Fissidens megalotis Schimp. ex Müll.Hal., *Bot. Zeitung (Berlin)* 16: 154 (1858)

Type: Gronekloof, Cape of Good Hope, South Africa, *Breutel*; holo: BM.

Fissidens vittatus Hook.f. & Wilson, *Fl. Tasman*. 2: 167 (1859). Type: Circular Head, Tas., *R.Gunn 1697*; holo: BM; iso: HO.

Fissidens forsythii Broth., *Proc. Linn. Soc. New South Wales* 41: 576 (1916). Type: near Barbers Creek, N.S.W., Sept. 1899, *W.Forsyth 566*; holo: H-BR; iso: MEL, NSW.

Illustrations: G.A.M.Scott & I.G.Stone, *The Mosses of Southern Australia* 85, pl. 7; 87, pl. 8; 89, pl. 9 (1976), as *F. vittatus*; D.G.Catcheside, *Mosses of South Australia* 77, fig. 17 (1980), as *F. vittatus*; J.Beever, B.Malcolm & N.Malcolm, *The Moss Genus* Fissidens *in New Zealand: an illustrated key*. 44 (2002); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and allied Plants of Southern Australia* 43 (2003).

Plants dark green, densely gregarious, curled downwards when dry. **Stems** to 8 mm long, occasionally branched; in section with a well-developed central strand; rhizoids basal only. **Leaves** in 5–15 pairs, often somewhat recurved when moist, circinate when dry, broadly oblong-lanceolate, 1.0–1.5 mm long, 0.35–0.50 mm wide; **apex** acute, somewhat retrorse; **limbidium** narrow, 1–4 (–8) cells wide, unistratose to bistratose, often failing near the apex, narrow and sometimes obscure in dorsal and apical laminae, broader in the vaginant laminae and proximally intramarginal with a broad vitta of laminal cells, disappearing basally shortly above insertion; **vaginant laminae** very broad, reaching 2/3–3/4 leaf length, open and gaping; **dorsal lamina** tapering to the base, not decurrent; **margins** irregularly serrulate near the apex and, occasionally, the proximal part of the vaginant laminae, elsewhere entire; **lamina cells** strongly convex, firm-walled, rounded-hexagonal to pentagonal, 5–8 µm wide, smooth to obscurely bipapillose, basally larger and clearer; **costa** of *bryoides*-type, strong, percurrent to short-excurrent.

Dioicous. **Perichaetia** terminal; **perichaetial leaves** longer than vegetative leaves. **Setae** to c. 5 mm long. **Capsules** short-oblong, horizontal, asymmetrical, c. 1 mm long; **exothecial cells** quadrate to short-rectangular, 15–35 µm long, shorter near the rim, relatively thick-walled, collenchymatous; lateral walls thicker than end walls. **Operculum** rostrate, c. 0.5 mm long. **Calyptra** not seen. **Peristome** of *bryoides*-type. **Spores** green, (20–) 24–30 (–31) µm diam.

Images

Widespread in southern Australia (W.A., S.A., N.S.W., A.C.T., Vic. and Tas.); grows on soil, often in low rainfall areas.

Also known from southern Africa and New Zealand.

Selected specimens examined: W.A.: Cascades, near Pemberton, *D.G.Catcheside 74.175* (AD). S.A.: 5 miles (8 km) S of Lake Gairdner, Eyre Penin., *D.E.A.Catcheside* (AD). N.S.W.: Hume Highway, N of Yass, *I.G.Stone 21684* (MEL); Inverell, *I.G.Stone 17785* (MEL). A.C.T.: Kambah, beside Murrumbidgee R., *D.G.Catcheside 67.74* (AD). Vic.: Tallarook, *I.G.Stone 9330* (MEL); Licola, *I.G.Stone 24792A* (MEL). Tas.: Strickland, July 1912, *L.Rodway* (HO); Glenorchy, near Elwick, *W.A.Weymouth 2834* (HO).

While *F. megalotis* can have slender, flagelliferous innovations with recurved leaves resembling those of *F. bifrons* (*q.v.*), the coarsely crenate-dentate margins of the vaginant laminae are diagnostic. When dry, the shoot apex of sterile or non-fruiting plants is usually strongly curved towards the substratum, and the leaves somewhat curled or contorted. The limbidium is often very narrow and can be obscure in the dorsal and apical laminae, reaching near or failing below the apex. In the vaginant laminae the limbidium can be up to 8 cells wide, but it tapers and disappears near the base of the leaf.

Bruggeman-Nannenga (1997) reduced *F. helictocaulos* Müll.Hal. to a subspecies of *F. megalotis*. It differs from type subspecies by 1) its less strongly crispate leaves, 2) the slightly unequal vaginant laminae, 3) the entire margin of the vaginant laminae of the basal leaves, 4) smooth bulging laminal cells, and 5) fewer rows of cells bordering the intralaminal limbidia. In a recent revision of *Fissidens* on La Réunion, Bruggeman-Nannenga & Arts (2010) illustrated subsp. *helictocaulos*, but they indicated (fig. 16.6) that the dorsal lamina is decurrent. They also suggested that the key distinguishing feature between the two

subspecies is the minor vaginant laminae that end at or near the costa. Subspecies *megalotis* was characterised by 1) its strongly crispate, limbate leaves, 2) small, bulging, smooth or uni- to multipapillose cells, 3) vaginant laminae that are typically open to the costa, 4) basal leaves with serrate vaginant laminae, 5) an intramarginal limbidium on the vaginant laminae, and 6) a decurrent dorsal lamina (Bruggeman-Nannenga & Arts, 2010).

Australian material is attributable to subsp. *megalotis*, but the dorsal lamina ranges from decurrent to ending a short distance above the base of the leaf. Specimens examined by us rarely have cells with even a semblance of papillae. Based on the description and illustrations in Scott & Stone (1976), Magill (1981) stated that it was probable that Australian material (as *F. vittatus*) should be included in the synonymy of *F. rufescens* Hornsch., a species otherwise endemic to the eastern and southern parts of Africa. The relationships of these taxa need further investigation. Magill (1981) included *F. megalotis* as a synonym of *F. rufescens*.

Bibliography