



Notes on Early Land Plants Today. 33. Notes on Anastrophyllaceae (Marchantiophyta)

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New synonym in *Anastrophyllum nigrescens*

Anastrophyllum paramicola was described by Schuster (2002a) as being remotely allied to *Anastrophyllum donnianum* (Hooker 1813: 39) Stephani (1893: 140) and *Anastrophyllum assimile* (Mitten 1860: 93) Stephani (1893: 140). However, Schuster did not at all mention the relatively common *Anastrophyllum nigrescens* and the description match that species well.

New synonyms in *Anastrophyllum auritum*

Anastrophyllum auritum is a very variable species, which has resulted complicates its taxonomy. The problem is insufficient knowledge of the extreme variability in the branching patterns, size of plants, leaf insertion etc., which also has influenced the infrageneric (especially sectional) classification of the genus *Anastrophyllum* (Spruce 1876: 235) Stephani (1893: 139) proposed by Schuster (1969, 2002a). Some populations of this species from localities with extreme severe conditions (most of subantarctic populations, including the type of *Anastrophyllum auritum* from Table Mt., populations from highest elevations in Andes etc.) are very small plants with mostly only terminal branches, sometimes also with ventral-lateral branching producing stolons, pectinately arranged leaves, small (reduced to small teeth or slime papilla) or missing appendages, dorsal part of leaves extended only slightly or not across the stem and nearly not decurrent dorsal leaf bases. However, optimally developed plants of *Anastrophyllum auritum*, relatively common in high mountains of tropical region (Andes, eastern Brazil, central African mountains, Sumatra, Borneo and New Guinea), but also found in the subantarctic area (e.g. Crozet Is., Massé P 69/a, JE), and described under many names, are large plants with mostly only lateral-intercalary branches, large appendages on the dorsal base of leaves, long decurrent dorsal leaf bases etc. Such optimally developed plants show variability in leaf lobes and sinuses; leaf lobes can be widely ovate to narrowly triangular, with apices subobtusely, subapiculate, mucronulate to apiculate with 1-3-celled uniseriate apex (cf. *Anastrophyllum leucocephalum*, *Anastrophyllum cuspidatum*, etc.), entire or crenulate margins, sinus can be narrowly or widely acute.

Schuster probably never examined the type specimen of *Anastrophyllum auritum* (like many taxa described from Africa). He first mentioned this name (in Schuster 2002a) in connection with the studies of Váňa (1975, 1980, 1982, 1984) and his experience of this species is mostly based on the study of well developed plants from Venezuela. He did not recognize the presence of terminal branching (*Frullania*-type) in Venezuelan specimens identified as *Anastrophyllum auritum*. On the other hand he mentioned this type of branching in *Anastrophyllum leucostomum* (cf. Schuster 1966b: 747), which he compared with *Anastrophyllum sphenoloboides* Schuster (1969: 741). However, the identity of *Anastrophyllum leucostomum* and *Anastrophyllum auritum*, published by Váňa (1984), was overlooked by Schuster (2002a).

Small subantarctic populations were described by Schuster (1966a: 282) as *Anastrophyllum novazelandiae* on the basis of the material “occurred in very small quantity”. This species was characterised by small plants with terminal *Frullania*-type branching, leaf margins “distinctly and diagnostically crenulate”, dorsal leaf base “sometimes with a stalked slime papilla or small tooth” (see also Schuster 1966a, fig 4: 2 and 6) etc. At almost the same time the same author briefly described, in a footnote, *Anastrophyllum crenulatum* from Argentina. Its main diagnostic character was said to be crenulate leaves. He created the new section, *Anastrophyllum* sect. *Crenulatae* Schuster (1969: 740) for this species, *Anastrophyllum novazelandiae* and *Anastrophyllum pusillum* Stephani (1917: 108). These species were first compared in Schuster (2002a). The differences between *Anastrophyllum crenulatum* (+ *Anastrophyllum pusillum*) and *Anastrophyllum novazelandiae* (based from description and key) are the absence of lateral intercalary branches in *Anastrophyllum novazelandiae* and the leaf lobes (acute, ± longer than broad in *Anastrophyllum novazelandiae*; blunt to subacute, as broad as long in *Anastrophyllum crenulatum* and *Anastrophyllum pusillum*). It should be mentioned that in the original diagnosis of *Anastrophyllum crenulatum* the leaf lobes are described as “lobis ... acutis”. However, in the drawing of the species in Schuster (2002a: fig. 327A) there are also leaves with basal appendages (not mentioned by Schuster; cf. fig. no. 1 and 12). Moreover, Schuster (2002a) accepted the occurrence of *Anastrophyllum auritum* in Marion I. and Crozet Is., probably on the basis of reports in Grolle (1971a, 1971b) or Váňa (1975, 1982).

