A revised key and checklist for the macrolichens in Tasmanian cool temperate rainforest

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Abstract

The macrolichen flora of Tasmanian cool temperate rainforest comprises 205 taxa. An identification key and checklist for these are presented.

Introduction

Since the publication of the first identification key to Tasmanian rainforest macrolichens by Kantvilas and James (1987), considerable additional data on the rainforest flora have been accumulated. New species have been described in the genera *Sphaerophorus* (= *Bunodophoron*) (Kantvilas and Wedin 1992; Wedin 1992), *Cladonia* (Elix and Kantvilas 1995), *Degelia* and *Siphulastrum* (Jørgensen and Galloway 1992), *Fuscoderma* (Jørgensen and Galloway 1989), *Leioderma* (Galloway and Jørgensen 1987), *Hypogymnia* (Elix and Jenkins 1989), *Menegazzia* (James and Galloway 1992), *Parmelia* (Elix and Kantvilas 1995) and *Roccellinastrum* (Kantvilas 1990). There have also been many nomenclatural changes, in particular at the generic level, within the families Sphaerophoraceae (Wedin 1993), Baeomycetaceae (Gierl and Kalb 1993) and the Parmeliaceae (Elix 1994). In addition, many new records from rainforest have been added, some of which have also represented new records for Tasmania as a whole (see Kantvilas 1994). Further new records for Tasmania are presented in this paper, including *Lempholemma polyanthes*, *Parmeliella coerulescens* and *P. concinna*. Although some of these changes in the rainforest flora were incorporated in recent checklists (Jarman *et al.* 1991; Jarman and Kantvilas 1995), the earlier identification key remained in need of revision.

The present key includes 205 taxa, compared to 128 in the earlier work, and provides an updated nomenclature for the species (see Appendix 1). The taxa include those which have been recorded within cool temperate rainforest vegetation, at rainforest margins, or in sclerophyllous or heathy vegetation closely associated with rainforest.

Several unresolved species and poorly known genera remain in the Tasmanian rainforest macrolichen flora. Current taxonomic research is focussing on the genus *Psoroma*, a large and very important component of the flora. In addition, a new monotypic genus in the family Bacidiaceae is being described and descriptions of new species of *Cladia*, *Menegazzia* and *Siphula* are being compiled. The taxonomy of two other genera, *Usnea* and *Peltigera*, is also likely to change with further work.

Explanatory notes

Macrolichens versus microlichens

Lichens have been traditionally subdivided into several growth-form types. Macrolichens comprise the larger, more conspicuous species, and most have a complex anatomy in which the *thallus* (plant body) is differentiated into distinct layers. Macrolichens include species with a thallus which is *foliose* (leafy; Photos 1, 2), *fruticose* (shrubby or pendulous;

Photo 1. Sticta stipitata *has a typical foliose growth form. The circular, dish-shaped structures on the thallus are the fruiting bodies.*

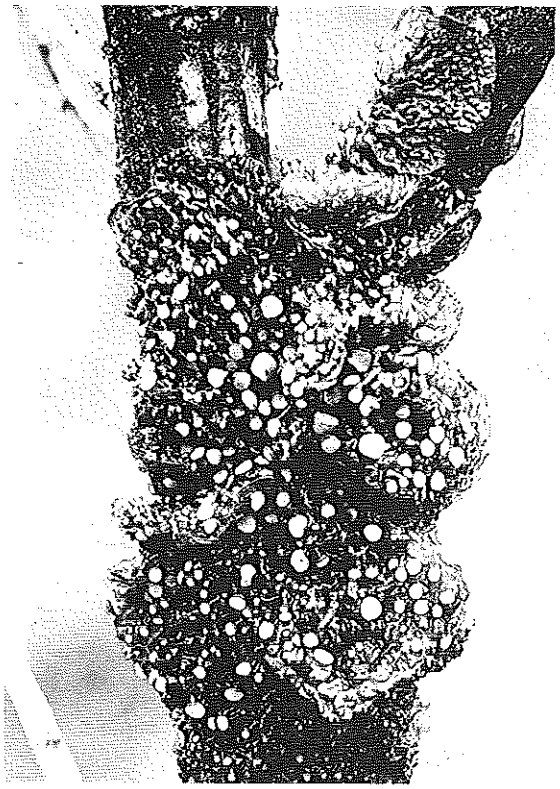

Photo 2. Collema glaucophthalmum *has a foliose thallus which appears gelatinous when wet.*

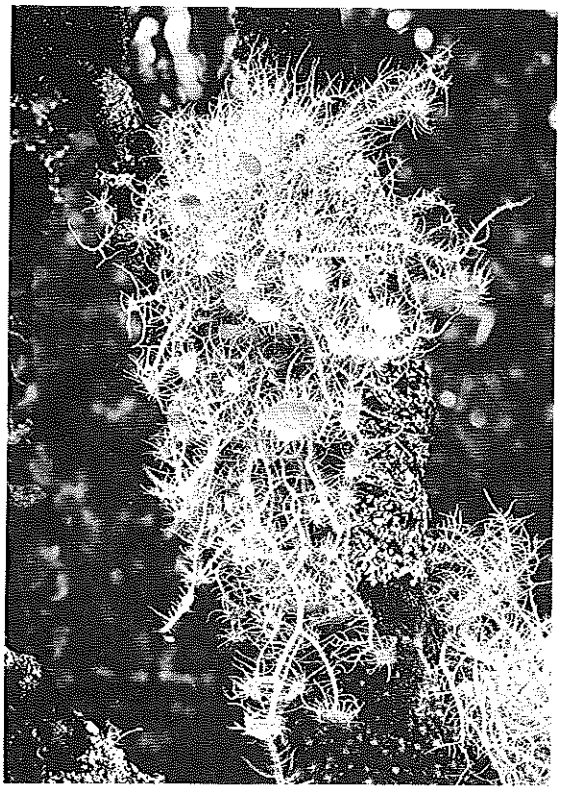

Photo 3. Usnea molliuscula *has a typical fruticose growth form.*

Photo 4. Cladonia pleurota *has a fruticose secondary thallus (the stalked cup-shaped structures) above a basal squamulose primary thallus.*

Photos 3, 4), *filamentous* or *byssoid* (like cotton-wool; Photo 5), *squamulose* (comprised of small, leaf-like scales) or *placodioid* (with lobes evident only at the margins of the thallus). The remaining lichens, the microlichens, are mostly *crustose* and have a growth form where the thallus is very thin and tightly appressed to the substrate, sometimes resembling splashes of paint (Photos 6, 7). *Leprose* lichens are also included with the microlichens and, in this group, the thallus appears to be powdery.

These growth forms have no taxonomic basis, and single families or genera may span several types. Furthermore, the dividing line between the forms can be blurred. The present key and checklist are restricted to macrolichens but several species treated here have a very reduced thallus which, superficially, may appear crustose.

Arrangement of the key

The key is artificial and does not present or imply any phylogenetic relationships.

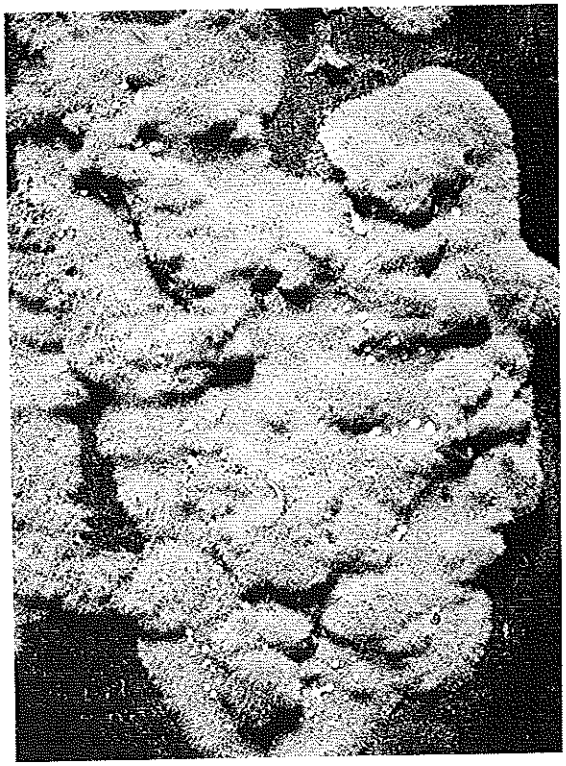

Photo 5. Coenogonium implexum, *with its byssoid growth form, has a soft, furry appearnace.*

Photo 6. A mosaic of crustose lichens (microlichens), each with circular fruiting bodies and a very thin thallus closely appressed to the substrate (bark).

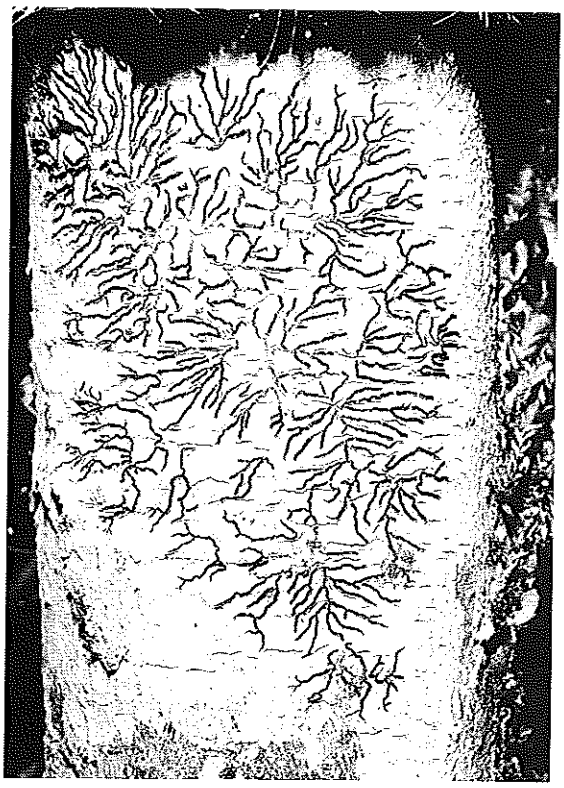

Photo 7. The fruiting bodies (lirellae) of the crustose species, Graphis librata *produce a distinctive wavy pattern on the bark.*

Species are keyed pragmatically as individuals, not by families and genera.

Characters used in the key

Lichens are relatively small organisms, and differences between species are often very subtle and may include microscopic or chemical characteristics. In this key, every attempt has been made to use gross morphological features, typically observed with the naked eye or with a x10 hand lens, rather than to rely solely on the more specialised and obscure anatomical and chemical features. However, use of these latter characters has been unavoidable in many cases, especially where superficially similar or closely related species are involved. Such data, as well as habitat notes, are also included where it is deemed that they would aid in the confirmation of the identity of a lichen.

