

# KEY TO THE GENERA OF AUSTRALIAN MOSSES

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This key is based on the diagnostic characters from *Key to the Genera of Australian Mosses* (W.R.Buck, D.H.Vitt & W.M.Malcolm, Flora of Australia Supplementary Series No. 14, Australian Biological Resources Study, Canberra, 2002).

- 1 Gametophytes seemingly absent; plants consisting only of protonemata and 1 or a few perichaetial leaves .....2
- 1: Gametophytes present, with obvious leaves .....8
  - 2 Plants epiphytic (1)..... **Ephemeropsis**
  - 2: Plants terrestrial .....3
- 3 Capsules symmetrical, cleistocarpous (2:).....4
- 3: Capsules asymmetrical, stegocarpous and peristomate .....6
  - 4 Capsules with a distinct seta; seta translucent, very short (to 0.6 mm), erect (3)..... **Viridivellus**
  - 4: Capsules lacking a distinct seta .....5
- 5 Gametophores completely hidden by the dense glossy protonemata; capsules ovoid, with a small apiculus; calyptra campanulate (4:)..... **Ephemerum**
- 5: Gametophores exposed above the protonemata; capsules rounded, not apiculate; calyptra vestigial..... **Archidium**
  - 6 Vestigial leaves radially arranged, almost colourless, ecostate; peristome double (3:)..... **Buxbaumia**
  - 6: Vestigial leaves distichous, chlorophyllose, costate; peristome single .....7
- 7 Sheathing part of leaves with a dorsal lamina, Y-shaped in transverse section; costa well defined throughout (6:)..... **Fissidens**
- 7: Sheathing part of leaves lacking a dorsal lamina, broadly U-shaped in transverse section; costa weak, ±filling the subula, absent below..... **Nanobryum**
  - 8 Laminal cells a network of narrow green cells alternating with large hyaline cells; branches usually in fascicles (1:).....9
  - 8: Laminal cells uniformly green or, if dimorphic, branches never in fascicles.....10
- 9 Stems with a differentiated cortex; branches in fascicles; leaves bordered by few thick-walled cells; hyaline laminal cells always unistratose (8)..... **Sphagnum**
- 9: Stems lacking a differentiated cortex; branches mostly not in fascicles (but sometimes paired); leaves bordered by numerous thin-walled cells; hyaline laminal cells sometimes bistratose..... **Ambuchanania**
  - 10 Leaves attached in 2 rows on opposite sides of the stem (distichous) (8:) .....11
  - 10: Leaves attached all around the stem [foliate stems sometimes flattened, or plants essentially stemless] .....15
- 11 Leaves appearing split at the base, comprising 2 vaginant laminae that clasp the stem and base of the leaf above, at least at the stem apex (10) .....12
- 11: Leaves lacking vaginant laminae, clasping the leaf above or not .....13
  - 12 Vaginant laminae composed mostly of thin-walled hyaline cells; pseudoparaphyllia foliose; capsule immersed (11) ..... **Sorapilla**
  - 12: Vaginant laminae composed mostly of chlorophyllose cells (except sometimes with a narrow limbidium); pseudoparaphyllia absent; capsule exerted..... **Fissidens**
- 13 Plants minute, to 1.5 mm tall (11:)..... **Nanobryum**
- 13: Plants larger, more than 5 mm tall.....14
  - 14 Leaves subulate (13:)..... **Distichium**
  - 14: Leaves lanceolate to ovate ..... **Rhizogonium**

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15	Leaves with lamellae or filaments on the adaxial (upper) surface (excluding propagula) (10:)	16
15:	Leaves without lamellae or filaments on the adaxial surface (propagula sometimes present)	26
16	Leaves with filaments on the adaxial surface of the costa (15)	17
16:	Leaves with lamellae on the adaxial surface of the costa	18
17	Leaf margin broadly inrolled and almost obscuring the filaments; filaments covering most of the costa and the lamina (16)	<b>Aloina</b>
17:	Leaf margin reflexed to revolute; filaments only on the costa	<b>Crossidium</b>
18	Leaves with elongate marginal cells (16:)	<b>Atrichum</b>
18:	Leaves without elongate marginal cells	19
19	Lamellae 2–4; plants small, less than 5 mm tall (18:)	20
19:	Lamellae more than 20; plants more than 20 mm tall	21
20	Capsule cleistocarpous, immersed (19)	<b>Acaulon</b>
20:	Capsule dehiscent, exserted	<b>Pterygoneurum</b>
21	Peristome bristle-like, projecting from the capsule mouth (19:)	<b>Dawsonia</b>
21:	Peristome of short blunt rigid teeth, $\pm$ level with the capsule mouth	22
22	Capsule angular in cross-section (21:)	23
22:	Capsule rounded in cross-section	24
23	Capsule 2-angled, convex on one surface; hypophysis absent; calyptra naked except for an apical tuft of hairs (22)	<b>Polytrichadelphus</b>
23:	Capsule 4–6-angled; hypophysis present; calyptra densely hairy	<b>Polytrichum</b>
24	Calyptra naked; peristome of 16 or 32 teeth (22:)	<b>Notoligotrichum</b>
24:	Calyptra hairy; peristome of 64 teeth	25
25	Exothelial cells mammillose; stomata absent (24:)	<b>Pogonatum</b>
25:	Exothelial cells flat; stomata present	<b>Polytrichastrum</b>
26	Leaves without a costa, or costa apparently lacking or double (short or long) (15:)	27
26:	Leaves with a single costa to at least mid-leaf	124
27	Although apparently lacking, costa single and occupying almost the entire lamina; leaves thus appearing multistratose, composed of a central layer of green cells and 1–4 layers of hyaline cells above and below (26)	28
27:	Costa truly lacking or double; lamina always unistratose	31
28	Chlorophyllose cells 3-sided in section (27)	<b>Octoblepharum</b>
28:	Chlorophyllose cells 4- or 5-sided in section	29
29	Chlorophyllose cells restricted to a single central row; hyaline cells of the upper leaves in 1 or 2 rows on both sides of the chlorophyllose cells (28:)	<b>Leucobryum</b>
29:	Chlorophyllose cells in 3 rows separated by 3–6 rows of hyaline cells	30
30	Leaves fragile; upper surface smooth (29:)	<b>Arthrocnemum</b>
30:	Leaves not fragile; upper surface rough	<b>Exostratum</b>
31	Plants small, less than 2 mm tall, ephemeral, on soil (27:)	32
31:	Plants larger, more than 3 mm tall, perennial, on various substrata	33
32	Leaves broadly ovate, entire; capsule operculate (31)	<b>Goniomitrium</b>
32:	Leaves oblong to lanceolate, entire to serrate; capsule cleistocarpous	<b>Ephemerum</b>
33	Upper laminal cells papillose, prorate or conspicuously ornamented (31:)	34
33:	Upper laminal cells smooth or somewhat bulging	60
34	Leaf apex hyaline (33)	35
34:	Leaf apex concolorous	36
35	Leaves less than 1 mm long; plants growing on bark or rock (34)	<b>Erpodium</b>
35:	Leaves more than 1 mm long; plants growing on rock	<b>Hedwigia</b>
36	..... Leaves appearing lacquered when dry, bordered by smooth elongate cells; laminal cells densely pitted but appearing finely pluripapillose (34:)	<b>Rhacocarpus</b>
36:	Leaves dull to glossy but not appearing lacquered, not bordered; laminal cells truly papillose	37

37	Laminal cells pluripapillose (36:)	38
37:	Laminal cells unipapillose or prorulate	44
38	Laminal cells short with scattered papillae (37)	39
38:	Laminal cells elongate with papillae in rows	41
39	Peristome well developed; calyptra plicate (38)	<b>Erpodium</b>
39:	Peristome absent; calyptra not plicate	40
40	Leaf margin recurved $\pm$ throughout (39:)	<b>Hedwigidium</b>
40:	Leaf margin plane	<b>Erpodium</b>
41	Costa strong and double, usually ending at mid-leaf (38:)	<b>Pseudohypnella</b>
41:	Costa short and double or absent	42
42	Leaves hairpointed (41:)	<b>Wijkia</b>
42:	Leaves gradually acuminate	43
43	Leaves falcate; alar cells large and inflated (42:)	<b>Radulina</b>
43:	Leaves straight; alar cells only slightly enlarged and inflated	<b>Taxithelium</b>
44	Plants acrocarpous, small, black or dark red-brown, on rock (37:)	<b>Andreaea</b>
44:	Plants pleurocarpous, larger, not black, on various substrata	45
45	Laminal cells unipapillose (44:)	46
45:	Laminal cells prorulate	52
46	Costa extending more than half the leaf length (45)	<b>Callicostella</b>
46:	Costa extending less than 25% of the leaf length	47
47	Leaves strongly ranked on the branches (46:)	48
47:	Leaves evenly spaced on the branches	49
48	Leaves abruptly constricted above; leaves 5-ranked; alar cells yellowish (47)	<b>Papillidiopsis</b>
48:	Leaves gradually acute to acuminate; leaves 3-ranked; alar cells dark red	<b>Clastobryum</b>
49	Laminal cells c. 2–4:1 (47:)	50
49:	Laminal cells linear, more than 5:1	51
50	Leaf apex acuminate; peristome double (49)	<b>Acanthorrhynchium</b>
50:	Leaf apex acute; peristome single	<b>Meiotheciella</b>
51	Stems adhering to the substratum; leaves mostly falcate-secund; alar cells inflated (49:)	<b>Trichosteleum</b>
51:	Stems pendent; leaves straight; alar cells quadrate, not inflated	<b>Barbellopsis</b>
52	Stem and branch leaves different in size and shape (45:)	<b>Ctenidium</b>
52:	Stem and branch leaves similar	53
53	Leaves falcate-secund (52:)	54
53:	Leaves $\pm$ erect to wide-spreading	57
54	Alar cells enlarged and inflated in a single row (53)	<b>Warburgiella</b>
54:	Alar cells scarcely differentiated, or with a single enlarged cell	55
55	Leaves obtuse to acute; upper laminal cells c. 2–3:1 (54:)	<b>Fallaciella</b>
55:	Leaves acuminate; upper laminal cells more than 5:1	56
56	Exothecial cells smooth (55:)	<b>Ectropothecium</b>
56:	Exothecial cells mammillose	<b>Trachythecium</b>
57	Alar cells many and extending up the margin almost to mid-leaf; leaves imbricate when dry (53:)	<b>Trachyphyllum</b>
57:	Alar cells few and restricted to the extreme leaf base; leaves spreading when dry	58
58	Leaves obtuse to broadly acute, homomallous to $\pm$ secund (57:)	<b>Fallaciella</b>
58:	Leaves acuminate, spreading	59
59	Plants complanate-foliate (59:)	<b>Taxiphyllum</b>
59:	Plants not complanate-foliate, loosely and irregularly spreading	<b>Chaetomitrium</b>
60	Stems and branches ending in a conspicuous globose tuft of propagula (33:)	<b>Tetraphidopsis</b>
60:	Propagula sometimes in leaf axils, but not terminating stems and branches	61
61	Leaves strongly bordered by elongate cells (60:)	62
61:	Leaves not or scarcely bordered	63