The types of *Anastrophyllum novazelandiae* and *Anastrophyllum crenulatum* could not be studied but the specimen Child H4313 (F), identified as *Anastrophyllum novazelandiae* (cf. Engel & Braggins 1998) was examined, and it agrees completely with *Anastrophyllum auritum*.

It should be added that:

- a) Small plants, but with not markedly crenulate leaves from Mexico were described as *Jungermannia intricata* and once more as *Anastrophyllum gottscheanum*. The latter species was compared with *Anastrophyllum michauxii* (Weber 1815: 76) Buch (1933: 289) and found to be different.
- b) The type of *Anastrophyllum pusillum* was never examined by Schuster (cf. Schuster 2002: 308); this species is synonymous with *A. tubulosum* (Nees 1830: 32) Grolle (1965: 101)!
- c) The section *Anastrophyllum* sect. *Crenulatae*, like some other described sections (sect. *Hypocladopsis* Schuster (2002a: 315, *nom. inval.*), sect. *Revolutae* Schuster (2002a: 313, *nom. inval.*) etc.) is of problematical taxonomic value; scattered molecular data about the genus *Anastrophyllum* also shows that Schuster’s infrageneric concept can not stand and it is shown that at least *Sphenolobus* (Lindberg 1874: 369) Berggren (1898: 22) should be re-established as a separate genus (De Roo et al. 2007).
- d) Small plants of *Anastrophyllum auritum* collected by Schuster in Venezuela, Est. Mérida (together with ‘true’ *Anastrophyllum auritum* s.str.!) were named and figured as *Anastrophyllum intermedium* and compared with *Anastrophyllum minutum* (Crantz 1770: 285) Schuster (1949: 576) [= *Sphenolobus minutus* (Crantz 1770: 285) Berggren (1898: 22)] but separated on the basis of lacking gemmae.
- e) Small plants with long acuminate leaf lobe tips and with ventral-lateral branching, also collected by Schuster in Venezuela, Estado Tachira, were described as *Anastrophyllum hypocladopsis* and the new section *Anastrophyllum* sect. *Hypocladopsis* was described for this species.
- f) *Anastrophyllum* sect. *Anastrophyllopsis* Schuster (2002a: 294), which recently was elevated to the genus level (Váňa et al. 2012), was established for “larger taxa, with the dorsal end of the leaf insertion inclined toward the shoot apex”. Based on this character only (!) some plants of *Anastrophyllum auritum* may belong to this “section”.
- g) Small plants without gemmae were also mentioned from New Zealand as *Anastrophyllum ambiguum* and compared with *A. austroamericanum* which, according to Schuster (2002a: 305) should be gemmiparous, but according to the information in the key and in the text (l.c.: 298, 303) “gemmae are lacking”. In the original description (Váňa 1980: 225) it is stated “gemmae not observed”. Engel & Glenn (2008) did not mention the name *Anastrophyllum ambiguum* at all.

h) Engel & Braggins (1998) did not refer to the existence of *Anastrophyllum crenulatum*, and this species was also not mentioned in Engel & Glennly (2008). In both studies only *Anastrophyllum novazelandiae* is accepted for New Zealand plants.

Transfer of *Anastrophyllum austroamericanum* to *Sphenolobus*

De Roo *et al.* (2007) showed that *Sphenolobus* is a genus that should be segregated from *Anastrophyllum*. Two species, *Sphenolobus minutus* and *Sphenolobus saxicola* (Schrader 1797: 97) Stephani (1902a: 168) were included in the study. Recently *Sphenolobus ellipticus* (Inoue 1978: 13) Katagiri & Furuki (2012: 206) was transferred from *Anastrophyllum*. One more species, *Anastrophyllum austroamericanum*, remains to be transferred. It is a species morphologically close to *Sphenolobus minutus* but differs in the reddish-brown coloration, presence of intercalary branching (*Bazzania*-type), somewhat oblique (not transverse) leaf insertion, presence of small trigones in leaf cells, typical “*Anastrophyllum*” decolorate perianth mouth.

