

NANOBRYACEAE

Ilma G. Stone†

Nanobryaceae W.Schultze-Motel, *Willdenowia* 5: 386 (1969).

Type: *Nanobryum* Dixon

Dioicous or rhizautoicous. Plants reduced to bud-like perichaetia, pale glossy green, becoming brownish, widely scattered on a perennial terricolous protonema. Protonema dull green, short-celled, mostly pseudothallose, extensive, flat, encrusting. Leaves 4–6, symmetrical or asymmetrical, bract-like below, increasing in size upwards, abruptly subulate from a sheathing concave base. Costa ill-defined and weak, beginning mid-way up the sheath, or absent; cells firm-walled, 2–4-stratose, ±homogeneous (in cross-section). Margin entire or weakly serrulate. Laminal cells elongate-rectangular, rhomboidal or prosenchymatous.

Perigonia gemmiform. Calyptra narrow, conical, occasionally shallowly split, covering the rostrum. Setae terminal, long, yellowish, reddening below. Capsules horizontal, asymmetrical; operculum conical-rostellate. Peristome single; teeth split, the filamentous arms obliquely thickened distally, papillose below, the undivided basal part trabeculate, finely papillose on the abaxial surface, adaxial surface cristate, with long branching papillae. Spores chlorophyllose, finely papillose.

Includes a single genus, *Nanobryum*, and two species, one endemic to central and southern Africa, the other native to tropical and subtropical eastern Australia and New Caledonia.

Dixon (1922) placed *Nanobryum* in the Dicranaceae, considering it to be intermediate between the Fissidentaceae and Dicranaceae. Subsequently, it was mistakenly thought to be conspecific with a minute *Fissidens* sp. (which was associated with it in parts of Africa), and the then sole species was included in the Archifissidentaceae Dixon & P. de la Varde (1927), an illegitimate homonym that was corrected to Nanobryaceae by Schultze-Motel (1969). Subsequently, Pursell & Reese (1980) and Bruggeman-Nannenga & Berendsen (1988, 1990) reduced *Nanobryum* to synonymy with *Fissidens*, but this was not accepted by Magill (1981) or Stone (1982, 1990), both of whom recommended the retention of the genus *Nanobryum* in the family Nanobryaceae.

This family clearly has a close affinity with the Fissidentaceae, but the leaves lack the equitant base and dorsal lamina typical of the latter. The limb of the leaf, including the costa, is dorsiventral, not isobilateral as in *Fissidens*, and there is no evidence of a dorsal lamina.

References

- Bruggeman-Nannenga, M.A. & Berendsen, W. (1988), On the peristome types found in the Fissidentaceae and their importance for the classification. *In* M.A.Bruggeman-Nannenga, *Systematic Studies on Fissidens* 135–172. University of Utrecht.
- Bruggeman-Nannenga, M.A. & Berendsen, W. (1990), On the peristome types found in the Fissidentaceae and their importance for the classification, *J. Hattori Bot. Lab.* 68: 193–234.
- Dixon, H. N. (1922), Some new genera of mosses, *J. Bot. (London)* 60: 101–110.
- Downing, A., Downing, K. & Osborne, N. (2011), Some unusual bryophytes from the flanks of Mount Warning, north-eastern New South Wales, *Australas. Bryol. Newslett.* 59: 4–9.
- Iwatsuki, Z. & Suzuki, T. (1989), New Caledonian Fissidentaceae (Musci), *J. Hattori Bot. Lab.* 67: 267–290.

Cite as: I.G.Stone, *Australian Mosses Online*. 63. Nanobryaceae.

http://www.anbg.gov.au/abrs/Mosses_Online/Nanobryaceae.pdf (2012)

Magill, R.E. (1981), *Flora of Southern Africa. Bryophyta. Part 1. Mosses. Fasc. 1. Sphagnaceae–Grimmiaceae*. Botanical Research Institute, Department of Agriculture & Fisheries, Pretoria.

Potier de la Varde, R. (1927), Mousses d'Oubangui, *Arch. Bot. Mem.* 3: 1–152.

Pursell, R.A. & Reese, W.D. (1980), The taxonomic status of the Nanobryaceae (Bryopsida), *Bryologist* 83: 559–562.

Schultze-Motel, W. (1969), Nanobryaceae – ein neuer Name für eine Familie der Laubmoose, *Willdenowia* 3: 385–387.

Stone, I. G. (1982), *Nanobryum thorsbornei*, a remarkable new moss from Australia, *J. Bryol.* 12: 199–208.

Stone, I.G. (1990), Nomenclatural changes and new moss records in Australia: including a description of the protonema of *Calomnion*, *J. Bryol.* 16: 261–273.

NANOBRYUM

Ilma G. Stone†

Nanobryum Dixon, *J. Bot. (London)* 60: 101 (1922); from the Greek *nanos* (dwarf), and *bryon* (a moss), in reference to the very small size of these plants.

Type: *N. dummeri* Dixon

Description as for the family.

Nanobryum thorsbornei I.G.Stone, *J. Bryol.* 12: 199 (1982)

Fissidens thorsbornei (I.G.Stone) Brugg.-Nann., in M.A.Bruggeman-Nannanga & W.Berendsen, *Syst. Stud. Fissidens* 158 (1988). T: Kirrama State Forest, near Cardwell, Qld, alt. c. 600 m, on granitic soil in tropical rainforest, 4 Sept. 1979, I.G.Stone 15000, A.G.Stone, A.Thorsborne, M.Thorsborne & W.Travers; holo: BRI; iso: BM, MEL.

Illustration: I.G.Stone, *op. cit.* figs 1, 2a–d, 3, 4i–p (1982); Z.Iwatsuki & T.Suzuki, *op. cit.* fig. 1.

Plants c. 1.5 mm tall; stems bulbous, 0.2–0.4 mm long. Leaves 0.1–1.0 mm long; upper leaves 3-lobed; central lobe often finely subulate up to 0.8 mm long with a single twist; lateral lobes much shorter, often recurved. Cells of the sheath 20–80 × 8–12 μm, narrower in the subula.

Perigonia bud-like, scattered on protonema, c. 0.2 mm tall; leaves 3 or 4, ovate, abruptly acute; antheridia terminal, c. 3, short-stalked, almost subglobose. Calyptra c. 0.35 mm long. Setae glossy yellow, 2.5–8.0 mm long, often decumbent. Capsule thecae c. 0.6 mm long and 0.4 mm wide; stomata phaneropore, 1–3 at the base; operculum c. 0.4 mm long. Spores c. 10–15 μm diam.

Occurs in eastern Qld from Cooktown to the N.S.W. border; associated with species of *Fissidens*, *Trachycarpidium* and *Viridivellus* and colonising shaded soil banks, termite mounds and skeletal granitic soils, usually in rainforest but also in grassy woodland. Apparently rare but often overlooked, except when the long glossy yellow setae and large capsules betray its presence. Also in New Caledonia, and recently reported from north-eastern N.S.W. (Downing *et al.*, 2011).

Qld: Helenvale, I.G.Stone 22083 p.p. (MEL); Carnarvon Gorge, I.G.Stone 20476 p.p. (MEL); Cania Gorge, I.G.Stone 20989 (MEL); Tamborine Mtn, Joalah Natl Park, I.G.Stone 20670 p.p. (MEL); type locality, I.G.Stone 16971, 17845 (MEL); Wallaman Falls track, W of Ingham, I.G.Stone 12321 (MEL). N.S.W.: Falls Rd, Nimbin, 13 Aug. 2010, A.J.Downing, N.Osborne & K.D.Downing (MQU, NSW).