DICRANOLOMA

Niels Klazenga[1]

Dicranoloma (Renauld) Renauld, *Rev. Bryol.* 28: 85 (1901); from *Dicranum*, the related predominantly Northern Hemisphere genus, and the Greek *loma* (a fringe, hem or border), in reference to the similarity with many species of *Dicranum* and the bordered leaves.

Leucoloma subg. *Dicranoloma* Renauld, *Prodr. Fl. Bryol. Madagascar* 61 (1898).

Lecto: *D. platyloma* (Besch.) Renauld.

Dioicous, almost always pseudoautoicous. Female plants mostly robust, growing in turfs (creeping in *D. eucamptodontoides*). Stems frequently subflorally branched, tomentose, densely foliose; central strand usually present (lacking in *D. braunii*); rhizoidal gemmae present in some species. Leaves falcate-secund to variously patent, ovate-lanceolate to linear, mostly ending in a long subula; alar patches single-layered; margin entire to serrate; border usually differentiated; costa narrow to broad, subpercurrent to excurrent, abaxially smooth, or with teeth scattered or in rows in the distal part; basal laminal cells elongate to linear, thick-walled, pitted; upper laminal cells variable.

Perichaetial leaves differentiated. Calyptra cucullate. Sporogones solitary or aggregated. Capsules almost immersed to very long-exserted, cylindrical, straight or curved, when curved occasionally strumose; stomata present in the apophysis, phaneropore; annulus differentiated, persistent to revoluble; operculum obliquely rostrate. Peristome teeth narrowly triangular, asymmetrically bifid in the upper half, outside vertically to obliquely striate with cross-connections between striae in the basal part, papillose above (no cross-connections in *D. braunii*). Spores spherical, finely papillose.

Dicranoloma, with c. 40 species, has a mainly Southern Hemisphere distribution, extending across the equator in Malesia. It is most diverse in Malesia, Australasia and on islands in the south-western Pacific Ocean. It is the largest genus of Dicranaceae in Australia, and some of the 12 species are an important component of moss-dominated communities in wet forests along Australia's east coast.

The Australian and New Zealand taxa have been revised by Klazenga (2003).

References

Klazenga, N. (1999), A revision of the Malesian species of *Dicranoloma* (Dicranacea, Musci), *J. Hattori Bot. Lab.* 87: 1–130.

Klazenga, N. (2003), A revision of the Australasian species of *Dicranoloma* (Bryophyta, Dicranaceae), *Austral. Syst. Bot.* 16: 427–471.

1 Stem central strand absent ..... **3. D. braunii**

1: Stem central strand present 2

2 Leaves transversely undulate along the costa at least when dry; upper lamina at least partly with a very irregular cell pattern ..... **11. D. platycaulon**

2: Leaves smooth or plicate; cell pattern in upper lamina not very irregular 3

3 Upper laminal cells not pitted, isodiametric to oblong, always shorter than 50 µm, usually much shorter 4

3: Upper laminal cells pitted, elongate to linear; most cells, at least the longest ones, longer than 50 µm; if most cells shorter, then pitted 8

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4 Leaf tips setaceous; upper half of the leaf almost entirely occupied by the costa; lamina in upper half of leaf consisting of 1 to a few cell rows 5

4: Leaves with a well-developed lamina throughout; costa not occupying more than half the leaf width in the upper part of the leaf 7

5 Costa comparatively weak, in cross-section with 5–8 guide cells and 1 or 2 layers of stereids on either side; epidermis not differentiated; leaf tips curled and twisted when dry ..... **5. D. diaphanoneuron**

5: Costa wide, in cross-section with 9–15 guide cells and 2–4 layers of stereids on either side, at least abaxial epidermis differentiated; leaf tips mostly not much altered when dry 6

6 Margin in upper part of leaf serrulate; costa with a differentiated adaxial epidermis; leaves > 0.9 mm wide; seta less than 10 mm long; capsule cylindrical, curved, exserted up to only c. 5 mm from the plants; tips of stem leaves often reaching the capsules ..... **10. D. menziesii**

6: Margin in upper part of leaf entire to crenulate, serrulate only at the apex; adaxial epidermis of costa not differentiated; leaves < 0.8 mm wide; setae more than 25 mm long; capsules exserted far from the plant, straight, narrowly ovoid ..... **[Holomitrium trichopodum]**

7 Leaf margin serrate in at least the upper half; border absent or narrow and consisting of up to 5 cell rows..... **6. D. dicarpum**

7: Leaf margin serrate in the upper fifth or less; border usually very well-developed, consisting of 6 or more (usually many more) cell rows ..... **9. D. leichhardtii**

8 Leaf margin entire throughout, or with a few minute teeth at the extreme apex ..... **7. D. eucamptodontoides**

8: Leaf margin serrulate to serrate in the upper part 9

9 Abaxial side of costa with scattered teeth or prorate cell ends in the upper part; plants glossy when fresh; sporogones solitary (unknown in *D. daymannianum*) 10

9: Abaxial side of costa with rows of teeth in the upper part; plants dull when fresh; sporogones mostly aggregated 12

10 Stem densely tomentose; rhizoidal gemmae often present..... **4. D. daymannianum**

10: Stem loosely tomentose or etomentose; gemmae absent 11

11 Costa with 2 (–3) guide cells; leaves 4.7–8.8 mm long, 0.9–1.7 mm wide; leaf apices generally twisted when dry; innermost perichaetial leaf with an obtuse to acute or emarginate apex or with a short cusp..... **2. D. billarderii**

11: Costa with (2–) 4–8 guide cells; leaves 6.4–24.0 mm long, 0.7–2.1 mm wide; leaf apices not or scarcely twisted; innermost perichaetial leaf with a hair-like acumen ..... **12. D. robustum**

12 Leaf margin serrate, at least in the upper half; juxtacostal cells at c. one-third of the leaf length mostly clearly differentiated and shorter than the intramarginal cells; leaves distinctly plicate ..... **6. D. dicarpum**

12: Leaf margin serrulate in the upper quarter or less; juxtacostal cells not differentiated; leaves smooth or occasionally very slightly plicate 13

13 Leaves erecto-patent to patent; border consisting of 11–32 cell rows; NE Qld..... **1. D. austroscoparium**

13: Leaves falcate-secund; border consisting of 3–6 cell rows; SE Australia ..... **8. D. fasciatum**

1. Dicranoloma austroscoparium (Müll.Hal. ex Broth.) Watts & Whitel., *Proc. Linn. Soc. New South Wales* 30 (Suppl.): 162 (1906)

Leucoloma austroscoparium Müll.Hal. ex Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 37: 150 (1895); *Dicranum austroscoparium* (Müll.Hal. ex Broth.) Müll.Hal., *Genera Musc. Frond*: 285 (1900). T: Bellenden Ker Range, Qld, *F.M.Bailey 609*; lecto: H-BR, *fide* N.Klazenga, *op. cit.* 430 (2003); *loc. id.*, *F.M.Bailey 617*; syn: H-BR.

