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## **Catalogue of the Benjamin Balansa Moss Collections from Paraguay in Herbarium Genavense (G)**

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# Catalogue of the Benjamin Balansa moss collections from Paraguay in Herbarium Genavense (G)

Michelle J. Price

## Abstract

PRICE, M. J. (2012). Catalogue of the Benjamin Balansa moss collections from Paraguay in Herbarium Genavense (G). *Candollea* 67: 153-179. In English, English and French abstracts.

One of the most significant bryophyte collections from Paraguay is that of the Frenchman Benedict (Benjamin) Balansa. His collections were distributed to, amongst other institutions, B, BM, G, H-BR, L, NY and PC. In Geneva, Balansa collections can be found in the historical herbaria of Boissier, Reuter-Barbey, Barbey-Boissier and the non G-DC De Candolle collection which were all incorporated into the municipal herbarium (G) of the Conservatoire et Jardin botaniques de la Ville de Genève. The French bryologist Emile Bescherelle worked on the majority of the Balansa moss collections from Paraguay, describing 73 new species from amongst this material. With the purchase of Bescherelle's herbarium by the BM, Balansa's original Paraguay specimens came to reside there. A total of 390 specimens are present in G for 158 Balansa collection numbers, including 22 specimens for 15 previously unpublished Balansa numbers. The 158 collection numbers and 390 specimens in G cover 88 specific and infraspecific names that represent 67 currently accepted taxa and eight *nomina nuda*. Of the 390 specimens, 160 are types including 3 lectotypes, 28 isolectotypes, 19 isotypes and 110 syntypes. For each taxonomic entry, the place of publication, the collection number, current name, and for the types the type status and typification, if found, are provided. A complete list of the

## Résumé

PRICE, M. J. (2012). Catalogue des collections de mousses de Benjamin Balansa du Paraguay dans l'Herbarium Genavense (G). *Candollea* 67 : 153-179. En anglais, résumés en anglais et français.

L'une des collections de bryophytes du Paraguay les plus importantes est celle constituée par le français Benedict (Benjamin) Balansa. Ses collections ont été distribuées entre autres à B, BM, G, H-BR, L, NY et PC. A Genève, les collections de Balansa se trouvent dans les herbiers historiques Boissier, Reuter-Barbey, Barbey-Boissier ainsi que dans les collections De Candolle (non G-DC), toutes ces collections faisant partie de l'herbier général (G) des Conservatoire et Jardin botaniques de la Ville de Genève. Le bryologiste français Emile Bescherelle a travaillé sur la plupart des collections de mousse de Balansa du Paraguay, décrivant 73 nouvelles espèces. A la suite de l'achat de l'herbier de Bescherelle par BM, les spécimens originaux de Balansa récoltés au Paraguay se trouvent maintenant conservés à cet endroit. Un total de 390 spécimens sont conservés à G représentant 158 numéros de la collection de Balansa, inclus 22 spécimens correspondant à 15 numéros de Balansa jamais publiés jusqu'ici. Les 158 numéros et 390 spécimens de G comprennent 88 noms spécifiques et infra-spécifiques, représentant 67 taxa actuellement acceptés et 8 *nomina nuda*. De ces 390 spécimens, 160 sont des types parmi lesquels se trouvent 3 lectotypes, 28 isolectotypes, 19 isotypes et 110 syntypes. Pour chaque taxon, le lieu de

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published Balansa collection numbers for the Paraguay mosses, including their current name, the name under which they were published and the place of publication, is also given herein.

**Key-words**

Paraguay – Mosses – Types – Catalogue – Benjamin Balansa – South America.

publication, le numéro de collecteur, le nom actuel et pour les types leur statut et typification (lorsque celle-ci a pu être trouvée), sont indiqués. Une liste complète des numéros de collection de Balansa pour les mousses du Paraguay comprenant le nom actuel, le nom sous lequel ils ont été publiés et le lieu de publication est également proposée.

## Introduction

A recent updated checklist of the mosses of Paraguay reported 240 species, including 8 infra-specific taxa, from 94 genera and 38 families (O'SHEA & PRICE, 2008). One of the most significant bryophyte collections from Paraguay is that made by the Frenchman Benedict (Benjamin) Balansa during the late 1800's. Considered to be a "scientific voyager", he spent over ten years living, working and collecting plants in Paraguay. He was based in the capital Asunción, at the invitation of the government at that time (FOURIER, 2005), but travelled and collected in the departments of Paraguari, Guairá, and Caaguazú. Balansa collected plants from all groups during his two stays in Paraguay: the first between 1873 and 1877, and the second between 1878 and 1884. His collections were distributed, amongst others, to B, BM, G, H-BR, L, NY and PC.

The majority of the Balansa collections of Paraguayan mosses were worked on by the French bryologist Emile Bescherelle (1828-1903) who was based in Paris (BESCHERELLE, 1877, 1885, 1891a, 1891b, 1891c). BESCHERELLE (1885) consists of a list of the mosses distributed by Balansa in 1884, some names were of new species which were validated in his later series of publications "*Selectio Novorum Muscorum*" (BESCHERELLE 1891a, 1891b, 1891c). Bescherelle described 73 new names based on the Balansa Paraguayan collections, 20 of which are apparent endemics to Paraguay (Table 1).