The taxonomy of lichens possesses its own specialised terminology but the presentation of a comprehensive glossary and a general account of the structure of lichens has been beyond the scope of the present paper. Users of the key are referred to the glossaries and introductory chapters of the recently published *Flora of Australia*, Volumes 54–55. The vegetation terms *callidendrous, thamnic* and *implicate* refer to different types of rainforest in Tasmania and are defined in Jarman *et al.* (1994).

The task of lichen identification may seem daunting at first, especially as it relies on a different set of terms from those used with vascular species, and the plants themselves are very small. However, like all plant groups, the lichens can be mastered with practice and, with increasing familiarity, most species can be recognised in the field.

1	Thallus foliose; lower surface with rounded, white or yellow spots or small craters	2
	Growth habit various, if foliose then lower surface lacking rounded spots or craters	20
2(1)	Spots recessed, white, forming distinct craters with well-defined rims (cyphellae). [*Sticta*]	3
	Spots plug-like, not recessed, white or yellow and usually lacking a rim (pseudocyphellae) [*Pseudocyphellaria*]	6
3(2)	Upper surface grey-green when dry, bright green when wet, occasionally ± suffused red-brown; photobiont green; thallus without soredia or isidia, often fertile, ± stalked, sometimes attached to coralloid blue-green thalli of *Dendriscocaulon dendriothamnodes*	*Sticta stipitata*
	Upper surface brown to dark brown (tinged blue-green when wet or in extreme shade); photobiont blue-green; thallus sorediate or isidiate, neither stalked nor associated with *Dendriscocaulon;* apothecia unknown in Tasmanian material; ± confined to forest margins	4
4(3)	Thallus ± monophyllous, isidiate; isidia minute, laminal, terete, simple or coralloid, often in clusters	*Sticta fuliginosa*
	Thallus monophyllous or polyphyllous, sorediate	5
5(4)	Lower surface with deep chocolate brown tomentum; thallus lobate, polyphyllous, spreading over the substratum; soralia chiefly marginal, labriform-linear	*Sticta sublimbata*
	Lower surface with pale brown tomentum; thallus shallowly lobed, ± monophyllous, not spreading, usually attached to substratum at one end only; soralia marginal and laminal, ± eroded	*Sticta limbata*
6(2)	Medulla yellow	7
	Medulla white (pseudocyphellae and soralia may be yellow or white)	10
7(6)	Thallus sorediate; soralia yellow	8
	Thallus not sorediate	9
8(7)	Upper surface thickly tomentose (use lens), grey to red-brown when dry, green when wet; photobiont green; soralia marginal and laminal	*Pseudocyphellaria rubella*
	Upper surface not tomentose, grey when dry, bright slatey blue-grey when wet; photobiont blue-green; soralia marginal	*Pseudocyphellaria ardesiaca*

9(7) Lobes ± elongate, with incised-serrate margins; isidia present, mainly marginal but sometimes also laminal; apothecium to 3-4 mm diam., with serrate, ± isidiate margin and reddish brown disc; medulla acetone+ orange-yellow or yellow .... *Pseudocyphellaria colensoi*

Lobes ± rounded, with entire margins; isidia absent; apothecium 1-1.5 mm diam., with ± crenulate margin and ± black disc; medulla acetone+ magenta ..... *Pseudocyphellaria coronata*

10(6) Thallus dark blue-green when wet, blue-grey, brown-grey or dark red-brown when dry; photobiont blue-green 11

Thallus green, green-grey or pale yellow-green when wet or dry; photobiont green 16

11(10) Thallus sorediate 12

Thallus not sorediate 13

12(11) Pseudocyphellae yellow; soralia yellow; thallus usually brown when dry ..... *Pseudocyphellaria crocata*

Pseudocyphellae white; soralia white, pale violet or bluish grey; thallus usually blue-grey when dry ..... *Pseudocyphellaria intricata*

13(11) Pseudocyphellae yellow; thallus usually brown when dry; on rocks or tree buttresses, mainly in wet sclerophyll forest ... *Pseudocyphellaria gilva*

Pseudocyphellae white; thallus brown or blue-grey when dry .. 14

14(13) Thallus with coralloid, marginal and laminal isidia, and with minute, punctiform pseudocyphellae on the upper surface (use lens) ..... *Pseudocyphellaria argyracea*

Isidia absent or when present, not coralloid; pseudocyphellae confined mostly to the lower surface 15

15(14) Marginal phyllidia, or ± flattened, dissected isidia present; thallus fragile, thin and papery, ± broadly lobed, glabrous on the upper surface, with raised margins; usually on rocks, logs or tree buttresses; common ..... *Pseudocyphellaria dissimilis*

Phyllidia or isidia absent; lobes elongate, narrow and richly divided, sometimes minutely tomentose near the tips, frequently bearing green leaflets of *Pseudocyphellaria multifida;* usually in deep shade on logs or epiphytic; uncommon ..... *Pseudocyphellaria* sp.

16(10) Upper surface pale yellow-green when wet or dry; lower surface dark brown; lobes ± rounded at the tips, with marginal, easily abraded isidia or (rarely) granular soredia; very common polymorphic species ..... *Pseudocyphellaria glabra*

Upper surface grey-green when dry, dark green or bright lettuce green when wet (rarely suffused brownish or blackish); lower surface cream to dark brown; lobes elongate, linear, with ± truncate tips 17

17(16) Thallus coarsely granular sorediate; soralia marginal and laminal, ± concolorous with the upper surface of the thallus ..... *Pseudocyphellaria granulata*
Thallus not sorediate 18

18(17) Upper surface of thallus smooth to undulate; lobes much divided, with folioles or small, lateral lobes along the margin; branching ± random; undersurface cream to light brown; apothecial disc red-brown ..... *Pseudocyphellaria multifida*
Upper surface markedly faveolate; marginal folioles absent; branching ± dichotomous; apothecial disc dark brown or black 19

19(18) Individual faveolae usually as broad as the lobes; marginal pseudocyphellae absent; apothecia mainly marginal; undersurface dark brown or sometimes fawn, particularly at the tips of the lobes; tomentum frequently patchy; lacking physciosporin ..... *Pseudocyphellaria billardierei*
Usually several faveolae spanning the width of the lobes; marginal pseudocyphellae present; apothecia marginal and laminal (on the ridges of the faveolae); tomentum on the undersurface very dense, dark brown, protruding somewhat beyond the lobe margins and visible from above as a slight fringe; containing physciosporin (grey-black spot on charred t.l.c. plates) ..... *Pseudocyphellaria faveolata*

20(1) Thallus filamentous, fluffy, composed of densely interwoven, hair-like threads giving the appearance of cotton wool 21
Thallus not filamentous; growth form placodioid, foliose, fruticose or squamulose 28

21(20) Thallus dark blue-green; filaments ± randomly dispersed over mosses or bark; 'fruit' very rare, amorphous or ± 'bracket'-like, white, with minute shallow indentations, often obscured by the vegetative part of the thallus ..... *Dictyonema sericeum*
Thallus whitish, pale grey, yellowish or orange-yellow, forming tufts or a ± continuous mat; fruit an apothecium 21

22(21) Thallus orange-yellow or orange-green (when fresh) 23
Thallus whitish, pale grey or very pale yellowish 24

23(22) Thallus bright orange-yellow to green; apothecia to 1 mm diam., rounded, plane, bright orange; on lowland, smooth-barked trees ..... *Coenogonium implexum*
Thallus dull orange to green, mottled; apothecia tubular, c. 0.3 mm diam. and 0.5 mm tall, flaring at the apices, black and ± white-pruinose, particularly around the margin; on moderately dry trunks in high altitude ..... *Conotremopsis weberiana*

24(22) Photobiont filamentous; apothecia with a thalline margin, plane, black, usually densely white-pruinose and ± elevated in the centre of the thallus; thallus a spreading, adnate mat, to 40 cm wide or more, on the driest faces of the trunks of old trees; common ..... *Sagenidium molle*

Photobiont unicellular; apothecia immarginate, often globose, pale pink or yellowish grey; thallus forming tufts or a thin, ± granular crust, filamentous only at the margin 25

25(24) Thallus in small tufts or composed of clustered, discrete, ± terete lobes c. 0.5 mm wide, Pd+ red (containing protocetraric acid); apothecia pale pink [*Roccellinastrum*] 26

Thallus adnate, not tufted, forming a ± granular crust with finely filamentous margins, Pd± pale yellow-orange (containing grayanic acid); apothecia pale yellowish grey ..... **undescribed genus**

26(25) Thallus yellowish (usnic and protocetraric acids present); spores globose; in alpine areas on living leaves and leaf-bearing twigs of *Athrotaxis* or *Diselma* ..... *Roccellinastrum flavescens*

Thallus white (lacking usnic acid); spores rod-shaped 27

27(26) Thallus spreading widely, to c. 80 mm wide, composed of densely entangled, tubular lobes; containing protocetraric and squamatic acids; spores simple; on bark of trees ..... *Roccellinastrum neglectum*

Thallus in small discrete tufts to c. 10 mm wide; containing protocetraric acid only; spores septate (very rare); on leaves or leaf-bearing twigs of *Lagarostrobos* or on dead leaves of *Richea* ..... *Roccellinastrum lagarostrobi*

28(20) Thallus fruticose, comprising erect or pendent, simple or much-divided lobes or branches, either dorsiventrally flattened or radially symmetrical, occasionally composed of erect podetia or pseudopodetia bearing apothecia and arising from a crustose or squamulose, basal primary thallus 29

Thallus foliose, squamulose or placodioid 91

29(28) Thallus with numerous, conspicuous, rounded to ellipsoid perforations 30

Thallus lacking rounded perforations but occasionally with open axils, longitudinal fissures or minute pseudocyphellae 36

30(29) Thallus pendulous to subpendulous, exclusively on ± smooth bark; branches irregularly inflated, pale yellow-green (containing usnic acid); apothecia lecanorine, > 2 mm diam.; a species of sclerophyll forest, found rarely in small, isolated rainforest stands in eastern Tasmania ..... *Ramalina inflata*

Thallus erect, ascending or decumbent, mostly on soil, wood or amongst bryophytes on bark; branches (pseudopodetia) ± cylindrical, if inflated then not yellow-green; apothecia lecideine, < 0.5 mm diam. [*Cladia*] 31

31(30) Pseudopodetia white to pale grey, occasionally in part faintly yellowish; perforations very numerous, continuous and lace-like; on soil, mostly at heathy forest margins ..... *Cladia retipora*
Pseudopodetia pale yellow-green, olive-green, brownish or occasionally blackened; perforations numerous to sparse but not forming a lace-like network 32

32(31) Cortex minutely crystalline (use lens); inner medulla compact, usually blackened and clearly visible through perforations in lower part of thallus; on soil, especially at heathy forest margins ..... *Cladia sullivanii*
Cortex glossy, not crystalline; pseudopodetia completely hollow and lacking an inner medulla 33

33(32) Fertile pseudopodetia to 1.5 cm tall, internally sorediate, intermingled with markedly shorter, squamule-like, sterile pseudopodetia with sorediate apices, or arising from a sorediate crust of crowded, reduced pseudopodetia; on wood ..... *Cladia schizopora*
Pseudopodetia to 8 cm tall, not sorediate; on soil, rocks, bark or wood 34

34(33) Sterile pseudopodetia richly branched and tangled, slender, mostly 0.5–1 mm thick; fertile pseudopodetia markedly more robust, to c. 3 mm thick; usually containing barbatic acid; very common and widespread species on soil, rocks, bark or wood; extremely polymorphic in non-rainforest vegetation ..... *Cladia aggregata*
Sterile and fertile pseudopodetia very sparsely branched, usually ± dispersed, ± inflated, to c. 3 mm thick 35

35(34) Medulla Pd+ red (containing fumarprotocetraric acid); on bark or soil; a species of wet heathlands, very rare in rainforest *Cladia inflata*
Medulla Pd– (containing fatty acids); on peaty soil; occasional in rainforest and ± restricted to high altitudes in western Tasmania ..... *Cladia* sp.