New combination and synonyms in *Plicanthus*

Plicanthus Schuster (2002b: 484) was separated from *Chandonanthus* Mitten (1867: 750) by Schuster (2002b) who assigned four species to it, leaving *Chandonanthus* monotypic. *Plicanthus hirtellus* (Weber 1815: 50) Schuster (2002b: 492) is a variable taxon and most characters used to separate taxa are quantitative rather than qualitative. Kitagawa (1981) regarded *Chandonanthus hamatus* Stephani (1908: 643) as a synonym to *Chandonanthus hirtellus* (Weber 1815: 50) Mitten (1867: 750) but Schuster (2002b) recognized it as *Plicanthus hamatus* (Stephani 1908: 643) Schuster (2002b: 494). However, several taxa in *Chandonanthus* have never been restudied and their placement thus unclear. A few of them have been available for us to study.

Formal treatment

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

***Anastrophyllum nigrescens* (Mitt.) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).**

Basionym:—*Jungermannia nigrescens* Mitt., *Hooker's J. Bot. Kew Gard. Misc.* 3: 358, 1851 (Mitten 1851).

= *Anastrophyllum paramicola* R.M.Schust., *Beih. Nova Hedwigia* 119: 316, 2002 (Schuster 2002a), **syn. nov.**
Type:—ECUADOR. Hyperpáramo, crest of road from Pifo to Papallacta, R.M. Schuster RMS 93-220 (holotype F, non vidi).

***Anastrophyllum auritum* (Lehm.) Steph., *Bull. Herb. Boissier ser. 2* 1: 1137 (*Spec. Hepat. [Stephani]* 2: 120), 1901 (Stephani 1901).**

Basionym:—*Jungermannia aurita* Lehm., *Linnaea* 4: 368, 1829 (Lehmann 1829).

Type:—SOUTH AFRICA. Table Mt., *Ecklon* (holotype S!, isotypes H-SOL!, W-Lindenb. Hep. 250!).

≡ *Sarcocyphos auritus* (Lehm.) Nees, *Syn. Hepat.* 1: 9, 1844 (Gottsche *et al.* 1844)

≡ *Nardia aurita* (Lehm.) Trevis., *Mem. Reale Ist. Lombardo Sci., Ser. 3, C. Sci. Mat.* 4: 401, 1877 (Trevisan 1877)

≡ *Marsupella aurita* (Lehm.) Sim, *Trans. Roy. Soc. South Africa* 15: 112, 1926 (Sim 1926).

= *Jungermannia crebrifolia* Hook.f. et Taylor, *London J. Bot.* 3: 467, 1844 (Hooker & Taylor 1844), **syn. fide** Váña in Gradstein & Costa (2003). Lectotype:—CHILE. Prov. Magallanes: Cabo de Hornos (= Cape Horn), 1843, *Hooker* (Voyage of H. M. S. Erebus & Terror) (FH!, isolectotypes BM!, G-121797! [=G-17223!]!, NY!, S!, W-Lindenb. Hep. 1627!) ≡ *Anastrophyllum crebrifolium* (Hook.f. et Taylor) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).

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. In case the barcode number is missing, the older number is still given within square brackets.

