

Fissidens hyalinus Hook.f. & Wilson, *Hooker's J. Bot. Kew Gard. Misc.* 3: 89, fig. 2 (1840)

Type: Bank Lick, on Cassidy's Farm, near Cincinnati, Ohio, U.S.A.; iso: NY.

Fissidens nymanii M.Fleisch., *Musci Fl. Buitenzorg* 1: 19, fig. 1 (1902), *vide* Z.Iwatsuki & M.A.Haji Mohamad, *J. Hattori Bot. Lab.* 62: 341 (1987). Type: Tjibodas, Java, Indonesia, "an sehr Feuchten Stellen an den Boschunger kleiner Wasserlaufe", 1400 m, Mar. 1899, *E.Nyman*; holo: FH.

Illustrations: H.C.Gangulee, *Mosses of Eastern India* 461, fig. 210 (1971); Z.Iwatsuki & T.Suzuki, *J. Hattori Bot. Lab.* 51: 447, pl. 1, figs 1–17; 448, pl. 2, figs 1–13 (1982); I.G.Stone, *J. Bryol.* 14: 320, fig. 1 (1986), as *F. nymanii*; A.J.Sharp, H.Crum & P.M.Eckel, *The Moss Flora of Mexico* 1: 80, fig. 58a–d (1994); R.A.Pursell, *Fl. Neotrop. Monogr.* 101: 251, fig. 140G, H (2007).

Plants pale green, soft, to 5 mm tall. **Stems** unbranched, with basal rhizoids only; in section, all cells thin-walled, outer layers not differentiated, lacking a central strand. **Leaves** in up to 6 pairs, the upper leaves much longer than lower leaves, crisped when dry, lanceolate to ovate-lanceolate, to 2 mm long and 0.5 mm wide; apex acute; laminae unistratose, limbate; **limbidium** narrow, 1 (–2) cells wide, unistratose or occasionally bistratose, ending just below the leaf apex, often indistinct on vaginant laminae; **vaginant laminae** narrow, 1/3–1/2 leaf length, almost closed to closed, apex acute; **margins** entire, occasionally weakly dentate at the apex; **laminal cells** irregularly hexagonal, 30–60 × 20–30 µm; **costa** absent, but section at junction of laminae several undifferentiated cells thick.

Autoicous. Perigonia terminal on male branches at base of female stems. **Perichaetia** terminal; **perichaetial leaves** not differentiated from stem leaves. **Setae** colourless, becoming yellowish with age, to 3 mm long, smooth. **Capsules** erect, symmetrical, 0.4–0.7 mm long; **exothecial cells** ±quadrate to short-rectangular, thin-walled, distinctly collenchymatous, in c. 32 columns around periphery. **Operculum** rostellate to rostrate, 0.2–0.5 mm long. **Peristome** of *scariosus*-type, c. 250 µm long, 30–35 µm wide at the base. **Calyptra** campanulate to mitrate, c. 0.4 mm long; cells smooth to ±bulging. **Spores** 9–13 (–17) µm diam., finely papillose.

[Images](#)

Very rare in north-eastern Qld; grows on soil banks in tropical rainforest.

Also in eastern North America, Mexico, Taiwan, Japan, India, tropical Asia, New Guinea and New Caledonia.

Specimens examined: Qld: Lower Track, Tully Falls, *I.G.Stone 19875* (MEL 2246102); Tully Gorge, near Ravenshoe, *I.G.Stone 19870* (MEL).

Fissidens hyalinus (as *F. nymanii*) was first reported for Australia from collections made from Tully Gorge, north-eastern Queensland. It was compared with *F. dealbatus* and *F. splachnoides* (Stone, 1985b) and, morphologically, these species appear very closely related, sharing most of their defining characters. Stone (1985b) considered the calyptra to be the most critical diagnostic feature. However, most herbarium specimens lack sporophytes, so that morphology of the gametophyte plants includes the most readily available distinguishing characters.

The size of plants, cell dimensions, shape of leaves and the vaginant laminae provide no useful diagnostic information. Indeed, the only reliable attribute appears to be the anatomy of the limbidium, a conclusion also reached by R.A.Pursell (pers. comm., 18 Dec. 2013).

A detailed, comparative, morphological study of Australian material of *F. hyalinus*, *F. nymanii*, *F. dealbatus* and material attributed to *F. splachnoides* has led to the conclusion that only two species are represented in Australia, viz. *F. hyalinus* and *F. dealbatus*, *F. splachnoides* being a synonym of *F. dealbatus*.

In *F. hyalinus*, sections of the limbidium reveal cells that are thinner-walled than in *F. dealbatus*, and the limbidium is 1 (–2) cells wide and thick. In *F. dealbatus*, the limbidium is composed of cells that are very thick-walled with a very narrow lumen, 1–2 (–3) cells in width and 1–4 (–5) cells in thickness.

[Bibliography](#)