36(29) Thallus (podetia or pseudopodetia) hollow 37
Thallus solid 55

37(36) Thallus bright green to ± brownish green, dimorphic; basal primary thallus granular-crustose ..... *Metus conglomeratus*
Thallus pale yellowish, yellow-green, grey-green or grey; basal primary thallus squamulose or absent 38

38(37) Podetia ecorticate, not sorediate, intricately branched, forming compact, rounded cushions; surface arachnoid (use lens); squamules never present ..... *Cladina confusa*
Podetia corticate or ecorticate and becoming sorediate, never arachnoid, simple or branched but not forming discrete compact cushions; squamules often present along the length of the podetia or forming a primary basal thallus [*Cladonia*] . 39

39(38) Podetia pale yellowish, KC+ yellow (usnic acid present) 40
Podetia pale greenish or greyish, not yellow, KC– or KC+ red (usnic acid absent) 42

40(39) Apothecia and pycnidia brown; podetia subulate, tapering to acute apices, simple or branching near tips, not sorediate, forming dense, intertwining swards ..... *Cladonia capitellata*
Apothecia and pycnidia bright red; podetia flaring towards the apices, neat or ± deformed cup-shaped, ± simple, scattered .. 41

41(40) Podetia with broad, neatly-shaped cups, ecorticate and sorediate in the upper part, K– (containing usnic acid and zeorin); apothecia rare, mostly evident only as minute dots at the rims of the cups ..... *Cladonia pleurota*
Podetia with rather deformed, narrow cups, coarsely corticate and not sorediate throughout, K+ yellow (containing usnic and thamnolic acids); apothecia often prominent, to 4 mm diam., clustered at the rims of the cups, often on marginal, corticate extensions ..... *Cladonia ustulata*

42(39) Apothecia scarlet red, in prominent, apical clusters to 1 cm wide; podetia pale grey, ± deformed cup-shaped, squamulose; basal thallus of erect squamules to c. 6 mm tall; K+ yellow (containing thamnolic acid and skyrin); a species of forest margins and heathlands, especially at high altitude, rare in rainforest ..... *Cladonia murrayi*
Apothecia or pycnidia brown; podetia not as above 43

43(42) Podetia with neat, well-developed cups to 7 mm wide 44
Apices of podetia subulate, blunt, or with terminal apothecia or minute cups < 1mm wide 46

44(43) Podetia ecorticate, or with granular soredia or corticate granules, especially within the cups, KC+ transient reddish (containing merochlorophaeic acid), simple or with secondary podetia developing from margins of the cups ..... *Cladonia merochlorophaea*
Podetia corticate, esorediate, KC–, usually developing tiers of podetia arising from the centre of each cup 45

45(44) Podetia with abundant squamules, especially around the margins of the cups, containing fumarprotocetraric and stictic acids; a rare species occurring at wet forest margins ..... *Cladonia kuringaiensis*
Podetia rarely with squamules, containing fumarprotocetraric acid; a common species of heathlands and wet sclerophyll forest, rare at the margins of rainforest ..... *Cladonia cervicornis* subsp. *verticillata*

46(43) Podetia ± completely corticate, neither sorediate nor squamulose, or with occasional scattered squamules at the base 47
Podetia ecorticate or corticate mainly at base, sorediate or with numerous scattered squamules or corticate granules along their length 50

47(46)	Podetia markedly longitudinally furrowed and split, with rounded fissures, containing atranorin; cortex becoming areolate [*Cladonia sulcata*]	48
	Podetia smooth, not furrowed, lacking atranorin; cortex entire	49
48(47)	Containing atranorin and bourgeanic acids only; rare	*Cladonia sulcata* var. *depleta*
	Containing atranorin, bourgeanic and stictic acids; an uncommon species usually consisting mainly of basal squamules	*Cladonia sulcata* var. *wilsonii*
49(47)	Podetia K–, Pd+ red (containing fumarprotocetraric acid), usually pale greenish; axils closed	*Cladonia gracilis* subsp. *tenerrima*
	Podetia K+ yellow, Pd+ orange (containing thamnolic acid with barbatic acid in the apothecia), usually pale ashen grey, becoming brownish when old; axils open	*Cladonia subsubulata*
50(46)	Podetia almost entirely densely farinose sorediate, ± antler-shaped with mostly subulate apices	51
	Podetia with scattered squamules, sorediate patches or corticate granules; apices subulate or with minute cups	52
51(50)	Podetia K–, Pd+ red (containing fumarprotocetraric acid), almost entirely ecorticate	*Cladonia corniculata*
	Podetia K+ yellow, Pd+ orange-yellow (containing thamnolic, barbatic and didymic acids), usually corticate at the base	*Cladonia weymouthii*
52(50)	Podetia to 8 cm tall, corticate in lower portions, becoming ecorticate, with numerous peeling squamules present along their length, lacking an obvious squamulose primary thallus and ± decaying at the base; apices bifurcate, subulate; Pd+ red (containing fumarprotocetraric acid); typically occurring on the forest floor	*Cladonia scabriuscula*
	Podetia to 4 cm tall, bearing squamules, corticate granules or soredia; apices acute or minutely cup-shaped; typically arising from a persistent squamulose primary thallus and occurring on peat, logs or trunks	53
53(52)	Podetia partly corticate, with discrete, farinose sorediate patches and occasional squamules; apices minutely cup-shaped; Pd+ red (containing fumarprotocetraric acid)	*Cladonia ochrochlora*
	Podetia lacking farinose soredia, corticate mainly at base, densely beset with squamules and/or granules	54
54(53)	Podetia K+ yellow, Pd+ orange-yellow (containing thamnolic acid with barbatic acid in the apothecia); occurring mainly on wood or bark	*Cladonia rigida*
	Podetia K–, Pd+ red (containing fumarprotocetraric acid); occurring on wood, bark, peat or soil	*Cladonia ramulosa*

55(36) Thallus clearly comprising two growth forms: a secondary, fruticose thallus bearing fruiting bodies, arising from a crustose or squamulose, basal, primary thallus 56
Thallus uniformly fruticose and lacking a primary, basal, squamulose or crustose thallus 62

56(55) Primary thallus squamulose, deeply lobed, coralloid-terete or ± flattened, 1–2 mm long; secondary thallus (podetia) very short, ± indistinct, developing from the tips of the squamules; apothecia black, ± globose, capitate; found mostly on *Eucalyptus* bark and wood ..... *Neophyllis melacarpa*
Primary thallus crustose or granular 57

57(56) Fruiting body consisting of a small, pale brown toadstool, arising from a green granular crust ..... *Omphalina umbellifera*
Fruiting body club-shaped, top-shaped, ± globose or disc-like... 58

58(57) Fruiting body a slender, club-shaped basidiocarp to c. 2 mm tall, whitish or orange ± throughout; lichenised members of the club fungi (Clavariaceae) [*Multiclavula*] 59
Fruiting body a pinkish to pale red-brown apothecium, disc-like, ± globose or top-shaped, supported on a whitish podetium to c. 1.5 mm tall 60

59(58) Fruiting body bright orange; on wet, disturbed soil, usually in moorland, rare at rainforest margins ..... *Multiclavula vernalis*
Fruiting body whitish to ± translucent; usually on rotting wood *Multiclavula mucida*

60(58) Apothecia solitary or in clusters on well-developed podetia usually 1–2 cm tall; common on disturbed soil 61
Apothecia solitary and ± sessile; uncommon, ± exclusively on rock. *Dibaeis absoluta*

61(60) Apothecia solitary on each podetium, bright rose-pink, convex and ± club shaped, immarginate; thallus K+ yellow, Pd+ yellow-orange, UV+ white (containing baeomycesic and squamatic acids), ecorticate, often sorediate ..... *Dibaeis arcuata*
Apothecia numerous and contorted or single on each podetium, whitish, flesh-coloured or pale to red-brown, ± flattened and disc-like, with a distinct margin paler than the disc; thallus K+ yellow→red, Pd+ orange, UV– (containing norstictic acid), corticate, not sorediate ..... *Baeomyces heteromorphus*

62(55) Thallus dark-coloured, blue-grey, olive-green or blackish; photobiont blue-green 63
Thallus usually paler, greenish or grey; photobiont green 66

63(62) Thallus virtually not apparent when dry, becoming gelatinous and swelling noticeably when wet; lobes minute, < 1 mm tall, knob-like and irregularly shaped, dispersed over the substratum; spores simple, ± globose; very rare ..... *Ramalodium* sp.
Thallus conspicuous even when dry, not or only slightly swelling when wet; lobes >1 mm tall, ± regular and tapering, not knob-like, forming swards or tufts; spores septate, not globose (thallus often sterile) 64

64(63) Thallus lobes to 5 mm long and 0.3 mm wide, erect or ascending, sparingly ± dichotomously branched, forming spreading swards; apothecia common, subglobose, nestling among the lobes ..... *Wawea fruticulosa*

Thallus lobes usually > 5 mm tall, intricately branched and tangled, forming tufts or dendroid clumps; apothecia rare or unknown 65

65(64) Major branches dull, pale brownish, robust, to 1 mm wide, sparingly branched at the base, becoming blue-grey, richly coralloid towards the tips; forming stalked, dendroid clumps, frequently bearing green leaflets of *Sticta stipitata* ..... *Dendriscocaulon dendriothamnodes*

Thallus ± entirely blue-grey, olive-green or ± blackish, glossy, very thin, delicate, densely branched and tangled, often decumbent at the tips; forming tufts; never stalked; green leaflets never present ..... *Polychidium contortum*

66(62) Thallus terete 67

Thallus flattened (at least in part) 78

67(66) Thallus attached firmly to rocks, ecorticate or with a discontinuous, flaky cortex, pale whitish grey, bearing globose or wrinkled, brownish grey to blue-grey cephalodia and, usually, finger-like to coralloid phyllocladia [*Stereocaulon*] 68

Thallus usually epiphytic, corticate throughout, grey to yellow-green, lacking cephalodia or phyllocladia 69

