

Type Specimens of Taxa Described by C. F. Schwägrichen in the Moss Genera Calymperes and Syrrhopodon (Musci: Calymperaceae)

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Type specimens of taxa described by C. F. Schwägrichen in the moss genera *Calymperes* and *Syrrhopodon* (Musci: Calymperaceae)

Leonard T. Ellis

Abstract

ELLIS, L. T. (2011). Type specimens of taxa described by C. F. Schwägrichen in the moss genera *Calymperes* and *Syrrhopodon* (Musci: Calymperaceae). *Candollea* 66: 317-329. In English, English and French abstracts.

The status is reviewed of type specimens of the 15 taxa described by Schwägrichen in the moss genera *Calymperes* F. Weber and *Syrrhopodon* Schwägr. (*Calymperaceae*), held in G (Hedwig-Schwägrichen Herbarium), BM, PC and S. Lectotypes are designated herein for *Calymperes lonchophyllum* Schwägr., *Calymperes moluccense* Schwägr., *Syrrhopodon albovaginatus* Schwägr., *Syrrhopodon clavatus* Schwägr., *Syrrhopodon dubius* Schwägr., *Syrrhopodon incompletus* Schwägr., *Syrrhopodon involutus* Schwägr., *Syrrhopodon prolifer* Schwägr., *Syrrhopodon rigescens* Schwägr., *Syrrhopodon taylorii* Schwägr., and *Syrrhopodon tristichus* Schwägr.

Key-words

CALYMPERACEAE – *Calymperes* – *Syrrhopodon* – Hedwig-Schwägrichen Herbarium – Typification

Résumé

ELLIS, L. T. (2011). Types des taxons décrits par C. F. Schwägrichen dans les genres de mousses *Calymperes* et *Syrrhopodon* (Musci: Calymperaceae). *Candollea* 66: 317-329. En anglais, résumés anglais et français.

Le statut des échantillons types a été passé en revue pour les 15 taxons de mousses décrits par Schwägrichen dans les genres *Calymperes* F. Weber et *Syrrhopodon* Schwägr. (*Calymperaceae*), conservés à G (Herbier d'Hedwig-Schwägrichen), BM, PC et à S. Les lectotypes désignés ici sont *Calymperes lonchophyllum* Schwägr., *Calymperes moluccense* Schwägr., *Syrrhopodon albovaginatus* Schwägr., *Syrrhopodon clavatus* Schwägr., *Syrrhopodon dubius* Schwägr., *Syrrhopodon incompletus* Schwägr., *Syrrhopodon involutus* Schwägr., *Syrrhopodon prolifer* Schwägr., *Syrrhopodon rigescens* Schwägr., *Syrrhopodon taylorii* Schwägr., et *Syrrhopodon tristichus* Schwägr.

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Introduction

Species Muscorum frondosorum by HEDWIG (1801) provides the starting-point for the nomenclature of mosses (*Musci*, apart from *Sphagnum* L.). Published posthumously, this important work was edited and supplemented by Hedwig's student – C. F. Schwägrichen. In his supplements to Hedwig's work SCHWÄGRICHEN (1816, 1824, 1827, 1842) legitimately described fifteen new species in the moss genera *Calymperes* F. Weber and *Syrrhopodon* Schwägr. (*Calymperaceae*). Three of these taxa are now accommodated in genera outside the *Calymperaceae*; two in the *Pottiaceae* and one in the *Dicranaceae* (see Appendix 1). Type material of Schwägrichen's new taxa is held in the Hedwig-Schwägrichen Herbarium (G). Below, the present status of this material is reviewed, and some required lectotypification is proposed. The potential type specimens of Schwägrichen's taxa held in BM are also revised and cited in this paper. Examination of this material has helped to place Schwägrichen's specimens in context and has often thrown light upon obscurities encountered in the latter and their associated literature.

Type specimens of Schwägrichen's taxa in G, BM, PC and S
Calymperes lonchophyllum Schwägr., Sp. Musc. Frond. Suppl. 1(2): 333, tab. 98. 1816.

Type citation: “In arboribus Gujanae legit clar. Richard”.

Lectotype (designated here): **FRENCH GUIANA [GUYANE]:** ‘in arb. Guyane’ *Richard s.n.* (G [Hb. Hedwig-Schwägrichen, G00042891!]; isolecto-: PC !).

In recent accounts of *C. lonchophyllum*, authors have variously included in their type citations duplicates of ‘Guyane *Richard s.n.*’ held in G and/or PC. REESE (1961) only relates details of the type material in PC, and in a later work (REESE, 1993) states - “holotype PC, isotype G”. Contrarily, MENZEL & SCHULTZE-MOTEL (1990) cite material in G as “holotype” and the specimen in PC as “isotype”. ELLIS (1989) and ELLIS & TAN (1999) have also regarded the specimen in PC as an isotype. To settle the typification of *C. lonchophyllum*, and in view of the uncertain histories of the available parts of the original material, the specimen in its author's own herbarium (sheet G00042891) is chosen here as lectotype. Of the two known type specimens, this is the most likely to have been examined by the author, who regarded its features as agreeing with those he used to define *C. lonchophyllum*.

Calymperes lonchophyllum is the lectotype species for *Calymperes* F. Weber (fide WILLIAMS, 1920).

Calymperes moluccense Schwägr., Sp. Musc. Frond. Suppl. 2(2): 99, tab. 127. 1824.

= *Calymperes palisotii* subsp. *moluccense* (Schwägr.)
 M. Menzel in Willdenowia 19: 489. 1990.

Type citation: “In insula Rauwack Moluccensi lignis adnatum legit. clar. Gaudichaud in itinere cum navarcho Freycinet instituto”.

Lectotype (designated here): **INDONESIA. Moluccas:** [Rawack], *Gaudichaud s.n.* (G [Hb. Hedwig-Schwägrichen, G00042890d!]; isolecto-?: BM [Hb. Hooker (H.1233), BM000851791!; Hb. Wilson (H.1233), BM000 518167!, BM000851801!, BM000851798!; Hb. Bescherelle, BM000851786!]).

Syntypes?: INDONESIA. Moluccas: Rawack, *Gaudichaud 17-15? (30)* (G-DC, G00124226!); *Gaudichaud 15/29A* (BM [Hb. Wilson, BM000851797!]); *Gaudichaud 15/29B* (BM [Hb. Wilson, BM000851799!, BM000851800!]); *Gaudichaud 15/29* (BM [Hb. Hooker, BM000851794!; Hb. Bescherelle, BM000851785!]); *Freycinet 15* (G [Hb. Schwägrichen, G0011117!]).

Calymperes moluccense bears some superficial resemblance to *C. palisotii*, but is clearly a distinct species (ELLIS, 1987). MENZEL & SCHULTZE-MOTEL (1990), REESE & STONE (1995), and REESE & LIN (2001) assume the holotype of *C. moluccense* is held in G. Indeed, the latter institution holds three specimens that could be considered as parts of the type gathering. One of these, in Schwägrichen's own herbarium, was added to the type sheet of *C. palisotii* (G00042890), along with collections of three other species, see below. On this sheet, the small tuft of shoots marked ‘d’ and labelled “Moluccense” is designated here as the lectotype of *C. moluccense* (Fig. 1D).

The status of other probable type material of *C. moluccense* in G, and several probable types in BM, is less clear. The original collection of *C. moluccense* had been made in Rawack by Gaudichaud in company with Captain Freycinet. Initially, duplicates of this collection appear to have been widely distributed, as several supposed type specimens were received in BM by way of various personal herbaria. Unfortunately, the many parts of the collection in BM, G, and elsewhere often possess differing label data. Probable fragments of the gathering have acquired different collection numbers, or have had new numbering added to them in the course of their initial distribution among European bryologists. In some cases, collection numbers are not unique, but are shared with what superficially appear to be entirely separate specimens. For example, G000124226 (G), a probable part of the type collection of *C. moluccense*, bears the collection number “17=15? (30)”. However, this exact same numbering also appears on syntype material of *Syrrhopodon involutus* Schwägr. (BM [Hb. Gay]), and on pure collections of *Calymperes graeffeanum* Müll. Hal. (BM [Hb. Wilson]).