Dicranoloma wattsii Broth., *in* V.F.Brotherus & W.W.Watts, *Proc. Linn. Soc. New South Wales* 43: 546 (1918). T: Ravenshoe, Qld, *W.W.Watts 534a*; holo: H; iso: BM, NSW.

Illustration: N.Klazenga, *op. cit.* 431, fig. 1a–r (2003).

Plants 2.5–8.5 cm tall, whitish green. Leaves widely patent to erecto-patent, ovate-lanceolate, gradually long-acuminate, 3.5–6.4 mm long, 0.8–1.3 mm wide, canaliculate, smooth; margin serrate at the extreme apex only; border consisting of 11–32 cell rows, almost reaching the leaf apex; costa subpercurrent, abaxially with 2 rows of teeth in the

distal 20–40%; guide cells 2–4, with a single layer of stereids on either side. Upper laminal cells only slightly shorter than basal ones, elongate to linear, 30–80 µm long, pitted.

Innermost perichaetial leaf with a hair-like point. Sporogones 1 or 2 per perichaetium; seta to c. 10 mm long; capsules straight to slightly convex on one side; annulus revoluble.

This endemic moss occurs in the wet tropics of north-eastern Qld; grows in rainforest at altitudes of 750–1550 m, mainly epiphytic, but occasionally on rocks.

Qld: Mt Haig, Tinaroo Ra., *M.M.J. van Balgooy 1583A* (L); Mt Dalrymple road, Eungella Natl Park, *G.Ramboldt 4594* (CANB); Barron S.F., Herberton Ra., 11 km SSW of Atherton, *H.Streimann 27301* (CANB, H, L, NY); South Peak, Mt Bellender Ker, 23 km SSE of Gordonvale, *H.Streimann 27340* (CANB, L); Koombooloomba Dam Rd, 23 km SE of Ravenshoe, *H.Streimann 28881* (CANB); Lamb Ra., 21 km NE of Atherton, *H.Streimann 29812* (CANB, H, NY); Mt Finnigan, Mount Finnigan Ra., Cedar Bay Natl Park, *H.Streimann 57194* (CANB).

Dicranoloma austroscoparium is characterised by the rather broad, widely patent leaves, and the very strong border that can be observed with a hand lens.

2. Dicranoloma billarderii (Brid.) Paris, *Index Bryol.*, 2nd edn, 2: 24 (1904)

Dicranum billarderii Brid., *Bot. Zeitung (Regensburg)* 1: 214 (1802); *Dicranum billarderii* Brid., *Muscol. Recent.* 2: 181 (1798) [pre-Hedwigian name]; *Oncophorus billarderii* (Brid.) Brid., *Bryol. Univ.* 1: 401 (1826); *Leucoloma billarderii* (Brid.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901). T: *s. loc.*, [Australia], *J.J.H. de Labillardière*; holo: B, destroyed; lecto: BM-Bescherelle, *fide* N.Klazenga, *op. cit.* 435 (2003); isolecto: L.

Dicranum confine Müll.Hal. & Hampe, *in* G.E.L.Hampe, *Linnaea* 28: 206 (1856); *Leucoloma confine* (Müll.Hal. & Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma confine* (Müll.Hal. & Hampe) Paris, *Index Bryol.*, 2nd edn, 2: 25 (1904). T: Sealers Cove, Wilsons Promontory, Vic., *F.Mueller [98]*; holo: B, destroyed; lecto: MEL 33140, *fide* N.Klazenga, *loc. cit.*; iso: BM, MEL 33125.

Dicranum angustinerve Mitt., *J. Proc. Linn. Soc., Bot.* 4: 68 (1860); *Leucoloma angustinerve* (Mitt.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma angustinerve* (Mitt.) Paris, *Index Bryol.*, 2nd edn, 2: 24 (1904). T: *s. loc.*, Tas., *W.Archer*; holo: NY.

Dicranum austrocongestum Müll.Hal., *Hedwigia* 36: 356 (1897); *Leucoloma austocongestum* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma austrocongestum* Paris, *Index Bryol.*, 2nd edn, 2: 24 (1904). T: Fitzroy Falls, near Moss Vale, N.S.W., *T.Whitelegge s.n.*; holo: B, destroyed; lecto: MEL 29199, *fide* N.Klazenga, *loc. cit.*; iso: MEL 33144.

?*Dicranum pungentella* Müll.Hal., *Hedwigia* 36: 355 (1897); *Leucoloma pungentella* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma pungentella* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 29 (1904). T: Mt Wellington, Tas., *Hb. Melbourne misit*; holo: B, destroyed; no isotype located.

?*Dicranum weymouthii* Müll.Hal., *Hedwigia* 36: 354 (1897); *Leucoloma weymouthii* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma weymouthii* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 31 (1904). T: Southdale, Tas., *W.A.Weymouth*; holo: B, destroyed; no isotype located.

Illustrations: N.Klazenga, *op. cit.* 433, fig. 3a–p; 434, fig. 4a–d (2003); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 141 (2003); R.D.Seppelt, *The Moss Flora of Macquarie Island* 137, fig. 54 (2004).

Plants 1.5–11.0 cm tall, glossy pale to medium green. Leaves falcate-secund, gradually tapering from an ovate base, 4.7–8.8 mm long, 0.9–1.7 mm wide, canaliculate, smooth; margin serrulate in the upper 15–50%; border consisting of (1–) 2–6 (–8) cell rows, reaching the serrulate part of the margin or just below or within; costa subpercurrent, with abaxially scattered teeth in the distal part; guide cells 2 (–3), with a layer of stereids on either side. Upper laminal cells only slightly shorter than the basal ones, oblong to linear, 12–90 µm long, pitted.

Innermost perichaetial leaf with an acute, obtuse or shouldered apex. Sporogones solitary, very rarely 2 per perichaetium; seta 14.5–29.0 mm long; capsules curved; annulus persistent. n = 12, *fide* H.P.Ramsay, *Monogr. Syst. Bot. Missouri Bot. Gard.* 11: 110 (1985); *Telopea* 11: 311 (2006).

Occurs in various forest types in eastern N.S.W., Vic. and Tas. It is also known from older collections from south-western W.A. and south-eastern S.A. (not seen); terrestrial or on rocks, logs and tree bases from sea level to c. 1500 m. Also in New Zealand, southern and eastern Africa, Madagascar, Subantarctic Islands and southern South America.

W.A.: south-west, *D.Clyne* (MEL 1047071). N.S.W.: Wentworth Falls, Blue Mtns, *M.Fleischer 2572* (CANB, L, NY); Gloucester Tops, 42 km WSW of Gloucester, *H.Streimann 1543* (CANB, L, MO). Vic.: summit of Mt William, Grampians Natl Park, *A.C.Beauglehole 21907* (MEL); near Wombelano Falls, Kinglake Natl Park, *A.W.Thies 1480H* (MEL); Errinundra Rd, 24 km SE of Bendoc, *H.Streimann 39206* (CANB, NY). Tas.: Standard Hill, 30 km WSW of Deloraine, *J.A.Curnow 2181* (CANB, HO, NY); Growling Swallet, Mount Field Natl Park, *N.Klazenga 5496* (MEL); Netherby Ck, 9 km S of Warath, Central Highlands, *A.Moscal 13649* (CANB, HO, MEL, NY).

