Flora of Tasmania online

# HYPOGYMNIA [1]

**Gintaras Kantvilas [2]**

*Hypogymnia* (Nyl.) Nyl., *Lich. Envir. Paris*: 139 (1896).

Type: *H. physodes* (L.) Nyl.

Thallus foliose to fruticose, with lobes flattened and dorsiventral, or subterete to cylindrical, eciliate; upper surface whitish grey to chestnut-brown or blackened, lacking cortical hairs, pseudocyphellae or perforations; lower surface wrinkled, glossy black in the thallus centre, usually much paler towards the lobe apices, without rhizines, attached either directly or by disc-like holdfasts; medulla distinctly hollow or with the medullary cavity ± solid, white and cobweb-like. Photobiont trebouxioid. Ascomata apothecia, lecanorine, laminal, sessile or shortly pedicellate; disc plane to concave, usually imperforate, pale to dark red-brown or brown-black, epruinose; proper exciple cupulate. Paraphyses 2–2.5 µm thick, straight, sparsely branched, with or without oil vacuoles; apices usually capitate, brown, 3–5 µm wide. Asci 8-spored, of the *Lecanora*-type: clavate; tholus well-developed, amyloid, pierced entirely by a narrow, non-amyloid *masse axiale* with parallel flanks; ocular chamber not developed. Ascospores simple, hyaline, globose to ± broadly ellipsoid. Conidiomata pycnidia, immersed, laminal. Conidia narrowly cylindrical, often slightly expanded at the tips. Chemistry: atranorin in the cortex, with a wide range of medullary compounds, especially the depsidones physodic and physodalic acids.

A large genus of about 90 species of conspicuous macrolichens, widely distributed throughout the world but most abundant in cool temperate climates. It is widespread and common in Tasmania in most habitats, but especially so at higher elevations where species of *Hypogymnia* are often dominant in rainforest canopies and on trees and shrubs in heathland and woodland. Some species occur on rocks and, in alpine moorland, the common *H. lugubris* can also be found on soil, interspersed with bryophytes, grasses and herbs. Species of *Hypogymnia* are distinguished from each other mostly by the presence or absence of soredia, whether the medulla is hollow or solid, and whether the lobes are compact and contiguous or elongate and separate. Chemical composition tends to be of limited use at species rank. *Hypogymnia* can be superficially similar to *Menegazzia*, which differs conspicuously by having perforations in the upper surface. Whereas there are some small, eperforate species of the latter, they are unlikely to ever be mistaken for a *Hypogymnia*. Soredia occur in many species, but true isidia are generally absent.

Key References: Elix (1992); Kantvilas *et al*. (2002).

| | | |
|---|---|---|
| 1 | Thallus sorediate | 2 |
| | Thallus lacking soredia | 3 |
| 2(1) | Lobes solid, lacking a medullary cavity | 7 H. pulverata |
| | Lobes hollow | 8 H. subphysodes |
| 3(1) | Lobes mostly solid, lacking a medullary cavity | 4 |
| | Lobes clearly hollow throughout | 6 |
| 4(3) | Thallus compact and typically tightly adnate throughout, with marginal lobes short, contiguous and overlapping | 1 H. billardierei |

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

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| | | |
|---|---|---|
| | Thallus rather loosely attached, with marginal lobes free of the substratum, elongate, separate and deeply divided | 5 |
| 5(4) | Lobes flattened; widespread on bark or wood | 5 H. mundata |
| | Lobes ± terete; occurring mostly on rocks in eastern Tasmania | 10 H. tubularis |
| 6(3) | Upper surface dark grey, brown or blackened; lobes adnate, contiguous and densely imbricate, forming rounded or semicircular patches on alpine rocks | 3 H. kosciuskoensis |
| | Upper surface greyish white, sometimes streaked and blotched with black, if totally brown or blackened then with the lobes deeply divided, separate and finger-like, and forming irregular, loosely attached patches on rocks, trees or soil | 7 |
| 7(6) | Medulla P+ orange-red (containing physodalic acid) | 8 |
| | Medulla P– (physodalic acid absent) | 9 |
| 8(7) | Lobes deeply divided, separate and elongate ± throughout, loosely attached with at least the apices free of the substratum; apothecia scattered, lacking a swollen pedicel | 4 H. lugubris |
| | Lobes typically contiguous and adnate to the substratum, separate only at the thallus margins; apothecia ± clustered in the thallus centre, persistently funnel-shaped with a swollen pedicel | 2 H. enteromorphoides |
| 9(7) | Thallus tightly adnate, ± orbicular and compact, with marginal lobes contiguous and tightly imbricate; lobes inflated, (2–)5–10 mm wide; very rare in low rainfall areas | 6 H. pulchrilobata |
| | Thallus loosely attached, mostly with the marginal lobes elongate, separate and deeply divided, < 4 mm wide; widespread and very common, especially in wet forest | 9 H. tasmanica |

