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Notes on Early Land Plants Today. 30. Transfer of some taxa from *Anastrophyllum* (Anastrophyllaceae, Marchantiophyta)

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The genus *Anastrophyllum* Stephani (1893: 139) was treated in a broad sense by e.g. Schuster (1969) and has usually been so until recently. De Roo *et al*. (2007) showed that the genus is polyphyletic and removed *Sphenolobus* (Lindberg 1874: 369) Berggren (1898: 22) and *Crossocalyx* Meylan (1939: 266). Subsequently Váňa & Engel (2013) removed subgenus *Zantenia* Hattori (1966: 342). However, two other elements remain, that also deserve to be removed.

Anastrophyllum involutifolium and at least also *Anastrophyllum subcomplicatum* (supposedly also *Anastrophyllum revolutum*) belong to a group of taxa which should be separated from the genus *Anastrophyllum* on generic level. Both taxa are characterized by the very concave (hemispherically concave, not canaliculately concave) leaves with slightly interlocking dorsal merophytes, dorsally falcate-secund leaves, broadly overlapping dorsally and extending across the width of stem and decurrent, etc.

Schuster (2002) designated the species *Anastrophyllum schismoides* (treated as synonym of *Anastrophyllopsis subcomplicata* here) as the type of his new section *Anastrophyllum* sect. *Anastrophyllopsis*. However, he also included in this section the taxa *Anastrophyllum piligerum* (Reinwardt *et al.* 1824: 414) Stephani (1893: 140) and *Anastrophyllum appendiculatum* Kitagagawa (1970: 210), "whose sectional disposition remains uncertain" (Schuster 2002: 313). At least *Anastrophyllum appendiculatum* (accepted by JV as conspecific with *Anastrophyllum auritum* (Lehmann 1829: 368) Stephani (1901: 1137)) does not belong to this group.

The necessary new combinations are made here.

Formal treatment

The format of this note follows what is outlined in Söderström *et al.* (2012).

***Anastrophyllopsis* (R.M.Schust.) Váňa et L.Söderstr.**, *comb. et stat. nov.*

Basionym:—*Anastrophyllum* sect. *Anastrophyllopsis* R.M.Schust., *Beih. Nova Hedwigia* 119: 310, 2002 (Schuster 2002).
Type:—*Anastrophyllum schismoides* (Mont.) Steph. [=*Anastrophyllum subcomplicatum* (Lehm. et Lindenb.) Steph.].

***Anastrophyllopsis involutifolia* (Mont. ex Gottsche, Lindenb. et Nees) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Jungermannia involutifolia* Mont. ex Gottsche, Lindenb. et Nees, *Syn. Hepat*. 1: 81, 1844 (Gottsche et al. 1844).
Lectotype (Váňa & Engel 2013):—CHILE. Prov. Magellanes: Bahía San Nicolas, *Hombron*, (PC!, isolectotypes BM!, S!).

≡ *Anastrophyllum involutifolium* (Mont. ex Gottsche, Lindenb. et Nees) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).

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***Anastrophyllopsis revoluta* (Steph.) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Anastrophyllum revolutum* Steph., *Hedwigia* 32: 139, 1893.
Type:—PAPUA NEW GUINEA. Mt. Suckling, 1891, *Wm. McGregor* (holotype G-67269! [=G-11073!][1], isotype BM!).

***Anastrophyllopsis subcomplicata* (Lehm. et Lindenb.) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Jungermannia subcomplicata* Lehm. et Lindenb., *Nov. Stirp. Pug*. 7: 4, 1838 (Lehmann 1838).
Lectotype (Váňa & Engel 2013):—MARIANA IS. Habitat in insulis Marianis. Specimina benevole communicavit Dr. Bongard, Professsor Petropolitanus celeberrimus (W-Lindenb. Hep. 1597!, isolectotype S!).