Whereas *D. billarderii* has often been confused with *D. robustum*, and the latter has, occasionally, even been considered a synonym, the two are readily distinguished. Apart from those diagnostic characters employed in the key (above), *D. billarderii* can be recognised in the field by its 'untidy' appearance, caused by the slightly twisted leaf apices. Although there is a slight overlap in all morphological characters, there is sufficient morphological, karyological and molecular evidence to maintain *D. billarderii* and *D. robustum* as distinct species.

3. Dicranoloma braunii (Müll.Hal. ex Bosch & Sande Lac.) Paris, *Index Bryol.*, 2nd edn, 2: 25 (1904)

Dicranum braunii Müll.Hal. ex Bosch & Sande Lac., *Bryol. Javan.* 1: 69 (1858); *Leucoloma braunii* (Müll.Hal. ex Bosch & Sande Lac.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901). T: Sumatra, [Indonesia], *J.E.Teysmann s.n.*; lecto: L, *fide* N.Klazenga, *op. cit.* 71 (1999); isolecto: H-BR; syn: Gunung Gedeh, Java, [Indonesia], *A.Zippelius s.n.*, not located; *comm. J.J.Rochussen*, L; *comm. Holle*, not located.

Dicranoloma spiniforme E.B.Bartram, *Farlowia* 4: 237 (1952). T: Mt Finnigan, Qld, *L.J.Brass 20090*; holo: FH-Bartram.

Illustration: N.Klazenga, *op. cit.* 72, fig. 17, 1–13 (1999).

Plants 2–15 cm tall, glossy yellowish green to yellowish brown. Stem lacking a central strand. Large bundles of reddish gemmae often present among leaves near the stem apex. Leaves mostly widely patent, occasionally falcate-secund to circinate, triangular-linear to ovate-linear, gradually tapering or above ovate base ±abruptly contracted into a subula, 3–13 mm long, 0.5–1.3 mm wide, flat to canaliculate below, carinate above, plicate; margin coarsely serrate in the distal 65–75%, entire to serrulate below; border absent or rudimentary; costa subpercurrent or percurrent, abaxially with 2 (–4) rows of teeth in the distal 50–75%; guide cells 4–6 (–8), adaxially and abaxially with 1 or 2 layers of stereids, mostly divided into bundles separated by cells with large lumina. Upper laminal cells similar to basal ones, oblong to linear, (30–) 40–150 (–190) µm long, pitted.

Innermost perichaetial leaf abruptly contracted into a subula. Sporogones (1–) 2 (–5) per perichaetium; seta 1.5–2.5 mm long; capsules straight; annulus persistent.

In Australia, known only from Mt Finnigan in north-eastern Qld, where it was said to be abundant in undergrowth at an altitude of 1100 m. Widespread in continental SE Asia, Malesia and Oceania.

Dicranoloma braunii can be distinguished from other Queensland species of the genus by the combination of large teeth in the upper half or more of the leaf margin, and upper laminal cells that are not conspicuously shorter than the basal ones. The Australian specimen possesses a rudimentary border, a character not seen elsewhere in its range. Neither sporogones nor gemmae were found on the Australian specimen.

4. Dicranoloma daymannianum E.B.Bartram, *Brittonia* 9: 35 (1957)

Dicranum daymannianum (E.B.Bartram) D.H.Norris & T.J.Kop., *Acta Bot. Fenn.* 139: 40 (1990). T: N slope of Mt Dayman, Maneau Ra., Milne Bay, [Papua New Guinea], *L.J.Brass 22560a*; holo: FH-Bartram; iso: FH, H.

Illustrations: N.Klazenga, *op. cit.* 88, fig. 23, 1–11 (1999); N.Klazenga, *op. cit.* 16: 439, fig. 7a–k (2003).

Plants 1.3–2.0 cm tall, yellowish to greenish brown. Leaves erecto-patent to very slightly falcate, ovate-linear, gradually long-acuminate, 4.8–5.8 mm long, 0.6–0.8 mm wide, canaliculate, smooth; margin serrulate in the upper 75–80%; border absent or poorly developed; costa subpercurrent, abaxially with scattered teeth in the distal 65–75%; guide cells 6, with 2 layers of stereids on either side; abaxial epidermis often with cells having a distinct lumen. Upper laminal cells gradually shorter than basal ones, oblong to elongate, 18–46 µm long, shallowly pitted. Perichaetia and sporogones unknown.

Occurs between Atherton and Townsville in north-eastern Qld; also known from one collection from north-eastern N.S.W. Grows on tree roots and trunks in montane rainforest (780–1100 m). Widespread but scattered in continental SE Asia and Malesia.

Qld: Crater S.F., Hugh Nelson Ra., 19 km S of Atherton, *H.Streimann 27048* (CANB, H, L); Koombooloomba Dam road, 23 km SE of Ravenshoe, *H.Streimann 28879* (CANB); Mount Spec S.F., Paluma Ra., 6 km W of Paluma, *H.Streimann 36977* (CANB, NY); Longlands Gap, junction of Herberton Rd and Kennedy Hwy, 21 km S of Atherton, *H.Streimann 54045* (CANB). N.S.W.: Wiangaree S.F., 30 km NNE of Kyogle, *H.Streimann 6125* (CANB, L).

Although *D. daymannianum* is most unlikely to be confused with other species of *Dicranoloma*, its generic placement might be doubted given the non-existent or, at most, poorly developed leaf border. However, its Dicranaceae-like appearance, together with well-developed alar patches, slightly falcate and non-crispate leaves, and the absence of differentiated juxtacostal cells and of papillae on the upper laminal cells should confirm its identity as a *Dicranoloma*.

5. Dicranoloma diaphanoneuron (Hampe & Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 26 (1904)

Dicranum diaphanoneuron Hampe & Müll.Hal., *in* G.E.L.Hampe, *Linnaea* 36: 515 (1870); *Leucoloma diaphanoneuron* (Hampe & Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901). T: Stirling Ra., W.A., *F.Mueller*; holo: BM; iso: MEL 1002542.

Dicranum austrinum Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 53 (1882); *Dicranoloma austrinum* (Mitt.) Watts & Whitel., *Proc. Linn. Soc. New South Wales* 30 (Suppl.): 162 (1906). T: King George Sound, W.A., *A.Cunningham s.n.*; lecto: NY, *fide* N.Klazenga, *op. cit.* 440 (2003); isolecto: MEL 1059719; syn: interior of subtropical Australia, *T.L.Mitchell s.n.* (NY).

Dicranum contortifolium E.B.Bartram, *Trans. Brit. Bryol. Soc.* 1: 466 (1951). T: Nornalup, W.A., *A.D.Banwell 55*; holo: FH-Bartram *n.v.*; iso: MEL 28596, MEL 28956; para: Pemberton, W.A., *G.G.Smith 80* (FH-Bartram, MEL 28528).