**1 Hypogymnia billardierei** (Mont.) Filson

*Vict. Naturalist* 87: 325 (1970); —*Cetraria billardierei* Mont., *Syll. Gen. Sp. Crypt.*: 322 (1856). Type: Australia [Tasmania], *J. Labillardière* (holo—VER).

*Parmelia conferta* Taylor, *London J. Bot.* 6: 164 (1847); type: Tasmania, 1830, ex herb. W. Borrer (holo—FH).

*Parmelia placorhodioides* Nyl., *Syn. Meth. Lich.* 1: 401 (1860); *Parmelia physodes* var. *placorhodioides* (Nyl.) Müll.Arg., *Flora* 66: 76 (1883); type: Australia [Tasmania], *J.P. Verreaux, A. Oldfield* (syntypes—H, BM).

Thallus foliose, esorediate, adnate and compact, to 8 cm wide; lobes solid and mostly flattened, short, 1–3(–6) mm wide, irregularly branched, contiguous, tightly imbricate, often congested with smaller lobes in the thallus centre, ± discrete at the margins; upper surface whitish grey, wrinkled, sometimes maculate at the lobe apices, speckled with black pycnidia. Apothecia to 5(–8) mm wide, sessile to shortly pedicillate, sometimes clustered in the thallus centre; disc at first deeply concave, soon plane to undulate, frequently radially torn when over-mature. Paraphyses with numerous oil vacuoles to 5 µm wide. Ascospores 6–*6.8*–8 × 4–*5.2*–6 µm. Conidia 5–6 × 1 µm.

Chemistry: atranorin, chloroatranorin, physodic acid and oxyphysodic acid (major compounds), plus 2′-*O*-methylphysodic and alectoronic acids (minor); cortex K+ yellow; medulla K± slowly reddish, KC+ pale red; C–, P–.

Widespread on the southern Australian mainland and in New Zealand. In Tasmania, it is found on bark and wood, mostly in dry sclerophyll forest and on remnant trees in rough pasture in low rainfall areas. When growing on trunks and larger branches, the ± orbicular, tightly adnate thallus with short, solid, contiguous lobes can resemble *Austroparmelina pseudorelicina*, which occurs in similar habitats but differs by its rhizinate lower surface and C+ red medulla. In wetter areas or on twigs, the marginal lobes of *H. billardierei* become looser and more separate, and the species then intergrades with *H. mundata*.

Kangaroo Point, 42°53′S 147°22′E, 1922, *W.A. Weymouth* (HO); near Eddystone Point, 40°58′S 148°18′E, 20 m, 1983, *A. Moscal 2730* (HO); Wind Song Property, Ronnies Spur, 42°21′14″S 147°55′01″E, 30 m, 2017, *G. Kantvilas 269/17* (HO).

### 2 Hypogymnia enteromorphoides Elix

*Brunonia* 2: 190 (1979).

Thallus foliose, esorediate, adnate and compact, forming irregular patches to 15 cm wide; lobes hollow, inflated, mostly terete to subterete, 1.5–5 mm wide, irregularly branched, contiguous and imbricate ± throughout, sometimes with erect or ascending isidia-like lobules clustered in the centre of the thallus and extending along the lobes; upper surface whitish grey, blotched and streaked with black, smooth to wrinkled, usually liberally speckled with black pycnidia, especially near the apices. Apothecia to 3–10(–13) mm wide, distinctly pedicellate and usually carried above the thallus, persistently funnel-shaped well into development, clustered in the thallus centre; disc deeply concave and becoming plane to undulate only when over-mature; pedicel swollen, initially as wide or wider than the developing apothecium, finely scabrid to fluted or wrinkled. Paraphyses with numerous oil vacuoles to 2.5–5 µm wide. Ascospores 6–7.1–8(–9) × 4–5.2–6 µm. Conidia 6–7.5 × 0.8–1 µm.

