

***Dicranoweisia fastigiata*,**
a new synonym of *Hymenoloma antarcticum*
(Seligeriaceae)

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Abstract – A taxonomic and nomenclatural history of *Dicranoweisia fastigiata* Paris is outlined. The species is taxonomically assessed and it is considered to be conspecific with *Hymenoloma antarcticum* (Müll.Hal.) Ochyra. *Dicranum* Hedw. sect. *Isocarpus* Mitt. is lectotypified with *Dicranum antarcticum* (Müll.Hal.) Mitt. and this sectional name is reduced to synonymy with *Hymenoloma* Dusén.

Blindia / Bryophyta / Dicranum / Ecuador / Hymenoloma / nomenclature / South America / taxonomy

Dicranoweisia fastigiata Paris is a neglected species which has had a chequered taxonomic and nomenclatural history. This species appeared for the first time in the literature in the catalogue of cryptogams collected by Professor William Jameson on Pichincha volcano near Quito in the Andes of Ecuador, under the name *Blindia fastigiata* Mitt. (Mitten, 1851). However, this name is invalidly published because Mitten (1851) failed to provide a diagnosis or a reference to such. He admittedly cited *Weissia fastigiata* Taylor as a synonym but Thomas Taylor, who studied the collection of mosses of William Jameson from this area (Taylor, 1846, 1847, 1848a, b), did not describe this species. Although *Blindia fastigiata* is an invalid name, the compilers of *Index muscorum* incorrectly accepted it as a basionym of *Dicranum fastigiatum* “(Mitt.) Mitt.” and *Dicranoweisia fastigiata* “(Mitt.) Paris” (Wijk *et al.*, 1959, 1962) and such interpretation is widely followed in the literature (e.g. Steere, 1948; Sastre-De Jesús, 1992; Delgadillo, 1995; Churchill *et al.*, 2000).

This species was described as *Dicranum fastigiatum* Mitt. by Mitten (1869) in his well known *Musci austro-americi* and he placed it in the newly established sect. *Isocarpus* Mitt. in the genus *Dicranum* Hedw., along with *D. antarcticum* (Müll.Hal.) Mitt. and *D. cryptodon* (Mont.) Mitt. Unfortunately, because the epithet *fastigiatum* is already pre-occupied in *Dicranum* by *D. fastigiatum* Schultz of 1806 (= *D. undulatum* Brid.), the name *D. fastigiatum* Mitt. is an illegitimate homonym.

The epithet *fastigiatum* was definitely legitimised in the first edition of *Index bryologicus* by Paris (1895a, b), who transferred *Dicranum fastigiatum* to the genus *Dicranoweisia* Lindb. ex Milde as *D. fastigiata* Paris. This is a new name, having priority from 1895, based on adoption of the previous epithet under the

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provisions of Article 58 of the Melbourne Code (McNeill *et al.*, 2012). It is worth noting that in *Index muscorum* (Wijk *et al.*, 1962) the publication date of this name is again incorrectly given as 1896. The first edition of *Index bryologicus* is a compilation of 17 articles which were originally published separately in *Actes de la Société Linnéenne de Bordeaux* from May 1894 to May 1898, each with a separate journal pagination. The compilation was published in five parts with consecutive pagination, usually several months after the original publication (Staffeu & Cowan, 1983). It is generally accepted that numerous nomenclatural novelties proposed in this opus are ascribed to the compilation which is available as a single massive book. However, it can happen that considering only the compilation can be misleading (Lücking *et al.*, 2007). Therefore the effective date and place of publication is given here (Paris, 1896a), along with the alternative bibliographic data from the compilation (Paris, 1896b).

