

Pterogoniadelphus M. Fleisch., the correct name for *Felipponea* Broth. (*Leucodontaceae*)

Ryszard Ochyra¹ & Gea Zijlstra²

¹ Laboratory of Bryology, Institute of Botany, Polish Academy of Sciences, ul. Lubicz 46, 31-512 Kraków, Poland. r.ochyra@ib-pan.krakow.pl (author for correspondence)

² Nationaal Herbarium Nederland, Utrecht University branch, Heidelberglaan 2, NL-3584 CS Utrecht, Netherlands. g.zijlstra@bio.uu.nl

Even though it has been generally accepted that the generic name *Felipponea* Broth. (*Bryophyta*, *Leucodontaceae*) was validly published in 1912, this appears not to be the case, due to the lack of a generic description. The subsequent description of this genus in 1925 by Brotherus in the second edition of the *Musci* in *Die Natürlichen Pflanzenfamilien* created a superfluous name because in the meanwhile the genus *Pterogoniadelphus* M. Fleisch. was established in 1917 to accommodate the same species, *Cladomnion montevidense* Müll. Hal., and this generic name has priority. Three new combinations, *P. assimilis* (Müll. Hal.) Ochyra & Zijlstra, *P. esquirolii* (Thér.) Ochyra & Zijlstra and *P. hollermayeri* (Thér.) Ochyra & Zijlstra, are proposed.

KEYWORDS: Bryophyta, *Felipponea*, generic names, *Leucodontaceae*, nomenclature, *Pterogoniadelphus*.

Felipponea is a pleurocarpous moss genus closely related to *Leucodon* from which it differs in its non-plicate leaves, poorly differentiated laminal and angular cells and horizontally spreading exostome teeth on wetting (Akiyama, 1988). It has been generally accepted that *Felipponea* was established by V. F. Brotherus (in Felippone, 1912) in honour of F. Felippone, a medical doctor and chemist by profession and an enthusiastic amateur bryologist who is well-known for his valuable contributions to the moss flora of Uruguay (Felippone, 1909, 1912, 1917, 1928, 1929). The genus consisted originally of a single species, *F. montevidensis* (Müll. Hal.) Broth., which was described as *Cladomnion montevidense* by Müller (1897) from Montevideo on the basis of material collected by Arechavaleta in 1877.

For a long time *Felipponea* has been considered a South American endemic monotypic genus, with its single species, *F. montevidensis*, widely distributed in the coastal regions of southeastern Brazil, from Rio de Janeiro to Rio Grande do Sul (Sehnem, 1970; Yano, 1981, 1989), then recurring at a highly disjunct and isolated station in Cordillera Oriental, Bolivia (type of *Leucodon squarrosus* Herzog). It has subsequently been recorded from South Africa including the Cape region, Natal, Orange Free State, Swaziland and Transvaal (Akiyama, 1988). Thériot (1935) described another species in *Felipponea* from Chile, *F. hollermayeri*, which is still an insufficiently known species represented by only the type collection (He, 1998). Akiyama (1988) transferred the East Asian *Leucodon esquirolii* to *Felipponea*; this species was originally described by

Thériot (1907) from China but later discovered also in Japan. As a result, *Felipponea* is known to be an oligotypic genus of three species.

Very recently, O'Shea (2001) clarified taxonomic and nomenclatural problems associated with *Felipponea montevidensis* and found that this species was much earlier described as *Neckera assimilis* Müll. Hal. from South Africa (Müller, 1850–1851) and the transfer of this species to *Felipponea* necessitated the new combination *F. assimilis*. Moreover, he markedly extended the range of the species in Africa to Uganda. In fact, the range of this species has earlier been expanded by Magill and Rooy (1988) to Zimbabwe, Malawi and the Mascarenes (Madagascar and Réunion). They considered *Braunia peristomata*, *B. elliottii* and *Leucodon capensis*, species described from the respective areas, to be conspecific with *Leucodon assimilis*. Finally, Kürschner and Ochyra (2004) recorded *F. assimilis* for the first time on Socotra, an island administratively belonging to Yemen, and provided a map of its global distribution.