68(67) Thallus mostly 5–10 cm tall, usually loosely branched, not sorediate; apothecia red-brown; common on disturbed stony soil, especially at forest margins ..... *Stereocaulon ramulosum*

Thallus mostly < 2 cm tall, often forming dense, cushion-like clumps, typically sorediate; apothecia dark brown to black ..... *Stereocaulon corticatulum*

69(67) Thallus with an elastic, white, central axis (seen by pulling the strands); apothecia flat or concave, concolorous with the thallus; usually a canopy or twig species [*Usnea*] 70

Central axis absent; apothecia with a black, dry, mostly ± powdery mazaedium; usually a trunk species 76

70(69) Thallus ± mottled greyish red-brown, with abundant pale yellow isidia and pseudoisidia developing from elongated papillae ..... *Usnea rubicunda*

Thallus uniformly grey to yellow (sometimes discoloured brownish at the base); either fertile or with asexual propagules 71

71(70) Thallus mostly > 15 cm long, pendulous and straggly 72

Thallus mostly < 12 cm long, shrubby or subpendent 73

72(71) Cortex smooth; thallus very pale yellow to yellow-grey, lacking short, lateral, spine-like branchlets (fibrils); medulla K–, Pd+ red (containing fumarprotocetraric acid); common and widespread ..... *Usnea capillacea*

Cortex angular, ridged and cracked; thallus yellowish green-grey, with abundant, spine-like fibrils and isidia; medulla K+ yellow→red, Pd+ orange (containing norstictic acid); local in remnant rainforest patches in eastern Tasmania ..... *Usnea angulata*

73(71) Thallus lacking asexual propagules and pseudocyphellae, containing salazinic acid; apothecia terminal, usually numerous ..... *Usnea molliuscula*

Thallus with abundant soredia, isidia and/or pseudoisidia; pseudocyphellae present; apothecia subterminal, usually rare or absent 74

74(73) Medulla Pd+ bright yellow (containing psoromic acid); branches usually pseudocyphellate and isidiate ± along their entire length; typical species of dry or very exposed areas, rare in rainforest ..... *Usnea inermis*

Medulla Pd+ orange or red; isidia, soredia and/or pseudocyphellae rather scattered and mostly towards branch apices; common in rainforest 75

75(74) Salazinic acid present (medulla Pd+ orange, K+ yellow→red); secondary branches often constricted at point of attachment to main stem; short, spike-like laterals ± numerous; common and widespread ..... *Usnea oncodes*

Fumarprotocetraric acid present (medulla Pd+ red, K± pale sordid brown); secondary branches tapered, ± without constrictions or short, spike-like laterals; rather local in high altitude forests ..... *Usnea xanthopoga*

76(69) Thallus pale grey or whitish; branches of ± uniform thickness, forming tangled clumps and cushions; apothecia strictly terminal, carried conspicuously above the mass of the thallus on stouter branches; spores hyaline to grey, 6–8 µm diam. .... *Leifidium tenerum*

Thallus pale yellowish to yellowish green (containing isousnic acid), with wider main branches bearing richly branched, brittle laterals; apothecia subterminal on ventral surface of main branches [*Bunodophoron*] 77

77(76) Spores pale grey to brownish grey, 7.5–10 (–11.5) µm diam.; thallus of stout main branches bearing bundles of short, ± coralloid laterals; common ..... *Bunodophoron ramuliferum*

Spores reddish brown, (10–) 12–15 (–17) µm diam.; thallus slender, richly branched; ultimate branches long, not in bundles; rare in Tasmania and confined to callidendrous rainforest ..... *Bunodophoron notatum*

78(66) Thallus white to very pale grey, uniformly coloured, K+ yellow (containing thamnolic acid); fruiting bodies unknown [*Siphula*] 79
Thallus olive-brown, greenish yellow or pale greenish blue, with a darker upper surface and a usually off-white lower surface, K–; apothecia present or absent 80

79(78) Thallus very pale grey, sometimes with a faint bluish tinge, forming ± compacted tufts; lobes to 5 mm wide, branched and convoluted, with numerous fenestrations, scabrid, particularly on the underside ..... *Siphula decumbens*
Thallus chalky white, subpendulous when well-developed; lobes 0.5–1.2 mm wide, sparingly branched, markedly strap-shaped to subterete, elongate, without fenestrations, smooth or scabrid ..... *Siphula* sp.

80(78) Lobes 1–2 mm long; apothecia black, globose, terminal on short (< 2 mm) podetia; typically confined to dead wood, *Eucalyptus* bark or peat ..... *Neophyllis melacarpa*
Lobes usually longer than 5 mm; apothecia with a black, dry, powdery mazaedium, subterminal on the underside of the main lobes; on various substrates, typically on bark or amongst bryophytes [*Bunodophoron*] 81

81(80) Medulla Pd+ red (containing protocetraric acid); spores reddish brown. 82
Medulla Pd– or + pale orange (lacking protocetraric acid but sometimes containing stictic acid); spores reddish brown or grey 86

82(81) Mazaedium ± covered by the white thalline receptacle which ruptures at maturity 83
Mazaedium well-exposed early in development 84

83(82) Spores 15–18.5 (–20) µm diam.; mazaedium exposed at maturity through a round hole in the thalline receptacle; very rare in Tasmania ..... *Bunodophoron tibellii*
Spores 10–14 (–16) µm diam.; mazaedium exposed at maturity through an irregular crack in the thalline receptacle; very common and widespread ..... *Bunodophoron insigne*

84(82) Spores 6–8 (–10) µm diam.; fertile branches not or only very sparingly branched, often tongue-like; found mostly in implicate rainforests ..... *Bunodophoron imshaugii*
Spores more than 10 µm diam.; fertile branches sparingly or richly branched 85

85(84) Main branches crowded and imbricate, rather richly divided, with abundant, short, often ± coralloid lateral branchlets along the margins and fringing the apothecia; mostly in callidendrous rainforest ..... *Bunodophoron murrayi*
Main branches scattered, sparingly divided and loosely decumbent; margins of branches and apothecia mainly smooth and entire, with occasional, regularly-tapering, flattened lateral branchlets; local in implicate or thamnic rainforests ..... *Bunodophoron flaccidum*

86(81) Thallus mostly with a yellow tinge (containing isousnic acid); ultimate branchlets terete and brittle 87
Thallus not yellowish (lacking isousnic acid); ultimate branchlets flattened, rarely terete 88

87(86) Spores pale grey to brownish grey, 7.5–10 (–11.5) µm diam. (see also couplet 77) ..... *Bunodophoron ramuliferum*
Spores reddish brown, (10–) 12–15 (–17) µm diam. ..... *Bunodophoron notatum*

88(86) Branches supporting the apothecia ± subterete (at least partly), less than twice as broad as thick (broadly flattened sterile or basal branches may be present also); spores 5–12 µm diam.; sphaerophorin and stictic acid present 89
All branches markedly flattened, mostly more than twice as broad as thick; spores 10–14 (–16) µm diam.; sphaerophorin and stictic acid absent 90

89(88) Upper surface grey-green to brownish olive-green, matt; fertile branches subterete, mostly arising from apices of broadly flattened basal branches; apothecia distinctly enlarged, almost hemispherical, notably wider than supporting branch; spores reddish to brownish grey, 8–12 µm diam. ..... *Bunodophoron macrocarpum*
Upper surface mostly pale bluish grey, often ± glossy; all branches slightly flattened, repeatedly branched; apothecia ± as broad as supporting branch; spores hyaline to pale grey, 5–8.5 (–9) µm diam. ..... *Bunodophoron australe*

90(88) Upper surface grey to greyish green, ± frosty-pruinose in younger parts; fertile branches c. 5–14 mm wide, waisted below a ± conical apothecium with flared margins and coarsely scrobiculate upper surface; spores grey to reddish brown, 10–14 µm diam.; ± confined to implicate rainforest *Bunodophoron scrobiculatum*
Upper surface greyish green to brownish olive-green, not pruinose; fertile branches to c. 5 mm wide; apothecium ± flattened, ± as wide as supporting branch, neither conical nor with flared margins, with upper surface smooth to undulate; spores reddish brown, 10–14(–16) µm diam.; mostly in high altitude callidendrous rainforest ..... *Bunodophoron patagonicum*

91(28) Thallus homoiomerous, entirely blue-grey, blackish or olive-green, often swelling noticeably when wet and becoming ± gelatinous; photobiont blue-green 92
Thallus heteromerous, variously coloured, never swollen or gelatinous when wet; photobiont blue-green or green 108

92(91) Thallus extremely turgid and pulpy when wet 93
Thallus sometimes ± swollen when wet but nevertheless remaining flat 98

93(92) On wet rocks or soil, mostly amongst bryophytes; spores simple *Lempholemma polyanthes*
Epiphytic, usually on moist, thick bark; spores simple or septate 94

94(93)	Spores simple and globose [*Physma*]	95
	Spores septate and fusiform to acicular [*Collema fasciculare*].	96
95(94)	Thallus pale grey tomentose on the upper surface, lacking isidia; margins of apothecia ± white pruinose	*Physma chilense*
	Thallus not tomentose, uniformly olive-green to blackish, with fenestrations and ridges covered with granular isidia when dry, swelling to a pulpy, granular cushion when wet; apothecia not pruinose	*Physma* sp.
96(94)	Thallus with abundant, granular to wart-like isidia; apothecia minute, < 0.3 mm diam., ± semi-immersed in the ridges of the thallus, usually absent or very easily overlooked; spores (65–) 100–170 µm long	*Collema fasciculare* var. *microcarpum*
	Isidia absent; apothecia not immersed, common and conspicuous, 0.2-3 mm diam.; spores 50–95 (–110) µm long	97
97(96)	Apothecia to 0.5 mm diam.; thallus with broad lobes and ridges, minutely greyish downy-tomentose	*Collema fasciculare* var. *colensoi*
	Apothecia to 3 mm diam., crowded and often ± obscuring the thallus; thallus intensely convoluted and ridged when dry, not tomentose	*Collema fasciculare* var. *fasciculare*
98(92)	Thallus with a cortex of connate cells of ± equal size with angular walls (seen in surface view under the compound microscope) [*Leptogium*]	99
	Thallus lacking a cortex, occasionally with a pseudocortex of ± discrete, rounded cells of various sizes [*Collema*]	103
99(98)	Thallus distinctly wrinkled, rather robust, usually lobulate or with squamiform isidia	*Leptogium victorianum*
	Thallus lacking significant wrinkles, thin and papery; lobules and/or isidia present or absent	100
100(99)	Spores to 17 µm long, bilocular; thallus small, with ± ragged lobes to 2.5 mm wide, lacking isidia; lower surface naked	*Leptogium biloculare*
	Spores > 20 µm long, muriform; thallus lobes to 7 mm wide; isidia typically present; lower surface tomentose or with distinct bundles of rhizines	101
101(100)	Underside uniformly whitish grey-tomentose with a broad, naked marginal zone	*Leptogium menziesii*
	Underside lacking a uniform tomentum but typically with conspicuous bundles of pale shaggy rhizines	102
102(101)	Apothecia abundant, to 4 mm diam., with microscopic basal hairs; squamiform marginal or laminal isidia occasional	*Leptogium tasmanicum*
	Apothecia rare, to 1.5 mm diam., lacking hairs; squamiform isidia abundant, ± confined to lobe margins and forming a dense fringe	*Leptogium limbatum*

