

MIELICHHOFERIA

A. Jonathan Shaw¹ & Helen P. Ramsay²

Mielichhoferia Nees & Hornsch., *Bryol. German.* 2(2): 179 (1831) pro parte, fide A.J.Shaw (*Bryologist* 88: 28–30, 1985). Named in honour of Mathias Mielichhofer (1772–1847), a director of mines, who collected near Salzburg in the Austrian Alps.

Type: not designated

Schizymenium Harv. ex Hook., *Icon. Pl.* 3: pl. 202 (1840). T: *S. bryoides* Harv. ex Hook. [= *Mielichhoferia bryoides* (Harv. ex Hook.) Wijk & Margad.]

Dioicous, rarely autoicous or synoicous. Plants forming loose to compact tufts, pale to golden-green. Stems erect, short to long, 5–30 mm, irregularly branched. Leaves erect to erect-spreading, unaltered when dry, linear-lanceolate to ovate-lanceolate, acute or acuminate, serrulate towards the apex; costa ending below or in the apex, rarely short-excurrent; lower stem leaves smaller. Laminal cells linear-rhomboidal, subquadrate or rectangular towards the base. Calyptra small, cucullate.

Perigonia and perichaetia terminal on short lateral branches. Perichaetial leaves smaller than vegetative leaves, but otherwise similar. Setae elongate, smooth. Capsules inclined or pendulous, rarely suberect, elongate-ovoid to cylindrical, clavate or narrowly pyriform, slightly gibbose; neck shrivelled when old; annulus broad, persistent; operculum conical. Peristome double or single by reduction of the exostome, rarely absent; exostome teeth, if present, blunt, smooth; endostome with 16 pale segments, rarely absent; basal membrane medium to short; cilia absent. Spores 15–20 µm diam. $n = 10, 11$, fide R.Fritsch, *Bryophyt. Biblioth.* 40: 201 (1991), as *Mielichhoferia*. Chromosome numbers not known for the Australian species.

The peristome of *Mielichhoferia* was long considered to be single and endostomial, and many species with single peristomes traditionally included in *Mielichhoferia* were placed in the earliest available generic name, viz. *Schizymenium* (Shaw, 1985). Shaw & Crum (1984) determined that the peristome consists of an exostome with a very rudimentary endostomial membrane fused to the inside. Subsequent molecular studies have shown that *Mielichhoferia* includes a natural (i.e. monophyletic) group of species that can have exostomial, endostomial or double peristomes. The sole Australian species of *Schizymenium*, *S. bryoides*, with a mainly endostomial peristome, but it can be single or double with the exostome reduced or absent. It has, therefore, been returned to *Mielichhoferia*.

Species of *Mielichhoferia* often resemble a small *Pohlia*, and they grow in similar habitats. However, they can be distinguished by the gametangia being borne on short lateral shoots in *Mielichhoferia* but terminally in *Pohlia*. Moreover, perichaetial leaves are smaller with a shorter costa and laxer cells in *Mielichhoferia* but longer or equal to vegetative leaves in *Pohlia*. The peristome of *Mielichhoferia* is more variable, usually single, slender, and delicate, reduced to 16 endostome segments joined at the base by a low basal membrane. By contrast, it is usually double, well developed and less variable in *Pohlia*.

This genus of c. 90 species is especially diverse in South America, although only a small number of species could be regarded as being well known.

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References

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- Shaw, A.J. & Crum, H.A. (1984), Peristome morphology in *Mielichhoferia* with a taxonomic account of the North American species, *J. Hattori Bot. Lab.* 57: 363–381.

Mielichhoferia bryoides (Harv. ex Hook.) Wijk & Margad., *Taxon* 11: 221 (1962)

Schizymerium bryoides Harv. ex Hook., *Icon. Pl.* 3: 202 (1840). T: southern Africa.

Mielichhoferia ecklonii Hornsch., *Linnaea* 15: 118–119 (1841). T: southern Africa.

Mielichhoferia australis Hampe, *Linnaea* 28: 204 (1856). T: Grampians, Vic., s. dat., coll. Unknown; holo: BM.