A perusal of the paper in which *Felipponea* was originally described (Felippone, 1912) revealed that this generic name has not been validly published there. Felippone (1912) actually introduced the binomial *Felipponea montevidensis* (Müll. Hal.) Broth. giving a direct reference to Müller's (1897) *Cladomnion montevidense* and, additionally, provided a description and illustration of *F. montevidensis*. Unfortunately, no description of the genus or a reference to such were given, either in the text or in the figure caption. Also, the generic name *Felipponea* is missing from "Index alphabeticus" at the

end of Felippone's (1912) paper, so it is likely that it was introduced in the last moment just before giving the booklet to the printers or even in proof. Accordingly, the combination *Felipponea montevidensis* is not validly published in the 1912 work because the generic name *Felipponea* itself was not then validly published. It was only in 1925 that Brotherus provided a brief diagnosis of *Felipponea* and made the combination *F. montevidensis*. However, by this time *Felipponea* was superfluous because in the interim Fleischer (1917) established the genus *Pterogoniadelphus* to accommodate *Cladomnion montevidense* and this name has priority.

The generic name *Felipponea* has never been widely used in the bryological literature since it referred to a rare and poorly known moss taxon. In the principal bryological journals it has been used, up to the end of 2003, only four times in "The Bryologist", no more than five times in "Journal of the Hattori Botanical Laboratory", and never in "Journal of Bryology" (incl. "Transactions of the British Bryological Society"), "Cryptogamie, Bryologie" (incl. "Revue Bryologique" and "Revue Bryologique et Lichénologique"), "Hedwigia" and "Nova Hedwigia". Also, it has never been used in any descriptive moss Flora. In the bryological literature devoted to Brazil, which is the main centre of its occurrence in South America, no more than eight records of *Felipponea* can be traced (cf. Yano, 1981, 1989) and to Uruguay only five citations are known (cf. Matteri, 2004), including the paper in which the name was introduced and the recent taxonomic treatments by Akiyama (1988) and O'Shea (2001).

For obvious reasons, *Felipponea* is accepted and listed in various catalogues of moss genera because this name has generally been considered as validly published. Nonetheless, in total this generic name seems to have been cited no more than 30 times in all bryological and non-bryological publications during 90 years. Therefore, its replacement by *Pterogoniadelphus* should not be particularly harmful to moss nomenclature since only three new combinations have to be introduced, two of which replace *Felipponea* combinations that were published recently in 1988 and 2001. Manuel (1974) admittedly established the subfamily *Felipponoideae* to accommodate *Felipponea* on account of the presence of the central strand in the stem. However, Akiyama (1988) pointed out that this character state is also present in some species of *Leucodon* and therefore considered recognition of the *Felipponoideae* to be unjustified. Accordingly, only the following nomenclatural changes are necessary:

Pterogoniadelphus M. Fleisch., Hedwigia 59: 214. 1917
 ≡ *Felipponea* Broth. in Engl., Nat. Pflanzenfam. Ed. 2, 11: 93. 1925, *nom. illeg. incl. gen. prior.*
 ["*Felipponea* Broth." in Felipp., Contr. Fl. Bryol.

Uruguay 2: 15. 1912, *nom. inval.*] – Type: *Pterogoniadelphus montevidensis* (Müll. Hal.) M. Fleisch. (*Cladomnion montevidense* Müll. Hal.)

