

## NOMENCLATURAL NOTES ON *PTEROGONIUM* (BRYOPHYTA, LEUCODONTACEAE)

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**Abstract.** A taxonomic and nomenclatural history of the moss genus *Pterogonium* Sw. is outlined and the illegitimacy of this name is confirmed. *Nogopterium* Crosby & W. R. Buck, the name of a new genus erected to replace the illegitimate *Pterogonium*, is accepted as validly published. This genus consists of five species, two of which, *N. coreense* (Cardot) Tad. Suzuki and *N. tenellum* (Tad. Suzuki & Z. Iwats.) Tad. Suzuki, have only recently been transferred to this genus. The transfer of the fifth species, *N. tsilingense* (P. C. Chen) Tad. Suzuki *ex* Ochyra & Bedn.-Ochyra, *comb. nov.*, is effected in the present account.

**Key words:** Asia, illegitimate names, Japan, Musci, *Nogopterium*, nomenclature, *Pterigynandrum*, taxonomy

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The moss genus *Pterogonium* Sw. was described by Swartz (1799: 12, 26–27), but as a pre-starting-point name, which for Musci (except Sphagnaceae) is conventionally fixed for 1 January 1801 (McNeill *et al.* 2012), it was not validly published. A single species, *P. gracile* Sw., was included in the genus, but ‘*Pterigynandrum* H.[edwig]’ was also parenthetically cited as a synonym. The generic name *Pterogonium* was validated in an anonymous review published on 1 June 1801 in *Monthly Review* (Anonymous 1801). Yet it was illegitimate when published, as *Pterigynandrum* Hedw. was included as a synonym. The latter is also a pre-starting-point name, but it was validated on 1 January 1801 in *Species muscorum frondosorum* (Hedwig 1801). Three species were included in *Pterigynandrum*, namely *P. gracile* Hedw., *P. julaceum* Hedw. and *P. filiforme* Hedw., but none was indicated as type. As no type of *Pterogonium* was indicated it is automatically typified by the type of *Pterigynandrum*, when such a type is selected.

Despite its illegitimacy, *Pterogonium* has gained wide acceptance. The genus was soon redescribed by Smith (1802), who, in *English botany*, placed in it two species, *P. gracile* (Hedw.) Sm.

and *Hypnum smithii* Dicks. *ex* Hedw. This concept was repeated two years later by Smith (1804) in his *Flora britannica*; the only difference was the formal transfer of *H. smithii* to *Pterogonium* as *P. smithii* (Hedw.) Sm. In the nineteenth century no less than 32 *Pterogonium* species were described as new to science from throughout the world and, additionally, about 40 species were transferred to this genus (Wijk *et al.* 1967, 1969). However, in modern moss taxonomy they correctly belong to a number of distantly related genera, including *Entodon* Müll. Hal., *Erythrodontium* Hampe, *Fabronia* Raddi, *Forsstroemia* Lindb., *Glyphothecium* Hampe, *Habrodon* Schimp., *Heterocladium* Schimp., *Leptohymenium* Schwägr., *Leskea* Hedw., *Leskeella* (Limpr.) Loeske, *Leucodon* Schwägr., *Lindbergia* Kindb., *Meiothecium* Mitt., *Myurella* Schimp., *Platygyrium* Schimp., *Regmatodon* Brid., *Schwetschkea* Müll. Hal., *Scorpiurium* Schimp., *Trachyphyllum* Gepp, and others.

The modern concept of *Pterigynandrum* and *Pterogonium* was outlined by Schimper (1851a, b), who considered them to be distinct monotypic genera. He very clearly designated *Pterigynandrum filiforme* as the type of *Pterigynandrum* (Schimper 1851a: 121 [‘... eine strengere Würdigung des Fruchtstandes und Blattzellnetzes führte uns aber

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nothwendigerweise zu einer Trennung und veranlasst und *Pt. filiforme* als Typus einer neuen Gattung aufzustellen.’]) and *Pterogonium gracile* as the type of *Pterogonium* (Schimper 1851a: 125 [‘Wir glauben jede dieser beiden Arten {i.e., *Pterigynandrum gracile* and *P. filiforme*} zum Typus einer eigenen Gattung machen zu müssen, um so jede erzwungene Vereinigung zu vermeiden.’]), and this concept of the two genera has been widely adopted by bryologists. However, our rules make this latter designation ineffective under the provisions of Art. 7.5 of the current *Code* (McNeill *et al.* 2012), because *Pterogonium* is automatically typified by the type of *Pterigynandrum*, that is, *P. filiforme*.

The illegitimacy of *Pterogonium* has long been overlooked; this name has consistently been used in Floras, catalogues, checklists and atlases of mosses, including *Index muscorum* (Wijk *et al.* 1967), *Index nominum genericorum (plantarum)* (Farr *et al.* 1979) and *Names in current use for extant plant genera* (Greuter *et al.* 1993). Since the *Paris Code* (Lanjouw *et al.*, 1956), *Pterogonium*, along with *Pterigynandrum* and *Leptohymenium* Schwägr., was included in the list of generic names against which *Platygyrium* Schimp. was conserved. The last time it appeared in that list was in the *Tokyo Code* (Greuter *et al.* 1994), but from the *Saint Louis Code* (Greuter *et al.* 2000) onward it has been editorially deleted, doubtless because its illegitimacy was noted. Accordingly, the relevant entry for *Pterogonium* has been corrected in the online edition of *Index nominum genericorum (plantarum)* (<http://botany.si.edu/ing/genusSearchTextMX.cfm>).