- = *Jungermannia leucocephala* Taylor ex Lehm., *Nov. Stirp. Pug.* 8: 8, 1844 (Lehmann 1844), syn. of *A. crebrifolium* fide Engel (1978). Lectotype:—ECUADOR. apud Cayambe, 14,000 ft., 1827, *Jameson* (FH!, isolectotypes BM!, NY) ≡ *Anastrophyllum leucocephalum* (Taylor ex Lehm.) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).
- = *Jungermannia cryptodon* Wilson ex Hook.f. et Taylor, *London J. Bot.* 3: 467, 1844 (Hooker & Taylor 1844); *nom. inval.* (Art. 32.1.d; no description), *Bot. Antarctic Voy. 1, Fl. Antarct.* 2: 434, 1847 (Hooker 1847), *syn. nov.* Original material:—COLOMBIA. Pilzhum, 25 August 1842, *Mathews* (FH!).
- = *Jungermannia leucostoma* Taylor, *London J. Bot.* 5: 272, 1846 (Taylor 1846), syn. fide Váña (1984). Type:—PERU. *Jameson* (holotype FH!). ≡ *Anastrophyllum leucostomum* (Taylor) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).
- = *Jungermannia intricata* Lindenb. et Gottsche, *Syn. Hepat.* 5: 679, 1847 (Gottsche et al. 1847), *syn. nov.* Lectotype:—MEXICO. prope Yavesea, June 1842, *Liebman 488b* (C-Pl. mexic. 10348!, isolectotype [G-16447!]) ≡ *Sphenolobus intricatus* (Lindenb. et Gottsche) Steph., *Bull. Herb. Boissier ser. 2*, 2: 167 (*Spec. Hepat. [Stephani] 2*: 159), 1902 (Stephani 1902b) ≡ *Eremonotus intricatus* (Lindenb. et Gottsche) R.M.Schust., *Rev. Bryol. Lichénol.* 34: 269, 1966 (Schuster 1966a) ≡ *Anastrophyllum intricatum* (Lindenb. et Gottsche) R.M.Schust., *Hepat. Anthocerotae N. America* 2: 709, 1969 (Schuster 1969).
- = *Jungermannia lechleri* Gottsche et Hampe, *Linnaea* 27 (= n. ser. vol. 11): 554, 1854 [1856] (Hampe 1854), *syn. nov.* Lectotype:—PERU. St. Gavan, July 1854, *Lechler* (Plantae Peruvianae 2254) (BM!, isolectotypes G-121846! [=G-17264!], G-121848 [=G-17273!], H-SOL!, YU!, W!) ≡ *Anastrophyllum lechleri* (Gottsche et Hampe) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).
- = *Jungermannia calocysta* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 517, 1885 (Spruce 1885), syn. fide Váña (1984). Type:—ECUADOR. Andes Quitenses, prope Loja, *Massee (non vidi)* ≡ *Anastrophyllum calocystum* (Spruce) Steph., *Hedwigia* 32: 140, 1893 (Stephani 1893).
- = *Anastrophyllum apertifolium* Steph., *Bull. Herb. Boissier ser. 2*, 1: 1134 (*Spec. Hepat. [Stephani] 2*: 117), 1901. (Stephani 1901), *syn. nov.* Type:—PERU. St. Gavan, *Lechler* (holotype G-66728 [=G-11065]).
- = *Anastrophyllum glaziovii* Steph., *Bull. Herb. Boissier ser. 2*, 1: 1138 (*Spec. Hepat. [Stephani] 2*: 121), 1901 (Stephani 1901), syn. fide Váña in Gradstein & Costa (2003). Type:—BRAZIL. Rio de Janeiro: *Glaziou 4534* (lectotype G-66708! [=G-11163!], isolectotypes BM!, FH!, G-60705, S!).
- = *Anastrophyllum mandonii* Steph., *Bull. Herb. Boissier ser. 2*, 1: 1139 (*Spec. Hepat. [Stephani] 2*: 122), 1901 (Stephani 1901), *syn. nov.* Type:—BOLIVIA. *Mandon 808 p.p.* (holotype G-66727! [=G-17263!]).
- = *Anastrophyllum capillaceum* Steph., *Arch. Mus. Nac. Rio de Janeiro* 13: 110, 1903 (Stephani 1903), syn. fide Váña in Gradstein & Costa (2003). Type:—BRAZIL. Serra do Itatiaya, 2100 m, 13. June 1902, *Dusén 365* (holotype G-66740! [=G17214!]).
- = *Anastrophyllum gambaragarae* Gola, *Ann. Bot. (Rome)*. 6: 274, 1907 (Gola 1907), syn. fide Váña (1975). Type:—UGANDA. Ruwenzori, Bujongolo valle Mobuku, 3800 m, *Duke of Apruti Exped.* (FT!).
- = *Anastrophyllum calcaratum* Steph., *Wiss. Ergebn. Deut. Zentr.-Afr. Exped. (1907-08)*, *Bot.* 2: 113, 1910 (Mildbraed 1910), syn. fide Váña (1975). Lectotype (Váña 1975):—Africa, Kilimanjaro Mt, 1901, *Uhlig* (G-45023! [=G-16418!]).
- = *Anastrophyllum grossitextum* Steph., *Wiss. Ergebn. Deut. Zentr.-Afr. Exped. (1907-08)*, *Bot.* 2: 114, 1910 (Mildbraed 1910), syn. fide Váña (1975). Type:—UGANDA. Ruwenzori, Butagu Valley, 3300 m, *Mildbraed 2621 ex p.* (holotype G-45024 [=G-16428!]).
- = *Anastrophyllum semifissum* Steph., *Kungl. Svenska Vetenskapsakad. Handl.* 46 (9): 21, 1911 (Stephani 1911) syn. of *A. crebrifolium* fide Engel (1978). Lectotype (Engel 1978):—CHILE. Prov. Magallanes: Canal Gajardo, Cta. Inga, 27 April 1908, *Halle et Skottsberg 626* (UPS!, isolectotypes in BM!, S!).
- = *Sphenolobus savioi* Gola, *Mem. Reale Accad. Sci. Torino, Ser. 2*, 65: 4, 1914 [1916] (Gola 1916), syn. fide Váña (1975). Type:—KENYA. Mt. Kinangop prope M. Kenya, 2000 m, *Savio* (holotype TOM).
- = *Anastrophyllum cuspidatum* Steph., *Biblioth. Bot.* 87: 186, 1916 (Stephani 1916), *syn. nov.* Type:—BOLIVIA. Tablas, 1912, *Herzog 2907* (holotype G-66729 [=G-11068!]).
- [= *Anastrophyllum hians* Steph., *Biblioth. Bot.* 87: 186, 1916 p.p. (Stephani 1916), p. p., *syn. nov.* Type:—BOLIVIA. San Mateo, Sunchal, leg. *Herzog 4473* (paratype G-282089! [=G-18864!]). Note:—The lectotype, *Herzog 5077*, is *Anastrophyllum piligerum* (Nees) Steph.]
- = *Marsupella pusilla* Steph., *Biblioth. Bot.* 87: 181, 1916 (Stephani 1916), syn. fide Gradstein *et al.* (2003). Type:—BOLIVIA. Cerro Tunari, 4700 m, *Herzog 4891* (holotype G-67517! [=G-14599!]).
- = *Anastrophyllum parvum* Steph., *Biblioth. Bot.* 87: 187, 1916 (Stephani 1916), *nom. inval.* (Art. 32.1.d; no description), *syn. nov.* Original material:—BOLIVIA. Waldgrenze über Tablas, 3400 m, May 1911, *Herzog 2881* (JE!, W!).
- = *Anastrophyllum hintzeanum* Steph., *Sp. Hepat. (Stephani)* 6: 106, 1917 (Stephani 1917), syn. fide Váña (1975). Type:—CAMEROON. 4000 m, *Hintze 26d* (holotype G-45025 [=G-16429!]).
- = *Anastrophyllum inaequale* Steph., *Sp. Hepat. (Stephani)* 6: 106, 1917 (Stephani 1917), *syn. nov.* Type:—BOLIVIA. Prov. Cochabamba: “las Estradillas”, prope Incacorral, 3000-3200 m, January 1908, *Herzog* (herb. Levier 6027) (holotype G-66731! [=G-17240!], isotypes FI!, YU!).

