
Schimperella subcompressa, a New Combination and an Earlier Name for *S. bellointricata* (Brachytheciaceae)

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ABSTRACT. *Hypnum subcompressum* Müll. Hal. from Ethiopia is transferred to *Schimperella* Thér. (Brachytheciaceae) based on its evenly foliate habit with ovate-lanceolate to ovate, acuminate leaves and twisted apices; serrate to serrulate leaf margins with teeth extending nearly to the insertion; leaf bases with numerous subquadrate to short-rectangular alar cells; autoicous sexuality; blackish, cylindrical, and erect to suberect capsules; and peristome with a slightly reduced endostome. The new combination, *S. subcompressa* (Müll. Hal.) J. J. Atwood & Brinda, is an earlier name for *S. bellointricata* (Müll. Hal. ex Broth.) W. R. Buck (\equiv *H. bellointricatum* Müll. Hal. ex Broth.), which we consider to be conspecific. Lectotypes are designated for both *H. subcompressum* and *H. bellointricatum*.

Key words: Brachytheciaceae, *Entodon*, *Hypnum*, *Schimperella*.

Georg Wilhelm Schimper's (1842) exsiccatae, *Schimperii Iter Abyssinicum, Sectio secunda*, contains approximately 100 numbered moss specimens collected in Ethiopia between 1838 and 1842 (Sayre, 1969). Some of these specimens have labels with the names of species credited to Philipp Bruch and Wilhelm Philipp Schimper, Georg's cousin (Staffleu & Cowan, 1985: 166). These species are not newly described on the specimen labels, but several were later validly published by Müller (1851). Müller either attributed these names to Bruch and Schimper or cited the invalid names in synonymy while retaining the original epithet for species he placed in different genera.

Schimper's exsiccatae number 481b, labeled "*Leskea subcompressa* Bruch et Schimper," is an example of the latter, where Müller cited the invalid name and exsiccatae number, albeit as "581. b," under his *Hypnum subcompressum* Müll. Hal. This species was described by Müller (1851) as having a habit like that of *Entodon* Müll. Hal., with yellow-green, prostrate stems that are irregularly branched with flaccid, flexuose branches; ovate-acuminate leaves with short-reflexed apices; denticulate leaf margins; linear medial laminal cells and numerous quadrate alar cells; reddish, medium-length setae; erect, narrowly cylindrical, reddish-brown capsules; and a rudimentary peristome. *Hypnum subcom-*

pressum has since been transferred to *Entodon* as *E. subcompressus* (Müll. Hal.) M. Fleisch., as well as treated in the previously broadly circumscribed genus *Homalia* Brid. as *Homalia subcompressa* (Müll. Hal.) Lindau.

Despite these reassignments, the species has remained insufficiently known and has never been revised since its description (Brinda & Atwood, 2025). There are no online photographs of original material of *Hypnum subcompressum* in JSTOR Global Plants, but specimens of it are deposited in BM, MO, and NY. Our examination of these specimens found that the species agrees with *Schimperella* Thér. in all its morphological characters as given by Buck (1985) in his monograph of that genus.

Schimperella (Brachytheciaceae Schimp.) is a small African genus comprising two species: *S. rhynchostegioides* Thér., endemic to Madagascar, and the more widely distributed *S. bellointricata* (Müll. Hal. ex Broth.) W. R. Buck, which occurs across tropical Africa and includes the synonyms *S. atrotheca* (P. de la Varde) P. de la Varde from Kenya and *S. katalensis* (P. de la Varde & V. Leroy bis) P. de la Varde from the Democratic Republic of the Congo (Buck, 1985, 1993). An examination of type material of *S. atrotheca*, *S. bellointricata*, and *S. katalensis* found no significant morphological differences between the taxon to which these names refer and *Hypnum subcompressum*. Although Müller (1851) described *H. subcompressum* as dioicous, original material deposited in MO shows the species to be autoicous.

Combining *Hypnum subcompressum* into *Schimperella* makes its epithet the oldest in the genus by almost 50 years, and as it is herein determined to be conspecific with *S. bellointricata*, it has priority over that name. The appropriate new combination is published here.

Schimperella subcompressa (Müll. Hal.) J. J. Atwood & Brinda, comb. nov. Basionym: *Hypnum subcompressum* Müll. Hal., Syn. Musc. Frond. 2: 253. 1851. *Helicodontium subcompressum* (Müll. Hal.) Müll. Hal., Ostafrikanische Gletscherfahrten: 327. 1890. *Homalia subcompressa* (Müll.