62	Leaves with a long double costa (61).....	<b>Cyclodictyon</b>
62:	Leaves with a short double costa .....	<b>Calyptrochaeta</b>
63	Costa extending more than half of the leaf length (61:).....	<b>Thamniopsis</b>
63:	Costa ending below mid-leaf or absent .....	64
64	Upper laminal cells 1–3:1 (63:).....	65
64:	Upper laminal cells 4:1 or longer (mostly linear) .....	68
65	Alar cells distinct and in $\pm$ auriculate areas (64).....	<b>Lembophyllum</b>
65:	Alar cells scarcely differentiated.....	66
66	Leaves more than 2 mm long; capsule exserted, globose, cleistocarpous (65:) .....	<b>Pleurophascum</b>
66:	Leaves less than 1.5 mm long; capsule immersed, operculate .....	67
67	Leaf apex hyaline; plants epiphytic or on rock; stems creeping (66:).....	<b>Erpodium</b>
67:	Leaf apex usually concolorous; plants growing on soil; stems subterranean (rarely seen) .....	<b>Gigaspermum</b>
68	Leaves conduplicate (strongly keeled and cucullate) (64:).....	69
68:	Leaves plane to concave (stems sometimes complanate-foliate).....	72
69	Alar cells well developed (68) .....	<b>Isocladella</b>
69:	Alar cells only weakly developed or absent .....	70
70	Leaves symmetrically conduplicate; apices obtuse; seta to 3 mm long (69:).....	<b>Orthorrhynchium</b>
70:	Leaves asymmetrically conduplicate; apices acute to mucronate to short-piliferous; seta longer than 15 mm or shorter than 1 mm .....	71
71	Stems with a hyalodermis; propagula absent; leaf apex mucronate to short-piliferous; capsule long-exserted (70:).....	<b>Catagonium</b>
71:	Stems with thick-walled cortical cells; propagula common; leaf apex usually acute; capsule immersed .....	<b>Cryptogonium</b>
72	Leaves conspicuously undulate (68:).....	73
72:	Leaves plane, concave or plicate (and then sometimes rugose), but not undulate .....	76
73	Leaves distinctly auriculate (72).....	<b>Calyptothecium</b>
73:	Leaves not auriculate.....	74
74	Leaf apex obtuse to rounded (73:).....	<b>Neckeropsis</b>
74:	Leaf apex acute to acuminate .....	75
75	Alar cells scarcely differentiated (74:).....	<b>Neckera</b>
75:	Alar cells numerous, quadrate, inflated .....	<b>Pulchrinodus</b>
76	Leaves irregularly squarrose to squarrose-recurved (72:) .....	77
76:	Leaves erect to spreading, not squarrose .....	78
77	Leaves strongly toothed above; laminal cells thick-walled and porose throughout; capsule strongly plicate (76).....	<b>Ptychomnion</b>
77:	Leaves serrulate above; laminal cells $\pm$ thin-walled, not porose above; capsule smooth .....	<b>Rhytidiadelphus</b>
78	Leaves broadly obtuse to rounded (but sometimes also apiculate) (76:) .....	79
78:	Leaves acute to acuminate.....	83
79	Alar cells inflated and thin-walled (78).....	80
79:	Alar cells not inflated, thick-walled .....	81
80	Leaves $\pm$ orbicular, deeply concave; stems irregularly branched; plants turgid, autoicous (79) .....	<b>Acrocladium</b>
80:	Leaves oblong, c. 2:1, shallowly concave; stems regularly branched; plants not turgid, dioicous .....	<b>Calliergonella</b>
81	Stems frondose; branch and stem leaves different in size (79:).....	<b>Camptochaeta</b>
81:	Stems not frondose; branch and stem leaves similar .....	82
82	Laminal cells 10–25 $\mu$ m long; plants usually terrestrial (81:) .....	<b>Lembophyllum</b>
82:	Laminal cells 40–80 $\mu$ m long; plants usually epiphytic and pendent .....	<b>Weymouthia</b>
83	Plants with abundant paraphyllia (78:).....	<b>Glyphothecium</b>
83:	Plants with few or no paraphyllia.....	84

84	Leaves plicate, at least at the base (83:)	85
84:	Leaves plane or rugose	88
85	Alar cells thick-walled and porose, in small discrete areas; upper leaf margin usually strongly toothed (84:)	86
85:	Alar cells firm-walled but not porose, in large areas; upper leaf margin entire to serrulate	87
86	Leaves distinctly decurrent; exostome teeth papillose to smooth; perichaetial leaves acuminate to cuspidate (85:)	<b>Garovaglia</b>
86:	Leaves not or shortly decurrent; exostome teeth striate; perichaetial leaves aristate	<b>Euptychium</b>
87	Alar cells rounded; capsule immersed to emergent (85:)	<b>Forstroemia</b>
87:	Alar cells quadrate to oblate; capsule long-exserted	<b>Mesonodon</b>
88	Leaf apex long-piliferous (concolorous or hyaline) (84:)	89
88:	Leaf apex acute to acuminate	91
89	Leaves rugose; plants matted with tomentum (88)	<b>Lepyrodon</b>
89:	Leaves smooth; plants lacking tomentum	90
90	Upper laminal cells porose; alar cells quadrate, not inflated (89:)	<b>Myurium</b>
90:	Upper laminal cells not porose; alar cells oval, inflated	<b>Wijkia</b>
91	Leaves bordered by broad elongate cells in 2 or 3 rows, the outermost forming large marginal teeth (88:)	<b>Trismegistia</b>
91:	Leaves not bordered; margin variously toothed to entire	92
92	Plants with a creeping primary stem giving rise to erect frondose secondary stems (91:)	93
92:	Plants without differentiated stems and without erect frondose secondary stems	95
93	Leaves auriculate; capsule immersed (92)	<b>Calypothecium</b>
93:	Leaves not auriculate; capsule exserted	94
94	Alar cells differentiated in a small dark area; upper laminal cells shorter than 50 µm; plants olive-green (93:)	<b>Camptochaete</b>
94:	Alar cells not differentiated; upper laminal cells longer than 60 µm; plants silvery green	<b>Trachyloma</b>
95	Upper leaf axils with flagelliform branches (92:)	<b>Isocliadiella</b>
95:	Upper leaf axils naked or with filamentous propagula	96
96	Upper leaf axils with filamentous propagula (95:)	97
96:	Upper leaf axils naked	99
97	Branch leaves 3-ranked (96)	<b>Clastobryum</b>
97:	Branch leaves complanate-foliate or evenly arranged	98
98	Upper laminal cells thin-walled and non-porose; alar cells absent or few, quadrate and evenly firm-walled (97:)	<b>Hampeella</b>
98:	Upper laminal cells irregularly thick-walled and porose; alar cells numerous, irregularly thick-walled	<b>Eucamptodon</b>
99	Plants in small tufts on bark and rock; calyptra mitrate (96:)	<b>Sauloma</b>
99:	Plants forming mats on various substrata; calyptra usually cucullate	100
100	Leaves clearly falcate-secund (99:)	101
100:	Leaves complanate, homomallous or evenly foliate	108
101	Plants large, turgid, red-brown, in peatlands; leaf apex broadly acute (100)	<b>Scorpidium</b>
101:	Plants small, not turgid, green, in drier habitats; leaf apex acuminate	102
102	Alar cells inflated, at least in the basal corners (101:)	103
102:	Alar cells non-differentiated to quadrate, not inflated	105
103	Inflated alar cells solitary in outermost basal corners (102)	<b>Ectropothecium</b>
103:	Inflated alar cells in 1 or 2 rows	104
104	Leaves circinate with a long serrate apex; alar cells thick-walled; exothecial cells with thick longitudinal walls and thin transverse walls (103)	<b>Warburgiella</b>
104:	Leaves merely falcate with a serrulate to entire apex; alar cells thin- to firm-walled; exothecial cells collenchymatous	<b>Rhaphidorhynchium</b>