Chemistry: atranorin, chloroatranorin, physodalic acid, physodic acid, oxyphysodic acid (minor), 2′-*O*-methylphysodic acid (±), protocetraric acid and alectoronic acid (±); cortex K+ yellow; medulla K– or K± slowly reddish, KC+ reddish; C–, P + orange-red.

Widespread, especially at higher elevations in wet forest where it occurs mostly on logs but also on rocks and small branches. It is particularly abundant in the wet sclerophyll forests of the Central Plateau and eastern mountains. The distinctive habit of congested, inflated lobes and stalked, centrally clustered apothecia is most obvious when growing on flat, wide surfaces such as large eucalypt logs. On twigs and branches, this morphology is still evident, although care is required to distinguish it from *H. tasmanica* (which is P–). This species is similiarly widespread on the Australian mainland.

Mt Field NP, 1965, *P.W. James s.n.* (BM, HO); Pensford property, 42°01′S 146°49′E, 960 m, 1980, *G. Kantvilas 138/80* (CANB, HO, LSU); 9 km E of Derwent Bridge, 42°08′S 146°20′E, 800 m, 1992, *J.A. Elix 26972* (CANB, HO).

### 3 Hypogymnia kosciuskoensis Elix

*Brunonia* 2: 194 (1979).

Thallus foliose, esorediate, adnate and compact, forming roundish patches to 10 cm wide; lobes hollow, subterete to somewhat flattened, 1–3 mm wide, irregularly branched, contiguous, tightly imbricate, often congested in the centre of the thallus with erect or ascending isidia-like lobules or narrow, secondary lobes, ± discrete at the margins with deflexed or slightly upturned apices; upper surface mottled dull grey, chestnut-brown or blackened, smooth to wrinkled, sometimes areolate and cracked, with the blackened medulla exposed between gaps in the cortex, brownish and glossy at the lobe apices, commonly liberally speckled with unknown, black parasitic fungi. Apothecia and pycnidia not seen in Tasmanian material.

Chemistry: atranorin, chloroatranorin, physodic acid, oxyphysodic acid, 2′-*O*-methylphysodic acid (±), physodalic acid (±), protocetraric acid (±) and alectoronic acid (±); cortex K+ yellow; medulla K– or K± slowly reddish, KC+ pale red; C–, P– or + orange-red.

Occasional on higher peaks, especially on the Central Highlands, the north-eastern mountains and the Ben Lomond Plateau, where it occurs on exposed boulders. It is also known from alpine areas of the south-eastern Australian mainland and New Zealand. The dark-coloured or variegated, closely adnate, orbicular thalli tend to be diagnostic, although it can sometimes be difficult to distinguish from *H. lugubris*, which can occur in identical habitats but differs by having deeply divided, elongate lobes.

Table Mountain, 42°14′S 147°08′E, 1095 m, 1972, *G.C. Bratt 72/401 & J.A. Cashin* (HO); Lake Kaye, 41°54′23″S 1446°31′12″E, 1140 m, 2000, *G. Kantvilas 101/00 & J. Jarman* (HO); Ben Lomond Plateau, Plains of Heaven, 41°32′S 147°39′E, 1500 m, 2022, *G. Kantvilas 200/22* (HO).

### 4 Hypogymnia lugubris (Pers.) Krog

*Norsk Polarinst. Skr.* 144: 99 (1968); —*Parmelia lugubris* Pers., *in* C. Gaudichaud-Beaupré, *Voy. l'Uranie et la Physcienne, Bot.* 4: 196 (1827); *Parmelia physodes* f. *lugubris* (Pers.) F.Wilson, *Pap. & Proc. Roy. Soc. Tasmania* 1892: 174 (1893).

*Hypogymnia lugubris* var. *compactior* (Zahlbr.) Elix, *Brunonia* 2: 203 (1980); —*H. lugubris* f. *compactior* Zahlbr., *Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl.* 104: 358 (1941).

*Hypogymnia lugubris* var. *sublugubris* (Müll.Arg.) Elix, *Brunonia* 2: 207 (1980); —*Parmelia physodes* var. *sublugubris* Müll.Arg., *Flora* 66: 75 (1883); type: Tasmania, *R. Gunn s.n.* (lecto—G; isolecto—NSW, *fide* Elix 1980).