[*Dicranum sphagni auct. non* Wahlenb.: W.M.Wilson, *in* J.D.Hooker, *Fl. Tasman.* 2: 171 (1859)]

[*Dicranum elongatum auct. non* Schleich. ex Schwägr.: H.Streimann & J.A.Curnow, *Cat. Mosses Australia & External Territories* 121 (1989)]

Illustrations: D.G.Catcheside, *Mosses of South Australia* 107, fig. 39; pl. 3B (1980); N.Klazenga, *op. cit.* 441, fig. 9a–j (2003).

Plants to 3 cm tall, yellowish brown. Leaves irregularly falcate-secund, ovate-linear, gradually long-acuminate, 3.5–5.3 mm long, (0.4–) 0.5–0.8 mm wide, canaliculate, smooth; tips crisped when dry; margin serrulate in the distal 20–50%; border consisting of 1–4 rows, reaching c. one-third of the leaf length, often poorly developed; costa percurrent to excurrent, abaxially with scattered teeth in the distal part; guide cells 5–8, with 1 or 2 layers of stereids on either side. Upper laminal cells conspicuously shorter than basal ones, oblong to elongate, 12–30 (–35) µm long, not pitted.

Innermost perichaetial leaf with a hair-like acumen. Sporogones solitary; seta 10.5–13.0 mm long; capsules slightly curved; annulus revoluble.

Endemic in coastal south-western W.A. and south-eastern S.A., with single records from Vic. and Tas. Reported from rocks, logs, tree stumps and stems in forest.

W.A.: Beedelup Falls, WNW of Pemberton, *A.C.Beauglehole 14518* (MEL); Castle Rock, Porongorup Ra., *R.B.Filson 9065* (MEL); Irwin Inlet, Bow River, *S.W.Jackson s.n.* (MEL); 4 miles [c. 6.5 km] E of Pemberton,

J.H.Willis 48 (MEL). S.A.: Waterfall Gully, near Adelaide, *D.G.Catcheside 55* (MEL 1034307). Vic.: Mt Ellery, East Gippsland, *J.H.Willis s.n.* (MEL 34054). Tas.: *s. loc.*, *R.C.Gunn s.n.* (NY).

Because of its comparatively small size and crisped leaf apices, *D. diaphanoneuron* is unlikely to be confused with any other species of *Dicranoloma*, not to mention that it almost never grows sympatrically with other species of the genus. While crisped leaf apices are reminiscent of *Weissia controversa*, *D. diaphanoneuron* is significantly larger and has mostly well-developed alar patches.

6. Dicranoloma dicarpum (Nees) Paris, *Index Bryol.*, 2nd edn, 2: 26 (1904)

Dicranum dicarpum Nees, *in* C.P.J.Sprengel, *Syst. Veg.* 4(2): 322 (1827); *Leucoloma dicarpum* (Nees) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901). T: Australia, *F.W.Sieber 10*; LE (Hb. Nees); *n.v.*; iso: L, MO, NY.

Dicranum dicarpum var. *spinosum* Wilson, *in* J.D.Hooker, *Fl. Nov.-Zel.* 2: 66 (1854); *Dicranoloma dicarpum* var. *spinosum* (Wilson) Paris, *Index Bryol.*, 2nd edn, 2: 26 (1904). T: Ship Cove, South Island, New Zealand, *D.Lyall 26*; lecto: BM-Wilson, *fide* N.Klazenga, *op. cit.* 442 (2003); isolecto: BM-Hooker; syn: "East Coast", New Zealand, *W.Colenso 157* (BM-Hooker, BM-Wilson).

Dicranum argutum Hampe, *Linnaea* 36: 516 (1870); *Leucoloma argutum* (Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma argutum* (Hampe) Paris, *Index Bryol.*, 2nd edn, 2: 24 (1904). T: *s. loc.*, N.S.W., *Hook s.n.*; holo: BM-Hampe.

Dicranum polychaetum Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 52 (1882); *Dicranum polysetum* Hampe, *Linnaea* 30: 629 (1860), *nom. illeg.* (later homonym); *Leucoloma polysetum* Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901), *nom. illeg.* (superfluous); *Dicranoloma polysetum* Paris, *Index Bryol.*, 2nd edn, 2: 29 (1904), *nom. illeg.* (superfluous); *Dicranoloma polychaetum* (Mitt.) Watts & Whitel., *Proc. Linn. Soc. New South Wales* 30 (Suppl.): 162 (1906). T: sources of the [River] Yarra, Vic., *F.Mueller s.n.*; lecto: BM, *fide* N.Klazenga, *loc. cit.*; isolecto: MEL 1040641; syn: Victoria Ra., Grampians, Vic., *F.Mueller [3]* (MEL 1002531).

Dicranum whiteleggei Müll.Hal. ex Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 37: 150 (1895); *Leucoloma whiteleggei* (Müll.Hal. ex Broth.) Paris, *Index Bryol.*, Suppl. 1: 234 (1900); *Dicranoloma whiteleggei* (Müll.Hal. ex Broth.) Paris, *Index Bryol.*, 2nd edn, 2: 31 (1904). T: Fitzroy Falls, Moss Vale, N.S.W., *T.Whitelegge*; holo: H-BR; iso: NSW 295114.

?*Dicranum chlorocladum* Müll.Hal. ex Geh., *Hedwigia* 36: 362 (1897); *Leucoloma chlorocladum* (Müll.Hal. ex Geh.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma chlorocladum* (Müll.Hal. ex Geh.) Paris, *Index Bryol.*, 2nd edn, 2: 25 (1904). T: Sydney, N.S.W., *Mrs Kaysser*; not located.

Dicranum novae-hollandiae Hornsch. ex Cardot, *Bull. Herb. Boissier*, sér. 2, 8: 173 (1908), *nom. illeg.* (later homonym). T: *s. loc.*, [Australia], *F.W.Sieber 7*; holo: PC.

Dicranoloma elimbatum Dixon, *Proc. Roy Soc. Queensland* 53(2): 26 (1941). T: Duma Creek, Ravenshoe, Qld, *T.V.Sherrin 10*; holo: BM.

Illustration: N.Klazenga, *op. cit.* 443, fig. 11a–l (2003).

Plants 0.5–7.5 cm tall, pale to bright green. Rhizoidal gemmae frequent in smaller plants. Leaves falcate-secund, ovate-linear to triangular-linear, gradually long-acuminate, (2.7–) 3.0–12.4 mm long, 0.5–1.6 mm wide, flat to canaliculate below, V-shaped above, plicate; margin serrate in the upper 40–75%; border consisting of 1–4 cell rows, reaching to well within the serrate part of the margin, occasionally reduced or lacking; costa subpercurrent, abaxially with 2–4 rows of teeth in the distal 50–80%; guide cells 5–8 (–11), adaxially with 2 or 3 layers of stereids, often with a large-lumened cell adjacent to the guide cells, abaxially with 3–5 bundles of stereids separated by large-lumened cells. Upper laminal cells conspicuously shorter than basal ones, oblong to linear, (8–) 10–95 (–115) µm long, not or shallowly pitted, descending along the costa to form occasionally conspicuous juxtacostal bands.