The citation of the collector/s on the various parts of the type collection is also inconsistent. Labels cite either “Gaudichaud” or “Freycinet”, they are never cited together. As there is no absolute indication that many of these variously labelled specimens in G and BM are strictly duplicates of the lectotype they are listed above as probable syntypes.

A further specimen in G (G00057756, Hb. Duby, ‘Rawak, Moluques’), not cited above, may also be part of the original material of *C. moluccense*, but lacks sufficient data to be certain.

Calymperes palisotii Schwägr., Sp. Musc. Frond. Suppl. 1(2): 333, tab. 98. 1816.

Type citation: “Ad saxa humentia prope rivos montium in insulis St. Thomae, in arboribus Gujanae legit Richardus, Ianuario mense; in regno Oware Africae Palisot Beauvois”.

Lectotype (selected by EDWARDS, 1980): **AFRICA. Oware:** *Palisot [de Beauvois] s.n.* (S [Hb. Hj Möller, S B7984!]; isolecto-: G [G00057750!]; BM [Hb. Bescherelle, BM000575164!, BM000855228!]).

Syntypes: **VIRGIN ISLANDS. St. Thomas:** *Richard s.n.* (G [Hb. Hedwig-Schwägrichen, G00042890a!]; BM [Hb. Wilson (H.1245), BM000575435!; Hb. Hooker (H.1249), BM000855409!]). **FRENCH GUIANA [GUYANE]:** *Richard s.n.* (G [Hb. Hedwig-Schwägrichen, G00042890b!]; BM [Hb. Wilson, BM000710058!; Hb. Bescherelle, BM000575455!; Hb. Hooker (H.1248), BM000575424!; Hb. Wilson (H.1248), BM000710057!]).

= *Calymperes richardii* Müll. Hal., Syn. Musc. Frond. 1: 524. 1849.

Type citation: “Per totam Guianam, Gallicam, Anglicam et Batavicam: Richard, Schomburgk, Kegel. Brasilia ad Pernambuco: Gardner Coll. No. 47”.

Lectotype (selected by REESE, 1961): **BRAZIL. Pernambuco:** I.1838, *Gardner 47* (BM [Hb. Hooker, BM000575422!]).

Syntype: **FRENCH GUIANA [GUYANE]:** *Richard s.n.* (G [Hb. Hedwig-Schwägrichen, G00042890b!]; BM [Hb. Wilson, BM000710058!; Hb. Bescherelle, BM000575455!; Hb. Hooker (H.1248), BM000575424!; Hb. Wilson (H.1248), BM000710057!]).

Some confusion has surrounded the type citation of *C. palisotii* and how it relates to the supposed type material in the Hedwig-Schwägrichen herbarium. In his protologue, SCHWÄGRICHEN (1816) cites two collections from Central America and one from Africa (see above). The herbarium sheet labelled ‘*Calymperes palisotii*’ in the Hedwig-Schwägrichen herbarium (sheet G00042890) (Fig. 1) holds five distinct elements designated by Schwägrichen as:

“[a.] in sax hum situ et ad lat rivul mont. Rich.” [= St. Thomas (Virgin Islands) *Richard*];

“b. in arb Guyan. R.” [= French Guiana, *Richard*];

“c. Oware Palisot “ [= Africa, Oware, *Palisot de Beauvois*];

“c. Java Reinwardt.”;

“d. Moluccense” [= Rawak, *Gaudichaud*].

Elements [‘a’] and ‘b’, and the first ‘c’, are type material of *C. palisotii*, but none of them serve as the lectotype.

Calymperes palisotii has an unfortunate nomenclatural history. Apparently in line with contemporary botanical opinion, BRIDEL (1827) erroneously placed *C. palisotii* in synonymy with the later published *C. afzelii* Sw. (SWARTZ, 1818), and listed under the latter all three collections cited in Schwägrichen’s protologue of *C. palisotii*. He noted, however, morphological differences between the leaves of these specimens and those of other collections identified as Swartz’s plant.

Several parts of the African syntype of *C. palisotii* – ‘Oware, *Palisot*’ (e.g. those in the herbaria of Hooker, Wilson and Gay in BM) are *C. erosum* Müll. Hal. Such duplicates of this type collection may be the source of the confusion of *C. palisotii* with *C. afzelii*. *Calymperes erosum* was undescribed until 1848 and its shoots may well have been taken for those of *C. afzelii* to which they bear some superficial resemblance. *Calymperes afzelii* does not in fact occur in any of the available type material of *C. palisotii*.

MÜLLER (1849) completely dismantled *C. palisotii*, he reassessed the type material and used the syntype collection – “Guyane, *Richard*”, along with other specimens from the Guiana’s and Brazil, as the basis for a new name, *Calymperes richardii*. In synonymy under *C. richardii* he cites: “C. Palisotii Schw. Suppl. 1. 1. p.334. ex parte et mult. al. *Patria*. Per totam Guianum.....Richard,.....”, but possibly in error, does not cite the other neotropical syntype of *C. palisotii*, *Richard*’s identical collection from St Thomas. Otherwise, Müller follows Bridel, and implicitly associates the remaining original elements of Schwägrichen’s *C. palisotii* with *C. afzelii*. In synonymy under the latter he cites: “C. Palisotii Schw. Suppl. 1. 1. p.334. ex parte”, but does not explicitly mention which ‘part’ of *C. palisotii* he is referring to. REESE (1961) avoided potential ambiguity in the typification of Müller’s *C. richardii*, when he lectotypified it with a collection not included in Schwägrichen’s protologue of *C. palisotii* (i.e. Brazil, *Gardner 47*, BM). EDWARDS (1980) proposed *C. richardii* as a subspecies of *C. palisotii*, and REESE (1993) recognised it as a synonym of *C. palisotii*. Indeed, *C. richardii* represents a neotropical form of *C. palisotii*, it largely differs from the palaeotropical form in possessing leaves with a more extensively developed intramarginal rib.

