

LEMBOPHYLLUM

Niels Klazenga¹ & Josephine Milne²

Lembophyllum Lindb., *Acta Soc. Sci. Fenn.* 10: 277 (1872); from the Greek *lembos* (a small, swift vessel or fishing boat) and *phyllon* (a leaf), in reference to the 'boat-shaped' leaves.

Lecto: *L. clandestinum* (Hook.f. & Wilson) Lindb.

Plants forming wefts. Primary stem creeping to ascending, frequently sympodially and/or monopodially branched; secondary stems ascending, simple or irregularly branched, often forming irregular ±dendroid fronds with branches pointing in all directions; stems and branches terete-foliate, turgid; central strand present in all axes. Leaves uniform, erecto-patent to appressed when dry, widely patent when moist, ovate to orbicular, deeply concave; margin finely serrulate throughout or entire below; costa single, short and double, or lacking. Upper laminal cells rhombic to elliptical, with similar cells descending along the margins or occupying almost the entire lamina; alar cells irregularly subquadrate, irregularly thick-walled, forming a ±rounded patch.

Perichaetial leaves with reflexed apices or the innermost ones straight. Capsules long-exserted, horizontal; operculum conical, apiculate.

Lembophyllum, with three species, occurs in south-western South America, south-eastern Australia and New Zealand, as well as Macquarie Island, Campbell Island and the Auckland Islands. The South American species was placed in a section of its own by Tangney (1997), and hence the more typical element of the genus is restricted to Australasia. The Australasian species can be distinguished from other Lembophyllaceae by (i) the uniformity of stem or frond axis leaves and branch leaves; and (ii) the laminal cells that are short and ±rhombic in the upper half of the leaf and in a broad area along the margins more proximally.

References

Sainsbury, G.O.K. (1955), Handbook of the New Zealand mosses, *Bull. Roy. Soc. New Zealand* 5: 1–490.

Tangney, R.S. (1997), A generic revision of the Lembophyllaceae, *J. Hattori Bot. Lab.* 81: 123–153.

Key

Leaves 0.7–0.9 mm long; costa stout and single or truncate and 2- or 3-forked, rarely short and double; elongate cells absent or restricted to a small area beside the costa **2. L. divulgum**

Leaves 1.0–1.4 mm long; costa short and double or absent, rarely long and single and then slender; lamina with a large mid-basal field of elongate to short-linear cells **1. L. clandestinum**

1. *Lembophyllum clandestinum* (Hook.f. & Wilson) Lindb., *Index Bryol.* 718 (1897)

Hypnum clandestinum Hook.f. & Wilson, in J.D.Hooker, *Fl. Nov.-Zel.* 2: 111 (1854); *Porotrichum clandestinum* (Hook.f. & Wilson) Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 84 (1882); *Lembophyllum divulgum* var. *clandestinum* (Hook.f. & Wilson) Wijk & Margad., *Taxon* 10: 24 (1961). T: Port William, South Island ["Middle Island"], New Zealand, *Lyal*; holo: BM *n.v.*

Illustration: J.Beever, K.W.Allison & J.Child, *Mosses of New Zealand*, 2nd edn 128, fig. 65 (1992), as *L. divulgum*.

¹ Royal Botanic Gardens Melbourne, Birdwood Avenue, South Yarra, Vic. 3141.

² Royal Botanic Gardens Melbourne, Birdwood Avenue, South Yarra, Vic. 3141.

Leaves broadly ovate to orbicular, often slightly wider than long, 1.0–1.4 mm long, (0.6–) 1.0–1.4 mm wide, deeply concave, wrinkled when dry; apex rounded to short-obtuse to acute; margin serrulate throughout or entire below; costa short and double or lacking, rarely single and slender. Mid-laminal cells elongate to short-linear (30–60 × 8–10 µm), vermicular to long-rhombic or rhomboid, not conspicuously pitted; upper laminal cells rhombic to quadrate or rounded, 10–25 × 8–10 µm.

Outer perichaetial leaves with reflexed apices; inner perichaetial leaves straight.

Occurs in Vic. and Tas.; usually in wet-sclerophyll forest or cool-temperate rainforest, but also, more rarely, in drier forest types or scrub at elevations up to 1150 m, mostly on tree bases, but also on logs, rocks or terrestrial. Also known from New Zealand, the Auckland Islands, Campbell Island and Macquarie Island.

Vic.: Mount Slide road, Kinglake, *I.G.Stone 537* (MEL); Reefton Spur Rd, 17 km SW of Marysville, *H.Streimann 55556* (CANB; MEL); Bulga Section, Tarra-Bulga Natl Park, *A.W.Thies 1628D* (MEL). Tas.: Mersey S.F., 21 km WSW of Chudleigh, *H.Streimann 59719* (CANB, HO); ‘German Town’, 5 km NNE of St. Marys, *J.A.Curnow 2459* (CANB; HO).