- = *Marsupella crenulata* C.Massal. et Steph., *Atti Reale Ist. Veneto Sci. Lett. Arti.* 87: 236, 1928 (Massalongo 1928), *nom. illeg.* (Art. 53.1; *hom. illeg.* [non Spruce 1881]), *syn. fide* Váňa *et al.* (2010). Type:—ARGENTINA. Tierra del Fuego: ad tundras alpinas e Staten Island, 2. March 1928, *Spegazzini* (holotype VER).
- = *Anastrophyllum minutirete* Herzog, *Hedwigia* 74: 85, 1935 (Herzog 1935), *syn. nov.* Lectotype:—COLOMBIA. Páramo El Boquerón bei Bogota, 3200 m, 1929, *Troll 2155* (JE!, isolectotype S!).
- = *Anastrophyllum microdictyon* Herzog, *Beih. Bot. Centralbl.* 61B: 563, 1942 (Herzog 1942), *syn. nov.* Lectotype:—BOLIVIA. zwischen San Mateo und Sunchal, 2800 m, April 1911, *Herzog 4449* (JE-H-1536!).
- = *Anastrophyllum leucostomum* var. *capillaceum* Schiffn., *Österr. Akad. Wiss., Math.-Naturwiss. Kl., Denkschr.* 111: 42, 1964 (Schiffner & Arnell 1964), *syn. fide* Váňa in Gradstein & Costa (2003). Type:—BRAZIL. ad confines Rio de Janeiro—Minas Geraës, in rupestribus montis Itatiaya, locis umbrosis humidis, 1300-2750 m, 18. September 1901, *Schiffner 437* (holotype W!).
- = *Anastrophyllum gottscheanum* R.M.Schust., *Rev. Bryol. Lichénol.* 34: 270, 1966 (Schuster 1966a), *syn. nov.* Type:—MEXICO. Pico de Orizaba, *Liebman* (ex Herb. *Gottsche*) (holotype G-113582* [=G-17238!]).
- = *Anastrophyllum novazelandiae* R.M.Schust., *Rev. Bryol. Lichénol.* 34: 282, 1966 (Schuster 1966a), *syn. nov.* (ex description, illustration and specimens seen in F). Type:—NEW ZEALAND. South I.: Fiordland Nat. Park, Route Burn track between Earland Falls and Lake Mackenzie, W slope of Humboldt Mts., Upper Hollyford Valley, 4200-4500 ft., *Schuster 49471b* (holotype F, *non vidi*).
- = *Anastrophyllum crenulatum* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 2: 740, 1969 (Schuster 1969), *syn. nov.* (ex description and illustration). Type:—ARGENTINA. Tierra del Fuego: Cerro Garibaldi, *Schuster 58304a* (holotype F, *non vidi*).
- = *Anastrophyllum appendiculatum* N.Kitag., *J. Hattori Bot. Lab.* 33: 210, 1970 (Kitagawa 1970), *syn. fide* Váňa (1975). Type:—MALAYSIA. Sabah: Mt. Kinabalu, granodiorite slope between Low's Peak and Sayat Sayat, 3700-4050 m, 1963, *Mizutani 2912* (holotype NICH-252912!).
- = *Anastrophyllum hypocladopsis* R.M.Schust., *Beih. Nova Hedwigia* 119: 315, 2002 (Schuster 2002a), *syn. nov.* (ex description and illustration). Type:—VENEZUELA. Estado Tachira: Páramo de Tama, Villa Paez, 3000 m, *Schuster 76-1941a* (holotype F, *non vidi*).
- = *Anastrophyllum intermedium* R.M.Schust., *Beih. Nova Hedwigia* 119: 303, 2002 (Schuster 2002a), *nom. inval.* (Art. 37.7; herbarium not indicated), *syn. nov.* (ex description and illustration). Original material:—VENEZUELA. Estado Korida: Sierra Nevada de Korida, above Loma Redonda, *Schuster 76-1411c* (F, *non vidi*).
- = *Anastrophyllum ambiguum* R.M.Schust., *Beih. Nova Hedwigia* 119: 305, 2002 (Schuster 2002a), *nom. inval.* (Art. 36.1; no Latin description), *syn. nov.* (ex description). Original material:—NEW ZEALAND.