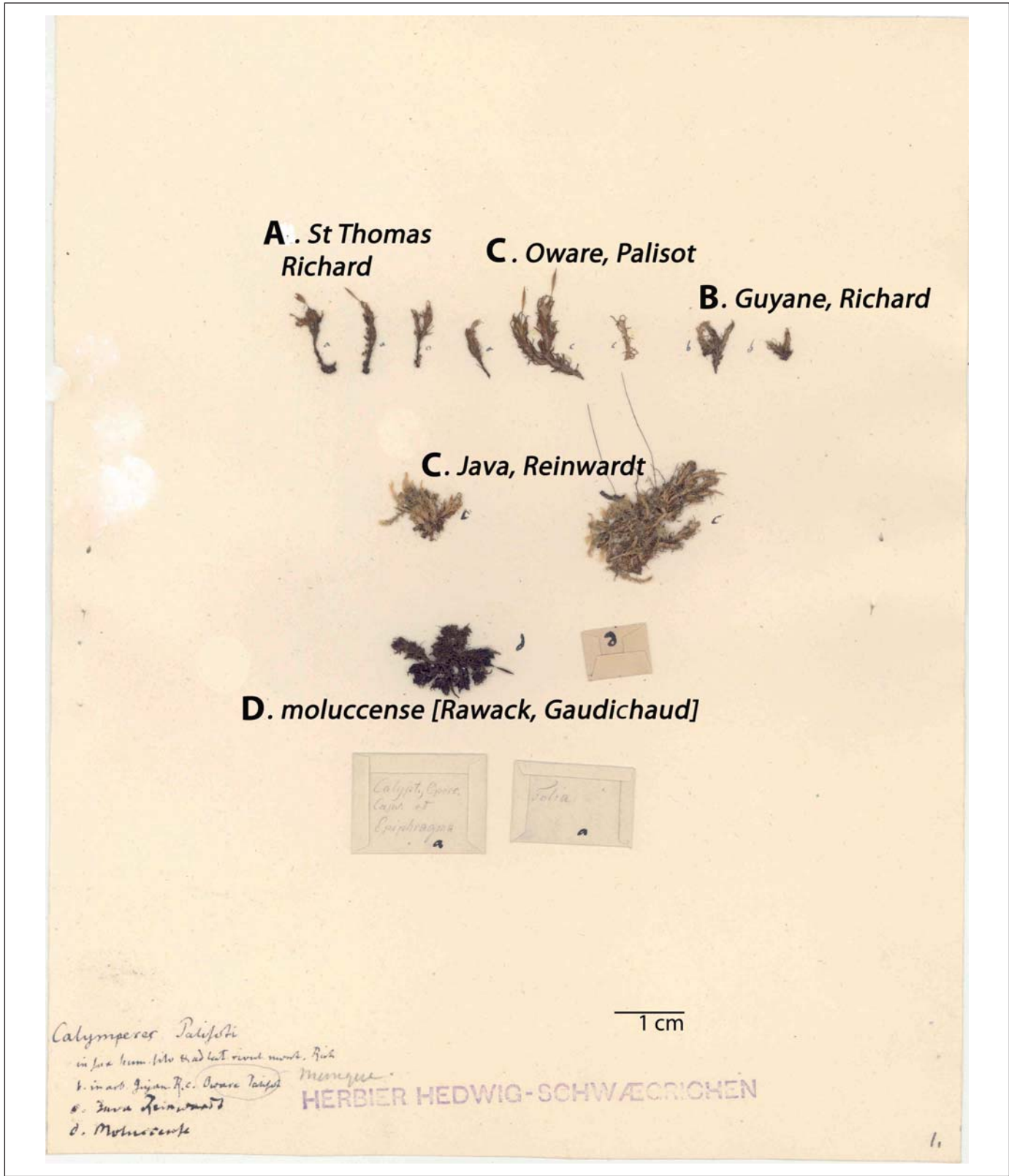


Fig. 1. – Herbarium sheet labelled “*Calypperes Palisotii*” in Hb. Hedwig-Schwägrichen (G00042890). **A-B.** *Calypperes palisotii* Schwägr. (neotropical form); **C (top row).** *Calypperes erosum* Müll. Hal.; **C (middle row).** *Calypperes platycinclis* Besch. [= *C. boulayi* Besch.]; **D.** *Calypperes moluccense* Schwägr. (lectotype).

MÜLLER'S (1849) contribution to the nomenclatural history of *C. palisotii* had a critical influence on its eventual typification. On Schwägrichen's herbarium sheet labelled '*C. palisotii*' (G00042890) (Fig. 1), which should carry the original material of the species, the tufts of moss designated ['a'] and 'b' equate to the first two specimens cited in the protologue for *C. palisotii*. These are collections by Louis Claude Marie Richard, ['a'] from St. Thomas (Virgin Islands) and 'b' from 'Guyane' [French Guiana]. BESCHERELLE (1895) misinterprets 'a' as another collection from 'Guyane'. Both ['a'] and 'b' represent the neotropical form of *C. palisotii* that MÜLLER (1849) unnecessarily described as *C. richardii*. They are syntypes of *C. palisotii*, but 'b' at least, is also a syntype of its otherwise heterotypic synonym *C. richardii*. The shoots comprising ['a'] (Fig. 1A) are most likely those illustrated (Fig. 2) with Schwägrichen's original description of *C. palisotii*. The figures of *C. palisotii* occupy the upper half of tab. 98, but are labelled *C. lonchophyllum*, which is actually depicted in the lower half of the plate and labelled as *C. palisotii*.

BESCHERELLE (1895), effectively re-established *C. palisotii* as a good species. He searched for type material in the Hedwig-Schwägrichen herbarium (G) and annotated the various elements on the '*palisotii*' sheet (G00042890) as follows:

"a = Cal. Richardii C. Mull. Syn.

b = Cal. Richardii CM

c = Cal. platycinclis Besch. sp. nov. Java in hb Lugd batav. sub *C. moluccense*

d = Cal. moluccense Schwg. Gaudichaud Rauwak
Il n'y a pas de *C. palisotii* d'Oware (Palisot)".

As Bescherelle believed elements 'a' and 'b' on sheet G00042890 to be *C. richardii* he thought them to be unavailable as potential type material of *C. palisotii*. He looked for the third collection cited in Schwägrichen's protologue – the West African specimen – "regno Oware Africae Palisot Beauvois". On sheet G00042890, there are two separate collections marked by Schwägrichen as 'c'. One of these is labelled "c. Oware Palisotii". Bescherelle [?] has written "manque"