It is worth noting that Balsamo and De Notaris (1834: 110) established the family Pterogoniaceae (as ordo Pterogonoideae); this name was formed from the generic name *Pterogonium*. However, this name is illegitimate because, under Art. 18.3 of the *Melbourne Code* (McNeill *et al.* 2012), it was based on the illegitimate generic name. Otherwise it would be the oldest available name for the family Leucodontaceae Schimp. which was established more than two decades later (Schimper 1860) and is in current use (Ochyra *et al.* 2003; Goffinet *et al.* 2009). Interestingly, Schimper

(1860: 507) also recognised the separate family Pterogoniaceae Schimp. but this name has to be considered as a later isonym of the Pterogoniaceae Balsamo & De Not.

In such a situation, a proposal to conserve *Pterogonium* with a conserved type, to retain the hitherto existing application of this name, would then have been the simplest way to maintain its use, in accordance with the provisions of Pre. 1 and Art. 14.1–2 of the then-operating *Vienna Code* (McNeill *et al.* 2006). Indeed, Pekka Isoviita, Helsinki (personal communication) intended to submit such a proposal; unfortunately, his death prevented fulfilment of his intent. Instead, Crosby and Buck (2011) published the generic name *Nogopterium* Crosby & W. R. Buck as a ‘replacement’ of *Pterogonium* sensu Schimper (1876). This new name gained acceptance in some recent moss Floras (e.g., Bourell 2014; Hedenäs & Hallingbäck 2014; Fuertes & Oliván 2014) and catalogues (e.g., Hodgetts 2015; Erdağ & Kürschner 2017), so that it is now doubtful that a belated proposal to conserve *Pterogonium* would be recommended by the Committee for Bryophyta.

Nevertheless, the publication of ‘*Nogopterium* Crosby & W. R. Buck, nom. nov., pro *Pterogonium* sensu Schimp., Syn. Musc. Eur., ed. 2, 575. 1876.’ needs some comment. *Nogopterium* is not a ‘nom. nov.’, as it is based on a later (mis)application of the illegitimate name *Pterogonium*, but is technically the name of a new genus. As stated by its authors, the name was validly published, in compliance with Art. 38.13 of the current *Code* (McNeill *et al.* 2012), by a full and direct reference to Schimper’s (1876: 575) Latin description of the *Pterogonium*: ‘The following new generic name, to be pronounced no-gop-te’r-i-um, is validated under Article 32.1(d) of the *Vienna Code* (McNeill *et al.*, 2006: 58) by reference to a previously and effectively published description’. Moreover, as mandated by Art. 40.3 of the *Code* (McNeill *et al.* 2012), the type was stated to be *Nogopterium gracile* (Hedw.) Crosby & W. R. Buck.

Crosby and Buck (2011) considered *Nogopterium* to be a bitypic genus, consisting of *N. gracile* (Hedw.) Crosby & W. R. Buck and a poorly known species from Brazil, *N. beyrichianum* (Hampe)

Crosby & W. R. Buck. Subsequently, Suzuki and Iwatsuki (2012) described one new species of *Pterogonium* from Japan and included in it two other Asian species. However, Suzuki's (2016) attempt to transfer these three names to *Nogopterium* was only partly correct.

There is no validation of any new combination in *Nogopterium* on p. 138 of Suzuki's (2016) *Revised New Catalog*, but an explicit, full and direct reference appears under the basionym entry on pages 166 and 167 for both *P. coreense* Cardot and *P. tenellum* Tad. Suzuki & Z. Iwats., and this suffices to validate the new combinations under *Nogopterium*. On page 138, Suzuki (2016) ascribed all *Nogopterium* binomials to 'Crosby & W. R. Buck' but this pre-ex citation should be omitted from the author citation, as it does not appear on pages 166 and 167 (even on page 138 it might be dismissed as a 'formal error' under Art. 46.3 of the *Code*).

The third species, *Pterogonium tsilingense* (P. C. Chen) Tad. Suzuki & Z. Iwats. was validly published at species rank in the 2012 paper (Suzuki & Iwatsuki 2012). However, the combination *Nogopterium tsilingense* was not validly published by a full and direct reference to it on p. 167 of the *Revised New Catalog* (Suzuki 2016), because, in compliance with Art. 41.7 of the current *Code* (McNeill *et al.* 2012), it is not the basionym of the intended new combination. So that combination is made herein.

The correct authorships of the names of the remaining three species of *Nogopterium* and basionyms are as follows:

***Nogopterium coreense*** (Cardot) Tad. Suzuki

Hattoria 7: 166. June 2016.

BASIONYM: *Pterogonium coreense* Cardot, Beih. Bot. Centralbl. 12: 23, f. 14. 18 Oct 1904.

***Nogopterium tenellum*** (Tad. Suzuki & Z. Iwats.)

Tad. Suzuki

Hattoria 7: 166. June 2016.

BASIONYM: *Pterogonium tenellum* Tad. Suzuki & Z. Iwats., Hattoria 3: 57, f. 1, 5a. May 2012.

***Nogopterium tsilingense*** (P. C. Chen) Tad. Suzuki  
ex Ochyra & Bedn.-Ochyra, *comb. nov.*

BASIONYM: *Pterogonium gracile* (Hedw.) Sm. var. *tsilingense* P. C. Chen, Acta Phytotax. Sin. 12: 247. 1974 ≡ *P. tsilingense* (P. C. Chen) Tad. Suzuki & Z. Iwats., Hattoria 3: 59, f. 3, 5c. May 2012.

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