103(98) Thallus ± covered with numerous globular isidia; apothecia rare or absent ..... *Collema subflaccidum*
Isidia absent or lobulate-squamiform; apothecia usually abundant 104

104(103) Thallus surface prominently ridged, pustular and ± fenestrate, particularly when wet ..... *Collema glaucophthalmum*
Thallus often irregularly folded and undulate but surface smooth, not pustular 105

105(104) Spores muriform, broadly fusiform to ellipsoid; thallus bluish grey to olive-green ..... *Collema subconveniens*
Spores transversely septate only, acicular; thallus usually dark olive-green 106

106(105) Apothecia to 1.5 mm diam., superficial, with a thick, cellular pseudocortex ± on the underside of the thalline margin; disc strongly white-pruinose ..... *Collema leucocarpum*
Apothecia mostly to 0.75 mm diam., immersed when young, slowly becoming emergent; thalline margin of apothecia non-corticate; disc pruinose or not pruinose [*Collema laeve*] 107

107(106) Apothecial disc pruinose; proper exciple of apothecium (in section) composed of small elongate cells ..... *Collema laeve* var. *laeve*
Apothecial disc not pruinose; proper exciple (in section) composed of large isodiametric cells ..... *Collema laeve* var. *senecionis*

108(91) Undersurface black and shiny, without rhizines or a tomentum 109
Undersurface white to brown, if black then with rhizines or a tomentum 136

109(108) Upper surface without perforations; lobes solid or hollow ... 110
Upper surface with few to numerous perforations; lobes always hollow [*Menegazzia*] 118

110(108) Upper surface green, suffused brownish or olive; lobes minute (to 1 mm wide), short and crowded; isidia present (sometimes sparsely), hollow, ± decumbent [*Menegazzia*] ... 111
Upper surface grey, sometimes partially blackened; lobes larger, elongate; isidia never present [*Hypogymnia*] 112

111(110) Upper surface olive or suffused red-brown; medulla Pd–, K– (containing protolichesterinic acid); isidia sparse, ± globular; thallus small, < 10 mm across; very rare, on twigs ..... *Menegazzia minuta*
Upper surface grey-green, rarely ± suffused brownish olive-green; medulla Pd+ orange, K+ yellow (containing stictic acid); isidia conspicuous, finger-like, rather crowded; thallus forming rosettes, usually > 20 mm across; on trunks ..... *Menegazzia eperforata*

112(110) Thallus with ± diffuse, laminal soralia 113
Thallus not sorediate 114

113(112) Main lobes mostly hollow; marginal lobes generally deeply divided and separate; an occasional species in high altitude callidendrous rainforest ..... *Hypogymnia subphysodes*
Main lobes solid; marginal lobes generally contiguous; a species of dead wood in sclerophyll forest, very rare in rainforest ..... *Hypogymnia pulverata*

114(112) Main lobes solid, ± flattened ..... *Hypogymnia mundata*
Main lobes mostly hollow, terete or subterete 115

115(114) Medulla Pd+ orange (containing physodalic acid) 116
Medulla Pd– 117

116(115) Lobes deeply divided, separate and elongate throughout; apothecia scattered, lacking a swollen, cup-shaped base when young; common ..... *Hypogymnia lugubris*
Lobes divided at the margin of the thallus, contiguous in the centre; apothecia clustered, with a swollen cup-shaped base when young; uncommon in rainforest, found mostly in open vegetation at high altitude ..... *Hypogymnia enteromorphoides*

117(115) Medulla adjacent to cavity completely blackened; very common ..... *Hypogymnia tasmanica*
Medulla adjacent to cavity white or only a little discoloured; uncommon in rainforest ..... *Hypogymnia turgidula*

118(109) Thallus not sorediate, commonly fertile 119
Thallus sorediate, rarely fertile 128

119(118) Lobes 0.5–1 mm wide 120
Lobes 1.5–6 mm wide 121

120(119) Perforations very numerous, forming a lace-like network; lobes markedly flattened at apices; common canopy species ..... *Menegazzia myriotrema*
Perforations scattered, not forming a lace-like network; lobe apices ± terete; very rare ..... *Menegazzia prototypica*

121(119) Upper cortex reddish to dark chestnut brown (or brownish grey in extreme shade); subalpine–alpine species, very rare in rainforest ..... *Menegazzia testacea*
Upper cortex very pale grey or green-grey (lobe apices may be suffused brownish) 122

122(121) Lobes 4–6 mm wide; upper surface distinctly wrinkled; margin of apothecium markedly inflated and corrugated ..... *Menegazzia corrugata*
Lobes 1.5–3 mm wide; upper surface smooth or at most faintly rugose; apothecial margin smooth, thin, not inflated or corrugated 123

123(122) Lobes noticeably constricted at axils, ± inflated and elongate sausage-shaped; medulla K+ yellow, Pd+ orange (stictic acid) and containing an unknown UV++ yellow substance (detectable by t.l.c.) ..... *Menegazzia elongata*

Lobes not constricted at axils, short, congested and ± convolute, especially in the centre of the thallus; medulla K±, Pd±, lacking a UV++ yellow substance 124

124(123) Upper part of internal wall of medullary cavity white, with streaks of a bright orange-yellow anthraquinone pigment, K+ purple, UV+ orange, especially near the lobe tips; spores 8 per ascus; very rare in Tasmania ..... *Menegazzia* sp.

Internal wall of medullary cavity white or blackened, K– or K+ yellow, UV-, occasionally in part pale yellowish but then not reacting K+ purple; spores 2 or 8 per ascus 125

125(124) Medulla Pd–, K– (containing fatty acids) 126

Medulla Pd+ orange, K+ yellow or red (containing stictic or norstictic acids) 127

126(125) Spores 8 per ascus; upper surface of thallus ± shiny and smooth (use lens), pale grey, with a faint ± bluish tinge; margins of apothecia radially cracked, becoming scabrid and brownish; very common on trunks and twigs, especially in the rainforest canopy ..... *Menegazzia weindorferi*

Spores 2 per ascus; upper surface ± matt, often faintly rugose (use lens), pale cream-grey; apothecial margins with occasional radial cracks but remaining generally smooth and uncoloured; uncommon in rainforest ..... *Menegazzia confusa*

127(125) Medulla K+ yellow→red (containing norstictic acid); rare .... *Menegazzia norstictica*

Medulla K+ persistent yellow (containing stictic acid); common ..... *Menegazzia platytrema*

128(118) Upper surface yellow (containing usnic acid); soralia in laminal, helmet-shaped pustules; medulla C+ red (containing lecanoric acid); ± confined to high altitudes ..... *Menegazzia globulifera*

Upper surface pale grey to brownish green; soralia not helmet-shaped; medulla C– (lacking both usnic and lecanoric acids) 129

129(128) Lobes < 1 mm wide; upper surface brownish green to grey-green, conspicuously white-maculate towards the lobe apices; soralia derived from coarse, abraded laminal pustules ..... *Menegazzia nothofagi*

Lobes > 1 mm wide; upper surface grey, not maculate; soralia superficial or derived from pustules 130

130(129) Upper part of internal wall of medullary cavity orange-yellow, K+ purple, UV+ orange (containing anthraquinone pigments) ..... *Menegazzia caliginosa*

Internal wall of medullary cavity white or blackened, lacking orange-yellow pigments, K+ yellow or K– 131

131(130) Medulla and soralia Pd–, K– 132
Medulla and soralia Pd+ orange, K+ yellow (containing stictic acid as a major substance) 133

132(131) Medulla and soralia UV-, KC- (containing fatty acids); soralia markedly elevated on torn, flaring, cone-like perforations .. *Menegazzia inactiva*
Medulla and soralia UV+ white, KC+ pink (containing alectoronic acid); soralia laminal or unevenly developed near the edges of the perforations, not significantly elevated ..... *Menegazzia ultralucens*

133(131) Lobes noticeably constricted at axils, ± inflated and elongate sausage-shaped, usually unorientated, dispersed or crowded; medulla containing a UV++ unknown yellow substance (detectable by t.l.c.) ..... *Menegazzia subbullata*
Lobes not constricted at axils, typically forming radiating rosettes; medulla lacking UV++ yellow substance 134

134(133) Upper surface with scattered pustules to c. 2 mm wide which become irregularly torn, sorediate and resemble cone-like, markedly elevated perforations ..... *Menegazzia kantvilasii*
Pustules absent; soralia laminal or developed at the edges of the perforations 135

135(134) Margins of perforations flush with upper surface; soralia mostly laminal, often orbicular, sometimes in scattered confluent patches; upper surface faintly pruinose, especially near the lobe apices; common species of sclerophyll forest, rare in rainforest ..... *Menegazzia subpertusa*
Margins of perforations elevated, with ragged, irregular soralia; upper surface ± glossy; uncommon ..... *Menegazzia neozelandica*

136(108) Apothecia broadly adnate on the underside of lobe apices; undersurface naked or finely pubescent; thallus foliose [*Nephroma*] 137
Apothecia never on the thallus underside; undersurface typically with rhizines or a tomentum; thallus foliose, squamulose or placodioid 140

137(136) Upper surface yellow-green to bronze-green; photobiont green .... *Nephroma australe*
Upper surface dark brown, grey-brown to blue-green; photobiont blue-green 138

138(137) Upper surface smooth to undulate, with abundant terete to squamiform phyllidia; lower surface smooth, pale to dark brown to black; lobes fragile, mostly < 5 mm wide; a species of moist mossy rocks in eucalypt forest, very rare in rainforest ..... *Nephroma rufum*
Upper surface deeply reticulate and faveolate, with or without phyllidia; lower surface bullate and whitish; lobes robust, mostly 5–10 mm wide; typically epiphytic [*Nephroma cellulosum*] 139