Thallus foliose to fruticose, esorediate, highly variable, typically loosely attached in extensive colonies with all lobes free, more rarely occurring in clumps of ± isobilateral, erect, tubular lobes; lobes hollow, rather fragile, 0.5–3(–5) mm wide, dichotomously or ± irregularly branched, elongate, diverging and finger-like, usually well-separated with ascending or decumbent apices at the thallus margins, loosely imbricate centrally; upper surface whitish grey and streaked with black, or chestnut-brown to blackened, frequently mottled, smooth to weakly wrinkled, usually maculate at the lobe apices, speckled with black, unknown parasitic fungi and pycnidia. Apothecia to 1–8(–13) mm wide, shortly pedicillate, scattered, funnel-shaped when young, with the thalline margin and pedicel scabrid or weakly wrinkled; disc at first deeply concave, soon plane to undulate, at length convex, dimpled and radially torn. Paraphyses with oil vacuoles common, to 3.5 µm wide. Ascospores 6–*7.1*–8(–9) × 4–*4.9*–6(–7) µm. Conidia 4.5–6 × 0.8 µm.

Chemistry: atranorin, chloroatranorin, physodalic acid, physodic acid, oxyphysodic acid, 2′-*O*-methylphysodic acid (±), protocetraric acid and alectoronic acid (±); cortex K+ yellow; medulla K– , KC+ pale red; C–, P + orange-red.

Widespread across the Southern Hemisphere, ranging from temperate to subantarctic latitudes, and from lowland to alpine elevations. In Tasmania, it is widespread and locally very common on bark, wood, rocks and soil, mostly in areas of high rainfall. This is the most common Tasmanian species of the genus. In its typical form, comprising elongated, mottled greyish white and black, narrow lobes, this species is particularly common at higher elevations on trees and shrubs, or in the canopy of wet forests. In open treeless vegetation, it is commonly seen on rock outcrops; such forms are frequently mottled brownish or blackened. A distinctive fruticose form, consisting of clumps of erect, tubular lobes, occurs on the ground on the highest alpine plateaux. *Hypogymnia lugubris* is extremely variable, but the combination of hollow, discrete, entangled lobes and the P+ orange-red medullary reaction easily distinguish it from *H. tasmanica* (hollow, P–) and *H. mundata* (solid, P–). The various infraspecific taxa that have been described represent points along a morphological continuum. The thallus is frequently infected with parasitic fungi, some of which form conspicuous, inflated galls.

Twelvetrees Range summit, 42°40′S 146°04′E, 600 m, 1976, *G.C. Bratt 76/315 et al.* (HO); Lake Seal, 42°40′S 146°35′E, 950 m, 1980, *G. Kantvilas 111/80* (CANB, HO); Netherby Plain, 41°32′S 145°33′E, 1986, *A. Moscal 13679* (HO).

### 5 Hypogymnia mundata (Nyl.) Oxner ex Rassad.

*Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR* 11: 11 (1956); —*Parmelia mundata* Nyl., *Syn. Lich.* 1: 401 (1860); *Parmelia physodes* var. *mundata* (Nyl.) Müll.Arg., *Flora* 66: 76 (1883). Type: Tasmania, *J.P. Verreaux* (lecto—H-NYL!, *fide* Rassadina 1956).

Thallus foliose, esorediate, loosely attached, to 15 cm wide; lobes solid and flattened, 0.5–2.5 mm wide at the apices, to 3–5 mm wide centrally, dichotomously branched, elongate, diverging and finger-like, usually well-separated with ascending apices at the thallus margins, loosely imbricate centrally; upper surface whitish grey, weakly wrinkled to faveolate, sometimes maculate at the lobe apices, speckled with black pycnidia. Apothecia to 7(–10) mm wide, shortly pedicellate, scattered, funnel-shaped when young, with the thalline margin and pedicel strongly scrobiculate; disc at first deeply concave, soon plane to undulate,

sometimes radially torn. Paraphyses with occasional oil vacuoles to 3 µm wide. Ascospores 6–*7.4*–9(–10) × 4–*5.1*–6 µm. Conidia 5–6 × 1 µm.

Chemistry: atranorin, chloroatranorin, physodic acid and oxyphysodic acid (major compounds), plus 2′-*O*-methylphysodic and alectoronic acids (minor); cortex K+ yellow; medulla K± slowly reddish, KC+ pale red; C–, P–.