105	Alar cells numerous and coloured (102:)	<b>Hypnum</b>
105:	Alar cells undifferentiated or few and hyaline	106
106	Stem homogeneous in cross-section; pseudoparaphyllia absent; leaf margin entire; exostome furrowed (105:)	<b>Leucomium</b>
106:	Stem with small thick-walled epidermal cells in cross-section; pseudoparaphyllia filamentous; leaf margin serrulate to entire; exostome not furrowed	107
107	Lateral and dorsal leaves different (at least in areolation); laminal cells lax, broad, rhomboidal (106:)	<b>Vesicularia</b>
107:	Lateral and dorsal leaves similar; laminal cells dense, narrow, linear	<b>Isopterygium</b>
108	Leaves with a long narrow decurrency of 3–5 rows of inflated cells (100:)	<b>Plagiothecium</b>
108:	Leaves not or scarcely decurrent	109
109	Plants complanate-foliate (108:)	110
109:	Plants evenly foliate, often julaceous	117
110	Alar cells quadrate and numerous, extending up the margin by more than 5 cells (109)	<b>Entodon</b>
110:	Alar cells undifferentiated or few, extending up the margin by fewer than 5 cells	111
111	Median laminal cells rhomboidal to oval, less than 8:1 (110:)	112
111:	Median laminal cells $\pm$ linear, more than 12:1	113
112	Lateral and dorsal leaves different, straight to somewhat falcate; laminal cells lax and thin-walled (111)	<b>Vesicularia</b>
112:	Lateral and dorsal leaves similar, homomallous; laminal cells dense and thick-walled	<b>Fallaciella</b>
113	Stem with a hyalodermis (111:)	<b>Isopterygiopsis</b>
113:	Stem lacking a hyalodermis	114
114	Stem homogeneous in cross-section; pseudoparaphyllia absent (113:)	<b>Leucomium</b>
114:	Stem heterogeneous in cross-section; pseudoparaphyllia present	115
115	Lateral and dorsal leaves different; laminal cells lax (114:)	<b>Vesicularia</b>
115:	Lateral and dorsal leaves similar; laminal cells dense	116
116	Upper laminal cells shorter than those at mid-leaf; pseudoparaphyllia foliose (115:)	<b>Taxiphyllum</b>
116:	Upper laminal cells similar to those at mid-leaf; pseudoparaphyllia filamentous	<b>Isopterygium</b>
117	Alar cells very few and poorly differentiated (109:)	<b>Rhabdodontium</b>
117:	Alar cells well developed	118
118	Alar cells strongly coloured, very thick-walled (117:)	<b>Eucamptodon</b>
118:	Alar cells concolorous to hyaline, thin- to firm-walled	119
119	Alar cells quadrate, not inflated, extending up the margin by 15–25 cells (118:)	<b>Entodon</b>
119:	Alar cells oval to rectangular, $\pm$ inflated, extending up the margin by fewer than 6 cells	120
120	Alar cells thin-walled, hyaline, in excavate groups of more than 10 (119:)	<b>Bryostreimannia</b>
120:	Alar cells mostly firm-walled, yellow, not excavate, in 1 or 2 rows with fewer than 6 cells, often with quadrate supra-alar cells	121
121	Alar cells curved towards the insertion; branch apex cuspidate; exostome teeth furrowed (120:)	<b>Acroporium</b>
121:	Alar cells not curved towards the insertion; branch apex obtuse; exostome not furrowed	122
122	Peristome single, an exostome only (121:)	<b>Meiothecium</b>
122:	Peristome double	123
123	Exostome teeth much shorter than the endostome segments (122:)	<b>Macrohymenium</b>
123:	Exostome teeth as long as or longer than the endostome segments	<b>Sematophyllum</b>
124	Leaves tri- to multistratose, consisting mostly of non-chlorophyllose cells enclosing smaller chlorophyllose cells (26:)	125
124:	Leaves uni- to bistratose, rarely tristratose, consisting mostly of chlorophyllose cells	129
125	Costa with stereids (124)	<b>Leucophanes</b>
125:	Costa lacking stereids	126
126	Chlorophyllose cells 3-sided in cross-section (125:)	<b>Octoblepharum</b>
126:	Chlorophyllose cells 4- or 5-sided in cross-section	127

127	Chlorophyllose cells restricted to a single central row; hyaline cells of the upper leaves in 1 or 2 rows on both sides of the chlorophyllose cells (126:)	<b>Leucobryum</b>	128
127:	Chlorophyllose cells in 3 rows separated by 3–6 rows of hyaline cells		128
128	Leaves fragile; upper surface smooth (127:)	<b>Arthrocnemum</b>	
128:	Leaves not fragile; upper surface rough	<b>Exostratum</b>	
129	Leaves at least partly 3-ranked, dimorphic, with the lateral ones larger and the ventral or dorsal ones smaller (124:)		130
129:	Leaves placed all around the stem, uniform		137
130	Leaves not bordered; dorsal leaves present; ventral leaves absent (129)		131
130:	Leaves bordered; dorsal leaves absent; ventral leaves present		133
131	Plants epiphytic on tree fern trunks; sporophyte terminal (130)	<b>Calomnion</b>	
131:	Plants terrestrial or, if epiphytic, not on tree fern trunks; sporophyte lateral		132
132	Laminal cells bulging; seta shorter than 10 mm; capsule erect and smooth; exostome teeth papillose; endostome with a low membrane and no cilia (131:)	<b>Powellia</b>	
132:	Laminal cells smooth or unipapillose; seta longer than 15 mm; capsule arcuate and furrowed; exostome teeth striate; endostome with a high membrane and cilia	<b>Racopilum</b>	
133	Stems angular in cross-section, only rarely branched; seta base broadened (130:)		
		<b>Cyathophorum</b>	
133:	Stems rounded in cross-section, branched; seta base narrow		134
134	Rudimentary bristle-like branches present (133:)		135
134:	Rudimentary branches absent		136
135	Stipes short; stipe leaves in 3 rows; exostome absent; endostomial cilia absent (134)	<b>Catharomnion</b> <sup>1</sup>	
135:	Stipes elongate; stipe leaves all around the stipe; exostome present; endostomial cilia 1 or 2	<b>Canalohypopterygium</b> <sup>2</sup>	
136	Laminal cells isodiametric, thick-walled; plants pinnately branched; seta rough (134:)		
		<b>Lopidium</b>	
136:	Laminal cells longer than broad and thin-walled; plants pinnately branched to umbellately dendroid; seta smooth	<b>Hypopterygium</b>	
137	Stems and branches ending in a conspicuous globose tuft of propagula; plants small, on twigs (129:)		
		<b>Tetraphidopsis</b>	
137:	Stems and branches lacking terminal propagula; plants variable in size and preferred substratum		138
138	Leaf base usually expanded, filled by abruptly differentiated hyaline cells; plants almost always epiphytic (137:)		139
138:	Leaf base, if expanded, not filled with abruptly differentiated hyaline cells (but sometimes with gradually differentiated hyaline cells); substrata various, but if hyaline basal cells are present plant almost always terrestrial		142
139	Leaves bordered by elongate cells (138)		140
139:	Leaves not bordered, but margin sometimes thickened or with elongate intramarginal cells		141
140	Plants erect, without a creeping stem; leaves with a usually bi- to multistratose border of narrow hyaline cells (139)	<b>Syrrhopodon</b>	
140:	Plants with a creeping stem and erect secondary branches; leaves with a unistratose border of usually broad hyaline cells	<b>Mitthyridium</b>	
141	Calyptra persistent, twisted around the seta below the capsule and with vertical slits above; peristome absent; leaves often with elongate intramarginal cells (teniolae) (139:)	<b>Calymperes</b>	
141:	Calyptra deciduous, cucullate; peristome present or absent; leaves without elongate intramarginal cells	<b>Syrrhopodon</b>	
142	Leaves bordered for at least a quarter of their length by elongate cells (sometimes intramarginal) (138:)		143
142:	Leaves not bordered, except sometimes with a single row of elongate hyaline cells restricted to the leaf base, or else the margin thickened by undifferentiated cells		174

<sup>1</sup> Not in Australia, *vide* J.D.Kruijer (*Flora of Australia* 51: 380, 2006).

<sup>2</sup> Not in Australia, *vide* J.D.Kruijer (*Flora of Australia* 51: 380, 2006).

143	Leaf border extending to the apex or nearly so (142).....	144
143:	Leaf border ending well below the apex .....	164
144	Upper laminal cells papillose (143).....	145
144:	Upper laminal cells smooth.....	148
145	Alar cells well developed (144).....	146
145:	Alar cells poorly developed or absent.....	147
146	Capsule inclined and asymmetrical; leaves with short green laminal cells extending to the alar region; smooth elongate cells restricted to the inner basal region (145).....	<b>Sclerodontium</b>
146:	Capsule erect and symmetrical; leaves with short green laminal cells restricted to the upper part of the leaf; smooth elongate cells extending to mid-leaf.....	<b>Leucoloma</b>
147	Leaf border intramarginal in the upper part of the leaf; propagula on the upper surface of the costa; upper laminal cells with 1 or 2 papillae (145:.).....	<b>Calyptopogon</b>
147:	Leaf border marginal throughout; propagula absent; upper laminal cells with 6–8 papillae ...	<b>Hennediella</b>
148	Leaves strongly undulate (144:.).....	<b>Mesochaete</b>
148:	Leaves plane.....	149
149	Leaves narrowly lanceolate from an expanded base; plants longer than 15 cm, epiphytic (148:.).....	<b>Spiridens</b>
149:	Leaves lanceolate to ovate; plants shorter than 15 cm, on various substrata.....	150
150	Plants complanate-foliolate (149:.).....	151
150:	Plants evenly foliolate (but sterile shoots of <i>Plagiomnium</i> sometimes $\pm$ complanate).....	155
151	Costa excurrent (150).....	152
151:	Costa ending at mid-leaf to subpercurrent.....	153
152	Laminal cells thick-walled, porose, longer than 5:1 (151).....	<b>Dicranoloma</b>
152:	Laminal cells thin- to firm-walled, not porose, shorter than 5:1.....	<b>Rhizogonium</b>
153	Laminal cells thin- to firm-walled and not porose; perichaetial leaves not strongly differentiated in size; alar cells not differentiated (151:.).....	<b>Distichophyllum</b>
153:	Laminal cells thick-walled and porose; perichaetial leaves sheathing and tubular; alar cells strongly differentiated.....	154
154	Leaf margin entire; border narrow (153:.).....	<b>Dicnemom</b>
154:	Leaf margin serrulate; border almost half the leaf width.....	<b>Dicranoloma</b>
155	Sterile and fertile shoots different, the sterile ones arching and the fertile ones erect; laminal cells short-hexagonal (150).....	<b>Plagiomnium</b>
155:	Sterile and fertile shoots similarly erect; laminal cells long-hexagonal to rhomboidal.....	156
156	Plants forming tufts on trees (155:.).....	157
156:	Plants terrestrial.....	158
157	Leaves less than 2 mm long; calyptra mitrate (156).....	<b>Daltonia</b>
157:	Leaves usually more than 3 mm long; calyptra cucullate.....	<b>Brachymenium</b>
158	Plants small; leaves shorter than 3 mm, $\pm$ evenly distributed on the stem, usually ovate (156:.).....	159
158:	Plants large; leaves longer than 3 mm, often crowded at the stem apex in a comal tuft, usually spatulate.....	163
159	Leaves obtuse, at least the older ones bright red (158).....	<b>Ochiobryum</b>
159:	Leaves acute to acuminate, mostly green to yellowish green.....	160
160	Laminal cells usually firm-walled; peristome double; exostome teeth alternating with the endostome segments; perigonal paraphyses with tapering apices (159:.).....	<b>Bryum</b>
160:	Laminal cells usually thin-walled; peristome double, single or absent, but, if double, the exostome teeth opposite the endostome segments; perigonal paraphyses with swollen apices.....	161
161	Capsule sulcate when dry; annulus compound and revoluble (160:.).....	<b>Funaria</b>
161:	Capsule smooth to wrinkled when dry; annulus simple, sometimes revoluble.....	162
162	Operculum conical to rostrate; exothecial cells isodiametric; calyptra mitrate (161:.).....	<b>Physcomitrium</b>
162:	Operculum plane to conical; exothecial cells oblong; calyptra cucullate.....	<b>Entosthodon</b>
163	Erect stems connected by subterranean stolons (158).....	<b>Rhodobryum</b>
163:	Erect stems not connected by subterranean stolons.....	<b>Rosulabryum</b>