139(138)	Terete to squamiform phyllidia present along the thallus ridges and fringing the margins of the lobes; rare	*Nephroma cellulosum* var. *isidioferum*
	Lacking phyllidia; common, especially at scrubby rainforest margins	*Nephroma cellulosum* var. *cellulosum*
140(136)	Underside with distinct pale or brown veins bearing bushy rhizines; apothecia marginal, elevated on the tips of ascending, finger-like, often recurved lobes; photobiont blue-green; large, dark blue-green to brownish species of the forest floor, on soil, logs or buttresses of trees [*Peltigera*]	141
	Underside without veins; apothecia laminal, not elevated on finger-like lobes; photobiont green or blue-green; mainly epiphytic	142
141(140)	Upper surface naked, ± glossy, not sorediate; common	*Peltigera dolichorhiza*
	Upper surface downy-tomentose, with or without soredia	*Peltigera didactyla*
142(140)	Thallus squamulose, pale bluish grey to dark lead grey; underside orange or yellow, K+ crimson; on peaty soil at rainforest margins, especially at high altitudes	*Trapeliopsis colensoi*
	Thallus squamulose, foliose or placodioid, variously coloured; underside never orange or yellow; on soil, rock, wood or bark	143
143(142)	Photobiont blue-green; thallus pale to dark bluish grey, lead grey, dark brown-grey to dull brown	144
	Photobiont green; thallus pale whitish grey, pale brown, green, grey-green, yellowish or shiny olive-brown; blue-grey, brown or flesh-coloured cephalodia often present	161
144(143)	Thallus sorediate	145
	Thallus not sorediate	149
145(144)	Thallus squamulose, occasionally forming a granular sorediate crust, especially centrally, Pd+ orange (containing argopsin); confined to high altitudes (mainly on *Richea scoparia*)	*Siphulastrum granulatum*
	Thallus foliose, never forming a sorediate crust, Pd±	146
146(145)	Upper surface of thallus distinctly downy, arachnoid-tomentose or hairy	147
	Upper surface of thallus scabrid but not tomentose [*Fuscoderma*]	148
147(146)	Thallus Pd+ orange (containing eriodermin), attached centrally with ± free, markedly involute lobes; soralia scattered or marginal on the lower surface; upper surface greyish brown when dry	*Erioderma sorediatum*
	Thallus Pd–, forming loosely adnate rosettes of radiating lobes with ± ascending margins; soralia marginal, mainly on the upper surface; upper surface pale greyish when dry	*Leioderma sorediatum*

148(146) Lobes plane to undulate, with adnate margins, pale bluish grey to dull olive-grey when dry; soralia ± concolorous, scattered, marginal or laminal on the upper surface; common ..... *Fuscoderma amphibolum*

Lobes concave, with ascendent to involute margins, brown when dry; soralia pale bluish grey, discretely labriform along the underside of the lobe margins; uncommon ..... *Fuscoderma limbatum*

149(144) Marginal lobes ± broadly rounded, with margins recurved; upper surface pale blue-grey, ± faintly striate (use lens); lower surface typically with a dense, felt-like mat of bluish grey or cream rhizines ± extending to the lobe margins [*Degelia*] 150

Marginal lobes incised; margins adnate, ascending or incurved; upper surface blue-grey to brownish, not striate; rhizines sparse or in thick tufts but rarely forming a continuous mat to the lobe margins 152

150(149) Thallus with granular to terete, coralloid isidia ..... *Degelia durietzii*

Granular or terete isidia absent; thallus sometimes lobulate 151

151(150) Apothecia with a proper exciple only; thallus not or only very sparsely lobulate; locally common at scrubby rainforest margins ..... *Degelia gayana*

Apothecia with a proper exciple and a ± incomplete, thalline margin of coalescing lobules; thallus densely lobulate centrally; rare ..... *Degelia duplomarginata*

152(149) Thallus lobes thin and fragile, loosely attached centrally, with margins ± free, rather torn or entire, incurved when dry; common on twigs ..... *Leioderma pycnophorum*

Thallus lobes typically rather coriaceous, or tightly adnate, with margins entire, crenulate or lobulate; mostly on trunks or logs 153

153(152) Apothecia lecanorine, with a conspicuous, persistent thalline margin 154

Apothecia lecideine, rarely with a few enveloping marginal, thalline squamules [*Parmeliella* sens. lat.] 156

154(153) Hymenium I+ blue-green→yellow-brown; ascus with a distinct apical amyloid plug; squamules dark grey to brown-grey, more rarely pale lead grey, thick, sometimes ± ascending; prothallus usually poorly developed; apothecia usually crowded to ± contiguous; disc red-brown to dark brown; usually found at forest margins, mostly on rather thick, fibrous bark ..... *Pannaria decipiens*

Hymenium I+ blue, blue-green or yellow-brown; ascus apex non-amyloid; squamules pale lead grey, thin, adnate throughout on a conspicuous black prothallus; apothecia scattered; disc mostly pale orange-brown; uncommon on smooth bark in the forest understorey 155

155(154) Marginal squamules broad and ± flabellate; apothecial disc smooth; thalline margin ± lobulate and interrupted; proper exciple prominent and pale; hymenium soon I+ yellow-brown ..... *Degelia rosulata*

Marginal squamules not flabellate; apothecial disc with faint, gyrose markings and a central depression; thalline margin continuous and crenulate, obscuring the proper exciple; hymenium I+ persistent blue ..... *Pannaria immixta*

156(153) Thallus squamulose, consisting of numerous, small, contiguous or scattered scales, typically over a conspicuous black prothallus, sometimes ± subcrustose centrally and lobed only at the margin 157

Thallus foliose, sometimes only minutely, with well-defined, radiating, loosely attached or tightly adnate lobes; prothallus absent 158

157(156) Hymenium I+ pale blue-green, partly fading to pale yellow-brown; squamules very finely divided and incised, with marginal, erect to ascending, subterete, isidia-like lobules; apothecia with pale orange to pale yellow-brown disc and with proper exciple often flexuose; on smooth bark in shade ..... *Parmeliella* sp.

Hymenium I+ persistent deep blue; squamules crenulate or lobulate but without subterete isidia; apothecia with orange-brown to dark brown disc and with proper exciple not flexuose; a polymorphic species on smooth or fibrous bark, or wet rocks, in rainforest, sclerophyll forest and scrub ..... *Parmeliella nigrocincta*

158(156) Lobes distinctly concave, with thickened, ascending apices, typically > 1 mm wide; apothecia dull dark brown or blackened 159

Lobes plane, < 0.5 mm wide; apothecia bright orange to reddish brown 160

159(158) Upper surface pale blue-grey, markedly scabrid; lobe margins with occasional, scattered, ± decumbent lobules; lower surface with dense, pale to blue-grey rhizines; uncommon on mossy trunks ..... *Parmeliella granulata*

Upper surface dull olive-brown to grey-brown, smooth; lobe margins usually with very dense, ± erect lobules, especially in the centre of the thallus; lower surface lacking dense or conspicuous rhizines; mostly on dead wood ..... *Parmeliella thysanota*

160(158) Marginal lobes mostly > 0.3 mm wide, entire; forming discrete, orbicular thalli c. 3-5 mm diam., frequently coalescing into larger colonies; directly on wood or bark ..... *Parmeliella concinna*

Marginal lobes minutely lacerate and subdivided into ± subterete, decumbent lobules < 0.2 mm wide; forming ± dispersed, irregular thalli over bryophytes; very rare ..... *Parmeliella coerulescens*

161(143) Thallus placodioid, occurring directly on rock or bare, inorganic soil [*Placopsis*] 162
Thallus squamulose or foliose, mostly corticolous or on peaty soil 163

162(161) Thallus sorediate and/or with rose pink, lecanorine apothecia; mostly on rock ..... *Placopsis gelida*
Thallus isidiate; isidia terete, to 5 mm tall, sometimes crowded and ± obscuring the thallus; apothecial disc pale to dark brown; typically on basaltic soil ..... *Placopsis trachyderma* var. *clavifera*

163(161) Thallus squamulose, comprising numerous, small, contiguous or dispersed scales, or ± subcrustose centrally and lobed only at the margin 164
Thallus foliose, with well-defined, radiating, loosely attached or tightly adnate lobes 177

164(163) Squamules pale grey, sometimes with a ± bluish tinge, distinctly cochleate, with ± thickened, neatly inrolled margins; very rare in rainforest ..... *Normandina pulchella*
Squamules not cochleate, variously coloured; margins not inrolled 165

165(164) On peaty soil, mostly at forest margins; apothecia lecideine, with disc bright pink to pale brown; spores 1-septate ..... *Knightiella splachnirima*
Typically epiphytic; apothecial disc red-brown, dark brown to blackish; spores simple 166

166(165) Cephalodia absent; apothecia orange to deep rusty red-brown; thallus C+ red (containing gyrophoric acid) ..... *Trapeliopsis congregans*
Cephalodia present; apothecia pale orange-brown to black-brown; thallus C– 167

167(166) Squamules yellow-green (containing usnic acid), with marginal granular soredia ..... *Psoroma soccatum*
Squamules yellow-green, green or greenish grey, not sorediate 168

168(167) Apothecia lecideine [*Psoromidium*] 169
Apothecia lecanorine [*Psoroma*] 170

169(168) Apothecia ± clustered, red-brown to black-brown; squamules pale blue-grey when dry, bright green when wet; prothallus well-developed, ± byssoid; forming large patches up to 10 cm wide on tree trunks, rarely on rocks ..... *Psoromidium aleuroides*
Apothecia scattered, red-brown; squamules pale to ± translucent green when dry, pale green when wet; prothallus absent or thin; tiny, ± subcrustose twig species ..... *Psoromidium versicolor*

170(168) Margins of apothecia with dense tomentum of long hairs; squamules inconspicuous, ± granular; amongst bryophytes on tree trunks in high altitude forest ..... *Psoroma paleaceum*
Apothecial margins naked; squamules conspicuous, not granular; mainly corticolous 171

171(170) Squamules very closely appressed, ± contiguous and usually forming a crust 172
Squamules at least partially ascending, ± discrete and dispersed, not forming a crust 175

172(171) Thallus pale ash grey, Pd+ orange (containing pannarin); uncommon, mainly in subalpine and alpine areas ..... *Psoroma caliginosum*
Thallus a shade of green or yellow, Pd– 173

173(172) Squamules dull green when wet, olivaceous green-grey when dry, deeply incised, lacking any lichen substances detectable by t.l.c.; prothallus very thin, patchy, film-like, grey-black ..... *Psoroma* sp. 1
Squamules pale green, yellow-green or yellow-grey, crenulate-lobulate, containing lichen substances detectable by t.l.c.; prothallus well-developed, thick, black, often ± byssoid .. 174

174(173) Squamules pale green to yellow-green (containing usnic acid); apothecia mostly 1.5–3 mm diam.; apothecial disc rarely with thalline inclusions; spores with a thick, smooth epispore which has prominent, broadly acuminate to rounded apices, 18–29 x 12–15 µm (including epispore); common ..... *Psoroma pholidotoides*
Squamules pale yellow-grey (containing leprolomin, diploicin and vicanicin); apothecia mostly 0.5–1 mm diam.; disc commonly with thalline inclusions; spores subglobose, with distinctly warted epispore, 8–12 µm diam.; uncommon ..... *Psoroma* sp. 5A

175(171) Squamules pale greenish grey, Pd+ orange (containing pannarin); apothecial disc red-brown to dark brown, ± pruinose when young; cephalodia not apparent; spores with smooth epispore ..... *Psoroma* sp. 3
Squamules bright green when wet, grey-green when dry, Pd– ; apothecial disc orange-pink, not pruinose; cephalodia conspicuous, usually abundant; spores with minutely roughened epispore 176