Widespread in Tasmania on bark and wood, especially in wet sclerophyll forest and callidendrous rainforest where it occurs in the canopy; also known from the south-eastern Australian mainland and New Zealand. This species is easily recognised by the solid, elongate, flattened, deeply divided lobes that are free at the thallus margins. *Hypogymnia billardierei* differs by having compact, contiguous lobes, whereas in *H. lugubris* the lobes are elongate and free but hollow.

Swift Creek, 42°14′S 145°29′E, 1984, *A. Moscal 5354* (HO); Boyd Lookout, 42°49′S 146°21′E, 600 m, 2001, *G. Kantvilas 83/01* (HO); South Sister, near summit, 41°32′S 148°10′E, 750 m, 2004, *J.A. Elix 28622 & G. Kantvilas* (CANB, HO).

### 6 Hypogymnia pulchrilobata (Bitter) Elix

*Brunonia* 2: 214 (1980); —*Parmelia pulchrilobata* Bitter, *Hedwigia* 40: 244 (1901).

Thallus foliose, esorediate, adnate and compact, to 8 cm wide; lobes hollow, short, often inflated, (2–)5–10 mm wide, irregularly branched, contiguous, tightly imbricate, with apices rather splayed at the margins; upper surface whitish grey to dull grey, smooth to wrinkled, usually speckled with black pycnidia, especially at the lobe apices. Apothecia 2–9 mm wide, typically with a short, rather swollen pedicel, funnel-shaped when young, scattered or clustered in the thallus centre; disc at first deeply concave, soon plane to undulate; thalline margin folded inwards and scabrid; pedicel scabrid to wrinkled. Paraphyses with occasional oil vacuoles to 3.5 µm wide. Ascospores (5.5–)6–*7.1*–8 × 4–*5.1*–6 µm. Conidia 5–7 × 0.8–1 µm.

Chemistry: atranorin, chloroatranorin, physodic acid and oxyphysodic acid (major compounds) plus 3-hydroxyphysodic acid, 2′-*O*-methylphysodic acid and alectoronic acid (± trace); cortex K+ yellow; medulla K–, KC+ pale red; C–, P–.

Very uncommon in Tasmania, where it has been recorded from dead wood in low rainfall areas. This species is also widely scattered but rarely common on the Australian mainland and in New Zealand. It is distinguished by the ± orbicular thallus of hollow, often inflated, short, contiguous lobes, and a medulla that reacts P–. It is superficially most similar to *H. billardierei*, which also has a ± orbicular thallus but differs in its solid, narrower, flattened lobes.

Petcheys Bay, 43°11′S 147°01′E, 1973, *C. Olbricht 73/431* (HO); Bermuda Road, 43°04′S 146°57′E, 440 m, 1990, *G. Kantvilas 596/90* (HO); Ansons Bay Road, 41°10′S 148°10′E, 120 m, 2001, *G. Kantvilas 331/01* (HO).

### 7 Hypogymnia pulverata (Nyl. ex Cromb.) Elix

*Brunonia* 2: 217 (1980); —*Parmelia mundata* var. *pulverata* Nyl. ex Cromb., *J. Linn. Soc. Bot.* 17: 395 (1879); *Parmelia physodes* var. *pulverata* (Nyl.) Müll.Arg., *Flora* 66: 76 (1883). Type: Tasmania, Table Mt [=Mt Wellington], [1804], *R. Brown* 550 (holo—BM!; iso—BM!)

Thallus foliose, sorediate, to 15 cm wide; lobes solid, tough and cartilaginous, at the margins tightly adnate, flattened to subterete, compact and crowded together, 1–4(–5) mm wide, in the thallus centre with linear, free or loosely imbricate, decumbent or ascending, dichotomously branched secondary lobes mostly 0.8–3 mm wide, occasionally with the secondary lobes dominating the thallus; upper surface whitish grey to dull grey, wrinkled and transversely cracked; soredia laminal, occurring mainly on the secondary lobes, coarsely granular, whitish or discoloured grey, initially in discrete, erose soralia, but eventually spreading and becoming continuous and dominating the central part of the thallus. Apothecia rare, to 6 mm wide, sessile to shortly pedicellate, scattered, with the thalline margin and pedicel weakly wrinkled and sorediate; disc at first concave, at length plane to undulate and radially torn. Paraphyses with oil vacuoles uncommon, to 2.5–

3 µm wide. Ascospores 6–*7.5*–9 × 4–*4.9*–6 µm. Pycnidia occurring mainly in sorediate areas; conidia 4.5–6 × 0.8 µm.

