, 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 alt.

2 *Leucopogon esquamatus* R.Br., *Prodr. Fl. Nov. Holland.* 546 (1810)

Swamp Beardheath

Styphelia esquamata (R.Br.) Spreng., *Syst. Veg.* 1: 658 (1824); *Phanerandra esquamata* (R.Br.) Stschechl., *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 ± 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 exserted 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 alt.

3 *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. γ 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 alt.

4 *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. β *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. α 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 ciliate, 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 exerted. 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 alt.

5 *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 suberect, 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 alt.

6 *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 alt.

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

6a var. *virgatus*

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

6b var. *brevifolius*

6a *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 ± 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.

6b *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.

7 *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. α 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, ± flat with margins recurved, or entire, glabrous, ± 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 immediately 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 alt.

8 *Leucopogon ericoides* (Sm.) R.Br., *Prodr. Fl. Nov. Holland.* 543 (1810)

Pink Beardheath

Styphelia ericoides Sm, *Spec. Bot. New Holland* 1: 48 (1795); *Leucopogon ericoides* var. α 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. β 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 a 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 \pm 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 alt.

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 *L. 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 *L. ericoides*. Further research is required.

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

Leucopogon ciliatus var. β 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 alt.

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

Leucopogon ciliatus var. β 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 alt.

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 alt.

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).

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| 1. Corolla tube equal to calyx, corolla usually glabrous or with isolated hairs; fruit red-black and shiny; abaxial leaf surface subglaucous | 1 <i>P. nitida</i> |
| 1: Corolla tube longer than calyx, corolla densely pubescent; fruit red or red-black, dull or shiny; abaxial leaf surface glaucous | 2 |
| 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 <i>P. petiolaris</i> |
| 2. Abaxial leaf surface with 5 veins, adaxial surface with a central groove, margin recurved; gynoecium glabrous; fruit red, shiny | 3 <i>P. sulcata</i> |

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 ciliolate 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 alt.

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* sensu J.D.Hooker, *Bot. Antarct. Voy. Ill. (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 altitude (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 $\frac{3}{5}$ – $\frac{1}{2}$, 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 altitudes 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 exerted; 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> |
| 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.

- | | |
|--------------------------------|------------------------------|
| 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 stained 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 exerted. 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 $\frac{1}{3}$ 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 stained 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 $\frac{1}{2}$ 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, \pm 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 $\frac{1}{2}$ 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 alt., and at lower altitudes 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 \pm 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, \pm 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 exerted. 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 alt. 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 alt.; also recorded from Mount Dromedary near Hobart, and near Rossarden.

25 ASTROLOMA

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

Synonyms: *Ventenatia* Cav., *Icon.* [Cavanilles] 4(1): 28 (1797) nom. rej. *Stenantha* R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810). *Stomarrhena* DC., *Prodr.* (DC.) 7(2): 738 (1839). *Pentataphrus* Schldtl, *Linnaea* 20: 618 (1847). *Mesotriche* Stschegl., *Bull. Soc. Imp. Naturalistes Moscou* 32(1): 20 (1859).

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 discolorous 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 approximately 28 species (including several undescribed), occurring in all states except The Northern Territory and Queensland; 2 species in Tasmania.

Astroloma, as currently accepted, is a mixture of diverse elements. Recent studies suggest that several segregate genera should be recognized. The genus is readily distinguished from *Styphelia* by the enclosed anthers and the erect or barely spreading lobes, and from *Leucopogon* by the inflorescence (larger flowered species), the dilated filaments and the tufts of hairs inside the tube.

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|---|------------------------|
| 1. Prostrate shrubs; leaves ± flat, margins toothed to ciliate; flowers bright to dark red with 5 tufts of hairs forming a ring inside below the middle | 1 A. <i>humifusum</i> |
| 1: Prostrate spreading shrub; leaves convex, margins entire; flowers yellow at base, green near apex, sparsely villous over the upper half inside | 2 A. <i>pinifolium</i> |

1 *Astroloma humifusum* (Cav.) R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810) Native Cranberry, Cranberry Heath

Ventenatia humifusa Cav., *Icon.* [Cavanilles] 4(1): 28, t. 348 (1797). *Styphelia humifusa* (Cav.) Pers., *Syn. Pl. (Persoon)* 1: 174 (1805). *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 altitudes, occasionally to c. 750 m alt.

2 *Astroloma pinifolium* (R.Br.) Benth., *Fl. Austral.* 4: 159 (1868)

Pine Heath

Stenanthera pinifolia R.Br., *Prodr. Fl. Nov. Holland.* 538 (1810); *Styphelia pinifolia* (R.Br.) Spreng., *Syst. Veg.* 1: 659 (1824).

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 alt.

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 alt.

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