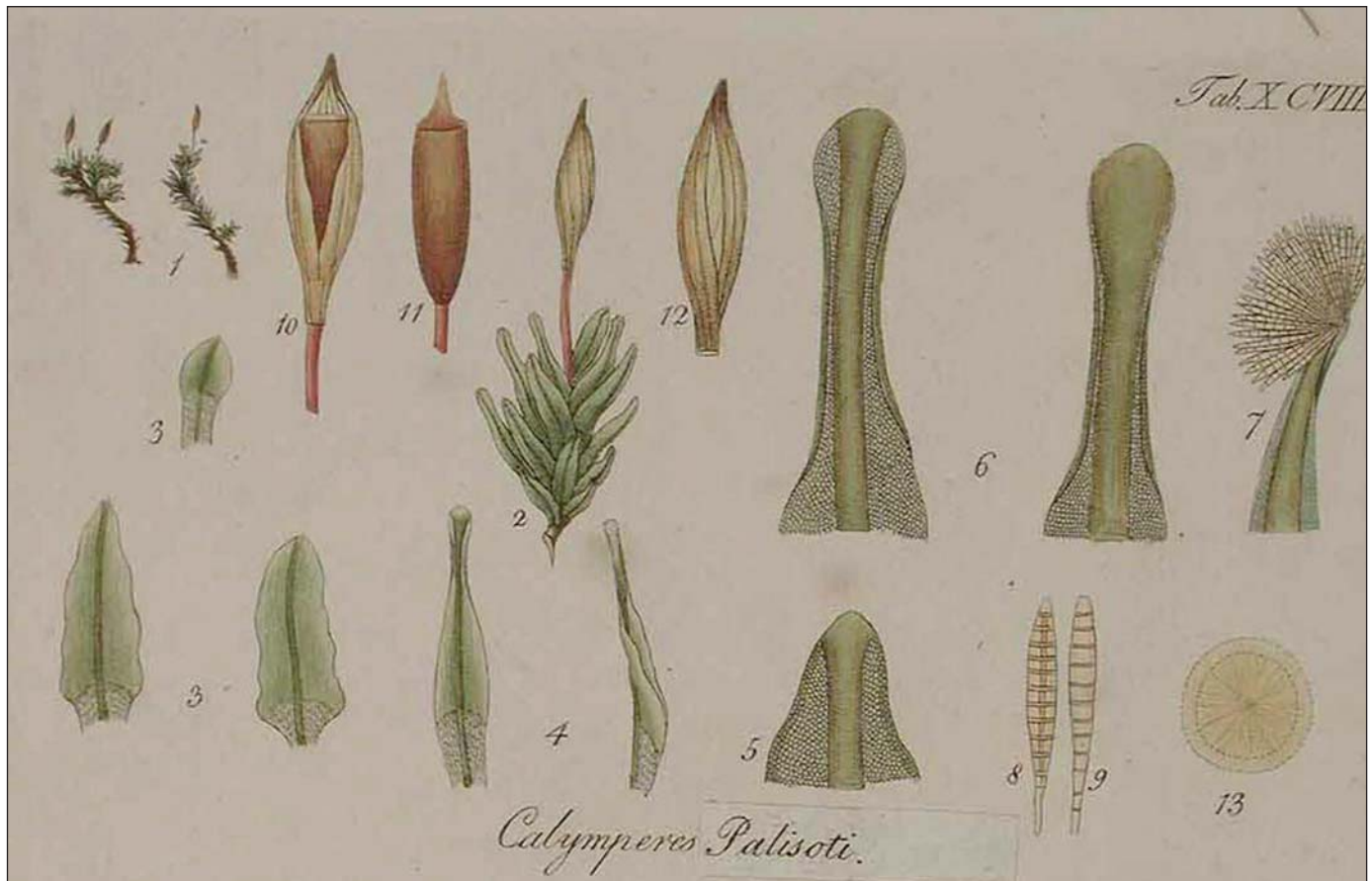


Fig. 2. – Plate of *Calymperes palisotii* Schwägr. published by SCHWÄGRICHEN (1816: tab. 98).

adjacent to this script, and would appear to have missed or ignored the shoots on the sheet to which this citation seems to refer. These overlooked shoots, with label data consistent with that of original material of *C. palisotii*, in fact represent *C. erosum* Müll. Hal. (det. L. T. Ellis, 2010: **AFRICA. Oware: Palisot de Beauvois s.n.** (G [Hb. Hedwig-Schwägrichen, G00042890c!]; BM [Hb. Hooker (H.1246), BM000855287!; Hb. Gay, BM000575064!; Hb. Wilson, BM000555572!; BM, BM000855152!]), and appear to constitute one of the unintended parts of the ‘Oware, Palisot’ collection as referred to above. Their features are inconsistent with those described and illustrated for *C. palisotii* by Schwägrichen.

Bescherelle, unable to locate Palisot’s Oware specimen in Schwägrichen’s herbarium, acquired fragments of the collection from the herbaria of Maille and Delessert. These had been recognised as material of *C. palisotii* by W. Arnott and were sent to Bescherelle by J. Müller Arg., they are now in Hb. Bescherelle (BM) along with related correspondence from J. Müller. From these collections, which bear the features illustrated by Schwägrichen as those of *C. palisotii* (Fig. 2), BESCHERELLE (1895) reconstructed a description for the species and effectively removed it from synonymy with *C. afzelii*. EDWARDS (1980) followed Bescherelle’s account and formally lectotypified a collection - ‘Oware, Palisot, ex hb. Delessert’ held in Stockholm (S).

The second element labelled ‘c’ on sheet G00042890 was noticed by Bescherelle and is an isotype of *C. platyclinis* Besch. [= *C. boulayi* Besch.] (holotype in L, fide BESCHERELLE, 1895; ELLIS, 1988).

Element ‘d’ on sheet G00042890 appears to be the only representation of *C. moluccense* in Schwägrichen’s herbarium. In his annotation with regard to element ‘d’, Bescherelle indicates the collector as ‘Gaudichaud’ and provenance as ‘Rauwak’, although these details are not recorded on the sheet by Schwägrichen.

Syrrhopodon albovaginatus Schwägr., Sp. Musc. Frond. Suppl. 2(1): 112, tab. 131. 1824.

Type citation: “Ad ligna in insula Radack [= Rawack] moluccensi lectum misit cl. Gaudichaud, Freycineti peregrinatoris socius, per manum cl. Gay”.

Lectotype (designated here): **INDONESIA. MOLUCCAS:** Rawack, *Gaudichaud s.n.* [14 A] (G [Hb. Hedwig-Schwägrichen, G00042877!]; isolecto-: G [Hb. Delessert, G00048221!; Hb. Duby, G00124234!; G00048222!]; BM [Hb. Bescherelle, BM000675307!; Hb. Wilson, BM000675278!, BM000675279!; Hb. Gay, BM000675296!; Hb. Hooker (H.1230), BM000675291!; Hb. Wilson (H.1230), BM000675280!, BM000675281!, BM000675282!]).

MOHAMED & REESE (1986), MENZEL & SCHULTZE-MOTEL (1990), and REESE & STONE (1995) cite the holotype of *S. albovaginatus* as present in G, but do not precisely indicate the collection to which they refer. In the Hedwig-Schwägrichen herbarium, sheet G00042877 is annotated by Schwägrichen “*Syrrhopodon albovaginatus* Suppl. Ins. Rauwack Gaudichaud”, and is designated here as lectotype for the species. The shoots, set in line across the herbarium sheet (Fig. 3B), bear some resemblance to those illustrated in association with Schwägrichen’s protologue for *S. albovaginatus*. This figure (Fig. 3A) may depict these shoots prior to some dissection and their attachment to the herbarium sheet.

Captain Freycinet, in whose company Gaudichaud collected the original material, is not mentioned on the labels of any parts of the type specimens in G and BM.

In his protologue for *S. albovaginatus*, SCHWÄGRICHEN (1824) cites C. Gay as the communicator of the original material. No mention of Gay is made on the type specimens in G, but those in BM bear some indication of having been received either from Gay, or from Gay by way of W. Arnott.

Some parts of the type gathering in G and BM are numbered ‘14 A’, and others lack a collection number. Those in Hb. Hooker and Hb. Wilson (BM) that lack a collection number have been given the herbarium number ‘H.1230’, and are referred to in annotations by Wilson as if they represented a collection separate from the original gathering. However, it seems likely that they are just parts of the original material that came to Wilson and Hooker by a different route to those marked ‘14 A’. The variously labelled specimens in G and BM have been cited above as a lectotype (G00042877) and a number of isolectotypes, but the duplicates marked ‘H.1230’ in the herbaria of Hooker and Wilson (BM) could possibly be considered as syntypes.

Syrrhopodon candidus Schwägr., Sp. Musc. Frond. Suppl. 2(2): 105, tab. 182. 1827 [= *Leucophanes candidum* (Schwägr.) Lindb.].

Type citation: “Legit in insula Japama [= Saparua], cl. Prof. Reinwardt”.

Lectotype (selected by ENROTH, 1989): **INDONESIA. MOLUCCAS:** “Ex insula Saparua?”, *Reinwardt s.n.* (G [Hb. Hedwig-Schwägrichen, G00046164!]) (cited more precisely by SALAZAR ALLEN, 1993, who had originally annotated the material as lectotype in 1986); isolecto-: G [G00048214!]; BM [Hb. Hooker (H.1149), BM000725818!; Hb. Wilson (H.1149), BM000725826!]).