Chemistry: atranorin, chloroatranorin, physodic acid, oxyphysodic acid, physodalic acid (±), protocetraric acid (±) and alectoronic acid (±) (major compounds); cortex K+ yellow; medulla K± slowly reddish, KC+ pale red; C–, P– or + orange-red.

Widespread and common in Tasmania, especially in lower rainfall, eastern areas, where it occurs on rotting logs, fence posts or, occasionally, on rocks. It is easily recognised by the coarse soredia; the solid medulla distinguishes it from *H. subphysodes*. This species is similarly widespread on the Australian mainland and is also known from New Zealand and Japan.

c. 1.5 km SW of Rossarden, 41°41′S 147°44′E, 720 m, 2001, *G. Kantvilas 689/01* (HO); Colonels Marsh, 42°10′S 147°49′E, 370 m, 2005, *K. Felton* (HO); Bisdee Tier, 42°26′S 147°17′E, 640 m, 2009, *G. Kantvilas 231/09* (HO).

**8 Hypogymnia subphysodes** (Kremp.) Filson

*Vict. Naturalist* 87: 325 (1970); —*Parmelia subphysodes* Kremp., *Verh. K.K. Zool.-Bot. Ges. Wien* 30: 338 (1881).

*Hypogymnia subphysodes* var. *austerodioides* Elix, *Brunonia* 2: 230 (1979).

Thallus foliose, sorediate, adnate to loosely attached, to 5–10 cm wide; lobes hollow, fragile and brittle, terete, subterete or ± flattened, mostly 0.5–2.5 mm wide, dichotomously branched, elongate, diverging and finger-like, constricted here and there, loosely overlapping, with the apices ascending or decumbent, occasionally with the lobes contiguous, tightly imbricate, 1–5 mm wide and the apices flattened; upper surface whitish grey, smooth, verruculose or wrinkled, in part blotched with black, sometimes maculate at the lobe apices; soredia laminal, erumpent, whitish, coarse, becoming ± coralloid, mostly arising in pustules that burst or become abraded, at length becoming confluent along the length of the lobes. Apothecia very rare, unknown in Tasmanian specimens. Pycnidia not seen.

Chemistry: atranorin, chloroatranorin, physodic acid, oxyphysodic acid, 2′-*O*-methylphysodic acid (±), physodalic acid (±), protocetraric acid (±) and alectoronic acid (±) (major compounds); cortex K+ yellow; medulla K± slowly reddish, KC+ pale red; C–, P– or + orange-red.

Locally abundant in Tasmania on bark or wood, less commonly on rocks, chiefly across northern areas and on the Furneaux Islands, where it ranges from wet forest to dry, coastal vegetation. When occurring in the rainforest canopy or in otherwise moist or shaded habitats, the lobes are narrow, finger-like, rather tubular and well-separated. In drier or exposed habitats, the thallus becomes increasingly more compact and the lobes shorter, broader and contiguous; the name var. *austerodioides* has been ascribed to this form. A continuum in morphological variation can be seen between the compact and narrow-lobed, loose forms. This species is also known from the Australian mainland, New Zealand and southern South America.

Hummocky Hills, 41°44′S 147°14′E, 1992, *A.V. Ratkowsky* (HO); South Sister near summit, 41°32′S 148°10′E, 750 m, 2004, *J.A. Elix 28617 & G. Kantvilas* (CANB, HO); Flinders Island, W of Mt Leventhorpe, 40°04′29″S 148°05′38″E, 465 m, 2004, *J.S. Whinray L4207* (HO, MEL).

**9 Hypogymnia tasmanica** Elix

*Mycotaxon* 35: 470 (1989). Type: Tasmania, along the shore of Lake St Clair, on a *Banksia* tree in open woodland, 18 January 1979, *J.A. Elix 5643* (holo—CANB!; iso—HO!, MEL!).