Hal.) Lindau, Pflanzenw. Ost-Afrikas C: 73. 1895. *Entodon subcompressus* (Müll. Hal.) M. Fleisch., Hedwigia 63: 211. 1922. TYPE CITATION: Abyssinia, W. Schimper [as] *Leskea subcompressa* Br. et Sch. in Musc. Abyssin. Schimper. Coll. II. No. 581. b. TYPES: *Anomodon subcompressus*, *Leskea subcompressa* Br. & Sch., Abyssinia, No. 581b (lectotype, designated here, BM [barcode] BM013777541!; isolotypes, BM [bc] BM013777539!; BM013777540!; BM013777542!; Schimperiter Abyssinicum section secunda, 481b, *Leskea subcompressa* Bruch et Schimper. S. loc. speciali, U. i. 1842. MO [bc] MO3664153!, NY [bc] NY01273889!). Figure 1.

Hypnum bellointricatum Müll. Hal. ex Broth., Bot. Jahrb. Syst. 24: 279. 1897. *Schimperella bellointricata* (Müll. Hal. ex Broth.) W. R. Buck, Trop. Bryol. 8: 204. 1993. TYPE CITATION: Kamerun: an Bäumstammen und an den Palisaden der Dörfer Barrika (n. 688), Lifenja und Massaka im Rumpi-Gebirge (*Dusén*). TYPES: Musci Africani in Camerunia a P. Dusén collecti, 688, ad Barrikam pagum in territorio Batange situm in troncis arborum die 6 Aprilis 1892 (lectotype, designated here, BM [barcode] BM000878981!; isolotypes, BM [bc] BM000878980 image!; PC [bc] PC0098582 image!, PC [bc] PC0098583 image!; S [bc] S-B124362 image!).

Rhynchocarpidium katalense P. de la Varde & V. Leroy bis, Bull. Jard. Bot. État Bruxelles 18: 189. 1947. *Schimperella katalensis* (P. de la Varde & V. Leroy bis) P. de la Varde, Rev. Bryol. Lichénol. 23(1–2): 23. 1954. TYPE CITATION: Zaire. Katalé (Rwankwi), 1452 m, taillis humides, sur tronc d'arbre, 5 Jan. 1939, *J. Leroy* 36. TYPES: tronc d'arbusta, taillis humida, Katalé, Rwankwi, 1450 m, 5 Jan. 1939, *J. Leroy* 36 (lectotype, designated by Buck [as holotype], 1985: 37, BR [barcode] BRY0057039-03!; isolotype, BR [bc] BRY0057038-02!).

Rhynchocarpidium atrotheca P. de la Varde, Rev. Bryol. Lichénol. 21: 6. 1952. *Schimperella atrotheca* (P. de la Varde) P. de la Varde, Rev. Bryol. Lichénol. 23(1–2): 23. 1954. TYPE CITATION: Kenya. Aberdare Range, near the W part of the Nyeri track, 2375 m, on stems of hardwood trees in mtn. rainforest, 10 July 1948, *M. O. Hedberg* 1490c. TYPE: Kenya Colony. Aberdare Range, near the W part of the Nyeri track, on stems of hardwood trees in mtn. rainforest, 2375 m, 10 July 1918, *O. Hedberg* 1490c (lectotype, designated by Buck [as holotype], 1985: 37, PC [barcode] PC0106387 image!).

Plants lustrous, golden-green, in mats. Stems to 40 mm, evenly foliate, prostrate or ascending, irregularly branched; pseudoparaphyllia foliose. Leaves closely spaced, erect-spreading, somewhat flexuose when dry, \pm monomorphic, ovate-lanceolate to ovate, 1.5–2 \times 0.6–0.9 mm, gradually acuminate, apex twisted, base constricted; margins mostly plane, recurved in the lower 1/3 to near the attachment, evenly serrate above, serrulate below; costae single, to about 3/4 the leaf length, tapering above, often weakly projecting as a terminal spine; cells smooth; median and apical cells short, linear-flexuose, 50–75 \times 6–8 μ m, firm-walled, not porose; alar regions well-developed, relatively broad, ex-

tending 1/2–2/3 the distance to the costa and 5 to 10 cells high up the margins, cells subquadrate to short-rectangular, 15–20 \times 12–15 μ m. Autoicous. Perichaetial leaves erect, apices recurved, oblong-lanceolate, long-acuminate, margins plane, serrulate; ecostate to shortly costate. Setae 10–12 mm, smooth, reddish. Capsules erect to suberect, symmetrical, cylindrical, 1.5–2.3 mm, darkened with age; exothecial cells rectangular, evenly thick-walled; stomata present on neck, round-pored; operculum obliquely long-rostrate; peristome hypnaceous; exostome teeth reddish brown, the dorsal (outer) surface densely cross-striolate–papillose at base and middle, papillose above, trabeculae and median lines faint below, stout at tips, ventral (inner) surface smooth below, lightly papillose above, trabeculae thin below, well-developed above, projecting laterally, united at tips to a thin, fragile, hyaline, longitudinal membrane; endostome nearly as long as exostome, pale yellow, basal membrane high, smooth segments deeply keeled, perforated, smooth below and lightly papillose above, cilia none or reduced to rudimentary stubs. Calyptrae pale yellow, cucullate, smooth, naked.