164	Alar cells well developed (143:)	165
164:	Alar cells not differentiated	167
165	Leaf margin undulate; laminal cells pluripapillose; capsule immersed (164)	<b>Mesotus</b>
165:	Leaf margin plane; laminal cells smooth or rarely prorate; capsule exerted	166
166	Costa filling more than one-third of the leaf base; leaf apex sometimes hyaline (165:)	<b>Campylopus</b>
166:	Costa filling less than a quarter of the leaf base; leaf apex never hyaline	<b>Dicranum</b>
167	Leaf margin entire (164:)	168
167:	Leaf margin toothed	171
168	Leaf apex fragile; plants epiphytic (167)	<b>Groutiella</b>
168:	Leaf apex not fragile; plants on moist soil, tree bases, or rocks in streams	169
169	Costa more than one-third of the width of the leaf base (168:)	<b>Campylopus</b>
169:	Costa less than a quarter of the width of the leaf base	170
170	Leaves spatulate, obovate or rounded; laminal cells more than 30 µm diam. (169:)	<b>Orthomnion</b>
170:	Leaves narrowly oblong-lanceolate and narrowly obtuse; laminal cells less than 15 µm diam.	<b>Tridontium</b>
171	Plants complanate-foliate; laminal cells ±isodiametric (167:)	172
171:	Plants not complanate-foliate; laminal cells long-hexagonal	173
172	Costa ending well below the apex; calyptra mitrate (171)	<b>Distichophyllum</b>
172:	Costa subpercurrent to excurrent; calyptra cucullate	<b>Rhizogonium</b>
173	Plants usually terrestrial; usually without asexual propagula (171:)	<b>Ptychostomum</b>
173:	Plants usually epiphytic; usually with asexual propagula	<b>Gemmabryum</b>
174	Stems with abundant paraphyllia (142:)	175
174:	Stems with very few or no paraphyllia	179
175	Plants stipitate (174)	176
175:	Plants not stipitate (but the stem and branch sometimes different)	177
176	Plants bipinnately frondose, on trees and rocks; leaf margin subentire; laminal cells short, oval (175)	<b>Leptodon</b>
176:	Plants dendroid, on soil; leaf margin serrate; laminal cells linear	<b>Climacium</b>
177	Laminal cells and paraphyllia papillose (175:)	<b>Thuidium</b>
177:	Laminal cells and paraphyllia smooth	178
178	Stem leaves squarrose-recurved (177:)	<b>Cratoneuropsis</b>
178:	Stem leaves erect to erect-spreading	<b>Cratoneuron</b>
179	Capsule valvate; plants dark reddish brown to black, usually on montane granitic rock (174:)	<b>Andreaea</b>
179:	Capsule not valvate; plants variously coloured, on various substrata	180
180	Laminal cells papillose, strongly mammillose or prorate (179:)	181
180:	Laminal cells smooth or only slightly bulging (but costal cells might be projecting)	268
181	Plants minute, ephemeral, growing on soil (180)	182
181:	Plants small to large, perennial, growing on various substrata	193
182	Capsule operculate (181)	183
182:	Capsule cleistocarpous	185
183	Leaf margin plane to recurved; costa with 1 stereid band (182)	<b>Pottia</b>
183:	Leaf margin incurved to inrolled; costa with 2 stereid bands	184
184	Capsule narrowed towards the mouth, usually with a peristome (183:)	<b>Weissia</b>
184:	Capsule widest at the mouth, never with a peristome	<b>Phasconica</b>
185	Laminal cells prorate (182:)	<b>Ephemerum</b>
185:	Laminal cells papillose directly over the lumina	186
186	Capsule exerted (185:)	187
186:	Capsule immersed	188
187	Capsule angled in cross-section, ridged at the base; costa with 2 stereid bands (186)	<b>Tetrapterum</b>
187:	Capsule not angled in cross-section, rounded at the base; costa with 1 stereid band	<b>Pottia</b>

188	Vegetative leaves lanceolate; hyaline basal laminal cells extending up the leaf margin as a V; exothecial cells of capsule pustular (186:)	<b>Trachycarpidium</b>
188:	Vegetative leaves oblong to obovate; hyaline basal cells indistinct or not extending up the margin; exothecial cells flat or mammillose	189
189	Leaves concave with a recurved apex; leaves sheathing the capsule; plants bulbiform (188:)	<b>Acaulon</b>
189:	Leaves plane with an erect apex; leaves spreading from the capsule; plants not bulbiform	190
190	Costa subpercurrent to percurrent; calyptra inflated and enclosing the entire sporophyte (189:)	<b>Bryobartramia</b>
190:	Costa excurrent; calyptra not inflated, restricted to the upper half of the capsule	191
191	Costa with 2 stereid bands (190:)	<b>Uleobryum</b>
191:	Costa with 1 stereid band	192
192	Calyptra large, broadly campanulate-lobed, readily splitting up one side; costa extending below the base of the lamina onto the stem (191:)	<b>Phascopsis</b>
192:	Calyptra minute to medium-sized, cucullate; costa ending at the leaf base	<b>Phascum</b>
193	Walls of upper laminal cells wavy and irregularly thickened (181:)	<b>Racomitrium</b>
193:	Walls of upper laminal cells straight and variously thickened	194
194	Laminal cells prorulate (193:)	195
194:	Laminal cells papillose directly over the lumina or rarely over the walls	212
195	Leaves plicate, at least at the base (194:)	<b>Bretelia</b>
195:	Leaves not plicate	196
196	Leaves strongly 5-ranked; plants forming compact mounds on alpine soil (195:)	<b>Conostomum</b>
196:	Leaves not conspicuously ranked; habitats and substrata various	197
197	Plants erect, scarcely or not at all branched except subflorally (196:)	198
197:	Plants with prostrate stems and spreading to erect branches	204
198	Leaf margin entire or obscurely serrulate, not obviously thickened; capsule elliptical to cylindrical; plants small and slender (197:)	199
198:	Leaf margin strongly toothed and/or obviously thickened; capsule globose; plants medium-sized	201
199	Leaves erect-flexuose from a gradually expanded ovate subsheathing base (198:)	<b>Ditrichum</b>
199:	Leaves twisted from an abruptly expanded obovate sheathing base	200
200	Capsule elliptical; peristome teeth vertically pitted (199:)	<b>Dicranella</b>
200:	Capsule cylindrical; peristome teeth papillose	<b>Ditrichum</b>
201	Leaves abruptly narrowed from a sheathing base; plants without subfloral innovations; spores usually only papillose (198:)	<b>Bartramia</b>
201:	Leaves gradually narrowed from a non-expanded leaf base; plants usually with subfloral innovations; spores usually coarsely ornamented	202
202	Leaves erect-appressed when dry; plants usually of mesic habitats (201:)	<b>Bartramia</b>
202:	Leaves loosely erect to spreading; plants of at least seasonally wet habitats	203
203	Capsule $\pm$ erect; peristome reduced (202:)	<b>Bartramidula</b> <sup>1</sup>
203:	Capsule inclined to horizontal; peristome well developed	<b>Philonotis</b>
204	Upper laminal cells $\pm$ linear, more than 4:1 (197:)	205
204:	Upper laminal cells $\pm$ rounded to short-oval, less than 3:1	208
205	Plants robust, erect, usually more than 15 mm tall; stipes arising from prostrate primary stem with reduced leaves (204:)	206
205:	Plants slender; prostrate, lacking stipes and prostrate primary stem with reduced leaves	207
206	Frond elongate, bipinnate; filiform papillose propagula occasionally in upper leaf axils; branch leaves cymbiform with obtuse to truncate or emarginate apices (205:)	<b>Braithwaitea</b>
206:	Frond usually umbellate or palmate; propagula absent; branch leaves flat or weakly concave with acute or acuminate apices	<b>Hypnodendron</b>

<sup>1</sup> Synonymous with *Philonotis*, fide S.R.Gilmore (*Flora of Australia* 51: 265, 2006).