Innermost perichaetial leaf with a hair-like point. Sporogones 1–10 per perichaetium; seta 4.5–27.5 mm long; capsules curved; annulus revoluble. n = 7, *fide* H.P.Ramsay, *Monogr. Syst. Bot. Missouri Bot. Gard.* 11: 110 (1985); *Telopea* 11: 311 (2006).

Occurs in north-eastern and south-eastern Qld, the tablelands of N.S.W., A.C.T., Vic. and Tas. Grows in a broad range of forest type between sea level and c. 1550 m; terrestrial or on

rocks, logs, tree stumps or tree bases. Also in Lord Howe Island, New Zealand, Vanuatu, Papua New Guinea and Taiwan.

Qld: Tumouline S.F., 6 km N of Ravenshoe, *H.Streimann 46122* (CANB, NY); Forest Glen, 8 km SE of Nambour along Bruce Hwy, *D.Verdon 5210* (CANB, H, L, NY). N.S.W.: Mt Warning, 14 km SW of Murwillumbah, *H.Streimann 288* (CANB, L); c. 1 mile [1.6 km] W of Point Lookout, New England Natl Park, *R.D.Hoogland 8582* (CANB, L, MEL). A.C.T.: Tidbinbilla Nature Reserve, 25 km SW of Canberra, *H.Streimann 1414* (CANB, L, NY). Vic.: Bonjimma Track, Grampians Natl Park, *Fifth Australasian Bryophyte Workshop* (MEL 2053571); Gunmark Rd, 0.8 km from Errinundra Rd, Errinundra Plateau, *K.R.Thiele 1046* (CANB, MEL). Tas.: Warners Sugarloaf, 18.5 km S of Deloraine, *J.A.Curnow 1980* (CANB, HO, NY); Wedge Trail, Gordon River Rd, Southwest Natl Park, *N.Klazenga 5589* (MEL).

Australian specimens of *D. dicarpum* exhibit considerable variation in size. Although this variation is not strictly geographically correlated, specimens from Victoria, Tasmania and New Zealand tend to have longer leaves and setae, while those from New South Wales and Queensland have shorter organs. This coincides with a reduction in the number of setae per perichaetium from as many as 10 in Tasmania and New Zealand to 1 or 2 in Queensland, and with a change in shape of the capsule, *viz.* curved in Tasmania and New Zealand, almost straight in Queensland. Gemmae are much more common in smaller plants and have not been found on specimens from Tasmania or New Zealand.

7. Dicranoloma eucamptodontoides (Broth. & Geh.) Paris, *Index Bryol.*, 2nd edn, 2: 26 (1904)

Dicranum eucamptodontoides Broth. & Geh., *in* V.F.Brotherus, *Öfvers. Förh. Finska Vetensk.-Soc.* 37: 152 (1895); *Leucoloma eucamptodontoides* (Broth. & Geh.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901). T: Jones's Track, Macquarie Harbour, West Coast, Tas., *T.B.Moore 60*; holo: H-BR; iso: BM, CANB, HO, JE, L, NY.

Illustrations: G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 151, pl. 24 (1976); N.Klazenga, *op. cit.* 446, fig. 13a–h (2003).

Plants 3–6 cm tall, straw-coloured to dirty dark greenish brown; stems often creeping. Leaves appressed to erecto-patent, ovate-lanceolate, acuminate, occasionally with a short cusp, 4.5–6.0 mm long, 1.5–3.0 mm wide, canaliculate, smooth; margin entire throughout, apart from 1 or more minute teeth at the extreme apex; border consisting of 4–8 rows, ending just below the apex; costa subpercurrent, abaxially smooth throughout; guide cells 2 (–5), with a single layer of stereids on either side. Upper laminal cells only slightly shorter than basal ones, 35–95 µm long, pitted.

Innermost perichaetial leaf shouldered and with short mucro. Sporogones solitary; seta 11–12 mm long; capsules curved.

Occurs on soil in heath or sedgeland in south-western Tas., from sea level to c. 700 m; also known from a single locality in New Zealand.

Tas.: S side of Giblin R., c. 2 km from mouth, *A.M.Buchanan 7789* (HO); Mt Norold, Southwest Natl Park, *S.J.Jarman s.n.* (HO 513140); Huon R., c. 0.5 mile [0.8 km] N of end of Scotts Peak Rd, *D.H.Norris 30810* (CANB, HO); Mt Cullen, *A.V.Ratkowsky H 200* (CANB, HO).

Dicranoloma eucamptodontoides is readily recognised by its often creeping habit, broad leaves and entire leaf margins.

8. Dicranoloma fasciatum (Hedw.) Paris, *Index Bryol.*, 2nd edn, 2: 26 (1904)

Dicranum fasciatum Hedw., *Sp. Musc. Frond.* 127 (1801); *Cecalyphum fasciatum* (Hedw.) P.Beauv., *Prodr. Aethéogam.* 51 (1805); *Leucoloma fasciatum* Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901). T: "Insula maris pacifici". [New Zealand?], *coll. unknown*; holo: G, not found; lecto: pl. 28 of Hedwig (1801), *fide* N.Klazenga, *Austral. Syst. Bot.* 16: 447 (2003).

Illustration: N.Klazenga, *op. cit.* 448, fig. 15a–g.

Plants 2–5 cm tall, yellowish green to light green. Leaves falcate-secund, ovate-linear, gradually long-acuminate, 3.7–6.0 mm long, 0.8–1.1 mm wide, canaliculate, smooth; margin serrate in the upper 15–25 (–30)%; border consisting of 3–6 cell rows, reaching the serrate part of the margin; costa subpercurrent, abaxially with 2 rows of teeth in the distal (33–) 40–

50%; guide cells (3–) 4 (–5), adaxially with a single layer of stereids, abaxially with 1 or 2 layers of stereids. Upper laminal cells gradually shorter than basal ones, elongate to linear, 25–99 µm long, pitted. Perichaetia and sporogones not seen in Australian collections.

Known from scattered localities in south-eastern N.S.W., southern Vic. and from King Island, Tas.; grows on a range of substrata in lowland to montane rainforest. Also in New Zealand.

N.S.W.: slopes of Mt Buddawang, near Mongarlowe, *L.G.Adams 1423* (CANB, L). Vic.: Delleys Dell, above Silverband Falls, Grampians Natl Park, *K.W.Atkins s.n.* (MEL 1059712); *loc. id., A.C.Beauglehole 73920* (MEL); Cabbage Tree Flora Reserve, East Gippsland, *N.Klazenga 5187* (MEL); Lilly Pilly Gully Track, Wilsons Promontory, *D.A.Meagher s.n.* (MEL 240111). Tas.: Yarra Creek Gorge, King Is., *J.H.Willis s.n.* (MEL 37923).

The identity of the Australian specimens is not certain, because the principal distinguishing character between New Zealand specimens of *D. fasciatum* and *D. plurisetum* Dixon is the shape of the perichaetial leaves. However, perichaetia have not yet been found on Australian plants. While *D. fasciatum* is further distinguished from *D. plurisetum* by its smaller leaves, in the related *D. dicarpum* large differences in leaf size are found between Australian and New Zealand specimens.