≡ *Anastrophyllum subcomplicatum* (Lehm. et Lindenb.) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).
= *Anastrophyllum schismoides* (Mont.) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893), syn. in Váňa & Engel (2013). Basionym: *Jungermannia schismoides* Mont., *Ann. Sci. Nat. Bot. (ser. 2)* 19: 250, 1843 (Montagne 1843). Type:—NEW ZEALAND. Auckland I., 1840, *Hooker*, Voy. of H.M.S. Erebus & Terror (isotypes BM!, FH!, G! S!, W-Lindenb. Hep. 1624!, 1625!).
= *Anastrophyllum obtusatum* (Hook.f. et Taylor) Steph., *Bull. Herb. Boissier ser. 2*, 1: 1136 (*Spec. Hep*. 2: 119), 1901 (Stephani 1901), syn. in Gottsche *et al.* (1845). Basionym:—*Jungermannia obtusata* Hook.f. et Taylor, *London J. Bot.* 4: 80, 1845 (Hooker & Taylor 1845). Type:—ST. HELENA. 1844, *Hooker* (isotype FH!)
= *Anastrophyllum tristanianum* J.J.Engel, *Fieldiana, Bot.* 38: 71, 1977 (Engel 1977), syn. in Váňa (1982). Type:—TRISTAN DA CUNHA. Above Burntwood, 650 m, *Christophersen & Mejland 889* (holotype O!).
= *Anastrophyllum schismoides* var. *crassulum* J.J.Engel, *J. Bryol*. 20: 379, 1998 (Engel & Braggins 1998), ***syn. nov.*** Holotype:—AUSTRALIA. Tasmania: Gordon River, vicinity of Sir John Falls, just up river from Butler Island, ca. 50 m, *Engel 14742* (holotype F, isotype HO).

***Schizophyllum* (R.M.Schust.) Váňa et L.Söderstr**. *comb. et stat. nov.*

Basionym:—*Anastrophyllum* subgen. *Schizophyllum* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 2: 739, 1969 (Schuster 1969).
Type:—*Anastrophyllum sphenoloboides* R.M.Schust.

***Schizophyllum aristatum* (Herzog ex N.Kitag.) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Anastrophyllum bidens* var. *aristatum* Herzog ex N.Kitag., *J. Hattori Bot. Lab.* 33: 216, 1970 (Kitagawa 1970).
Type:—BORNEO. Sarawak: Dulit Ridge, 1300 m, on tree-trunk, *P. W. Richards 1908* (holotype JE!).

≡ *Anastrophyllum aristatum* (Herzog ex N.Kitag.) A.E.D.Daniels, D.G.Long, Karyappa et P.Daniel., *J. Bryol.* 34: 148, 2012 (Daniels *et al.* 2012).

***Schizophyllum bidens* (Reinw., Blume et Nees) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Jungermannia bidens* Reinw., Blume et Nees, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 12: 208, 1825 [1824] (Reinwardt et al. 1824).
Type:—INDONESIA. Java (holotype STR, isotype W-Lindenb. Hep. 1618!).

***Schizophyllum lancilobum* (Steph.) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Anastrophyllum lancilobum* Steph., *Sp. Hepat. (Stephani)* 6: 107, 1917 (Stephani 1917).
Type:—TAHITI. *Temarii*, hb Levier 3161b. (holotype G-10890!, isotypes FH!, FI!).
Note:—This taxon is close to *A. bidens*, but the type specimen is poor and difficult to place.

***Schizophyllum papillosum* (J.J.Engel et Braggins) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Anastrophyllum papillosum* J.J.Engel et Braggins, *J. Bryol.* 20: 381, 1998 (Engel & Braggins 1998).

1. Citation of specimens in G should preferably use the barcode (M. Price, pers. comm.) but for comparability the numbers printed on the specimen, which have often been cited by previous authors, are also given here in square brackets.

Type:—NEW ZEALAND. North Is.: Wellington Prov., Tongariro Natl. Park, Soda Sings, Mangatepopo Stream, N. E. of Whakapapa Village, 1350 m, *Braggins 97/106B* (holotype F, isotypes AK, CHR-558817).

***Schizophyllum sphenoloboides* (R.M.Schust.) Váňa et L.Söderstr**. *comb. nov.*

Basionym:—*Anastrophyllum sphenoloboides* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 2: 741, 1969 (Schuster 1969).
Type:—NW. GREENLAND. Kangerlugssuak, Inglefield Bay, *RMS 45984* (F-1079638, isotypes C!, TNS!).

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