176(175) Squamules ascending, becoming almost perpendicular to the substrate, deeply dissected, elongate, c. 0.5 mm wide, forming a fruticose cushion c. 5 mm tall; apothecia 2-3 mm diam.; containing no lichen substances detectable by t.l.c. .. *Psoroma* sp. 2
Squamules only partially ascending (mainly at the margins), ± roundish with shallowly incised, ± crenulate margins; apothecia mostly to 1.5 mm diam.; containing porphyrilic acid and a fatty acid ..... *Psoroma asperellum*

177(163) Upper surface brown to olive 178
Upper surface a shade of grey, green or yellow 179

178(177) Lobes elongate, ± ascending with ± obscurely sorediate margins; undersurface cream to fawn, glossy; rhizines very sparse; medulla C– (containing protolichesterinic acid) ... *Tuckermannopsis chlorophylla*

Lobes rounded and imbricate, ± entirely adnate; soralia terminal to submarginal (frequently very sparse); undersurface tan to black; rhizines abundant; medulla C+ red (containing gyrophoric acid) ..... *Melanelia subglabra*

179(177) Upper surface distinctly yellow (containing usnic acid) 180

Upper surface a shade of grey or green, very rarely yellowish grey (lacking usnic acid) 183

180(179) Lobes irregular, tightly adnate and contiguous throughout, mostly < 1.5 mm wide, sorediate, forming neatly orbicular thalli; very rare on trunks in alpine areas ..... *Parmeliopsis ambigua*

Lobes ± linear, elongate, ± loosely attached and separate, to 3 mm wide; soredia present or absent 181

181(180) Thallus sorediate; soralia on ascending, ± recurved lobe apices; axils of branches broadly rounded; undersurface black, ± uniformly covered with numerous, branched, black rhizines; medulla K+ yellow→red (containing salazinic acid) ..... *Hypotrachyna sinuosa*

Thallus not sorediate; lobe apices not recurved; axils of branches ± angular; undersurface pale, with dense, dark brown to black prothallus, forming contiguous, cushion-like clumps; medulla K– (containing divaricatic acid) [*Pannoparmelia*] 182

182(181) Thallus isidiate; common species of sclerophyll forest, rarely found on eucalypt wood at rainforest margins ..... *Pannoparmelia wilsonii*

Thallus not isidiate; common rainforest canopy species ..... *Pannoparmelia angustata*

183(179) On peaty soil, mostly at forest margins; apothecia lecideine, with disc bright pink to pale brown ..... *Knightiella splachnirima*

On bark, wood or rock, or overgrowing epiphytic bryophytes; apothecia lecanorine (often absent) 184

184(183) Upper surface green, pale greenish, yellowish grey or greenish grey, K–; lower surface with a pale tomentum or a black, often byssoid prothallus, lacking rhizines; cephalodia present [*Psoroma*] 185

Upper surface whitish grey, K+ yellow (atranorin present); lower surface with brown or black rhizines (sometimes sparse); cephalodia absent 193

185(184) Cephalodia dissolving into conspicuous blue-grey soredia; thallus lobes not sorediate ..... *Psoroma durietzii*

Cephalodia not sorediate, sometimes ± obscure; thallus lobes with or without soredia 186

186(185) Thallus sorediate 187
Thallus not sorediate 189

187(186) Lobes 1–2 mm wide, bright green when wet, grey-green when dry, rather olive brownish in storage; soredia derived from abraded lobe margins; containing isovicanicin; atypical high altitude form of this taxon (see couplet 192) ..... *Psoroma microphyllizans*
Lobes 2–5 mm wide, persistently pale greenish grey when wet or dry; soredia marginal, coarsely granular 188

188(187) Thallus Pd+ orange (containing pannarin) ..... *Psoroma leprolomum*
Thallus Pd– ..... *Psoroma* sp. 6

189(186) Thallus Pd+ orange (containing pannarin), lacking a prothallus; lobes generally 2–4 mm wide, at least in older parts of the thallus; margins entire, not phyllidiate 190
Thallus Pd–, frequently with a black prothallus; lobes 1-2 mm wide; margins typically phyllidiate-lobulate 191

190(189) Thallus attached ± centrally, with marginal lobes loose, free, radiating and ascending; containing pannarin and porphyrilic acid; on twigs and leaves of undershrubs ..... *Psoroma euphyllum*
Thallus lobes adnate and contiguous throughout; containing pannarin only; extremely rare ..... *Psoroma* sp. 7

191(189) Spores subglobose, 10.5–13.5 x 7–11.5 µm; phyllidia ± erect, incised, very delicate; containing allorhizin ..... *Psoroma* sp. 5
Spores ellipsoid, 14–22 x 7.5–12 µm; phyllidia decumbent, lobulate to coarsely wart-like 192

192(191) Thallus bright green when wet, grey-green when dry, turning ± olive brownish in storage, tightly adnate; upper surface smooth; phyllidia rather wart-like, commonly in part eroded; containing isovicanicin; very common throughout rainforest, mostly on smooth bark ..... *Psoroma microphyllizans*
Thallus pale greyish green, occasionally with a ± yellowish tinge when wet or dry, rather loosely attached, with brown to black bushy rhizines often visible beneath lobe apices; upper surface minutely scabrid; phyllida ± lobulate, never eroded; containing vicanicin and leprolomin; restricted to scrubby rainforest margins and to wet sclerophyll forest .... *Psoroma* sp. 4

193(184) Undersurface ecorticate, white, with scattered black rhizines; thallus with marginal squamules which become coarsely sorediate ..... *Heterodermia microphylla*
Undersurface corticate, black, brown or rarely ivory, with numerous rhizines; thallus sorediate or esorediate but never with marginal squamules 194

194(193) Upper surface marked with white, ± sigmoid or elongate maculae which often become cracks (pseudocyphellae)... 195
Upper surface without maculae or pseudocyphellae 203

195(194) Lobes with conspicuous, black, marginal cilia; a species of sclerophyll forest, very rare in rainforest ..... *Rimelia reticulata*
Lobes lacking marginal cilia [*Parmelia*] 196

196(195) Thallus sorediate 197
Thallus not sorediate 200

197(196) Soredia mainly laminal; a species of dry habitats, very rare in rainforest where it is confined to isolated gully stands in eastern Tasmania ..... *Parmelia erumpens*
Soredia mainly marginal on upturned, concave lobes 198

198(197) Lobes mostly 1–2.5 mm wide, ± linear and elongate, often separate, with ± truncate apices and ± rounded axils; upper cortex frequently with numerous transverse cracks; soredia coarsely granular; medulla Pd+ red, K– or K+ brownish (containing protocetraric acid) ..... *Parmelia protosulcata*
Lobes mostly 3–7 mm wide, ± irregularly rounded and overlapping; axils irregularly incised; upper cortex rarely cracked; soredia ± farinose; medulla Pd+ orange, K+ yellow→red or + pale yellow 199

199(198) Medulla K+ yellow→red (containing salazinic acid); widespread ..... *Parmelia cunninghamii*
Medulla K+ pale yellow (containing protocetraric and echinocarpic acids); local in north-western Tasmania ..... *Parmelia tarkinensis*

200(196) Lobes 5–10 mm wide, undulate to markedly concave, with ascending to incurved margins and broadly rounded apices 201
Lobes mostly 1–4 mm wide, ± flat to undulate, with adnate or ± ascending margins and truncate to ± rounded apices 202

201(200) On the trunks and branches of trees; pseudocyphellae scattered, separate; margins of lobes ± entire ..... *Parmelia tenuirima*
On rocks; pseudocyphellae very abundant, fusing and forming a reticulate network; margins of older lobes often incised and lobulate; a common species of sclerophyll forest, heathlands and moorlands, very rare in rainforest and found mostly at subalpine altitudes ..... *Parmelia signifera*

202(200) Lobes ± neatly linear-elongate, with ± truncate apices, typically lacking secondary lobules; rhizines very dense and bushy, extending to the margins and apices and often protruding beyond as a fringe; very common ..... *Parmelia salcrambidiocarpa*
Lobes short and irregular, with ± rounded apices, frequently with rounded, secondary, marginal lobules in the centre of the thallus; rhizines sparse to dense, rarely forming a marginal fringe; occasional ..... *Parmelia testacea*

203(194) Thallus isidiate 204
Thallus not isidiate; soredia present or absent 205

204(203) Medulla K+ yellow, C– (containing thamnolic acid); underside ivory to pale brown, with simple rhizines; lobe margins without cilia; occasional on dead wood in exposed habitats, usually at high altitudes ..... *Imshaugia aleurites*

Medulla K–, C+ pinkish red (containing gyrophoric acid); underside black; rhizines simple to dichotomous; lobe margins often sparsely ciliate; very rare in wet sclerophyll forest on bark of lowland trees ..... *Parmelinopsis minarum*

205(203) Lobes markedly concave and broadly rounded, 8–15 mm wide; margins ascending, with discrete, oval to linear, ± hooded soralia; medulla K+ yellow (containing stictic acid), C–; species of sclerophyll forest, very rare in rainforest ..... *Parmotrema chinense*

Lobes flat, undulate or convex, to 6 mm wide, with ± truncate or rounded apices; margins adnate, undulate or revolute; soralia absent or developing from laminal or submarginal pustules; medulla K–, C+ red or C– 206

206(205) Thallus without soredia or laminal pustules; medulla C+ red (containing lecanoric acid) ..... *Parmelina pseudorelicina*

Thallus sorediate, or with laminal pustules which may become sorediate; medulla C+ red or C– 207

207(206) Lobes rather elongate and separate; medulla C–, KC+ orange (containing barbatic acid); very rare ..... *Hypotrachyna laevigata*

Lobes generally rather short and contiguous; medulla C+ reddish or C–, KC+ reddish or KC– 208

208(207) Medulla C– or very fleeting pale pink; thallus with pustules (often in masses) which may become abraded but not sorediate ..... *Parmelinopsis subfatiscens*

Medulla C+ reddish (containing lecanoric or gyrophoric acids); thallus sorediate; soralia typically developing from laminal or subapical pustules 209

209(208) Cilia usually abundant on lobe margins; rhizines branched; lobes usually ± convex and revolute, with ± truncate apices and rounded axils; soralia developing from subapical pustules; medulla C+ pinkish red (containing gyrophoric acid); common and widespread ..... *Parmelinopsis afrorevoluta*

Cilia sparse and confined to lobe axils, or absent; rhizines simple; lobes undulate with ± rounded apices and irregular axils; soralia diffuse, usually subapical and spreading across the lobe surface; medulla C+ bright red (containing lecanoric acid); uncommon in rainforest ..... *Parmelina labrosa*