When describing *Dicranum fastigiatum* Mitten (1869) provided a diagnosis, cited the type and in a brief discussion stressed some characteristic traits of the species, including size of the stem (1.2-1.8 mm) and its gracile stature, yellow and somewhat dusky leaves and setae “4-linearis”, i.e. to 8.4 mm long. Although Mitten (1869) did not discuss affinities of the newly described species, it was placed in a new small section, *Dicranum* sect. *Isocarpus* Mitt., along with *D. antarcticum* (Müll.Hal.) Mitt. and *D. cryptodon* (Mont.) Mitt. This section is characterised by having small, equal capsules, entire peristome teeth and dark, crispate leaves. In the key to species of sect. *Isocarpus* Mitten (1869) contrasted *D. fastigiatum* to *D. antarcticum* and showed that the two share long leaves consisting of an elliptical base and a long subula but the former is distinct in its incurved and spreading leaves, whilst in the latter leaves are spreading and secund or falcate.

In modern moss taxonomy *Dicranum fastigiatum* and *D. antarcticum* represent the genus *Hymenoloma* Dusén, a segregate of the broadly conceived genus *Dicranoweisia* to which these species were transferred by Paris (1895a, b). This genus belongs within the Seligeriaceae and it is diagnosed by the combination of the seligerioid peristome, strongly crispate to tortuous leaves when dry, pseudopapillose laminal cells owing to the presence of many cuticular lengthwise ridges densely covering both surfaces of the laminal cells, plane to distally incurved leaf margins and internal differentiation of the costa (Ochyra *et al.*, 2003, 2008). In contrast, the third species placed in sect. *Isocarpus*, *D. cryptodon*, is a member of the monotypic genus *Cryptodon* Dusén, endemic to southern South America (Reimers, 1936). *Dicranum* sect. *Isocarpus* has not been lectotypified and actually the diagnostic characters provided by Mitten (1869) fit well in each species placed by him in this section. Herein, *D. antarcticum* is selected as a lectotype of *Dicranum* sect. *Isocarpus* and this makes this name a synonym of *Hymenoloma*.

The differences between the two species indicated by Mitten (1869) refer to the overall aspect of the plants, including the leaf stance and shape which are usually subject to considerable variation in mosses. A comparison of the type material of *Dicranum fastigiatum* and *D. antarcticum* shows that these two species are inseparable from each other and match perfectly in all gametophyte and sporophyte characters. The conspecificity of these species was already suggested by Ochyra *et al.* (2008). The type material of *D. fastigiatum* is in fine fruiting condition and its sporophytes agree well with those of *Hymenoloma antarcticum*. It is of importance because in some species of *Hymenoloma* critical diagnostic characters refer to the sporophytes, whereas the gametophyte features, especially the leaf areolation, are subject to considerable variability, even within the same

shoot. Mitten (1869) was not entirely precise in his measurements of the seta length in *Dicranum fastigiatum*. He described the seta in this species as being “4-linearis”, i.e. 8.4 mm long. In fact, in the type material much shorter setae, 3-5 mm, predominate and only a few plants have longer setae, to 8.4 mm. In most austral populations of *H. antarcticum* the setae are 3-5 mm long and this seta length distinguish this species from the closely related *H. crispulum* (Hedw.) Ochyra.

Hymenoloma antarcticum is a pantemperate holantarctic species, common in temperate regions in southern South America, New Zealand, Tasmania and SE Australia and on all subantarctic islands, where it may be considered either as a pre-glacial survivor or post-glacial immigrant (Van der Putten *et al.*, 2010). In addition, it extends to the maritime Antarctic to lat. ca 69°S (Ochyra *et al.*, 2008). Many austral cool-adapted species extend to the tropical regions in South America along the Andean chain and they occur at altimontane elevations in northern South America. *Hymenoloma antarcticum* is one of a long array of species showing this distribution pattern. Interestingly, this is still the only known record of this species outside the Holantarctic. Other well known examples of this distribution pattern include, among others, *Dicranella hookeri* (Müll.Hal.) Cardot (Blockeel *et al.*, 2007), *Bucklandiella lamprocarpa* (Müll.Hal.) Bednarek-Ochyra & Ochyra (Blockeel *et al.*, 2008), *B. pachydietyon* (Cardot) Bednarek-Ochyra & Ochyra (Churchill *et al.*, 2000; Blockeel *et al.*, 2009), *B. angustissima* Bednarek-Ochyra & Ochyra (Bednarek-Ochyra & Ochyra, 2011), *Blindia magellanica* Müll.Hal. (Blockeel *et al.*, 2010), *Chrysoblastella chilensis* (Mont.) Reimers (Ellis *et al.*, 2012a), and *Andreaea nitida* Hook.f. & Wilson (Ellis *et al.*, 2012b).

