

FORSSTROEMIA

Johannes Enroth¹

Forsstroemia Lindb., *Öfvers. Förh. Finska Vetensk.-Akad.* 19: 605 (1863); named in honour of the Swedish clergyman and botanist J.E.Forsström (1775–1824).

Type: *F. trichomitria* (Hedw.) Lindb.

Autoicous or polyicous. Plants gregarious, mainly epiphytic, occasionally epilithic, stipitate and frondose, medium-sized, yellowish green or brownish yellow, dull or slightly glossy. Rhizoids brownish orange, smooth. Stems irregularly pinnately branched or unbranched; central strand absent. Stem leaves imbricate, concave, plicate or smooth, decurrent, (ovate-) lanceolate to ovate-acuminate; apices acute to acuminate or filiform, occasionally spreading and twisted; branch leaves similar but smaller; margins recurved from base mid-way along the leaf or above, entire throughout or faintly serrulate above; costa mostly single, reaching c. 25–75% of the leaf length, occasionally double and very short. Laminal cells smooth, thick-walled; alar cells indistinct; supra-alar cells (sub)quadrate to transverse in triangular groups extending upwards along the margins to c. one-third of the leaf length. Paraphyllia absent; pseudoparaphyllia foliose, lanceolate.

Post-fertilisation inner perichaetial leaves to c. 4 mm long, mostly oblong-lanceolate to oblong-acuminate and with a single costa of variable length, occasionally ecostate. Seta to 4.5 mm long, smooth, twisted when dry, reddish. Capsules ±exserted, erect, cylindrical; apophysal stomata absent. Peristome double; endostome very rudimentary to absent; exostome teeth c. 300 µm long, hygrocastique, narrowly lanceolate, solid or perforate to cracked above, often smooth below but papillose to somewhat granulose above, yellowish grey; operculum conico-rostrate. Calyptra cucullate, hairy. Spores globose, papillose, isomorphic.

Forsstroemia was segregated from *Leptodon* by Lindberg (1863) to accommodate *F. trichomitria*. Manuel (1974) placed the genus in the Leucodontaceae, but it was transferred to the Leptodontaceae by Buck (1980), a move accepted by Stark (1987) and Goffinet & Buck (2004). In his monograph of *Forsstroemia*, Stark (1987) suggested that *Leptodon* was the sister group of *Forsstroemia* within the Leptodontaceae subfam. Leptodontoideae. However, while Olsson *et al.* (2009) did confirm a close relationship between *Leptodon* and *Forsstroemia*, they also demonstrated the correct placement of both genera within the Neckeraceae.

Forsstroemia is a genus of 13 species, most of which are restricted to southern or eastern Asia. Two species occur in eastern and south-eastern Australia. The genus was revised by Stark (1987) on morphological grounds and, recently, by Olsson *et al.* (2012) using sequence data from two plastid regions and nuclear ribosomal DNA.

References

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¹ Department of Biological and Environmental Sciences & Botanical Museum, P.O. Box 7, FI-00014 University of Helsinki, Finland.

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Median laminal cells of stem leaves ±isodiametric to short-rhomboid or short-oblong; costa extending beyond mid-leaf **F. producta**

Median laminal cells of stem leaves (sub)linear, clearly elongate; costa usually vanishing below mid-leaf, occasionally extending slightly above **F. trichomitria** subsp. **australis**

Forsstroemia sect. **Microforsstroemia** Nog.

Median laminal cells up to 3 times longer than wide; costa single, relatively strong, extending above mid-leaf.

1. Forsstroemia producta (Hornsch.) Paris, *Index Bryol.* 498 (1896)

Pterogonium productum Hornsch., *Linnaea* 15: 138 (1841); *Neckera producta* (Hornsch.) Müll.Hal., *Syn. Musc. Frond.* 2: 94 (1850); *Lasia producta* (Hornsch.) A.Jaeger, *Ber. Thatigk. St. Gallischen Naturwiss. Ges.* 1875–1876: 204 (1877) [Ad. 2: 108]; *Dusenien producta* (Hornsch.) Müll.Hal. ex M.Fleisch., *Hedwigia* 59: 213 (1917), *nom. inval.*, in synonym. T: Cape Province, South Africa, *M.R.Crosby & C.A.Crosby 7974*; neo: MO *n.v.*; isoneo: L *n.v.*, *fide* L.Stark, *op. cit.* 163.