207	Leaves ovate-lanceolate; exostome teeth short-truncate, greatly reduced, much shorter than the endostome segments (205:)	<b>Macgregorella</b>
207:	Leaves lanceolate; exostome teeth lanceolate, not reduced, about the same size as the endostome segments	<b>Schwetschkea</b>
208	Plants distinctly frondose, complanate-foliate; leaves little-altered when dry (204:)	<b>Pinnatella</b>
208:	Plants only slightly and irregularly branched, ±terete; leaves erect when dry, wide-spreading when moist	209
209	Leaf apex gradually long-acuminate (208:)	<b>Cryphaea</b>
209:	Leaf apex obtuse, acute or abruptly short-acuminate	210
210	Leaves short-acuminate; sporophyte terminal on a stem or short branch; peristome single (209:)	<b>Schoenobryum</b>
210:	Leaves acute to obtuse; sporophyte lateral; peristome double	211
211	Plants blackish, robust; leaves longer than 2 mm (210:)	<b>Dendrocryphaea</b>
211:	Plants greenish, slender; leaves shorter than 1.5 mm	<b>Cyrtodon</b>
212	Leaves strongly 3-ranked; upper laminal cells usually with a single deeply forked papilla (194:)	<b>Triquetrella</b>
212:	Leaves not obviously ranked, or sometimes 5-ranked; upper laminal cells variously uni- to pluripapillose	213
213	Upper laminal cells bulging-mammillose to unipapillose; papillae simple (212:)	214
213:	Upper laminal cells pluripapillose or, if unipapillose, the papillae with multiple branches	229
214	Plants terrestrial, erect to ascending; costa flexuose above; laminal cells stellately thickened; stems with abundant dark brownish red tomentum (213)	<b>Aulacomnium</b>
214:	Plants epiphytic or, if terrestrial, not erect; costa straight; laminal cells not or little thickened in the corners; stems variously tomentose or not	215
215	Upper laminal cells 3:1 or longer (214:)	216
215:	Upper laminal cells 2:1 or shorter	220
216	Upper laminal cells 3–4:1, rhomboidal to oval; leaf apex acute to rounded-cuspidate (215:)	217
216:	Upper laminal cells more than 6:1, linear; leaf apex acuminate	218
217	Plants complanate-foliate, terrestrial or on tree bases (216)	<b>Stereophyllum</b>
217:	Plants terete-foliate, epiphytic and pendent	<b>Meteorium</b>
218	Plants robust; leaves c. 6 mm long and minutely auriculate (216:)	<b>Pseudospiridentopsis</b>
218:	Plants medium-sized; leaves c. 2–3 mm long and short-decurrent, not auriculate	219
219	Plants complanate-foliate; seta c. 20 mm long (218:)	<b>Aerobryopsis</b>
219:	Plants terete-foliate; seta c. 2 mm long	<b>Meteoriopsis</b>
220	Leaves obovate (215:)	221
220:	Leaves lanceolate to ovate	222
221	Plants terete-foliate; propagula on upper surface of costa; costa excurrent in a cusp or hyaline hairpoint (220)	<b>Tortula</b>
221:	Plants complanate-foliate; upper surface of costa lacking propagula; costa percurrent	<b>Bryobrothera</b>
222	Basal (not juxtacostal) laminal cells short, 2:1 or less (220:)	223
222:	Basal laminal cells elongate, 3:1 or longer	227
223	Stems scarcely or not branched; erect to pendent from tree fern trunks; leaf apex abruptly aristate (222)	<b>Hymenodon</b>
223:	Stems irregularly to pinnately branched, creeping; leaf apex acute to gradually long-acuminate	224
224	Plants glaucous-green (223:)	<b>Philonotis</b>
224:	Plants bright green to reddish green	225
225	Costa of stem leaves long-excurrent and pellucid; stem leaf apex acuminate; pseudoparaphyllia present (224:)	<b>Claopodium</b>
225:	Costa of stem leaves percurrent and opaque; stem leaf apex acute; pseudoparaphyllia absent	226
226	Branch leaves erect and imbricate when dry (225:)	<b>Macrocoma</b>
226:	Branch leaves variously twisted and contorted when dry	<b>Macromitrium</b>

227	Outer 2 or 3 rows of basal laminal cells markedly different from the innermost ones, with thickened cross-walls (222:)	<b>Ulota</b>
227:	Outer basal laminal cells not markedly different from the innermost ones, but sometimes longer and thinner-walled, without thickened cross-walls	228
228	Plants matted, cladocarpous; primary stem creeping but branches erect; capsule usually exserted (227:)	<b>Macromitrium</b>
228:	Plants tufted, acrocarpous; stems and branches not different; capsule immersed to short-exserted	<b>Orthotrichum</b>
229	Laminal cells pluripapillose directly over the walls (213:)	<b>Trachypus</b>
229:	Laminal cells pluripapillose directly over the lumina	230
230	Laminal cells seriatly pluripapillose (229:)	<b>Floribundaria</b>
230:	Laminal cells with papillae scattered over the lumina	231
231	Plants pleurocarpous; stems creeping (230:)	232
231:	Plants acrocarpous; stems erect	236
232	Branch and stem leaves different; stem leaves narrowly acuminate; branch leaves obtuse to acute (231:)	<b>Thuidium</b>
232:	Branch and stem leaves similar	233
233	Plants small, slender; branches 2–3 mm long; laminal cells 4–6 µm diam. (232:)	<b>Haplohymenium</b>
233:	Plants medium-sized, robust; branches longer than 5 mm; laminal cells > 6 µm diam.	234
234	Branches from creeping stems short and erect-ascending (233:)	<b>Macromitrium</b>
234:	Branches from creeping stems elongate and pendent	235
235	Laminal cells densely papillose; marginal cells smooth or less papillose; plants dark green to blackish (234:)	<b>Papillaria</b>
235:	Laminal cells sparsely papillose; marginal cells undifferentiated; plants pale green or golden-green	<b>Barbella</b>
236	Laminal cells bistratose to tristratose throughout (231:)	237
236:	Laminal cells unistratose or bistratose only at the margin	238
237	Leaves ligulate; capsule broad, asymmetrical and sessile (236:)	<b>Diphyscium</b>
237:	Leaves ovate-lanceolate; capsule slender, symmetrical and long-exserted	<b>Chrysoblastella</b>
238	Upper laminal cells with longitudinally striolate papillae over the walls and lumina (236:)	<b>Amphidium</b>
238:	Upper laminal cells with rounded or C-shaped papillae only over the lumina	239
239	Leaf lamina and margin inrolled to involute (238:)	240
239:	Leaf lamina and margin plane to recurved	242
240	Leaves oblong-elliptical; laminal cells with a few scattered papillae only on the upper surface (239:)	<b>Hyophila</b>
240:	Leaves lanceolate; laminal cells densely papillose on both surfaces	241
241	Capsule tapering to the mouth; peristome usually present (240:)	<b>Weissia</b>
241:	Capsule widest at the mouth; peristome absent	<b>Phasconica</b>
242	Hyaline basal laminal cells extending up the margin in a V-shape (239:)	243
242:	Hyaline basal laminal cells undifferentiated or not extending up the margin	244
243	Papillae of laminal cells high and coroniform (242:)	<b>Tortella</b>
243:	Papillae of laminal cells low and plate-like	<b>Pseudosymblepharis</b>
244	Costa homogeneous in cross-section; stems lacking a central strand; plants usually on trees or rocks (242:)	245
244:	Costa with stereids and guide cells in cross-section; stems usually with a central strand; plants usually on soil	248
245	Plants small, on calcareous rock; leaves obovate, to 0.5 mm long (244:)	<b>Gymnostomiella</b>
245:	Plants larger, on bark and rock; leaves lanceolate to ligulate, longer than 1 mm	246
246	Laminal cells with 4–7 widely spaced clavate papillae (if papillae fewer, then leaves obtuse); propagula, when present, elliptical and in leaf axils (245:)	<b>Zygodon</b>
246:	Laminal cells with fewer than 3 closely spaced conical to irregularly branched papillae; leaves always acute to acuminate; propagula, when present, oblong and on leaf surface	247

247	Leaves usually crispate to contorted when dry; cross-walls of basal marginal cells thickened; capsule short-exserted, with superficial stomata (246:)	<b>Ulota</b>
247:	Leaves usually little-altered when dry; cross-walls of basal marginal cells undifferentiated; capsule immersed to short-exserted, with immersed or superficial stomata	<b>Orthotrichum</b>
248	Costa with 1 stereid band (244:)	249
248:	Costa with 2 stereid bands	258
249	Leaves constricted below the apex and ending in a deciduous cylindrical sharply apiculate propagulum (248:)	<b>Sarconeurum</b>
249:	Leaves not ending in a cylindrical propagulum	250
250	Leaves ligulate to narrowly lanceolate, never with a hairpoint (249:)	251
250:	Leaves spatulate, elliptical, oblong or ovate, sometimes with a hairpoint	252
251	Upper leaf margin bistratose; perichaetia terminal (250:)	<b>Trichostomopsis</b>
251:	Upper leaf margin unistratose; perichaetia lateral	<b>Anoetangium</b>
252	Plants minute, scattered on soil or calcareous rock; leaves broadly acute to obtuse, shorter than 0.5 mm (250:)	253
252:	Plants small to medium-sized, usually tufted on soil or rarely tree trunks; leaves acute to acuminate, longer than c. 1 mm	254
253	Uppermost leaves deciduous, expanded, ventrally bulging and oil-rich, forming propagula; upper leaf margin papillose but otherwise entire (252:)	<b>Stonea</b>
253:	Upper leaves not deciduous; propagula elliptical and in leaf axils; upper leaf margin crenulate with bulging cell walls	<b>Gymnostomiella</b>
254	Calyptra large, campanulate, covering the entire capsule (252:)	<b>Encalypta</b>
254:	Calyptra small, cucullate, covering only the upper part of the capsule	255
255	Leaf apex hairpointed (254:)	<b>Tortula</b>
255:	Leaf apex acute to acuminate	256
256	Peristome rudimentary or absent (255:)	<b>Pottia</b>
256:	Peristome of well-developed bifid teeth, with or without a basal membrane	257
257	Peristome teeth free and erect to slightly twisted above; cells of adaxial surface of costa usually larger than or otherwise different from the laminal cells in cross-section (256:)	<b>Desmatodon</b>
257:	Peristome teeth united in a high or, rarely, low tubular basal membrane and spirally twisted above; cells of adaxial surface of costa smaller than or similar to the laminal cells in cross-section	<b>Tortula</b>
258	Stem lacking a central strand (248:)	259
258:	Stem with a distinct central strand	261
259	Leaf margin plane (258:)	<b>Pseudosymblepharis</b>
259:	Leaf margin recurved to revolute	260
260	Leaf margin strongly toothed (259:)	<b>Leptodontium</b>
260:	Leaf margin entire or only minutely serrulate	<b>Hymenostylium</b>
261	Leaf margin recurved (258:)	262
261:	Leaf margin erect to plane	264
262	Lower stem and its leaves brick-red (261:)	<b>Bryoerythrophyllum</b>
262:	Lower stem and its leaves green to yellow-brown	263
263	Axillary hairs with a brown basal cell; laminal cells well defined in surface view; leaves usually lanceolate; cells of abaxial surface of costa quadrate to short-oblong, rarely elongate; basal laminal cells usually scarcely differentiated, green and short-rectangular (262:)	<b>Didymodon</b>
263:	Axillary hairs with all cells hyaline; laminal cells obscure in surface view; leaves usually ovate to oblong; cells of abaxial surface of costa oblong to elongate; basal laminal cells usually strongly differentiated, hyaline and elongate	<b>Barbula</b>
264	Plants epiphytic on cycads; leaves spatulate; leaf margin bistratose; basal laminal cells lax and hyaline (261:)	<b>Calymperastrum</b>
264:	Plants on soil; leaves oblong; leaf margin usually unistratose; basal laminal cells various	265
265	Stem with a hyalodermis (264:)	<b>Trichostomum</b>
265:	Stem with thick-walled epidermal cells	266