All published attempts to accurately cite the type locality of this species (including that in the protologue) have been somewhat tentative. However, isotype material in BM has been more plainly localized: “Saparua” [= Saparua], which is an

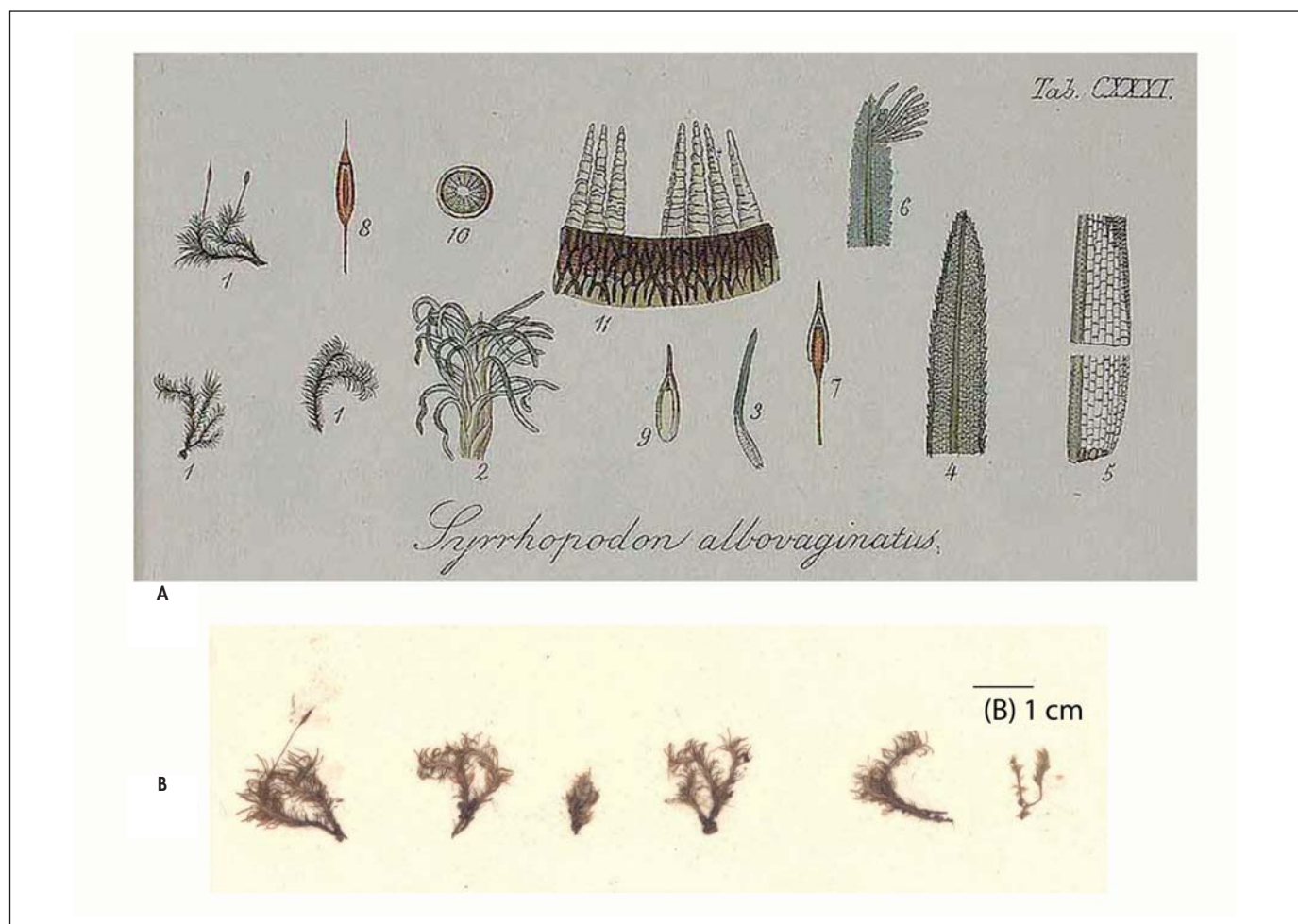


Fig. 3. – **A.** Plate of *Syrrhopodon alboraginatus* Schwägr. published by SCHWÄGRICHEN (1824: tab. 131); **B.** Shoots of lectotype of *Syrrhopodon alboraginatus* Schwägr. in Hb. Hedwig-Schwägrichen (G00042877).

island in the Moluccas. The species description in the copy of Schwägrichen's *Sp. Musc. Suppl.* held in BM is also annotated 'Saparua', probably by A. Gepp in the 19th Century. This interpretation, although probably applied long after the specimen's collection, comes very close to the locality penned by Schwägrichen on the type sheet of *S. candidus* (G00046164) in the Hedwig-Schwägrichen herbarium.

The type sheet (G00046164) includes elements 'a' ("Ex insula Saparua? dd [dedit.] Reinwardt sub Dicrano Reinwardti Hornsc lit.") and 'b' ("Leucophanes squarrosus Brid. Hbar Amboina."). Element 'a', comprising three shoots, is the lectotype of *S. candidus* (Fig. 4A). These shoots were illustrated by Schwägrichen (Fig. 4B) to accompany his protologue for the species. Element 'b' is probably isotype material of *Leucophanes squarrosus* Brid. [= *L. candidum*].

Syrrhopodon clavatus Schwägr., *Sp. Musc. Frond. Suppl.* 2(2): 97. 1827 [= *Hypodontium pomiforme* (Hook.) Müll. Hal.]

Type citation: "In Nova Hollandia lectum dedit cl. A. Menzies".

Lectotype (designated here): **SOUTH AFRICA. Cape of Good Hope** ["nov. Holl." = New Holland" in error]; *Menzies 114* (G [Hb. Hedwig-Schwägrichen, G00046217!]).

Syntype ?: **SOUTH AFRICA. Cape of Good Hope** ["King George's Sound, N. Holland" in error]; 1791, *Menzies 106* (BM [Hb. Hooker (H.1221), BM000972361!; Hb. Wilson (H.1221), BM000972362!]).

PARIS (1894-1898) and NOWAK (1980) erroneously placed *S. clavatus* in synonymy with *Mithyridium fasciculatum* (Hook. & Grev.) H. Rob. REESE & STONE (1995), extrapolating from

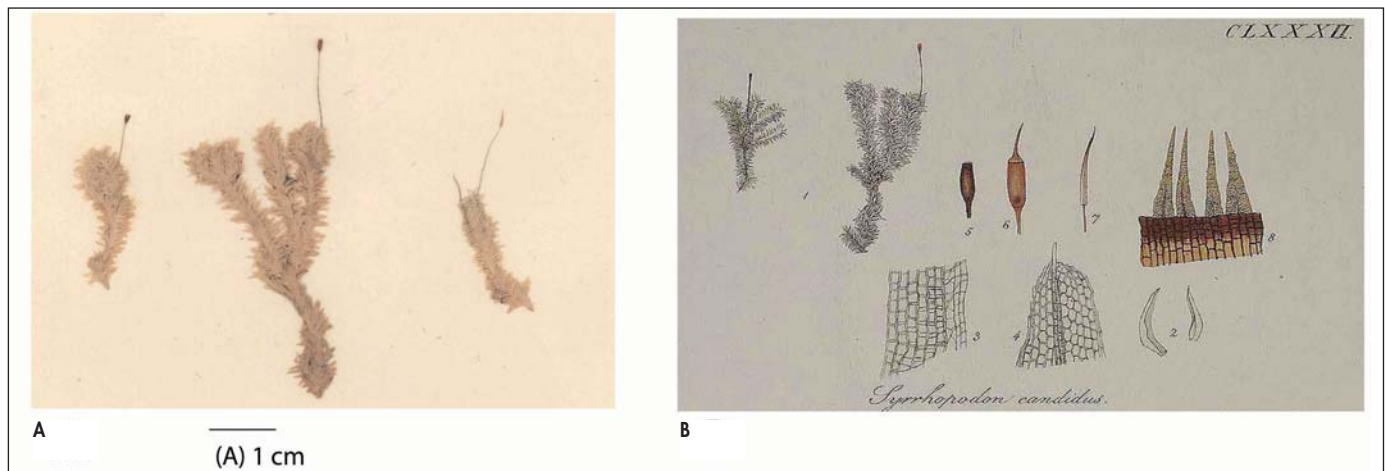


Fig. 4. – A. Shoots of lectotype of *Syrrhopodon candidus* Schwägr. in Hb. Hedwig-Schwägrichen (G00046164); B. Plate of *Syrrhopodon candidus* Schwägr. published by SCHWÄGRICHEN (1827: tab. 182).

the protologue, suggested instead that *Syrrhopodon clavatus* might represent a species of *Hypodontium* in the family *Pottiaceae*. They further pointed out that this genus has a solely southern African distribution, and therefore the supposedly Australian type collection (New Holland, *Menzies*) was more likely to have been made in southern Africa. In support of this, probable type material of *Syrrhopodon clavatus* in the herbaria of Hooker and Wilson (BM) and determined by Reese in 1985 as *Hypodontium pomiforme*, was annotated by E. W. Groves - “Originally wrongly localized. Should be from Cape of Good Hope when Menzies was there in 1791”.