Iconography. Buck (1985: figs. 1–13 as *Schimperella katalensis* (P. de la Varde & V. Leroy bis) P. de la Varde); Leroy (1947: fig. 18 as *Rhynchocarpidium katalense* P. de la Varde & V. Leroy bis).

Notes. *Schimperella subcompressa*, originally described in *Hypnum* Hedw., has previously been combined into *Entodon* Müll. Hal., *Helicodontium* Schwägr., and *Homalia* Brid. as well as informally placed in *Anomodon* Hook. & Taylor, *Leskea* Hedw., and *Pylaisia* Schimp., although the latter three combinations have not been validly published. While the previously mentioned morphological characters, such as the habit, leaf shape and margins, number of alar cells, and shape and positioning of capsules, align well with those of *Schimperella*, they are not characters exclusive to that genus or even to the Brachytheciaceae. A review of some technical morphological characters considered to circumscribe the family confirms the placement of *S. subcompressa* within the Brachytheciaceae. These characters include the positioning of the pseudoparaphyllia around the branch primordia, as well as the presence of ecostate or shortly costate perichaetial leaves and round-pored stomata on mature capsules (Ignatov, 1999; Ignatov & Huttunen, 2002). For the pseudoparaphyllia, the outermost juvenile, foliose structure around the branch primordia points downward and covers much of the developing bud, similar to that in *Sciaromiopsis sinensis* (Broth.) Broth., a species recently shown to have affinities with the Brachytheciaceae (Sheng et al., 2022). Although the perichaetial leaves and stomata could not be observed in the type