In the field, Australian specimens of *D. fasciatum* are similar to *D. leichhardtii*, but these are easily distinguished under the microscope by the long upper laminal cells.

9. Dicranoloma leichhardtii (Hampe) Watts & Whitel., *Proc. Linn. Soc. New South Wales* 30 (Suppl.): 162 (1906)

Dicranum leichhardtii Hampe, *Linnaea* 36: 514 (1870); *Leucoloma leichhardtii* (Hampe) A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1870–71: 411 (1872) [Ad. 1: 115]; *Poecilophyllum leichhardtii* (Hampe) Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 54 (1882). T: *s. loc.*, N.S.W., *L.Leichhardt*; holo: BM; iso: MEL 33079.

Leucoloma serratum Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 33: 92 (1891); *Dicranoloma serratum* (Broth.) Renauld, *Rev. Bryol.* 28: 69 (1901). T: Mount Mistake, Qld, *F.M.Bailey 219*; lecto: H-BR, *fide* N.Klazenga, *Austral. Syst. Bot.* 16: 450 (2003); isolecto: BM; syn: *loc. id., F.M. Bailey 293* (H-BR).

Illustration: N.Klazenga, *op. cit.* 450, fig. 17a–l.

Plants 1.5–3.5 cm tall, pale green. Rhizoidal gemmae often present. Leaves falcate-secund, ovate-linear, gradually long-acuminate, 4.5–6.0 mm long, 0.6–1.0 mm wide, canaliculate, smooth; margin serrate in the extreme apical part only to in the distal one-fifth; border consisting of 8–21 cell rows, reaching the serrate part of the margin; costa subpercurrent, abaxially with 2–4 rows of teeth in the distal 40–60%; guide cells 4, with 1 (–2) layers of stereids on either side. Upper laminal cells conspicuously shorter than basal ones, quadrate to rectangular, or with oblique end walls, 9–40 (–75) µm long, not pitted, often prorate.

Innermost perichaetial leaf ending in a hair-like point. Sporogones solitary or occasionally 2 per perichaetium; seta 5.3–6.5 mm long; capsules slightly curved; annulus revoluble. $n = 8$ (7 + *m*)/9 (7 + *2m*), *fide* H.P.Ramsay, *Monogr. Syst. Bot. Missouri Bot. Gard.* 11: 110 (1985), as *D. serratum*.

Occurs in the humid wet tropics of north-eastern Qld and from south-eastern Qld south to the tablelands and coasts of eastern and south-eastern N.S.W. where it grows in warm-temperate to subtropical rainforest and montane forest from sea level to c. 1300 m, on a variety of substrates, but mostly on tree bases or lower tree stems; endemic.

Qld: Mobo Ck, 21 km NE of Atherton, *H.Streimann 16930* (CANB, H, L, NY); Mount Spec S.F., Paluma Ra., 6 km W of Paluma, *H.Streimann 36975* (CANB, NY); Mt Merino, Lamington Natl Park, *A.W.Thies 1605B* (MEL). N.S.W.: Gibbergunyah Ra., 30 km NNE of Lismore, *H.Streimann 314* (CANB); Moppy Lookout, Barrington Tops S.F., 40 km WNW of Gloucester, *H.Streimann 44464* (CANB, NY); Lawson, Blue Mtns, *W.W.Watts s.n.* (L).

Distinguishable from *D. dicarpum* by the well-developed leaf border (visible with a hand lens) and marginal teeth that are present only near the apex (these extending at least halfway down the leaf in *D. dicarpum*). It can be distinguished from *D. austroscoparium* by the narrower falcate leaves and by the short, non-pitted, often prorate upper laminal cells.

10. Dicranoloma menziesii (Taylor) Renauld, *Rev. Bryol.* 28: 69 (1901)

Dicranum menziesii Taylor, *Phytologist* 1: 1094 (Sept. 1844); *Leucoloma menziesii* (Taylor) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901). T: Norfolk Island, *A.Cunningham s.n.*; holo: BM; iso: L.

Dicranum menziesii Hook.f. & Wilson, *London J. Bot.* 3: 541 (Oct. 1844), *nom. illeg.* (later homonym). T: Auckland Islands, *J.D.Hooker 69*; holo: BM; iso: NY.

Dicranum brachypelma Müll.Hal., *Bot. Zeitung (Berlin)* 9: 550 (1851); *Dicranum kaiparense* Paris, *Index Bryol.* 356 (1895), *nom. illeg.* (superfluous); *Dicranoloma kaiparense* Paris, *Index Bryol.*, 2nd edn, 2: 27 (1904). T: Kaipara, North Island, New Zealand, *S.Mossman 714*; holo: B, destroyed; lecto: NY-Mitten, *fide* N.Klazenga, *op. cit.* 452 (2003).

Dicranum menziesii var. *rigidum* Wilson, *in* J.D.Hooker, *Fl. Nov.-Zel.* 2: 67 (1854); *Dicranoloma menziesii* var. *rigidum* (Wilson) Paris, *Index Bryol.*, 2nd edn, 2: 28 (1904); *Leucoloma menziesii* var. *rigidum* (Wilson) Dixon, *J. Linn. Soc., Bot.* 40: 436 (1912). T: Dusky Bay, New Zealand, *A.Menzies*; holo: BM, not located.

Dicranum nudum Hampe, *Linnaea* 30: 630 (1860); *Campylopus nudus* (Hampe) A.Jaeger, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1870–71: 420 (*Gen. Sp. Musc.* 1: 125) (1872). T: Tarwin, Vic., *F.Mueller*; holo: BM-Hampe.

Dicranum suberectum Hampe, *Linnaea* 30: 629 (1860); *Leucoloma suberectum* (Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma suberectum* (Hampe) Renauld, *Rev. Bryol.* 28: 69 (1901). T: Tarwin, Vic., *F.Mueller*; holo: BM; iso: MEL 29204.

Dicranum trichophyllum Hampe, *Linnaea* 37: 515 (1872); *Leucoloma trichophyllum* (Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma trichophyllum* (Hampe) Paris, *Index Bryol.*, 2nd edn, 2: 31 (1904). T: Chatham Island, New Zealand, [sent by] *F.Mueller*; holo: BM-Hampe.

Dicranum kroneanum Müll.Hal., *in* G.E.L.Hampe & A.Geheeb, *Rev. Bryol.* 8: 26 (1881); *Leucoloma kroneanum* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma kroneanum* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 27 (1904). T: Mt Wellington, Tas., *O.Beccari 13*; holo: B, destroyed; lecto: L, *fide* N.Klazenga, *op. cit.* 453; syn: near Fernshaw, Vic., *H.Krone s.n.*, not located.

Dicranum bartramioides Broth., *Öfvers. Förh. Finska Vetensk.-Soc.* 35: 36 (1893); *Leucoloma bartramioides* Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma bartramioides* (Broth.) Paris, *Index Bryol.*, 2nd edn, 2: 24 (1904). T: Mount Gower, Lord Howe Island, *T.Whitelegge* 13; holo: H-BR.