The type material of *Syrrhopodon clavatus* in the Hedwig-Schwägrichen herbarium (G00046217) is also *Hypodontium pomiforme* (Hook.) Müll. Hal. and is therefore probably wrongly labelled as “nov. Holl.” [= New Holland = Australia]. This material, most likely collected by Archibald Menzies in the Cape of Good Hope, is chosen here as lectotype for *Syrrhopodon clavatus*.

Syrrhopodon dubius Schwägr., Sp. Musc. Frond. Suppl. 4: sub tab. 312b. 1842 [= *Bryoerythrophyllum dubium* (Schwägr.) P. Sollman].

Type citation: “Legit in Nova Hollandia G. Sieber”.

Lectotype (designated here): AUSTRALIA [“New Holland”]: *Sieber 24* (G [Hb. Hedwig-Schwägrichen, G00046280!]) (cited as ‘holotype’ by SOLLMAN, 2002).

SOLLMAN (2002) recognised *S. dubius* as a species of *Bryoerythrophyllum* in the family *Pottiaceae*. He cited ‘*Sieber 24*’ in the Hedwig-Schwägrichen herbarium as the holotype of the taxon. ‘*Sieber 24*’ (G00046280) is designated more precisely here as lectotype.

Syrrhopodon glaucus Schwägr., Sp. Musc. Frond. Suppl. 2(2): 103, tab. 181. 1827 [= *Leucophanes glaucum* (Schwägr.) Mitt.].

Type citation: “Legit in insula Rauwack Moluccarum et cum Octoblepharo albido in insulis Marianis cl. Gaudichaud”.

Lectotype (selected by ENROTH, 1989, 1990): INDONESIA. **Moluccas:** Rawak, I.1819, *Gaudichaud 10* (G [G00046233a!]) (more precisely cited by SALAZAR ALLEN, 1993, who had originally annotated the material as lectotype in 1986); isolecto-: G [Hb. Hedwig-Schwägrichen, G00057752!, G00057753!, G00057754!, G00057755!].

Syntypes ?: ILES MARIANES: 1819, *Gaudichaud 9* (G [Hb. Schwägrichen, G00057751!]); *Gaudichaud 6* (BM [Hb. Gay, BM000726134!]). INDONESIA. **Moluccas:** Rawak, *Gaudichaud 10=9, 25* (BM [Hb. Wilson, BM000726071!, BM000726072!; Hb. Gay “10=9, 25”, BM000726135!]); *Gaudichaud s.n.* (BM [Hb. Bescherelle, BM000726073!, BM000726074!, BM000726075!]).

The type sheet of *S. glaucus* in the Hedwig-Schwägrichen herbarium (G00046233) holds two elements. One is labelled “*Syrrhopodon glaucus* Insula Rauwack Molucc Januar 1819 Gaudichaud n. 10” and consists of six tufts of moss. These represent the lectotype of *S. glaucus*. As might be expected from Schwägrichen’s type citation, a few shoots of *Octoblepharum albidum* Hedw. are mixed with the specimen, and are evident in the tuft mounted on the lower-right of the type sheet.

The second element on the type sheet consists of two tufts of moss marked ‘b’ and labelled - “*Leucophanes octoblepharoides* Brid. Hbar. est Syrrhop. octoblepharis Hedw. Suppl. 4.” These may be part of the original material of *Syrrhopodon octoblepharis* Schwägr. [= *Leucophanes octoblepharioides* Brid.].

The BM specimen (BM000726134) was annotated as *L. glaucum* by Salazar Allen, 1986, and this collection shares identical collection details to those of the type of *Syrrhopodon rigescens* [= *S. involutus*].

Syrrhopodon incompletus Schwägr., Sp. Musc. Frond. Suppl. 2(1): 119. 1824.

Type citation: “Misit nuper lectum in insula Cuba clar. D. Poeppig”.

Lectotype (designated here): **WEST INDIES. Cuba:** *Pöppig s.n.* (G [Hb. Hedwig-Schwägrichen, G00042876[a!]]; isolecto-: G [Hb. Moricand, G00042875!]; BM [Hb. Bescherelle, BM000677858!]).

= *Calymperes hobsonii* Grev. in Ann. Lyceum Nat. Hist. New York 1: 271. 1825.

Type citation: “In Guyana lectum, communicavit D. Hobson”.

Holotype ?: **GUIANA:** *Hobson s.n.* (BM [BM000663884!]) (cited as holotype by REESE, 1993).

= *Syrrhopodon semicompletus* Schwägr., Sp. Musc. Frond. Suppl. 2(2): 97. 1827 [nom. illeg. incl. spec. prior.].

Type citation: “Lectus a cl. D. Poeppig in insula Cuba, Grevillio missus a Guiana”.

Previous citations of typification for *S. incompletus* have been inconsistent. REESE (1977) and REESE & ORBÁN (1986) typify *S. incompletus* as “(holotype, BM!; isotypes, JE!, PC!)”. Later, REESE (1993) altered the citation to “holotype, G, n.v. [= not seen]; isotypes, BM, JE, PC”, although in 1978, he had also seen duplicate material of *Pöppig s.n.* in G (Hb. Moricand, G00042875), which he annotated as isotype.

The type sheet of *S. incompletus* in the Hedwig-Schwägrichen herbarium (G00042876) comprises two elements. The first, labelled “*Syrrhopodon incompletus*. Cuba Pöppig”, consists of three shoots marked ‘a’. These shoots are chosen here as the lectotype of *S. incompletus*.

SCHWÄGRICHEN (1827) created an illegitimate new taxon, *S. semicompletus*, with a description based on the type specimens of *S. incompletus* (Chile, *Pöppig s.n.*) and the conspecific *Calymperes hobsonii* Grev. (Guiana, *Hobson s.n.*). He provided a plate with the protologue of his new taxon (SCHWÄGRICHEN, 1827: tab. 180), but labelled it “*Syrrhopodon incompletus*”. Although parts of this plate could be drawn from the lectotype of *S. incompletus* (‘Chile, *Pöppig s.n.*’), the shoot figured is not convincingly recognisable as any of those on the type sheet (G00042876).

The second element on sheet G00042876 is labelled “b. *Syrrh Hobsoni* Greville misit.” and marked ‘b’. This may be part of the original material of *Calymperes hobsonii* and probably original material of the illegitimate *Syrrhopodon semicompletus*.

Syrrhopodon involutus Schwägr., Sp. Musc. Frond. Suppl. 2(1). 117, tab. 132. 1824.

Type citation: “In insula Rauwack Moluccensi legit cl. Gaudichaud socius navarchi Freycinet, ad ligna putrida”.

Lectotype (designated here): **INDONESIA. Moluccas:** Rawak, *Gaudichaud s.n.* (G [Hb. Hedwig-Schwägrichen, G00042874!]; isolecto-: BM [Hb. Bescherelle, BM000672900!]).

Syntypes ?: **INDONESIA. Moluccas:** Rawack, *Gaudichaud 11* (G [Hb. Hedwig-Schwägrichen, G00048215!]); *Gaudichaud 11/26* (BM [Hb. Wilson, BM000672901!]); [*Gaudichaud 17=? 15 (30)*] (BM [Hb. Gay, BM000672849!]).