- Pterogoniadelphus assimilis*** (Müll. Hal.) Ochyra & Zijlstra, **comb. nov.** ≡ *Neckera assimilis* Müll. Hal., Syn. Musc. Frond. 2: 92. 1850 ≡ *Leucodon assimilis* (Müll. Hal.) A. Jaeger, Ber. Thätigk. St. Gallischen Naturw. Ges. 1875–1876: 217. 1877 ≡ *Felipponea assimilis* (Müll. Hal.) O'Shea, Trop. Bryol. 20: 47. 2001 – Type citation: [South Africa] Prom. b. spei, Grootvaterbosch prope Zwellendam: Pappe; in truncis *Eucleae undulatae* sylvarum prope Adoi (District. Uitenhagen), in edito tertio, Augusto: Ecklon. Lectotype (*vide* O'Shea 2001: p. 47): [South Africa] C. B. Sp., distr. Zwellendam, Grootvaterbosch, 18/10/1826, *Ecklon s.n.* (H-Broth).
- = *Cladomnion montevidense* Müll. Hal., Hedwigia 36: 108. 1897 ≡ *Pterogoniadelphus montevidensis* (Müll. Hal.) M. Fleisch., Hedwigia 59: 214. 1917 ≡ *Felipponea montevidensis* (Müll. Hal.) Broth. in Engl., Nat. Pflanzenfam. Ed. 2, 11: 93. 1925 – Type citation: [Uruguay] Montevideo, in cortice arborum: Prof. Arechavaleta Novbr. 1877 cum fructibus immaturibus legit. Lectotype (*vide* O'Shea 2001: p. 47): as cited, *Arechavaleta s.n.* (H-Broth). First synonymized by O'Shea (2001: p. 47).
 - = *Braunia elliottii* Broth., Bot. Jahrb. Syst. 24: 253. 1897 – Type citation: [Malawi] Ostafrika: Shire Highlands, Sotchi (*Scott Elliott s.n.*). Holotype: as cited. (H-Broth; iso: BM). First synonymized by Magill and Rooy (1988: p. 555).
 - = *Leucodon capensis* Schimp. ex Renauld, Prodr. Fl. Bryol. Madagascar: 184. 1898 – Type citation: La Réunion: Cilaos, Eudel (Hb. Viaud Grand Marais) alt. 1550 m; Madagascar: zone supérieure des forêts, Ambatomanga, Rev. Talazac, 1894. Syntypes: as cited (PC). First synonymized by Magill and Rooy (1988: p. 555).
 - = *Leucodon squarrosus* Herzog, Beih. Bot. Centralbl. 26(2): 76. 1910 – Type citation: Bolivia: An einem Baum im Bergwald des Cerro Amboró (Ostcordillere), ca. 900 m; Oktober, 07 [1907?]. Holotype: as cited, *Th. Herzog s.n.* (JE, iso: H-Broth). First synonymized by Brotherus (1925: p. 93).
 - = *Braunia peristomata* Dixon in Sim & Dixon, S. Africa J. Sci. 18: 324. 1922 – Type citation: [Zimbabwe] Great Zimbabwe Temple Ruins, on tree, alt. 3,000 feet (*Sim*, 8750, 8778, 8793, 8809); Fort Victoria, 4,000 feet (*Sim*, 8843). – Lectotype (*vide* O'Shea 2001: p. 47): [Zimbabwe] Fort Victoria, alt. 4,000 feet. *Sim* 8750 (BM). First synonymized by Magill & Rooy (1988: p. 555).

- = *Leucodon assimilis* (Müll. Hal.) A. Jaeger var. *humilis* Sim, Trans. Roy. Soc. South Africa 15: 358. 1926 – Type citation: [South Africa] Lechlaba, Houtbush, Transvaal, *Rehmann* 605. Holotype: as cited. (PRE; iso: BM). First synonymized by Magill and Rooy (1988: p. 555).

Pterogoniadelphus esquirolii (Thér.) Ochyra & Zijlstra, **comb. nov.** ≡ *Leucodon esquirolii* Thér., Monde Pl. Sér. 2, 9: 22. 1907 ≡ *Felipponea esquirolii* (Thér.) H. Akiy., J. Jap. Bot. 63: 265. 1988 – Type citation: Iang-Kiâ-Chang. Leg. Esquirol. Holotype: [China] Iang-Kiâ-Chang. *Esquirol* 307 (PC-Thér; iso: H-Broth).

- = *Leucodon squarricuspis* Broth. & Paris in Paris, Rev. Bryol. 37: 3. 1910 – Type citation: Chei Tong, Majo 1908. Holotype: [China] Chei Tong, Majo 1908, *Courtois & Henry s.n.* (H-Broth). First synonymized by Brotherus (1925: p. 92).

- = *Leucodon latifolius* Broth., Akad. Wiss. Wien Sitzungsber. Math.-Naturwiss. Kl. Abt. 1, 133: 572. 1924 ≡ *L. esquirolii* Thér. var. *latifolius* (Broth.) M. X. Zhang, Acta Bot. Boreal-Occid. Sin. 2: 23. 1982 – Type citation: [China] Prov. Yunnan: Ad rupes siccas calide temperatas calceas circa vicum Schilungba prope urbem Yunnanfu ca 2100 m (Nr. 211) Holotype: as cited, *Handel-Mazzetti* 211 (H-Broth; iso: W). First synonymized by Akiyama (1988: p. 265).

Pterogoniadelphus hollermayeri (Thér.) Ochyra & Zijlstra, **comb. nov.** ≡ *Felipponea hollermayeri* Thér., Rev. Chilena Hist. Nat. 39: 20, pl. 3, f. 10–19. 1935. – Type citation: [Chile] Trumao, Cordillera Pelada al sur de Riobueno, 950 m., en arbol vivo (no. 1675) [Holotype: as cited, *Porter* 1675 (PC-Thér)].