The taxonomic and nomenclatural conclusions discussed in this account can be summarised as follows.

***Hymenoloma* Dusén**

Ark. Bot. 4(1): 19. 1905. **Type:** *Hymenoloma nordenskjöldii* Dusén [= *H. antarcticum* (Müll.Hal.) Ochyra (≡ *Blindia antarctica* Müll.Hal.)].

Dicranum Hedw. sect. *Isocarpus* Mitt., *J. Linn. Soc. Bot.* 12: 63. 1869. **Lectotype** (selected here): *Dicranum antarcticum* (Müll.Hal.) Mitt. [≡ *Hymenoloma antarcticum* (Müll.Hal.) Ochyra (≡ *Blindia antarctica* Müll.Hal.)], **syn. nov.**

***Hymenoloma antarcticum* (Müll.Hal.) Ochyra**

In Ochyra, Żarnowiec & Bednarek-Ochyra, *Cens. Cat. Polish Mosses*: 114. 2003 ≡ *Blindia antarctica* Müll.Hal., *Syn. Musc. Frond.* 1: 344. 1848 ≡ *Dicranum antarcticum* (Müll.Hal.) Mitt., *J. Linn. Soc. Bot.* 12: 63. 1869 ≡ *Dicranoweisia antarctica* (Müll.Hal.) Kindb., *Enum. Bryin. Exot.*: 54. 1888. **Type citation:** Insula Campbelli et Eremitae ad Cap. Horn: J. Hooker. **Lectotype** (vide Ochyra *et al.* 2008: p. 214): “W. 25 *Weissia crispula* var. β. *ambigua* C. Island – Campbells Island. Antarct. Exp. 1839–1843. J.D.H.” – BM!; **isolectotypes:** BM!, BM-Wilson!, BM-Hampe! (2 specimens), BM-Schuttleworth! **Syntype:** “N°. 99. W. 126. *Blindia antarctica* C. Müller 1.344 Hermite Island C. Horn” – BM-Wilson!; **isosyntypes:** BM!, BM-Hampe!].

Dicranum fastigiatum Mitt., *J. Linn. Soc. Bot.* 12: 63. 1869, *hom. illeg., non* Schultz 1806 [*Blindia fastigiata* Mitt., *Hooker’s J. Bot. Kew Gard. Misc.* 3: 355. 1851, *nom. nud.*; *Weissia fastigiata* Taylor ex Mitt., *Hooker’s J. Bot. Kew Gard. Misc.* 3: 355.

1851, *nom. nud. in synon.*] \equiv *Dicranoweisia fastigiata* Paris, *Actes Soc. Linn. Bordeaux* 49: 17. 1895 (May) and *Index Bryol.*: 341. 1895 (October). **Type citation:** [Ecuador] Am. merid.: Summ. M. Pichincha [Mitten's (1869: p. 63) quotation: Andes Quitenses, in monte Pichincha, ad rupes prope apicem, *Jameson*]. **Lectotype** (*selected here*): “*Blindia fastigiata*. *Weissia* Tayl. On rocks near the summit of Pichincha Jameson” – NY-Mitten (00227065)!; **isotypes:** (1) “*Weisia fastigiata* Tayl. Quito Jameson” – NY-Mitten (00227064)!; (2) “96. *Blindia fastigiata* *Weissia fastigiata* Tayl. Quito Jameson” – NY-Mitten (00227063)!], **syn. nov.**

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