266	Costa excurrent in a stout mucro; peristome well developed (265:)	<b>Barbula</b>
266:	Costa subpercurrent to percurrent; peristome poorly developed or absent	267
267	Leaves longer than 1.5 mm; apex a short hyaline apiculus; peristome present (266:)	<b>Bryoerythrophyllum</b>
267:	Leaves shorter than 1 mm; apex rounded to acute-apiculate; peristome absent	<b>Gymnostomum</b>
268	Walls of upper laminal cells wavy, irregularly thickened (180:)	<b>Racomitrium</b>
268:	Walls of upper laminal cells straight, variously thickened or porose	269
269	Capsule strongly asymmetrical and emergent (268:)	<b>Diphyscium</b>
269:	Capsule symmetrical or, if asymmetrical, exerted rather than emergent	270
270	Plants at least partly black, brownish or very dark green; growing on rock (269:)	271
270:	Plants greenish or whitish; growing on various substrata	272
271	Plants coastal, in the supralittoral zone; capsule operculate (270)	<b>Muelleriella</b>
271:	Plants not coastal; capsule valvate	<b>Andreaea</b>
272	Stems usually creeping or, if erect, well branched; sporophyte usually lateral on stems, or terminating branches (270:)	273
272:	Stems erect or ascending, scarcely or not branched; sporophyte usually terminal, rarely basal or truly lateral, but sometimes on subfloral innovations and therefore appearing lateral	347
273	Leaves undulate or rugose (272)	274
273:	Leaves not undulate or rugose, but sometimes concave or plicate	278
274	Costa excurrent (273)	<b>Schlotheimia</b>
274:	Costa ending well below the leaf apex	275
275	Leaf base auriculate (274:)	<b>Calypothecium</b>
275:	Leaf base not auriculate	276
276	Plants stipitate-frondose and stiff (275:)	<b>Pterobryidium</b>
276:	Plants pinnately branched, $\pm$ pendent and flaccid	277
277	Leaf apex truncate and blunt; capsule immersed (276:)	<b>Neckeropsis</b>
277:	Leaf apex broadly acute; capsule short-exserted	<b>Himantocladium</b>
278	Upper laminal cells 2:1 or shorter and quadrate, rounded, rhomboidal or hexagonal (273:)	279
278:	Upper laminal cells 4:1 or longer and usually linear	305
279	Leaves plicate (278)	280
279:	Leaves not plicate	282
280	Leaf margin bistratose at least above (279)	<b>Echinodium</b>
280:	Leaf margin unistratose	281
281	Plants terete-foliate; laminal cells thick-walled and strongly porose (280)	<b>Neolindbergia</b>
281:	Plants complanate-foliate; laminal cells firm-walled, not or only weakly porose	<b>Thamnobryum</b>
282	Costa strongly flexuose in the upper part of the leaf (279:)	<b>Herpetineuron</b>
282:	Costa straight	283
283	Leaf margin bistratose (282:)	284
283:	Leaf margin unistratose	288
284	Leaves ovate; apex acute (283)	<b>Rhizogonium</b>
284:	Leaves lanceolate; apex acuminate	285
285	Plants stipitate and dendroid-frondose; primary stem creeping (284:)	286
285:	Plants erect but scarcely or not at all branched; primary stem creeping or not	287
286	Peristome double (285)	<b>Cyrtopus</b>
286:	Peristome single (exostome only)	<b>Bescherellia</b>
287	Leaf margin entire to singly serrate; plants with a primary creeping stem (285:)	<b>Echinodium</b>
287:	Leaf margin doubly serrate; plants without a primary creeping stem	<b>Pyrrhobryum</b>
288	Plants complanate-foliate (283:)	289
288:	Plants terete-foliate	297
289	Leaves in 2 rows (288)	<b>Rhizogonium</b>
289:	Leaves in several rows all around the stem	290

290	Plants stipitate (289:)	291
290:	Plants not stipitate	294
291	Leaf margin with large multicellular teeth (290:)	<b>Homaliodendron</b>
291:	Leaf margin entire or serrate with unicellular teeth	292
292	Leaves caducous; stems naked (291:)	<b>Caduciella</b>
292:	Leaves not caducous; stems leafy	293
293	Capsule short-exserted (292:)	<b>Himantocladium</b>
293:	Capsule long-exserted	<b>Thamnobryum</b>
294	Costa percurrent or ending only 1 or 2 cells below the leaf apex; leaf margin crenulate (290:)	<b>Bryobrothera</b>
294:	Costa ending well below the leaf apex; leaf margin entire or strongly toothed	295
295	Alar cells somewhat differentiated, quadrate; calyptra cucullate (294:)	<b>Pendulothecium</b>
295:	Alar cells not differentiated; calyptra mitrate	296
296	Costa forked above; leaf margin usually toothed; calyptra naked (295:)	<b>Achrophyllum</b>
296:	Costa not forked above; leaf margin entire; calyptra hairy	<b>Distichophyllum</b>
297	Plants growing on rocks in streams (288:)	298
297:	Plants growing in drier habitats	299
298	Plants slender; costa occupying c. one-third the width of the leaf base (297)	<b>Touwia</b>
298:	Plants moderately robust; costa occupying less than one-fifth the width of the leaf base	<b>Dendrocryphaea</b>
299	Vegetative leaf length:width ratio c. 2:1 or less (297:)	300
299:	Vegetative leaf length:width ratio c. 3:1 or more	303
300	All stems $\pm$ creeping (299:)	<b>"Austropseudoleskea"</b>
300:	Secondary stems erect to ascending	301
301	Sporophytes terminal on stems and short lateral branches; peristome single (exostome only) (300:)	<b>Schoenobryum</b>
301:	Sporophytes lateral; peristome double	302
302	Leaf apex obtuse; calyptra mitrate (301:)	<b>Cyrtodon</b>
302:	Leaf apex abruptly short-acuminate; calyptra cucullate	<b>Forsstroemia</b>
303	Laminal cells rhomboidal, c. 2:1; capsule immersed in large sheathing perichaetial leaves (299:)	<b>Cryphaea</b>
303:	Laminal cells rounded to quadrate, c. 1:1; capsule exserted from only slightly differentiated perichaetial leaves	304
304	Leaves oblong; apex mucronate; upper laminal cells subquadrate in obliquely spreading rows; plants red-brown; calyptra lobed at base, not plicate (303:)	<b>Schlotheimia</b>
304:	Leaves lanceolate to ligulate; apex acuminate to acute or rarely mucronate; upper laminal cells in vertical rows; plants chestnut-brown; calyptra slit at base and plicate	<b>Macromitrium</b>
305	Plants stipitate from a creeping primary stem (278:)	306
305:	Plants not stipitate; primary and secondary stems similar	314
306	Costa percurrent or ending in the apex (305)	307
306:	Costa ending well below the apex	311
307	Plants umbellate to asymmetrically dendroid; on soil or soil-covered rocks (306:)	<b>Hypnodendron</b>
307:	Plants frondose to sparsely pinnately branched; usually epiphytic	308
308	Leaves plicate (307:)	<b>Pterobryon</b>
308:	Leaves not plicate	309
309	Plants less than 5 cm tall; leaf apex abruptly piliferous (308:)	<b>Muellerobryum</b>
309:	Plants more than 5 cm tall; leaf apex gradually acuminate	310
310	Leaves appearing bordered because the marginal or intramarginal cells are thicker than other laminal cells; capsule short-exserted and smooth (309)	<b>Pterobryella</b>
310:	Leaves not appearing bordered; capsule long-exserted and furrowed	<b>Braithwaitea</b>
311	Leaves auriculate (306:)	<b>Calypothecium</b>
311:	Leaves not auriculate	312