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Baeomyces heteromorphus Nyl. ex Church. Bab. & Mitten
Bunodophoron australe (Laurer) Massal.
Bunodophoron flaccidum (Kantvilas & Wedin) Wedin
Bunodophoron imshaugii (Ohlsson) Wedin
Bunodophoron insigne (Laurer) Wedin
Bunodophoron macrocarpum (Ohlsson) Wedin
Bunodophoron murrayi (Ohlsson) Wedin
Bunodophoron notatum (Tibell) Wedin
Bunodophoron patagonicum (Dodge) Wedin
Bunodophoron ramuliferum (Lamb) Wedin
Bunodophoron scrobiculatum (Church. Bab.) Wedin
Bunodophoron tibellii (Wedin) Wedin

Cladia aggregata (Sw.) Nyl.
Cladia inflata (F. Wilson) D.J. Galloway
Cladia retipora (Labill.) Nyl.
Cladia schizopora (Nyl.) Nyl.
Cladia sullivanii (Müll. Arg.) Nyl.
Cladia sp.
Cladina confusa (R. Sant.) Follm. & Ahti
Cladonia capitellata (J.D. Hook. & Taylor) Church. Bab.
Cladonia cervicornis (Ach.) Flotow subsp. *verticillata* (Hoffm.) Ahti
Cladonia corniculata Ahti & Kashiwadani
Cladonia gracilis (L.) Willd. subsp. *tenerrima* Ahti
Cladonia kuringaiensis A.W. Archer
Cladonia merochlorophaea Asahina
Cladonia murrayi W. Martin
Cladonia ochrochlora Flörke
Cladonia pleurota (Flörke) Schaerer
Cladonia ramulosa (With.) Laundon
Cladonia rigida (J.D. Hook. & Taylor) Hampe
Cladonia scabriuscula (Delise) Leighton
Cladonia subsubulata Nyl.
Cladonia sulcata A.W. Archer var. *depleta* Elix & Kantvilas
Cladonia sulcata A.W. Archer var. *wilsonii* (A.W. Archer) A.W. Archer
Cladonia ustulata (J.D. Hook. & Taylor) Leighton
Cladonia weymouthii F. Wilson ex A.W. Archer
Coenogonium implexum Nyl.
Collema fasciculare (L.) F.H. Wigg. var. *fasciculare*
Collema fasciculare (L.) F.H. Wigg. var. *colensoi* Church. Bab.
Collema fasciculare (L.) F.H. Wigg. var. *microcarpum* (Müll. Arg.) Degelius
Collema glaucophthalmum Nyl.
Collema laeve J.D. Hook. & Taylor var. *laeve*
Collema laeve J.D. Hook. & Taylor var. *senecionis* (F. Wilson) Degelius
Collema leucocarpum J.D. Hook. & Taylor
Collema subconveniens Nyl.
Collema subflaccidum Degelius
Conotremopsis weberiana Vezda

Degelia duplomarginata (P. James & Henssen) Arv. & D.J. Galloway
Degelia durietzii Arv. & D.J. Galloway
Degelia gayana (Mont.) Arv. & D.J. Galloway
Degelia rosulata P.M. Jørg. & D.J. Galloway
Dendriscocaulon dendriothamnodes Dughi ex D.J. Galloway
Dibaeis absoluta (Tuck.) Kalb & Gierl

Dibaeis arcuata (Stirton) Kalb & Gierl
Dictyonema sericeum (Sw.) Berkley

Erioderma sorediatum D.J. Galloway & P.M. Jørg.

Fuscoderma amphibolum (Knight) P.M. Jørg. & D.J. Galloway
Fuscoderma limbatum P.M. Jørg. & D.J. Galloway

Heterodermia microphylla (Kurok.) Swinscow & Krog
Hypogymnia enteromorphoides Elix
Hypogymnia lugubris (Pers.) Krog
Hypogymnia mundata (Nyl.) Rassad.
Hypogymnia pulverata (Nyl. ex Crombie) Elix
Hypogymnia subphysodes (Kremp.) Filson
Hypogymnia tasmanica Elix
Hypogymnia turgidula (Bitter) Elix
Hypotrachyna laevigata (Sm.) Hale
Hypotrachyna sinuosa (Sm.) Hale

Imshaugia aleurites (Ach.) S.L.F. Mey.

Knightiella splachnirima (J.D. Hook. & Taylor) Gyelnik

Leioderma pycnophorum Nyl.
Leioderma sorediatum D.J. Galloway & P.M. Jørg.
Leifidium tenerum (Laurer) Wedin
Lempholemma polyanthes (Bernh.) Malme
Leptogium biloculare F. Wilson
Leptogium limbatum F. Wilson
Leptogium menziesii (Sm. ex Ach.) Mont.
Leptogium tasmanicum F. Wilson
Leptogium victorianum F. Wilson

Melanelia subglabra (Räsänen) Esslinger
Menegazzia caliginosa P. James & D.J. Galloway
Menegazzia confusa P. James
Menegazzia corrugata P. James
Menegazzia elongata P. James
Menegazzia eperforata P. James & D.J. Galloway
Menegazzia globulifera R. Sant.
Menegazzia inactiva P. James & Kantvilas
Menegazzia kantvilasii P. James
Menegazzia minuta P. James & Kantvilas
Menegazzia myriotrema (Müll. Arg.) P. James
Menegazzia neozelandica (Zahlbr.) P. James
Menegazzia norstictica P. James
Menegazzia nothofagi (Zahlbr.) P. James & D.J. Galloway
Menegazzia platytrema (Müll. Arg.) R. Sant.
Menegazzia prototypica P. James
Menegazzia subbullata P. James & Kantvilas
Menegazzia subpertusa P. James & D.J. Galloway
Menegazzia testacea P. James & D.J. Galloway
Menegazzia ultralucens P. James & D.J. Galloway
Menegazzia weindorferi (Zahlbr.) R. Sant.
Menegazzia sp.
Metus conglomeratus (F. Wilson) D.J. Galloway
Multiclavula mucida (Pers.) R.H. Petersen
Multiclavula vernalis (Schw.) R.H. Petersen

Neophyllis melacarpa (F. Wilson) F. Wilson
Nephroma australe A. Rich.
Nephroma cellulosum (Ach.) Ach. var. *cellulosum*
Nephroma cellulosum (Ach.) Ach. var. *isidioferum* J. Murray
Nephroma rufum (Church. Bab.) P. James
Normandina pulchella (Borrer) Nyl.

Omphalina umbellifera (L. ex Fr.) Quélet

Pannaria decipiens P.M. Jørg. & D.J. Galloway
Pannaria immixta Nyl.
Pannoparmelia angustata (Pers.) Zahlbr.
Pannoparmelia wilsonii (Räsänen) D.J. Galloway
Parmelia cunninghamii Crombie
Parmelia erumpens Kurokawa
Parmelia protosulcata Hale
Parmelia salcrambidiocarpa Hale
Parmelia signifera Nyl.
Parmelia tarkinensis Elix & Kantvilas
Parmelia tenuirima J.D. Hook. & Taylor
Parmelia testacea Stirton
Parmeliella coerulescens Müll. Arg.
Parmeliella concinna Lamb
Parmeliella granulata Lamb
Parmeliella nigrocincta (Mont.) Müll. Arg.
Parmeliella thysanota (Stirton) Zahlbr.
Parmeliella sp.
Parmelina labrosa (Zahlbr.) Elix & Johnston
Parmelina pseudorelicina (Jatta) Kantvilas & Elix
Parmelinopsis afrorevoluta (Krog & Swinscow) Elix & Hale
Parmelinopsis minarum (Vainio) Elix & Hale
Parmelinopsis subfatiscens (Kurok.) Elix & Hale
Parmeliopsis ambigua (Wulf.) Nyl.
Parmotrema chinense (Osbeck) Hale & Ahti
Peltigera didactyla (With.) Laundon
Peltigera dolichorhiza (Nyl.) Nyl.
Physma chilense Hue
Physma sp.
Placopsis gelida (L.) Lindsay
Placopsis trachyderma (Kremp.) P. James var. *clavifera* (Lamb) P. James
Polychidium contortum Henssen
Pseudocyphellaria ardesiaca D.J. Galloway
Pseudocyphellaria argyracea (Delise) Vainio
Pseudocyphellaria billardierei (Delise) Räsänen
Pseudocyphellaria colensoi (Church. Bab.) Vainio
Pseudocyphellaria coronata (Müll. Arg.) Malme
Pseudocyphellaria crocata (L.) Vainio
Pseudocyphellaria dissimilis (Nyl.) D.J. Galloway & P. James
Pseudocyphellaria faveolata (Delise) Malme
Pseudocyphellaria gilva (Ach.) Malme
Pseudocyphellaria glabra (J.D. Hook. & Taylor) Dodge
Pseudocyphellaria granulata (Church. Bab.) Malme
Pseudocyphellaria intricata (Delise) Vainio
Pseudocyphellaria multifida (Nyl.) D.J. Galloway & P. James
Pseudocyphellaria rubella (J.D. Hook. & Taylor) D.J. Galloway & P. James
Pseudocyphellaria sp.
Psoroma asperellum Nyl.

Appendix 1. Continued

Psoroma caliginosum Stirton
Psoroma durietzii P. James & Henssen
Psoroma euphyllum Nyl.
Psoroma leprolomum (Nyl.) Räsänen
Psoroma microphyllizans (Nyl.) D.J. Galloway
Psoroma paleaceum (Fr.) Nyl.
Psoroma pholidotoides (Nyl.) Trevis.
Psoroma soccatum R. Br.
Psoroma sp. 1
Psoroma sp. 2
Psoroma sp. 3
Psoroma sp. 4
Psoroma sp. 5
Psoroma sp. 5A
Psoroma sp. 6
Psoroma sp. 7
Psoromidium aleuroides (Stirton) D.J. Galloway
Psoromidium versicolor (J.D. Hook. & Taylor) D.J. Galloway
Ramalina inflata (J.D. Hook. & Taylor) J.D. Hook. & Taylor
Ramalodium sp.
Rimelia reticulata (Taylor) Hale & Fletcher
Roccellinastrum flavescens Kantvilas
Roccellinastrum lagarostrobi Kantvilas
Roccellinastrum neglectum Henssen & Vobis

Sagenidium molle Stirton
Siphula decumbens Nyl.
Siphula sp.
Siphulastrum granulatum P.M. Jørg. & D.J. Galloway
Stereocaulon corticatulum Nyl.
Stereocaulon ramulosum (Sw.) Räusch.
Sticta fuliginosa (Dickson) Ach.
Sticta limbata (Sm.) Ach.
Sticta stipitata Knight
Sticta sublimbata (Steiner) Swinscow & Krog

Trapeliopsis colensoi (Church. Bab.) G. Schneider
Trapeliopsis congregans (Zahlbr.) Brako
Tuckermannopsis chlorophylla (Willd.) Hale

Usnea angulata Ach.
Usnea capillacea Motyka
Usnea inermis Motyka
Usnea molliuscula Stirton
Usnea oncodes Stirton
Usnea rubicunda Stirton
Usnea xanthopoga Nyl.

Wawea fruticulosa Henssen & Kantvilas

undescribed genus