Most authors, including REESE & STONE (1995), MENZEL & SCHULTZE-MOTEL (1990) and REESE & LIN (2001), have cited the holotype of *S. involutus* as held in G. There appear to be two parts of the type collection of this species in the Hedwig-Schwägrichen herbarium (G) - G00042874 and G00048215. Sheet G00042874, labelled “*Syrrhopodon involutus* Gaudichaudi Ins Rauwack molucc. ad lign.”, is designated here as lectotype of *S. involutus*. The sheet G00048215 ([*Gaudichaud 11*]) may be regarded as a syntype of the taxon. The collector of this material is not stated on the specimen’s label, but the latter is written in the style characteristic of collections made by Gaudichaud, the collector of the type. The sheet holds 14 tufts of moss designated from ‘a’ – ‘n’, and two small packets. Tufts ‘a’, ‘b’, ‘f’, ‘g’, ‘h’, ‘m’, and ‘n’ are *S. involutus*. Other tufts and the contents of the packets belong to various moss species (mostly *Radulina* sp.) and sometimes include a few shoots of *Syrrhopodon involutus*.

Captain Freycinet, in whose company Gaudichaud collected the original material of *S. involutus*, is not mentioned on the labels of any parts of the type specimens in G or BM.

Syrrhopodon octoblepharis Schwägr., Sp. Musc. Frond. Suppl. 4: sub tab. 311a. 1842 [= *Leucophanes octoblepharioides* Brid.].

Type citation: “In Java lectum misit Nees ab Esenbeck, praeses soc. Leopold”.

Lectotype (selected by ENROTH, 1990): **INDONESIA. Java:** s. coll. s.n. (G [Hb. Hedwig-Schwägrichen, G00046232[a!]]) (also cited by SALAZAR ALLEN, 1993, who had originally annotated the material as lectotype in 1986); isolecto- ? : (G [Hb. Hedwig-Schwägrichen, G00046233b!]).

Sheet G00046232 in the Hedwig-Schwägrichen herbarium holds two collections. One is labelled: “*Syrrhopodon octoblepharis* Suppl. 4. *Leucophanes octoblepharioides* Brid. 1. Java Nees”, and consists of the two upper groups of shoots on the sheet. These comprise the lectotype of *S. octoblepharis* (G00046232[a]). The second collection on this sheet is labelled

“b. *Syrrhop Blumii* Nees ms erat mixtum cum caulibus ... [two illegible words]” and consists of two tufts marked ‘b’ (G00046232b). These were correctly identified by Enroth in 1988 as *Exostratum blumei* (Hampe) L. T. Ellis, and may be part of the original material of this species.

Syrrhopodon prolifer Schwägr., Sp. Musc. Frond. Suppl. 2(2): 99, tab. 180. 1827.

Type citation: “Ad terram in umbrosis ad pedes montium Sierra dos Orgos in Brasilia legit dilig. Beyrich”.

Lectotype (designated here): [BRAZIL. **Sierra dos Orgos**]: *Beyrich s.n.* (G [Hb. Hedwig-Schwägrichen, G00040509!]; isolecto-: G [Hb. Duby, G00040510!]; BM [Hb. Hampe, BM000664154!]).

REESE (1993), MENZEL & SCHULTZE-MOTEL (1990) and ELLIS (2005), have cited the holotype of *S. prolifer* as held in G. The type material of this species in the Hedwig-Schwägrichen herbarium (G00040509) is labelled “*Syrrhopodon prolifer* Beyrich” and was annotated as the holotype by Ellis in 2004. Here it is formally lectotypified. A second specimen of the type gathering held in G, G00040510, and with the collection number – ‘14’, was recognised and annotated as an isotype by Reese in 1978.

Syrrhopodon rigescens Schwägr., Sp. Musc. Frond. Suppl. 2(2): 102, tab. 181. 1827 [= *Syrrhopodon involutus* Schwägr.].

Type citation: “Legit in insulis Malouinis cl. Gaudichaud”.

Lectotype (designated here): OCEANIA. **Mariana Islands**: *Gaudichaud 6* (G [Hb. Hedwig-Schwägrichen, G00042872[a!]; isolecto-: G [Hb. Hedwig-Schwägrichen, G00042872!]; BM [Hb. Bescherelle, BM000672479!, BM000672480!]).

REESE (1993) successfully argues that the type locality “Malouinis” (= Malvinas, i.e. Falkland Islands) cited in Schwägrichen’s protologue of *S. rigescens* is erroneous, and indeed, the collections in G, labelled *S. rigescens* by Schwägrichen’s hand, and their duplicates in G, PC and BM are plainly labelled ‘Ins. Marian.’, ‘Ins. Marianis’, or ‘Iles Mariannes’.

Type collections of *S. rigescens* in both PC and G have been cited by MOHAMED & REESE (1986), but without indication of their type status. FISHER (2006), without having examined any of the available type material, arbitrarily cited “holotype: PC” in her “rank-free” treatment of *S. rigescens* and placed the species in synonymy with *S. banksii* Müll. Hal. Both *S. rigescens* and *S. banksii* have previously been regarded as synonyms of *S. involutus* (MOHAMED & REESE, 1986). Were they judged to be conspecific, but removed from synonymy with *S. involutus*, *S. rigescens*, as the earlier published name, would have priority over *S. banksii*.

The type sheet of *S. rigescens* in Hb. Hedwig-Schwägrichen (G00042872) includes elements ‘a’ (“Ins. Marian. Gaudichaud nr 6”) and ‘b’ (“*Leucophanes fragile* Brid. hbar”). Element ‘a’ is original material of *S. rigescens*, and is designated here as lectotype. Element ‘b’ is part of the original material of *Leucophanes fragile* Brid. [= *Syrrhopodon involutus* Schwägr.].

An apparent duplicate of the type collection of *S. rigescens* in G (G00048218) (marked ‘D’) is probably correctly annotated “Legt. Gaudichaud in Ins. Marianis”. However, this script does not appear to be part of an original label. The information may have been assumed to relate to this collection and added to it by Colomb-Duplan, who researched Schwägrichen’s herbarium in the early 20th Century.

Syrrhopodon taylorii Schwägr., Sp. Musc. Frond. Suppl. 2(1): 115. 1824 [= *Leucoloma taylorii* (Schwägr.) Mitt.].

Type citation: “In corticæ arborum putrido in Nepal Indiae, dedit cl. Taylor”.

Lectotype (designated here): NEPAL: *Taylor s.n.* (G “[Hb. Schwägr.]”) (seen, and cited as ‘holotype’ by LA FARGE, 2002); isolecto-?: (G [Hb. Hedwig-Schwägrichen, G00124225!]) (a mixed gathering including two shoots of *Leucoloma* that is mostly *Syrrhopodon gardneri* (Hook.) Schwägr.).