ACKNOWLEDGEMENTS

We are grateful to Dr. J. McNeill for his comment regarding the validity of *Felipponea* and to David A. Broughton, Peterborough, U.K., for checking the English.

LITERATURE CITED

- Akiyama, H. 1988. Rearrangement of two species of *Leucodon* (Leucodontaceae, Musci) with a note on *Felipponea*. *J. Jap. Bot.* 63: 265–272 + pl. x.
- Brotherus, V. F. 1925. Musci (Laubmoose). Pp. i–iv + 1–542 in: Engler A. (ed.), *Die Natürlichen Pflanzenfamilien nebst ihren Gattungen und wichtigeren Arten insbesondere den Nutzpflanzen*, vol. 11. Wilhelm Engelmann, Leipzig.
- Felippone, F. 1909. *Contribution à la flore bryologique de*

l'Uruguay. 1^{er} fascicule. Jean-A. Alsina, Buenos Aires.

Felippone, F. 1912. *Contribution à la flore bryologique de l'Uruguay*. 2^{me} fascicule. Ateliers Typographiques “Gimenez”, Montevideo.

Felippone, F. 1917. *Contribution à la flore Bryologique de l'Uruguay*. 3^{ème} fascicule. Mosca Hnos, Montevideo.

Felippone, F. 1928. Contribución a la flora briológica del Uruguay. *Rev. Chilena Hist. Nat.* 32: 83–88. [Effectively published in February 1929].

Felippone, F. 1929. Contribution à la flore briologique de l'Uruguay. *Rev. Bryol. N. Sér.* 2: 210–225. [Effectively published in March 1930.]

Fleischer, M. 1917. Kritische Revision von Carl Müllerschen Laubmoosgattungen. *Hedwigia* 59: 212–219.

He, S. 1998. A checklist of the mosses of Chile. *J. Hattori Bot. Lab.* 85: 103–189.

Kürschner, H. & Ochyra, R. 2004. Remarkable new records to the bryophyte flora of Yemen (al-Mahra and Socotra Island). Additions to the bryophyte flora of the Arabian Peninsula and Socotra 5. *Cryptogamie, Bryol.* 25: 69–81.

Magill, R. E. & Rooy, J. van. 1988. Erpodiaceae—Hookeriaceae. Pp. i–vii + 445–622 in: Leistner E. O. (ed.), *Flora of Southern Africa Which Deals with the Territories of South Africa, Transkei, Lesotho, Swaziland, Bophuthatswana, South West Africa/Namibia, Botswana and Venda. Bryophyta*. Part 1. Musci, Fascicle 3. Botanical Research Institute, Pretoria.

Manuel, M. G. 1974. A revised classification of the Leucodontaceae and a revision of the subfamily Alsioideae. *The Bryologist* 77: 531–550.

Matteri, C. M. 2004. The mosses (Bryophyta) of Uruguay, their synonymy and distribution. *Cryptogamie, Bryol.* 25: 147–167.

Müller, C. 1850–1851. *Synopsis Muscorum Frondosorum Omnium Hucusque Cognitorum. Pars Secunda. Musci Vegetationis Pleurocarpicae*. Sumptibus Alb. Foerstner, Berolini.

Müller, C. 1897. Prodrum bryologiae argentinicae atque regionum vicinarum. III. *Hedwigia* 36: 84–144.

O'Shea, B. J. 2001. *Felipponea* (Leucodontaceae, Musci), a new genus for Africa, to include “*Leucodon maritimus*” and *L. assimilis*. *Trop. Bryol.* 20: 43–49.

Sehnem, A. 1970. Musgos sul-brasileiros II. *Pesquisas, Bot.* 28: 1–117.

Thériot, I. 1907. Diagnoses d'espèces nouvelles. *Monde Pl. Sér.* 2, 9(45): 21–22.

Thériot, I. 1935. Contribution à la flore bryologique du Chili (12.^e article). *Rev. Chilena Hist. Nat.* 39: 16–21.

Yano, O. 1981. A checklist of Brazilian mosses. *J. Hattori Bot. Lab.* 50: 279–456.

Yano, O. 1989. An additional checklist of Brazilian bryophytes. *J. Hattori Bot. Lab.* 66: 371–434.