312	Leaf margin conspicuously serrulate; costa apex projecting as a spine (311:)	<b>Eurhynchium</b>
312:	Leaf margin $\pm$ entire; costa apex not projecting as a spine	313
313	Plants forming dense erect turfs, matted with tomentum, almost always on soil; leaf apex acuminate to piliferous (312:)	<b>Lepyrodon</b>
313:	Plants forming loose mats of projecting secondary stems, not tomentose, epiphytic; leaf apex short-acuminate	<b>Forsstroemia</b>
314	Stem leaves falcate-secund (305:)	315
314:	Stem leaves straight	318
315	Leaves plicate (314)	316
315:	Leaves not plicate	317
316	Leaves shorter than 1.5 mm; seta papillose (315)	<b>Brachythecium</b>
316:	Leaves longer than 2 mm; seta smooth	<b>Sanionia</b>
317	Stems branched in one plane (315:)	<b>Drepanocladus</b>
317:	Stems branched radially	<b>Warnstorfia</b>
318	Leaves broadly ovate to elliptical, deeply concave; apex sometimes abruptly apiculate (314:)	319
318:	Leaves lanceolate to ovate, plane to weakly concave; apex acute to acuminate	321
319	Alar cells small, quadrate, firm-walled, poorly differentiated; leaf apex abruptly reflexed and apiculate (318:)	<b>Pseudoscleropodium</b>
319:	Alar cells large, rounded, inflated, in decurrent groups; leaf apex blunt	320
320	Plants pale green or yellow-green; stem leaf apex rounded; leaf-borne rhizoids common (319:)	<b>Straminergon</b>
320:	Plants often reddish; stem leaf apex usually apiculate; leaf-borne rhizoids rare	<b>Warnstorfia</b>
321	Leaves plicate (318:)	322
321:	Leaves not plicate	323
322	Branches curved-ascending when dry (321)	<b>Homalothecium</b>
322:	Branches prostrate when dry	<b>Brachythecium</b>
323	Branch leaves, especially immature ones, strongly inrolled and thus appearing tubular (321:)	<b>Scorpiurium</b>
323:	Branch leaves various but never inrolled or appearing tubular	324
324	Laminal cells 6:1 or shorter (323:)	325
324:	Laminal cells 8:1 or longer	332
325	Plants tufted, with simple erect stems; leaves 2–3 mm long (324)	<b>Goniobryum</b>
325:	Plants matted, with branched prostrate (rarely erect) stems; leaves shorter than 2 mm	326
326	Alar cells well developed and in concave groups; paraphyllia usually present; branch leaves often $\pm$ falcate (325:)	<b>Cratoneuron</b>
326:	Alar cells poorly differentiated or, if well developed, not in concave groups; paraphyllia absent; branch leaves straight	327
327	Costa extending into the leaf apex; leaf margin entire or nearly so (326:)	328
327:	Costa ending well below the leaf apex; leaf margin entire or serrulate	329
328	Plants on soil or rotting wood; exostome teeth striate (327:)	<b>Amblystegium</b>
328:	Plants on bark; exostome teeth papillose	<b>Anacamptodon</b>
329	Leaf margin entire; plants growing on rocks (327:)	<b>Ischyrodon</b>
329:	Leaf margin serrulate; plants growing on tree trunks	330
330	Peristome single; walls of exothecial cells wavy; plants common (329:)	<b>Fabronia</b>
330:	Peristome double; walls of exothecial cells straight; plants rare	331
331	Leaves lanceolate; exostome teeth papillose (330:)	<b>Schwetschkea</b>
331:	Leaves ovate; exostome teeth striate	<b>Helicodontium</b>
332	Leaf apex cucullate and obtuse to minutely apiculate; leaves ovate-oblong (324:)	333
332:	Leaf apex flat and acute to acuminate; leaves lanceolate to ovate-cordate	334
333	Plants pale green or yellow-green; stem leaf apex rounded; leaf-borne rhizoids common (332:)	<b>Straminergon</b>
333:	Plants often reddish; stem leaf apex usually apiculate; leaf-borne rhizoids rare	<b>Warnstorfia</b>



334	Leaf apex channeled; base concave; insertion narrow (332:)	<b>Campyliadelphus</b>
334:	Leaf apex not channeled; base not concave or the insertion not narrow	335
335	Apical cells of branch leaves noticeably shorter than mid-leaf cells (334:)	336
335:	Apical cells of branch leaves not shorter than mid-leaf cells	337
336	Plants growing on periodically inundated rocks, dull dark green; stem leaf apex blunt (335:)	<b>Platyhypnidium</b>
336:	Plants growing on various substrata in drier habitats; green to yellow-green or brownish green; stem leaf apex acuminate	<b>Eurhynchium</b>
337	Plants with sporophytes (335:)	338
337:	Plants lacking sporophytes	342
338	Operculum conical (337:)	339
338:	Operculum rostrate	340
339	Plants complanate-foliate; capsule long-cylindrical and strongly arcuate (338:)	<b>Leptodictyum</b>
339:	Plants terete- to somewhat complanate-secund-foliate; capsule short-cylindrical and only slightly arcuate	<b>Brachythecium</b>
340	Seta rough; plants small; leaves lanceolate (338:)	<b>Rhynchostegiella</b>
340:	Seta smooth; plants medium-sized; leaves ovate	341
341	Capsule erect and symmetrical (340:)	<b>Eriodon</b>
341:	Capsule inclined and asymmetrical	<b>Rhynchostegium</b>
342	Plants complanate-foliate (337:)	343
342:	Plants terete-foliate	345
343	Leaf margin entire; plants of wet habitats (342:)	<b>Leptodictyum</b>
343:	Leaf margin serrulate; plants of drier habitats	344
344	Plants epiphytic; capsule erect (343:)	<b>Eriodon</b>
344:	Plants on soil, rotting wood or rock; capsule inclined	<b>Rhynchostegium</b>
345	Plants small, usually epiphytic; leaves shorter than 1 mm (342:)	<b>Rhynchostegiella</b>
345:	Plants medium-sized to moderately robust, on soil; leaves usually longer than 1 mm	346
346	Stems and branches strongly curved when dry (345:)	<b>Scleropodium</b>
346:	Stems and branches not or only slightly curved when dry	<b>Brachythecium</b>
347	Leaf hairpoint conspicuous, piliferous, c. as long as the lamina (272:)	<b>Leptostomum</b>
347:	Leaf hairpoint lacking or much shorter than the lamina	348
348	Plants minute, less than 4 mm tall, growing on soil (347:)	349
348:	Plants larger, more than 5 mm tall or, if minute, gregarious on rock; otherwise growing on various substrata	362
349	Capsule cleistocarpous (348)	350
349:	Capsule operculate	355
350	Costa ending in mid-leaf; laminal cells thin-walled (349:)	351
350:	Costa ending near the leaf apex; laminal cells firm-walled	352
351	Leaves oblanceolate, spatulate or obovate; capsule short-apiculate; spores less than 50 $\mu\text{m}$ diam. (350:)	<b>Physcomitrella</b>
351:	Leaves linear to linear-lanceolate; capsule not apiculate; spores more than 100 $\mu\text{m}$ diam.	<b>Archidium</b>
352	Spores usually only 16–32 per capsule, more than 100 $\mu\text{m}$ diam. (350:)	<b>Archidium</b>
352:	Spores many per capsule, less than 50 $\mu\text{m}$ diam.	353
353	Vegetative leaves subulate; calyptra mitrate; capsule neck strongly differentiated (352:)	<b>Bruchia</b>
353:	Vegetative leaves acute to acuminate; calyptra cucullate; capsule neck not strongly differentiated	354
354	Protonemata persistent; costa without stereids (353:)	<b>Ephemerum</b>
354:	Protonemata not persistent; costa with 2 central stereid bands in cross-section	<b>Pleuridium</b>
355	Capsule neck strongly differentiated, usually about as long as or longer than the urn (349:)	356
355:	Capsule neck scarcely differentiated	357
356	Leaves subulate from an abruptly expanded base (355)	<b>Trematodon</b>
356:	Leaves lanceolate to ovate from a gradually expanded base	<b>Entosthodon</b>

357	Capsule immersed or protruding on an arcuate seta (377:)	358
357:	Capsule exerted	360
358	Calyptra plicate, large, covering the entire capsule (357)	<b>Goniomitrium</b>
358:	Calyptra not plicate, smaller, covering only the capsule apex	359
359	Seta short, often arcuate; vaginula long-cylindrical; foot dagger-shaped; laminal cells usually firm-walled; costa usually distinct (358:)	<b>Eccremidium</b>
359:	Seta absent; vaginula short-cupulate; foot subglobose; laminal cells lax; costa rudimentary or absent	<b>Nanomitriopsis</b>
360	Calyptra mitrate; operculum conical or rostrate (357:)	<b>Physcomitrium</b>
360:	Calyptra cucullate; operculum flat to short-conical	361
361	Capsule sulcate when dry; annulus compound and revoluble (360)	<b>Funaria</b>
361:	Capsule smooth or wrinkled when dry; annulus neither compound nor revoluble	<b>Entosthodon</b>
362	Costa very broad, occupying (1/4–) 1/3–1/2 of the leaf base (348:)	363
362:	Costa narrower, occupying less than 1/4 of the leaf base	367
363	Alar cells scarcely differentiated (362)	364
363:	Alar cells well differentiated	366
364	Leaves subulate (363)	<b>Campylopus</b>
364:	Leaves oblong-lingulate to broadly lanceolate	365
365	Stems with copious red tomentum; seta long; capsule peristomate (364:)	<b>Meesia</b>
365:	Stems lacking red tomentum; seta very short to absent; capsule cleistocarpous	<b>Archidium</b>
366	Inner basal cells of leaf not conspicuously differentiated along the costa; capsule furrowed; annulus compound; calyptra usually fringed (363:)	<b>Campylopus</b>
366:	Inner basal cells of leaf pale, enlarged and broadly rectangular, extending upward along the costa; capsule smooth, exannulate; calyptra not fringed	<b>Dicranodontium</b>
367	Erect stems arising from a creeping primary stem (362:)	368
367:	Erect stems independent, not arising from a creeping primary stem	369
368	Plants in spongy turfs with dense tomentum; leaf margin not thickened; costa ending well short of the leaf apex (367)	<b>Lepyrodon</b>
368:	Plants in rigid loose mats with ascending scarcely branched stems and sparse tomentum; leaf margin thickened; costa percurrent to excurrent	<b>Echinodium</b>
369	Leaves linear or subulate from a gradually narrowed broader base (367:)	370
369:	Leaves obovate, ovate or lanceolate; apex obtuse, acute or short-acuminate, sometimes with the costa abruptly excurrent	390
370	Alar cells not or scarcely differentiated, similar to the lower laminal cells (369)	371
370:	Alar cells differentiated	383
371	Leaf margin with double teeth (370)	<b>Pyrrhobryum</b>
371:	Leaf margin entire or with only single teeth	372
372	Capsule immersed (371:)	373
372:	Capsule exerted	374
373	Capsule peristomate and terminal (372)	<b>Garckea</b>
373:	Capsule cleistocarpous and usually axillary	<b>Archidium</b>
374	Plants minute, growing on rock; capsule ovoid; stems less than 3 mm long; seta less than 3 mm long (372:)	375
374:	Plants small, growing on soil; capsule elliptical to cylindrical; stems usually more than 3 mm long; seta usually more than 3 mm long	376
375	Capsule ribbed; seta cygneous; calyptra large and mitrate (374)	<b>Brachydontium</b>
375:	Capsule smooth; seta straight; calyptra small and cucullate	<b>Seligeria</b>
376	Leaves linear; upper laminal cells linear, c. 10:1 and extending to the leaf apex (374:)	377
376:	Leaves subulate; upper laminal cells ±isodiametric to rectangular; costa filling the subula or nearly so	379
377	Capsule long-cylindrical; peristome single, with spiral thickenings (376)	<b>Wilsoniella</b>
377:	Capsule pyriform to oval-cylindrical; peristome double, with papillose ornamentation	378