Appendix 1 contains a complete list of the published Balansa Paraguay collection number series for mosses, including reference information, the name under which the collection number was published and the name under which each specimen is currently known. The presence/absence of material in G for each collection number is indicated alongside abridged information on the locality, taken from the first publication in which the number appeared. The place of the first publication of each collection number is also given. Of the 195 published collection numbers and 5 collections distributed without a number G holds 390 collections for 158 numbers.

A list of previously unpublished Balansa collection numbers that were found in G is included at the end of the catalogue and in Appendix 1. This newly determined/verified material, accounts for 22 specimens for 15 previously unpublished Balansa collection numbers.

## The life of Benjamin Balansa (1825-1891)

Benjamin Balansa, born Benedict Balansa, was the fourth son of Joseph and Jeanne (born Caussidou) Balansa. He was born on 28<sup>th</sup> of March, 1825 in the commune of Narbonne (department Aude, region Languedoc-Roussillon), France. Evidence points to the fact that his mother was travelling to Toulouse on the Canal du Midi at the time of his birth as there are no records indicating that the family ever resided in

Narbonne (ASTRE, 1947). According to the biography of Benjamin Balansa by ASTRE (1947) he studied in Sorèze (at the foot of Montagne-Noire in the department of Tarn) at 'Collège de Sorèze', and developed an interest in plants during his time there. When the family later moved to Paris he worked for two years as an editor at the 'Moniteur Universel'. In 1847, at the age of 22, he married Marie-Pauline Fabre and a year later began the activities that would occupy the next 44 years of his life, namely travelling, collecting plants and engaging in business ventures in foreign countries (for example, in Paraguay, Sicily, Turkey and Vietnam). He can be described as a "scientific voyager" as he had a particular interest in the exploration and exploitation of natural resources as well as in plant collecting (ASTRE, 1947). Many of his voyages were either conducted in the company of Edmond Bossier or where undertaken on his behalf. Balansa died in Hanoi, Vietnam, on the 22<sup>nd</sup> November 1891 at the age of 66.

### Voyages of B. Balansa (from ASTRE, 1947):

- |           |  |
|-----------|--|
| 1847-1848 | First voyage to Algeria,                                     |
| 1850-1853 | Second voyage to Algeria,                                    |
| 1854-1855 | First voyage to the Orient (Turkey and Sicily),              |
| 1856      | Second voyage to the Orient ("Capadoce"),                    |
| 1857-1865 | Third voyage to the Orient (Turkey and Sicily),              |
| 1866      | Voyage to Lazistan (Turkey),                                 |
| 1867      | Voyage to Morocco (Mogador, Atlas Mountains, Marrakech),     |
| 1868-1872 | Voyage to New Caledonia and the Loyalty Islands,             |
| 1873-1877 | First voyage to Paraguay,                                    |
| 1878-1884 | Second voyage to Paraguay,                                   |
| 1885-1889 | First voyage to Tonkin (North Vietnam), with a trip to Java, |
| 1890-1891 | Second voyage to Tonkin (died in Hanoi).                     |

## Catalogue of the Balansa moss collections from Paraguay in G

In G, the collections of Balansa from Paraguay are easily recognisable based on their distinctive labels. The collection series are entitled "B. Balansa - Pl. du Paraguay - 1874-1877" or "B. Balansa - Pl. du Paraguay - 1878-1884" and the labels themselves, written in French, generally have information on the locality and substrate for each specimen, the date (at least the year) the collection was made and a collection number. For many of the specimens in G a second number, the year of herbarium accession, has been added to the specimen label.

The original name under which the Balansa Paraguay collection numbers were published are listed alphabetically, with information on the place of publication and, for type specimens,

**Table 1.** – The 73 taxa, including 4 infra-specific names and 14 *nomina nuda*, described by Emile Bescherelle from material collected in Paraguay by Benjamin Balansa. The 20 taxa that are currently listed as endemic to Paraguay are indicated in bold. The year of publication is included after the author.