Lembophyllum clandestinum has been widely misinterpreted, ever since Sainsbury (1955) reduced it and *L. divulgum* to varieties of the same species. Remarkably, although most collections of *L. clandestinum* had previously been correctly identified, subsequently most specimens identified as *L. divulgum* var. *clandestinum* actually belonged to *L. divulgum*. On the other hand, most collections that do belong to *L. clandestinum* were misidentified as *Weymouthia cochlearifolia*.

There is no consistent difference between *L. clandestinum* and *L. divulgum* in the length of the upper laminal cells, the only character that Sainsbury (1955) considered reliable enough to separate the two varieties. On the other hand, the short double costa of *L. clandestinum* as opposed to the stout single structure in *L. divulgum* is more reliable than Sainsbury (1955) thought. Difference between the two species are: (i) the leaves are larger in *L. clandestinum*; (ii) in *L. divulgum* the costa is single and stout, reaching past halfway on the leaf, or truncate and 2- or 3-forked, with a broad basal part and short and slender prongs, very rarely truly short and double, while in *L. clandestinum* it is short and double, rarely single and then very slender; (iii) the upper laminal cells in *L. clandestinum* are thicker-walled than in *L. divulgum*, leading to more rounded lumina, while in *L. divulgum* the lumina are usually more clearly rhombic; (iv) marginal cells near the base are ±quadrate to short-rectangular in *L. divulgum*, but long-rhombic in *L. clandestinum*; (v) in *L. clandestinum* the mid-laminal cells are elongate to short-linear and there is a large basal median field of linear pitted cells, while in *L. divulgum* there are only a few elongate to short-linear cells along the costa, or none at all. *Lembophyllum clandestinum* is mainly found on tree bases in wetter forests, while *L. divulgum* usually occurs in drier habitats, often on rocks.

Lembophyllum clandestinum has often been confused with *Weymouthia cochlearifolia*. However, the former can be distinguished by the smaller plants, the turgid stems and branches, the smaller, more strongly concave leaves that are not quite as wrinkled, and the upper laminal cells that are not pitted in *L. clandestinum* and very strongly pitted in *W. cochlearifolia*.

2. *Lembophyllum divulgum* (Hook.f. & Wilson) Lindb., *Index Bryol.* 718 (1897)

Hypnum divulgum Hook.f. & Wilson, *London J. Bot.* 3: 556 (1844); *Porotrichum divulgum* (Hook.f. & Wilson) Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 83 (1882); *Lembophyllum clandestinum* var. *divulgum* (Hook.f. & Wilson) Sainsbury, *Rev. Bryol. Lichénol.* 17: 83 (1948), *nom. illeg.*. T: “Van Diemen’s Land”, [Tas.], *J.D.Hooker*; holo: BM n.v.

Illustrations: D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 67 (2003); R.D.Seppelt, *The Moss Flora of Macquarie Island* 191, fig. 76 (2006).

Leaves ovate to orbicular, 0.7–0.9 mm long, 0.6–0.9 mm wide, deeply concave, smooth; apex rounded to short-obtuse or acute; margin serrulate throughout; costa stout and single, reaching to 67–75% of the leaf length, or truncate and 2- or 3-forked, rarely short and double. Mid-laminal cells rounded-rectangular to rhombic, isodiametric to oblong, 10–22 ×

6–8 μm , not conspicuously pitted; upper laminal cells isodiametric, rhombic to quadrate or rounded, 10–22 \times 6–8 μm ; basal juxtacostal cells, if differentiated, elongate, rhomboid.

Perichaetial leaves with reflexed apices.

Occurs in south-eastern S.A., south-eastern N.S.W., Vic. and Tas.; grows in dry and wet forest, or scrub, at elevations up to 1680 m, often on rock, but also on other substrata and always close to the ground. Also in New Zealand and Macquarie Island.

S.A.: Onkaparinga Ck, *A.C.Beauglehole* 24787 (MEL). N.S.W.: Boogong Ck, Alpine Way, 7 km S of Mount Kosciuszko Natl Park, *H.Streimann* 39116 (CANB). A.C.T.: Rendezvous Ck, 52 km SSW of Canberra, *H.Streimann* 37852 (CANB). Vic.: end of bulldozed track across Keegan Bend, 5.5 miles [c. 9 km] S of Dartmoor, Lower Glenelg Natl Park, *A.C.Beauglehole* 8116 (MEL). Tas.: South Sister, 5.5 km NNW of St. Marys, *J.A.Curnow* 2439 (CANB, HO).

Lembophyllum divulgum can be confused with *Camptochaete excavata* and *Fallaciella gracilis*, and diagnostic characters are been discussed under those species (see above). Indeed, previous reports of this species from farther north in Australia are mostly referable to *C. excavata*.