378	Capsule inclined, pyriform; endostome with a high basal membrane (377:)	<b>Leptobryum</b>
378:	Capsule erect to slightly inclined, oval-cylindrical; endostome with a very low basal membrane	<b>Orthodontium</b>
379	Capsule neck well differentiated, as long as or longer than the urn (376:)	<b>Trematodon</b>
379:	Capsule neck scarcely differentiated	380
380	Peristome teeth linear, divided into 2 filiform terete segments; capsule long-cylindrical (379:)	381
380:	Peristome teeth lanceolate, undivided or irregularly bifid and flat; capsule ovoid	382
381	Plants bluish glaucous (380)	<b>Saelania</b>
381:	Plants green, not glaucous	<b>Ditrichum</b>
382	Peristome teeth vertically pitted below (380:)	<b>Dicranella</b>
382:	Peristome teeth smooth to papillose below	<b>Microdus</b>
383	Perichaetial leaves long-sheathing, tubular, extending well up the seta; upper leaf margin bistratose (370:)	<b>Holomitrium</b>
383:	Perichaetial leaves not sheathing or only shortly so, concave to plane, not extending much beyond the vegetative leaves; upper leaf margin unistratose	384
384	Capsule less than 1.5 mm long, ovoid, elliptical or hemispherical; seta usually flexuose to cygneous and short (383:)	385
384:	Capsule (1-) 2-3.5 mm long, cylindrical; seta straight and long	387
385	Capsule sulcate (384)	<b>Campylopodium</b>
385:	Capsule smooth	386
386	Alar cells well differentiated; peristome teeth smooth (385:)	<b>Blindia</b>
386:	Alar cells not differentiated; peristome teeth coarsely papillose	<b>Verrucidens</b>
387	Leaves crisped when dry (384:)	<b>Dicranoweisia</b>
387:	Leaves falcate when dry	388
388	Peristome teeth papillose; plants small; stems less than 10 mm long (387:)	<b>Holodontium</b>
388:	Peristome teeth pitted-striolate; plants small to large; stems more than 10 mm long	389
389	Plants dioicous, usually growing on soil or epiphytic at low elevations; costa with 2 stereid bands or, if stereids lacking, the plants very large with leaves 5-8 mm long (388:)	<b>Dicranum</b>
389:	Plants autoicous, growing on alpine granitic rock; costal stereids lacking or few and poorly differentiated; leaves less than 5 mm long	<b>Kiaeria</b>
390	Leaves broadly involute when dry; laminal cells asymmetrical, flat below and bulging above (369:)	<b>Hyophila</b>
390:	Leaves plane or variously contorted when dry but not involute; laminal cells symmetrical	391
391	Costa ending well below the leaf apex (390:)	392
391:	Costa ending near the leaf apex to excurrent	395
392	Laminal cells 2-4:1 (391)	393
392:	Laminal cells isodiametric	394
393	Plants glossy and bright green to whitish; leaf apex obtuse to acute; capsule cylindrical to pyriform (392)	<b>Bryum</b>
393:	Plants dull and glaucous green; leaf apex acute to acuminate; capsule globose	<b>Philonotis</b>
394	Leaves more than 4 mm long, ±bordered at base; laminal cells more than 30 µm diam. (392:)	<b>Orthomnion</b>
394:	Leaves less than 1 mm long, not bordered; laminal cells less than 30 µm diam.	<b>Mittenia</b>
395	Upper laminal cells ±isodiametric, 1:1, rounded, quadrate or short-hexagonal (391:)	396
395:	Upper laminal cells longer, 2-19:1, rectangular, long-hexagonal or linear	410
396	Plants bearing filamentous or cylindrical to elliptical propagula in the leaf axils (395:)	397
396:	Plants lacking propagula in the leaf axils, but sometimes producing rhizoidal tubers	399
397	Propagula filamentous, 6-12 or more cells long; costa excurrent in a stout cusp (396:)	<b>Leptotheca</b>
397:	Propagula cylindrical to elliptical, less than 8 cells long; costa subpercurrent to apiculate	398
398	Costa with 2 stereid bands in cross-section (397:)	<b>Barbula</b>
398:	Costa lacking stereids in cross-section	<b>Zygodon</b>

399	Leaves strongly 3-ranked (396:)	<b>Meesia</b>
399:	Leaves not in conspicuous rows	400
400	Leaves strongly toothed (399:)	401
400:	Leaves entire to minutely serrulate	402
401	Leaves curled when dry; upper laminal cells 6–8 µm diam.; capsule erect (400:)	<b>Ptychomitrium</b>
401:	Leaves flat when dry; upper laminal cells more than 10 µm diam.; capsule inclined	<b>Rhizogonium</b>
402	Plants simple or only sparsely branched, gregarious or turf-forming, growing on soil (400:)	403
402:	Plants branched, tufted; growing on bark or rock	406
403	Leaf apex obtuse to subacute (402)	<b>Barbula</b>
403:	Leaf apex short-acuminate to acute	404
404	Leaves lanceolate; laminal cells less than 10 µm diam.; leaf margin revolute; capsule inclined and furrowed (403:)	<b>Ceratodon</b>
404:	Leaves oblong to spatulate; laminal cells more than 15 µm diam.; leaf margin plane or recurved at the base; capsule erect and smooth	405
405	Costa with 1 stereid band in cross-section; plants autoicous and frequently fertile; capsule exerted and operculate (404:)	<b>Pottia</b>
405:	Costa lacking stereids or very weakly developed in cross-section; plants dioicous (but not fertile in Australia); capsule immersed and cleistocarpous	<b>Chenia</b>
406	Plants growing on tree trunks; calyptra hairy; stomata immersed (402:)	<b>Stoneobryum</b>
406:	Plants growing on rock; calyptra naked; stomata superficial	407
407	Leaves linear-lanceolate; laminal cells with minute elliptical cuticular ornamentation; capsule ribbed; peristome absent (406:)	<b>Amphidium</b>
407:	Leaves lanceolate to ovate; laminal cells smooth; capsule usually smooth; peristome single or rarely absent	408
408	Calyptra large, mitrate-campanulate and plicate; leaves never hairpointed (407:)	<b>Ptychomitrium</b>
408:	Calyptra small, mitrate or cucullate, not plicate; leaves sometimes hairpointed	409
409	Capsule systylious and immersed; perichaetial leaves well differentiated (408:)	<b>Schistidium</b>
409:	Capsule not systylious, immersed to exerted; perichaetial leaves not or scarcely differentiated	<b>Grimmia</b>
410	Costa occupying a quarter or more of the width of the leaf base (395:)	<b>Meesia</b>
410:	Costa occupying less than a sixth of the width of the leaf base	411
411	Upper laminal cells short-rectangular, thin-walled; peristome with endostome segments opposite the exostome teeth (410:)	412
411:	Upper laminal cells long-hexagonal, usually firm-walled; peristome with endostome segments alternating with the exostome teeth	414
412	Capsule peristomate and symmetrical; hypophysis conspicuous and at least half the length of the urn, sometimes brightly coloured; leaves sometimes strongly toothed (411)	<b>Tayloria</b>
412:	Capsule asymmetrical or, if symmetrical, not peristomate; hypophysis usually not conspicuous; leaves usually serrulate	413
413	Capsule sulcate when dry; annulus compound and revoluble (412:)	<b>Funaria</b>
413:	Capsule smooth or wrinkled when dry; annulus neither compound nor revoluble	<b>Entosthodon</b>
414	Mid-leaf laminal cells (6–) 8–12:1; marginal cells not much longer; leaves usually lanceolate (411:)	415
414:	Mid-leaf laminal cells 2–6:1; marginal cells usually somewhat longer; leaves usually ovate	416
415	Capsule pendent; peristome double and well developed; sporophyte apical (414)	<b>Pohlia</b>
415:	Capsule erect to inclined; peristome double or single but, if double, the exostome reduced; sporophyte basal	<b>Schizymenium</b>
416	Costa subpercurrent, ending 3–10 cells below the leaf apex (414:)	417
416:	Costa percurrent to excurrent	421
417	Leaf apex acute (416)	418
417:	Leaf apex rounded-obtuse	420

- 418 Plants silvery or whitish (417)..... **Bryum**
- 418: Plants greenish or yellow-green..... 419
- 419 Sporophytes terminal; leaf margin indistinctly bordered (418:)..... **Bryum**
- 419: Sporophytes basal; leaf margin not bordered ..... **Goniobryum**
- 420 Stem 5–15 mm tall; cells of upper leaf margin shorter than those at mid-leaf; archegonia single and axillary (417:) ..... **Splachnobryum**
- 420: Stem 20–60 mm tall; cells of upper leaf margin longer than those at mid-leaf; archegonia clustered and terminal ..... **Ochiobryum**
- 421 Plants usually with asexual propagula; capsule erect to suberect (416:)..... **Gemmabryum**
- 421: Plants usually without asexual propagula; capsule usually inclined ..... 422
- 422 Plants delicate, flaccid, pale green and red-tinged; leaf apex acute; endostomial cilia absent (421:) ....  
..... **Plagiobryum**
- 422: Plants sturdy, not flaccid, bright green; leaf apex short-acuminate; endostome with cilia ..... **Bryum**