Sphenolobus austroamericanus* (Váňa) Váňa, *comb. nov.

Basionym:—*Anastrophyllum austroamericanum* Váňa, *J. Hattori Bot. Lab.* 48: 22, 1980 (Váňa 1980).
Type:—COLOMBIA. Boyacá: Páramo de La Laguna Negra, 3745 m, *Cleef 7269* (holotype U!, isotype PRC!).

Plicanthus difficilis* (Steph.) L.Söderstr. et Váňa, *comb. nov.

Basionym:—*Chandonanthus difficilis* Steph., *J. & Proc. Roy. Soc. New South Wales* 48: 101, 1914 (Stephani & Watts 1914).

Type:—VANUATU. Aneityum, *Gunn*, hb. Watts 29 (holotype G-60753!).

Note:—*Chandonanthus difficilis* is closely related to *Plicanthus hirtellus*. However, the type specimen is vigorous and more dense with more imbricate leaves with large marginal teeth. Underleaves are much smaller than normal sized *Plicanthus hirtellus* and very ciliate. For that reason we retain the species until the *Plicanthus* / *Chandonanthus* / *Tetralophozia* complex have been studied further, preferably also molecularly.

***Plicanthus hirtellus* (F.Weber) R.M.Schust., *Nova Hedwigia* 74: 492, 2002 (Schuster 2002b).**

Basionym:—*Jungermannia hirtella* F.Weber, *Hist. Musc. Hepat. Prodr.*: 50, 1815 (Weber 1815).

= *Chandonanthus gracilis* Herzog, *Hedwigia* 66: 341, 1926 (Herzog 1926), *syn. nov.* Type:—INDONESIA. Ceram: Hoale-Pass, ca 1600 m, 1911, *Stresemann* (holotype JE!). Note:—a slender form of *Plicanthus hirtellus* with reflexed, very ciliate, underleaves. In this respect it approaches *Plicanthus hamatus* which was treated as a synonym to *Plicanthus hirtellus* by Kitagawa (1981).

= *Chandonanthus perloi* Gola, *Mem. Reale Accad. Sci. Torino, ser. 2*, 65: 7, 1914 [1916] (Gola 1916), *syn. nov.* Type:—KENYA, ad cortices in M. Kinangop in Africa orientali. M. Kinangop sulle cortecce delle eriche m. 4500 msm. 3 January 1909, *P. Saroglia* (holotype FT!).

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