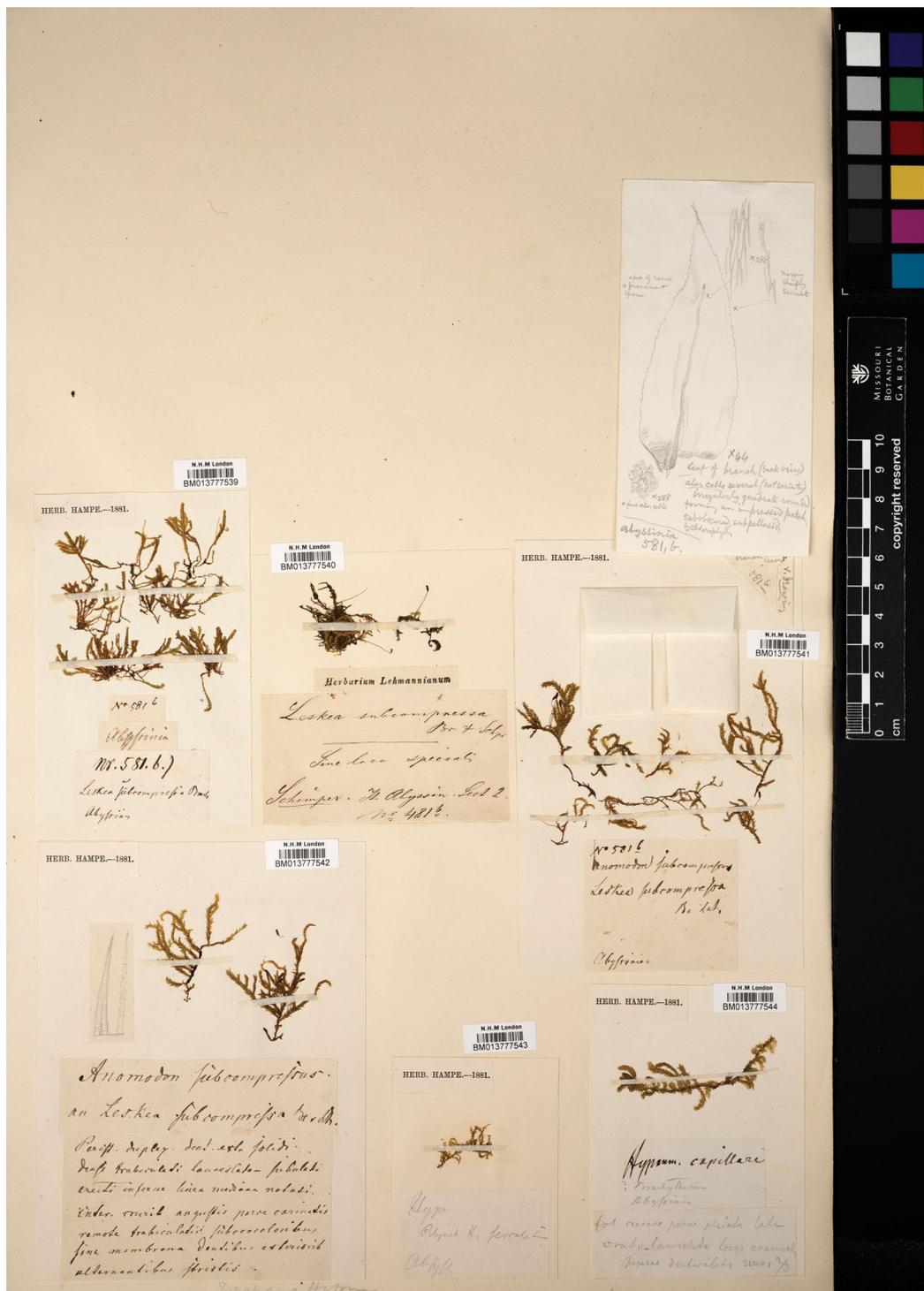


Figure 1. Lectotype of *Hypnum subcompressum* Müll. Hal. (upper right specimen, Abyssinia, No. 581 b [BM (barcode) BM01377541!]) with three isolectotypes, BM [bc] BM01377539!, BM01377540!, BM01377542!.

specimens without causing damage, both characters were confirmed in the cited nontype specimens used for comparison.

The combination *Entodon subcompressus* (Müll. Hal.) M. Fleisch. is listed by van der Wijk et al. (1962: 215) as invalid, although it was in fact validly published. Fleischer (1922) refers to a "*Pylaisia subcompressa* C. M. Abyssinien in Herb. C. Müll." as the basionym, a reference seemingly to Müller's (1851) *Hypnum subcompressum*. The name "*Pylaisia subcompressa* Müll. Hal." does not appear anywhere else in the literature, and the epithet, aside from appearing in *H. subcompressum*, was used only one other time by Carl Müller for the South African *Aongstroemia subcompressa* Hampe ex Müll. Hal. (Müller, 1859). Furthermore, Müller's (1851) comparison of *H. subcompressum* to *Entodon* in the protologue lends further credence to this species being the basis of Fleischer's combination. As stated previously, Müller's (1851: 254) protologue cites Schimper's exsiccatae number "481b" as "581. b." Sayre (1969) noted that while seeing only specimens of the exsiccatae in the 400s, the total numbers were probably 400 to 500. This error in numbering was later compounded by Lindau (1895) when making the combination in *Homalia*. Lindau cites the number "5816," an obvious error for "581. b.," which is in turn an error for "481b." Curiously, the number "581. b" is also present on several herbarium labels for specimens that are original material of *H. subcompressum* from E. Hampe's herbarium, deposited in BM. The labels on these specimens suggest that the numbering error did not originate in Müller's (1851) protologue but perhaps began with Hampe, who likely communicated the specimen to Müller. Among the original material of *H. subcompressum* deposited in BM, MO, and NY, there is a fairly large specimen in BM (BM013777541) that is labeled "581 b" and has several intact sporophytes. This specimen is designated as the lectotype.

When Buck (1993) synonymized *Schimperella katalensis* with *S. bellointricata*, he did not examine type material of the latter species. Rather, the synonymy was based on a specimen collected from near the Cameroon type locality by Per Dusén, who was also the collector of the type material. Although most species described by V. Brotherus are typified with specimens from his herbarium, deposited in the Finnish Museum of Natural History (H), a search for original material of *S. bellointricata* in H resulted in no specimens bearing that name (Sanna Laaka-Lindberg, pers. comm., 2023). A large specimen in BM, however, matches Brotherus's (1897) protologue and is here designated as the lectotype. Superficially, the specimen has a stiffer appearance compared to most other specimens of *S. subcompressa* examined from Ethiopia, Guinea, Tanzania, and Zaire. The erect-spreading leaves are little contorted

when dry and slightly narrower, with less distinctly serrate margins. Nevertheless, the specimen morphologically matches type specimens of *S. katalensis* and *S. subcompressa* in size, leaf cell areolation, features of the costa, length of the setae, color and shape of the capsules, and peristome.

Additional specimens examined. GUINEA. **Nzérékoré:** Lola, Mt. Nimba Strict Nature Reserve, small clumps of trees & treelets above Mare D'hivernage, on trunk of treelet, 7.6602778, -8.3786111, 1591 m, 5 July 2012, *Allen 30466* (MO); *ibid.*, *Allen 30477* (MO). TANZANIA. **Ngorongoro:** E of Ngorongoro Crater, on the plateau S of Rotian Glade, on shrub branches in evergreen *Cassipourea malosana* forest, degraded by elephants and buffalos at 2120 m, 17 Jan. 1989, *Pocs & Chuwa 89025N* (MO).

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