This species belongs to *Leucoloma* in the family *Dicranaceae*, and the type and its identity were verified by LA FARGE (2002). However, the original gathering may have been a mixture of two species – *Leucoloma taylorii* and *Syrrhopodon gardneri* (Hook.) Schwägr. (mixed gatherings are not infrequent in moss collections). A second collection in the Hedwig-Schwägrichen herbarium ‘Nepal, *Taylor s.n.*’ (G00124225), labelled as type material of *S. taylorii*, largely consists of *S. gardneri*, with two shoots of *Leucoloma* (it is likely that division of the original collection for distribution may have resulted in tufts of one or other of the two species in the mixture becoming the predominant or exclusive component in one or more packets, with all packets labelled *Syrrhopodon taylorii*). The apparent isotype of *S. taylorii* (G00124225) is labelled in Schwägrichen’s hand as “*Syrrhopod Calympe Taylori* Schwgr”. The major part of this specimen was correctly determined as *S. gardneri* by Thériot in 1917, THÉRIOT (1919) discusses at length a confusion of *S. gardneri* with *S. taylorii* by earlier authorities who seem to have based their various accounts on different parts of the collection, and points out that even Schwägrichen’s original illustrations of *S. taylorii* include the peristome of *S. gardneri* among figures plainly depicting a species of *Leucoloma* (i.e. *L. taylorii*). The implication is that Schwägrichen used parts of both species mixed in the original gathering for his original illustration of *Syrrhopodon taylorii*. Another, perhaps less likely

possibility that might have given rise to the confusion between *S. taylorii* and *S. gardneri* is that G000124225 represents a separate (syntype) collection, completely misidentified by Schwägrichen, which along with the lectotype, became a source of material for study and distribution as ‘*Syrrhopodon taylorii*’. To forestall further possible confusion, the material cited as ‘holotype’ and verified as *Leucoloma taylorii* by LA FARGE (2002) is confirmed here as lectotype for the taxon.

Syrrhopodon tristichus Schwägr., Sp. Musc. Frond. Suppl. 4: sub tab. 311b. 1842.

Type citation: “In Java lectum misit Nees ab Esenbeck, praeses soc. Leopold”.

Lectotype (designated here): **INDONESIA. Java:** *s. coll. s.n.* (G [Hb. Hedwig-Schwägrichen, G00042992!]; isolecto-?: G [G00057757!]; BM [Hb. Hampe, BM000676721!; Hb. Hooker (H.1223), BM000676725!; Hb. Shuttleworth, BM000676723!; Hb. Wilson (H.1223), BM000676720!]).

MENZEL & SCHULTZE-MOTEL (1990) and REESE & STONE (1995) cite the holotype of *S. tristichus* as present in G. Sheet G00042992 in the Hedwig-Schwägrichen herbarium, holds unequivocal type material of *S. tristichus*. Annotated by Schwägrichen as “*Syrrhopodon tristichus* Nees Ms Java”, the

shoots set out on the sheet (Fig. 5A) are plainly those illustrated (Fig. 5B) with Schwägrichen’s protologue for *S. tristichus*. This collection is designated here as lectotype for the species.

There are a few other specimens of *S. tristichus* in G associate with Herb. Nees of which Schwägrichen may have been aware. Among these is a collection in Herb. Duby (G00057757) marked “Java....*Syrrhopodon tristichus* Suppl. 4 n.sp.”. This script is attributed to A. Braun, who also apparently penned the labels of two of the isotype specimens of *S. tristichus* in BM (BM000676723, BM000676725). Another, possible authentic specimen in G (G00057759), of which there is further material in Hb. Hooker (BM000676728), was collected in Java by Franz Wilhelm Junghuhn.

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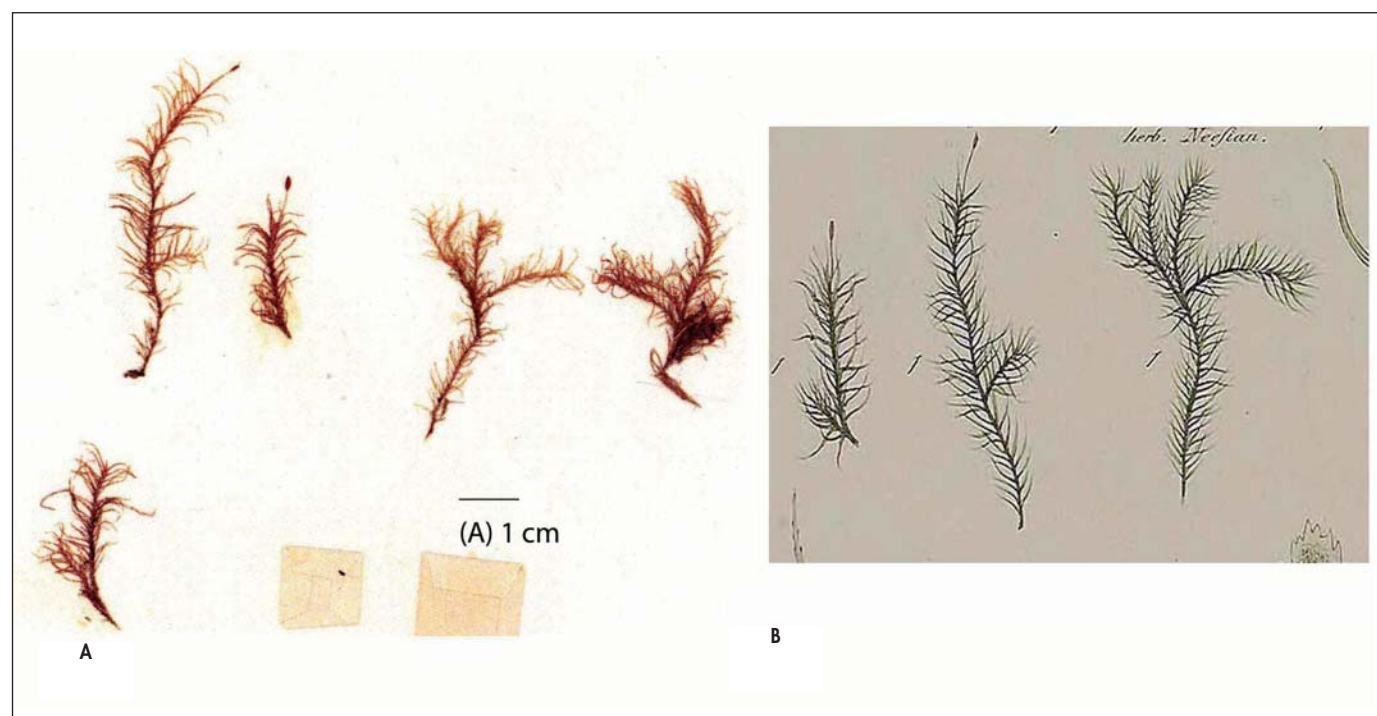


Fig. 5. – A. Shoots of lectotype of *Syrrhopodon tristichus* Schwägr. (G00042992); B. Figure depicting shoots of *Syrrhopodon tristichus* Schwägr. published by SCHWÄGRICHEN (1842: tab. 311b, fig. 1).

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Appendix 1. – Legitimate taxa described by SCHWÄGRICHEN in the genera *Calymperes* F. Weber and *Syrrhopodon* Schwägr. (**in bold** names in current use).

Calymperaceae

Calymperes lonchophyllum Schwägr.

Calymperes moluccense Schwägr.

Calymperes palisotii Schwägr.

Syrrhopodon albovaginatus Schwägr.

Syrrhopodon candidus Schwägr. (= ***Leucophanes candidum*** (Schwägr.) Lindb.)

Syrrhopodon glaucus Schwägr. (= ***Leucophanes glaucum*** (Schwägr.) Mitt.)

Syrrhopodon incompletus Schwägr.

Syrrhopodon involutus Schwägr.

Syrrhopodon octoblepharis Schwägr. (= ***Leucophanes octoblepharioides*** Brid.)

Syrrhopodon prolifer Schwägr.

Syrrhopodon rigescens Schwägr. (= ***Syrrhopodon involutus*** Schwägr.)

Syrrhopodon tristichus Schwägr.

Dicranaceae

Syrrhopodon taylorii Schwägr. (= ***Leucoloma taylorii*** (Schwägr.) Mitt.)

Pottiaceae

Syrrhopodon clavatus Schwägr. (= ***Hypodontium pomi-forme*** (Hook.) Müll. Hal.)

Syrrhopodon dubius Schwägr. (= ***Bryoerythrophyllum dubium*** (Schwägr.) P. Sollman)