Mielichhoferia sullivanii Müll.Hal., *Hedwigia* 37: 84 (1898). T: Mt William, Grampians, Vic., Oct. 1882, *D.Sullivan* 66; holo: probably lost from B; syn: MEL 31155, 31156; Mt Cole, Pyrenees, Vic., 1883, *D.Sullivan n.v.*

Mielichhoferia forsythii Broth., *Proc. Linn. Soc. New South Wales* 41: 584 (1916). T: Tallewong [Tallwong] Creek, N.S.W., Jan. 1900, *W.Forsyth* 641; holo: H-BR; iso: MEL, NSW.

Mielichhoferia microdonta Mitt., *Trans. & Proc. Roy. Soc. Victoria* 19: 73 (1882), *nom. nud.* in synonym. Based on: Gippsland, Vic., *F.Mueller* (MEL).

Illustrations: T.R.Sim, *Bryophyta S Africa* 316 (1926), as *Mielichhoferia ecklonii*; G.A.M.Scott & I.G.Stone, *Mosses Southern Australia* 297, pl. 53 (1976); D.G.Catcheside, *Mosses South Australia* 243, fig. 139 (1980); W.R.Buck, D.H.Vitt & W.M.Malcolm, *Key to the Genera of Australian Mosses* 109 (2002), D.Meagher & B.Fuhrer, *Field Guide to the Mosses & Allied Plants of Southern Australia* 169 (2003).

Paroicous. Plants usually in dense yellowish green glaucous tufts. Stems 5–20 mm long, with 1 or more long basal branches, tomentose, matted together below, with papillose rhizoids. Leaves erecto-patent to erect-spreading, 0.8–2.0 mm long, rather glossy, smaller, distant and rudimentary below, larger and more crowded above, spreading when moist or dry, lanceolate from a narrow base, acute to short-acuminate; margin entire, lacking a border, denticulate towards the apex; costa ending below the apex. Laminal cells linear-rhomboidal, 100–140 × 6–7 µm, thin-walled, slightly sinuose, projecting at the margins. Bulbils very rare (one record only).

Perigonia lateral, gemmiform. Perichaetia lateral on short branches at or near the base of the stem. Setae 10–30 mm, elongate, reddish, slender, flexuose. Capsules large, 2.5–3.0 mm long, suberect to inclined, slightly asymmetrical, clavate or narrowly pyriform, the mouth narrower but becoming wider when old; neck c. 1 mm long, sulcate when dry; annulus large, revoluble; operculum short-conical, mammillose. Peristome usually single, rarely double or lacking, with exostome reduced to very short smooth blunt teeth, or absent; endostome segments on a short basal membrane c. 0.25 mm high; segments hyaline, narrowly linear, variably nodose, rarely slightly appendiculate, smooth or papillose. Spores 15–20 µm diam., finely papillose.

Occurs in southern Australia (W.A., S.A., N.S.W., A.C.T., Vic. and Tas.), Lord Howe Island and Macquarie Island. A common moss on moist, shady soil banks or on rock, often in upland sclerophyll forest, this species can form extensive patches near gravelly seepages. Also known from southern Africa, Madagascar and New Zealand.

W.A.: Pingelly, *R.Wyatt* & *A.Stoneburner* (PERTH); Bridgetown-Greenbushes, *W.R.Buck* (PERTH); Esperance, 21 Nov. 1993, *S.G.Webster* (PERTH); Boyagin Rock Nature Reserve, *R.Wyatt* & *A.Stoneburner* 3993, 3995 (PERTH); Porongurup Natl Park, *J.R.Spence* 4205 (NSW). S.A.: Mt Lofty, *D.G.Catcheside* 52.360 (MEL); Southern Lofty, *R.Schodde* 207 (AD). N.S.W.: Charlotte Pass, *H.Streimann* 5429, 5190

(AD, CANB); Jenolan Caves car-park, 25 Oct. 1995, *A.J.Downing* (MQU). A.C.T.: Brindabella Ra., *H.Streimann 104, 106* (CANB, MEL). Vic.: Mt Franklin Crater, 14 Nov. 1973, *J.H.Willis s.n.* (MEL); near Halls Gap, Grampians, *D.G.Catcheside 55190* (AD); between Omeo and Mitta Mitta, *M.E.Phillips 100* (CANB, MEL). Tas.: Mt Wellington, 29 Oct. 1978, *A.V.Ratkowsky s.n.* (AD, HO); Coleraine, *A.C.Beauglehole 6867* (MEL).