Dicranum oedithecium Müll.Hal., *Hedwigia* 36: 357 (1897); *Leucoloma oedithecium* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 322 (1901); *Dicranoloma oedithecium* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 28 (1904). T: Fitzroy Falls, near Moss Vale, N.S.W., 1884, *T.Whitelegge s.n.*; holo: B, destroyed; lecto: MEL 29210, *fide* N.Klazenga, *loc. cit.*; isolecto: NSW 295378.

Illustrations: G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 155, pl. 25 (1976); N.Klazenga, *op. cit.* 452, fig. 19a–g (2003); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 143 (2003).

Plants 2.5–10.0 cm tall, yellowish green to dark green. Leaves falcate-secund, ovate-linear, gradually to abruptly contracted into a long setaceous point, 9.4–14.4 mm long, 0.9–1.2 (–1.5) mm wide, canaliculate, smooth; margin serrulate in the upper c. 65%; border consisting of 1 or 2 cell rows, reaching the serrulate part of the margin; costa excurrent, occupying almost the entire width of the subula, abaxially with scattered teeth in distal part; guide cells 10–14, adaxially with 2 layers of stereids, abaxially with 2 or 3 layers, with a few cells with distinct lumina; epidermis differentiated adaxially and abaxially, consisting of cells with distinct lumina. Upper lamina consisting of only a few cell rows, these conspicuously shorter than basal cells, oblate to oblong, rounded, 6–20 µm long, not pitted.

Innermost perichaetial leaf with a hair-like point. Sporogones 1 (–2) per perichaetium; seta 4.5–8.0 mm long; capsules slightly curved; annulus revoluble. n = 8, *fide* H.P.Ramsay, *Monogr. Syst. Bot. Missouri Bot. Gard.* 11: 110 (1985); n = 7/8 (7 + m), *fide* H.P.Ramsay, *Telopea* 11: 311 (2006).

Occurs in eastern Qld, the coasts and tablelands of N.S.W., as well as Vic. and Tas.; mostly in wet forest at altitudes up to 1550 m, on rocks, logs, tree stumps, tree bases and lower tree

stems. Also in Lord Howe Island, New Zealand, the Juan Fernandez Islands and southern South America.

Qld: South Peak, Mt Bellender Ker, 23 km SSE of Gordonvale, *H.Streimann 27474* (CANB, L); Upper Coomera R., McPherson Ra., *H.Streimann 333* (CANB, L, MEL, NY). N.S.W.: Mt Warning, 14 km SW of Murwillumbah, *H.Streimann 280* (CANB, L); Wentworth Falls, Blue Mtns, *M.Fleischer B 2576* (CANB, L, NY). Vic.: Cement Creek Track, Mt Donna Buang, *A.W.Thies 1501 C* (MEL); Goonmirk Rocks, 14 km S of Bendoc, Errinundra Natl Park, *H.Streimann 39903* (CANB, NY). Tas.: L. St. Clair, Cradle Mountain-Lake St. Clair Natl Park, *D.H.Norris 27867* (CANB, HO, NY); Lake Dobson Rd, Mount Field Natl Park, *D.H.Vitt 29118* (CANB, NY).

The broad costa, occupying almost the entire leaf width in median and upper parts, is especially diagnostic. Vegetatively, *D. menziesii* resembles *Holomitrium trichopodum*, which, however, is a much more delicate species.

11. Dicranoloma platycaulon Dixon, *Bull. New Zealand Inst.* 3: 15 (1913)

T: Greymouth, South Island, New Zealand, *R.Helms* (not located); Mount Cargill, [South Island, New Zealand], *W.Bell s.n.*; lecto: BM, *fide* B.C.Tan, *Willdenowia* 18: 508 (1989); syn: Taranaki, North Island, [New Zealand], *Jupp s.n.*, not located; Mount Egmont, [North Island, New Zealand], *W.Gray 119*, BM; *loc. id.*, *W.Gray 124*, BM; Westland, South Island, [New Zealand], *A.R.Bloxam s.n.*, not located; Lee Bay, Stewart Island, [New Zealand], *L.Cockayne 8234*, BM.

Illustration: N.Klazenga, *op. cit.* 457, fig. 23a–j (2003).

Plants 3–12 cm tall, pale green. Leaves falcate-secund, ovate-linear, drawn out in a long acumen, 7.0–14.0 (–15.7) mm long, 1.3–2.0 mm wide, canaliculate, undulate along the costa between 33–67% of the leaf length when dry; tips fragile; margin serrate in the upper 50–60%; border consisting of 6–16 cell rows, reaching the serrate part of margin; costa subpercurrent to percurrent, abaxially with scattered teeth in the distal 40–60%; guide cells 4–6, with 1 or 2 layers of stereids on either side, distally stereids replaced by fewer cells with distinct lumina. Upper laminal cells conspicuously shorter than basal ones, oblate to elongate, irregularly rounded, 10–65 µm long, not or scarcely and shallowly pitted, typically in an irregular pattern, but often in ±regular rows in patches.

Innermost perichaetial leaf with a hair-like point. Sporogones 1–3 per perichaetium; seta 11–14 mm long; capsules curved; annulus revoluble. $n = 7$, *fide* H.P.Ramsay, *Telopea* 11: 311 (2006).

Occurs in cool-temperate rainforest in southern Vic. and south-western Tas.; almost restricted to *Nothofagus cunninghamii*, where it usually grows rather high up on the trunk. Also in New Zealand.

Vic.: Whitehouse Ck, c. 1.8 km NNW of Keppel Falls, Keppel Falls Scenic Reserve, Marysville, *N.Klazenga 5461* (CHR, MEL); Cumberland Scenic Reserve, Marysville–Woods Point road, Yarra Ranges Natl Park, *N.Klazenga 5876* (MEL). Tas.: Five Rd, Gordon River Rd, Southwest Natl Park, *N.Klazenga 5574* (CHR, MEL); Lyell Hwy, Franklin-Gordon River Wilderness Nature Walk, *N.Klazenga 5810* (MEL).

Dicranoloma platycaulon is easily recognised in the field by its whitish appearance, its undulate leaves and fragile leaf apices.

12. Dicranoloma robustum (Hook.f. & Wilson) Paris, *Index Bryol.*, 2nd edn, 2: 29 (1904)

Dicranum robustum Hook.f. & Wilson, *London J. Bot.* 3: 542 (1844); *Leucoloma robustum* (Hook.f. & Wilson) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901). T: Hermite Island, Chile, *J.D.Hooker 100b*; holo: BM.

Dicranum pungens Hook.f. & Wilson, *London J. Bot.* 3: 541 (1844); *Dicranum robustum* var. *pungens* (Hook.f. & Wilson) Hook.f., *Handb. New Zealand Fl.* 2: 412 (1867); *Leucoloma pungens* (Hook.f. & Wilson) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma pungens* (Hook.f. & Wilson) Paris, *Index Bryol.*, 2nd edn, 2: 29 (1904). T: Auckland Islands, New Zealand, *J.D.Hooker*; holo: BM; iso: NY 267974.