Thallus foliose, esorediate, typically loosely attached in extensive colonies; lobes hollow, rather fragile, 1–4 mm wide, at the thallus margins ± dichotomously or anisotomously branched, swollen, subterete, diverging, usually well-separated with ascending apices, contiguous, imbricate and adnate centrally; upper surface whitish grey, streaked with black, smooth to wrinkled, usually glossy black or brown at the lobe apices, speckled with black pycnidia and unidentified parasites. Apothecia 1–6(–11) mm wide, shortly pedicellate, scattered or clustered, funnel-shaped when young, with the thalline margin and pedicel scabrid, wrinkled or

fluted; disc at first deeply concave, becoming plane, then undulate. Paraphyses with occasional oil vacuoles to 2.5–3 µm wide. Ascospores 6–*7.2*–9 × (4–)4.5–*5.5*–6.5(–7) µm. Conidia 5–7 × 0.8–1 µm.

Chemistry: atranorin, chloroatranorin, physodic acid, oxyphysodic acid and alectoronic acid (±); cortex K+ yellow; medulla K– , KC+ pale red; C–, P + orange-red.

Very common and widespread on bark and wood, more rarely on rocks, especially in rainforest where it is one of the dominant canopy lichens, and in open woodland at higher elevations, where it is usually sympatric with *H. lugubris*. This rather variable species is best recognised by its hollow, separate and deeply divided lobes at the thallus margins, and by the P– reaction of the medulla. The superficially similar *H. lugubris* has separate lobes throughout and reacts P+ orange-red. As currently understood, *H. tasmanica* is known only from Tasmania, but its relationship with two superficially very similar species, *H. australis* Elix from (mainland Australia) and *H. turgidula* (Bitter) Elix (from New Zealand) deserves further study; it may well be that the latter name should be applied in Tasmania instead.

Mt Wellington, 42°54′S 147°14′E, 720 m, 1890, *W.A. Weymouth* (HO); Pine Lake, 41°45′S 146°42′E, 1973, *G.C. Bratt 73/1017 & J.A. Cashin* (HO); Badger Creek, *c.* 2.5 km S of Greystone Bluff, 43°06′S 146°02′E, 280 m, 1989, *G. Kantvilas 65/89* (HO).

**10 Hypogymnia tubularis** (Taylor) Elix

*Brunonia* 2: 233 (1980); —*Parmelia tubularis* Taylor, *Phytologist* 1: 1096 (1844).

Thallus foliose to ± subfruticose, esorediate, loosely attached, forming spreading swards to 20 cm wide; lobes solid and rather tough and cartilaginous, terete throughout or flattened in patches, 0.8–1.5(–2) mm wide, dichtomously branched, sometimes constricted here and there, occasionally with small isidia-like lobules, elongate and finger-like, diverging or loosely overlapping, with the apices ascending or decumbent, sometimes more tightly imbricate and to 3.5 mm wide in the centre of the thallus; upper surface whitish grey, smooth to weakly wrinkled, sometimes maculate at the lobe apices, streaked with black and speckled with black pycnidia, sometimes with scattered, transverse cracks. Apothecia uncommon, to 8 mm wide, shortly pedicellate, scattered, funnel-shaped when young, with the thalline margin and pedicel weakly wrinkled; disc at first deeply concave, at length plane to undulate and radially torn. Paraphyses with oil vacuoles uncommon, to 3 µm wide. Ascospores 6–*7.5*–9 × 4–*4.9*–6 µm. Conidia 5–7 × 1 µm.

Chemistry: atranorin, chloroatranorin, physodic acid, oxyphysodic acid, physodalic acid (±), protocetraric acid (±) and alectoronic acid (±) (major compounds), 2′-*O*-methylphysodic acid (minor); cortex K+ yellow; medulla K± slowly reddish, KC+ pale red; C–, P– or + orange-red.

A very distinctive species, typically found on large rock outcrops and bluffs in dry sclerophyll forest in eastern Tasmania where it forms extensive, spreading swards across bryophytes and other lichens; also known from the eastern Australian mainland. Granite is the preferred rock type although this species has also been seen on sandstone, dolerite and quartzite. The superficially similar *H. lugubris* also occurs in such habitats but differs by having a more fragile thallus and a distinctly hollow medullary cavity.

Mt Amos, 42°09′S 148°17′E, 1971, *G.C. Bratt 71/1267 & J.A. Cashin* (HO); road to Ansons Bay, 41°15′04″S 148°10′19″E, 80 m, 2001, *G. Kantvilas 249/01 & J. Jarman* (HO); Flinders Island, S of Pilllingers Peak, 40°06′57″S 148°05′48″E, 380 m, 2005, *J.S. Whinray L4215* (CANB, HO).

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