Dusenien subproducta Müll.Hal., *Hedwigia* 41: 132 (1902); *Forsstroemia subproducta* (Müll.Hal.) Broth., in H.G.A.Engler & K.A.E.Prantl, *Nat. Pflanzenfam.* 1(3): 759 (1905). T: *s. loc.*, Qld, *F.M.Bailey 827*; lecto: H-BR, *fide* L.R.Stark, *op. cit.* 163.

Illustrations: L.R.Stark, *op. cit.* 165–167, figs 18–20.

Autoicous. Stems subpinnately branched. Stem leaves c. 1.5 mm long and 0.8 mm wide, ovate to ovate-acuminate; apices acute to acuminate or filiform and twisted; costa reaching beyond mid-leaf, mostly spurred. Median laminal cells c. 15–25 µm long, oval or short-rhomboid to short-oblong.

Seta c. 1.5–2.5 mm long. Capsules short-exserted.

Occurs in eastern Qld, N.S.W. and Tas.; prefers shaded habitats, mostly epiphytic on trees, less commonly epilithic. Also in North, Central and South America, eastern and southern Africa, China and Korea.

Qld: Cardwell Ra., 24 km WNW of Cardwell, *H.Streimann 28564* (CANB). N.S.W.: Flat Rock, Scone, *W.W.Watts 8423* (NSW). Tas.: Western region, 1846, *J.Milligan* (NY *n.v.*, cited by L.R.Stark, *op. cit.* 170).

Forsstroemia sect. **Forsstroemia**

Median laminal cells at least 4 times longer than wide; costa single or double, relatively weak, often ceasing below mid-leaf.

2. Forsstroemia trichomitria (Hedw.) Lindb. subsp. **australis** (Müll.Hal.) L.R.Stark, *J. Hattori Bot. Lab.* 63: 198 (1987)

Lasia australis Müll.Hal., *Linnaea* 35: 620 (1868); *Forsstroemia australis* (Müll.Hal.) Paris, *Index Bryol.* 498 (1896); *Dusenien australis* (Müll.Hal.) Müll.Hal., *Hedwigia* 41: 132 (1902). T: Hunter R., N.S.W., *H.Scott*; lecto: NY, isoelecto: BM *n.v.*, *fide* L.R.Stark, *loc. cit.*

Lasia australis var. *stricta* Müll.Hal., *Linnaea* 35: 621 (1868); *Forsstroemia australis* var. *stricta* (Müll.Hal.) Paris, *Index Bryol.* 498 (1896). T: Brisbane R., Qld, *A.Dietrich*; not located, *fide* L.R.Stark, *loc. cit.*

Illustrations: L.R.Stark, *op. cit.* 193, 194, fig. 32D–G, M, P–R.

Polyoicous. Stems unbranched or sparingly and irregularly branched. Stem leaves c. 2–3 mm long, ovate-lanceolate to lanceolate; apices acuminate; costa mostly single, usually ending below mid-leaf, occasionally double and very short. Median laminal cells mostly 40–60 μm long, (sub)linear and slightly vermicular.

Seta c. 2–4 mm long. Capsules exserted.

Endemic to eastern Qld and N.S.W.; usually epiphytic, occasionally epilithic and most abundant in shaded habitats.

Qld: Brisbane, 1887, *F.M.Bailey* (H-BR). N.S.W.: Lismore, Mar. 1899, *W.W.Watts* (H-BR).

This subspecies is distinguishable from the extra-Australian subsp. *trichomitria* by having more infrequent branching and the polyoicous rather than consistently autoicous sexual condition.