Dicranum setosum Hook.f. & Wilson, *London J. Bot.* 3: 541 (1844); *Leucoloma setosum* (Hook.f. & Wilson) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 541 (1901); *Dicranoloma setosum* (Hook.f. & Wilson) Paris, *Index Bryol.*, 2nd edn, 2: 30 (1904); *Dicranoloma robustum* var. *setosum* (Hook.f. & Wilson) Sainsbury, *Bryologist* 34: 74 (1931). T: Auckland Islands, New Zealand, *D.Lyall*; lecto: BM, *fide* N.Klazenga, *op. cit.* 460; syn: Campbell Island, *J.D.Hooker* [*W.M.Wilson 26b*], BM, MEL, NY 26799; [*W.M.Wilson 68*], BM.

Dicranum punctulatum Hampe, *Linnaea* 30: 628 (1860); *Leucoloma punctulatum* (Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma punctulatum* (Hampe) Renauld ex Paris, *Index Bryol.*, 2nd edn, 2: 29 (1904). T: "in alpibus austral.", Australia, *F.Mueller 149*; holo: BM-Hampe; iso: MEL 33108.

Dicranum subpungens Hampe, *Linnaea* 30: 629 (1860); *Leucoloma subpungens* (Hampe) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma subpungens* (Hampe) Paris, *Index Bryol.*, 2nd edn, 2: 30 (1904). T: Mt William, Grampians, Vic., *F.Mueller*; lecto: BM-Hampe; isolecto: MEL 29208; syn: Victoria Range, Vic., *F.Mueller 8*, BM-Hampe; Grampians, Vic., *F.Mueller s.n.*, BM-Hampe, MEL 1002480, MEL 1002475.

Dicranum integerrimum Broth. & Geh., *in* V.F.Brotherus, *Öfvers. Förh. Finska Vetensk.-Soc.* 37: 152 (1895); *Leucoloma integerrimum* (Broth. & Geh.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma integerrimum* (Broth. & Geh.) Paris, *Index Bryol.*, 2nd edn, 2: 27 (1904). T: Jones Track, Sprent R., Tas., *T.B.Moore 58*; holo: H-BR; possible isotype: HO.

Dicranum calymperaceum Müll.Hal., *Hedwigia* 36: 357 (1897); *Leucoloma calymperaceum* (Müll.Hal.) Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901); *Dicranoloma calymperaceum* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 39 (1904). T: *s. loc.*, Qld, *F.M.Bailey s.n.*; holo: B, destroyed; lecto: H-BR, *fide* N.Klazenga, *op. cit.* 460.

Dicranum sullivanii Müll.Hal., *Hedwigia* 36: 360 (1897); *Leucoloma sullivanii* (Müll.Hal.) Paris, *Index Bryol.*, Suppl. 1: 234 (1900); *Dicranoloma sullivanii* (Müll.Hal.) Paris, *Index Bryol.*, 2nd edn, 2: 31 (1904). T: Mt William, Vic., *D.Sullivan s.n.*; holo: B, destroyed; lecto: MEL 33109, *fide* N.Klazenga, *loc. cit.*; isolecto:MEL 29197, MEL 2053314.

Dicranum burchardtii Paris, *Index Bryol.*, Suppl. 1: 121 (1900); *Dicranum rigens* Müll.Hal., *Hedwigia* 36: 354 (1897), *nom. illeg.* (later homonym); *Leucoloma rigens* Broth., *in* H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* I, 3: 323 (1901), *nom. illeg.* (superfluous); *Dicranoloma burchardtii* (Paris) Paris, *Index Bryol.*, 2nd edn, 5: 150 (1906). T: Kangaroo Point, Lauriston Gully, Tas., 1889, *W.A.Weymouth 160*; lecto: NY, *fide* N.Klazenga, *loc. cit.*; isolecto: HO 69087; syn: Mt Wellington, Tas., *W.A.Weymouth 767*, not located.

Dicranoloma angustiflorum Dixon, *Bull. Torrey Bot. Club* 42: 93 (1915). T: Gordon River, Tas., *J.Milligan*; holo: BM.

Dicranoloma perichaetiale Sainsbury, *Victorian Naturalist* 70: 30 (1953). T: Zeehan, Tas., *L.Rodway 63a* [*Herb. Sainsbury. No. 16722*]; holo: WELT 33521.

Illustrations: N.Klazenga, *Austral. Syst. Bot.* 16: 434, fig. 4e–i; 461, fig. 27a–j (2003); R.D.Seppelt, *The Moss Flora of Macquarie Island* 139, fig. 55; 140, fig. 56 (2004).

Plants 2–12 cm tall, yellowish green to yellowish brown. Leaves erecto-patent to falcate-secund, ovate-linear, gradually long-acuminate, 6.4–24.0 mm long, 0.7–2.1 mm wide, canaliculate, smooth; apices often fragile; margin serrulate in the distal 10–65%; border consisting of 1–5 (–7) cell rows, reaching to between 25% of the leaf length and the serrulate part of margin; costa subpercurrent to excurrent, abaxially with scattered teeth in the distal part; guide cells (2–) 3–9, with 1 or 2 layers of stereids on either side. Upper laminal cells slightly to conspicuously shorter than basal ones, oblong to linear, 13–140 µm long, pitted.

Innermost perichaetial leaf usually ending in a hair-like acumen. Sporogones solitary; seta 13.5–33.5 mm long; capsules curved; annulus persistent. $n = 7$, *fide* H.P.Ramsay, *Monogr. Syst. Bot. Missouri Bot. Gard.* 11: 110 (1985); *Telopea* 11: 311 (2006).

Occurs in eastern N.S.W., A.C.T., Vic. and Tas., with old collections from south-western W.A. and north-eastern Qld; grows in wet forest and above the tree line as well as in drier forests; terrestrial or on rocks, logs, tree stumps, tree bases, trunks and branches. Also in New Zealand, Auckland Islands, Campbell Island, Macquarie Island and southern South America.

W.A.: King Georges Sound, *J.R.Muir s.n.* (MEL 29203). Qld: Mt Bellenden Ker, *coll. unknown* (BM). N.S.W.: Sawpit Ck, 9 km NW of Jindabyne, Mount Kosciusko Natl Park, *H.Streimann 3988* (CANB, L, NY); upper E slopes of Brown Mtn, *P.J.Darbyshire 1225* (BM, CANB, L, MEL). A.C.T.: head of Gingera Ck,

Brindabella Ra., 43 km SW of Canberra, *H.Streimann 4194* (CANB, L, NY). Vic.: Rubicon S.F. near boundary of Marysville S.F., Eastern Highlands, *N.H.Sinnot 2783* (MEL); Mt Delegate, 4.5 km NNE of Bendoc, *H.Streimann 36724* (CANB). Tas.: Allum Cliffs State Reserve, 19 km E of Deloraine, *J.A.Curnow 2087* (CANB, HO, NY); SW of Dove L., track to Cradle Mtn plateau, Cradle Mountain-Lake St. Clair Natl Park, *R.D.Seppelt 5709* (HO, NY).

Dicranoloma robustum is highly variable, especially in its size, leaf length and width, the extent to which the costa is excurrent, ornamentation of the leaf margin and in the size and shape of the upper laminal cells.