<i>Acrocryphaea paraguensis</i> Besch. – 1891 = <b><i>Schoenobryum paraguense</i></b> (Besch.) Manuel	<i>Microthamnium eurystomum</i> Besch. – 1877 = <b><i>Mittenothamnium eurystomum</i></b> (Besch.) Cardot
<i>Anacalypta paraguensis</i> Besch. – 1877 = <b><i>Uleastrum paraguensis</i></b> (Besch.) W. R. Buck	<i>Microthamnium humile</i> Besch. – 1877 = <b><i>Mittenothamnium humile</i></b> (Besch.) Cardot
<i>Aulacopilum paraguense</i> Besch. – 1885 ( <i>nom. nud.</i> )	<i>Neckera villae-ricae</i> Besch. – 1877
<b><i>Brachymerium spirale</i></b> Besch. – 1891	<i>Orthotrichum paraguense</i> Besch. – 1891 = <b><i>Sehnemobryum paraguense</i></b> (Besch.) Lewinsky-Haapasaari & Hedenas
<i>Bruchia aurea</i> Besch. – 1877	<b><i>Papillaria guarapiensis</i></b> Besch. – 1891
<b><i>Bryum paraguense</i></b> Besch. – 1877	<i>Papillaria subnigrescens</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Conomitrium polycarpum</i> Besch. – 1891	<i>Philonotis balansaeana</i> Besch. – 1877 = <i>Philonotis curvata</i> (Hampe) A. Jaeger
<i>Cryphaea guarapensis</i> Besch. – 1885 ( <i>nom. nud.</i> )	<i>Philonotis balanseana</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Cylindrothecium argyreum</i> Besch. – 1891	<b><i>Physcomitrium luteolum</i></b> Besch. – 1877
<i>Ectropothecium glaucinum</i> Besch. – 1877 = <b><i>Vesicularia glaucina</i></b> (Besch.) Broth.	<b><i>Physcomitrium paraguense</i></b> Besch. – 1877
<i>Entosthodon balansae</i> Besch. – 1877	<i>Plagiothecium villae-ricae</i> Besch. – 1877 = <i>Isopterygium tenerifolium</i> Mitt.
<i>Erpodium exsertum</i> Besch. – 1891 = <i>Erpodium biseriatum</i> (Austin) Austin	<i>Pogonatum pallens</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Erpodium lanceolatum</i> Besch. – 1885 ( <i>nom. nud.</i> )	<i>Pseudoleskea paraguensis</i> Besch. – 1877 = <i>Haplocladium microphyllum</i> (Hedw.) Broth.
<i>Erpodium paraguense</i> Besch. – 1877 = <i>Erpodium beccarii</i> Müll. Hal.	<i>Pterogoniopsis fabronia</i> Besch. – 1885 = <b><i>Sematophyllum fabronia</i></b> (Besch.) W. R. Buck
<i>Fabronia balansaeana</i> Besch. – 1885 = <i>Fabronia ciliaris</i> var. <i>polycarpa</i> (Hook.) W. R. Buck	<i>Ptychomitrium balansae</i> Besch. – 1877 = <i>Ptychomitrium muelleri</i> (Mitt.) A. Jaeger
<i>Fabronia guarapensis</i> Besch. – 1885 ( <i>nom. nud.</i> )	<i>Ptychomitrium mandoni</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Fabronia guarapiensis</i> Besch. – 1891 = <i>Fabronia ciliaris</i> var. <i>polycarpa</i> (Hook.) W. R. Buck	<b><i>Ptychomitrium subdentatum</i></b> Besch. – 1877
<i>Fabronia julacea</i> Besch. – 1877 = <i>Fabronia ciliaris</i> var. <i>polycarpa</i> (Hook.) W. R. Buck	<i>Ptychomitrium vaginatum</i> Besch. – 1877
<i>Fissidens balansaeanus</i> Besch. – 1877 = <i>Fissidens zollingeri</i> Mont.	<i>Rhaphidostegium chlorothecium</i> Besch. – 1877 = <b><i>Sematophyllum chlorothecium</i></b> (Besch.) Broth.
<i>Fissidens balansaeanus</i> var. <i>limosus</i> Besch. – 1877 = <i>Fissidens zollingeri</i> Mont.	<i>Rhaphidostegium fallax</i> Besch. – 1877 = <i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
<i>Fissidens brevipes</i> Besch. – 1891 = <i>Fissidens elegans</i> Brid.	<i>Rhaphidostegium fusco-viride</i> Besch. – 1891 = <i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
<i>Fissidens glaucifrons</i> Besch. – 1891 = <i>Fissidens elegans</i> Brid.	<i>Rhaphidostegium globosum</i> Besch. – 1891 = <i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
<i>Fissidens guarapiensis</i> Besch. – 1891 = <i>Fissidens zollingeri</i> Mont.	<i>Rhaphidostegium percircinale</i> Besch. – 1891 ( <i>nom. nud.</i> )
<i>Fissidens subcrispus</i> Besch. – 1877 = <i>Fissidens crispus</i> Mont.	<b><i>Rhynchostegium assumptionis</i></b> Besch. – 1877
<b><i>Holomitrium paraguense</i></b> Besch. – 1891	<b><i>Rhynchostegium fissidentellum</i></b> Besch. – 1877
<i>Homalia paraguensis</i> Besch. – 1891 ( <i>nom. nud.</i> )	<b><i>Schlotheimia paraguensis</i></b> Besch. – 1877
<i>Hookeria luteoviridis</i> Besch. – 1891 = <i>Thamniopsis langsdorffii</i> (Hook.) W. R. Buck	<i>Schlotheimia paraguensis</i> f. <i>pruinosa</i> Besch. – 1877 ( <i>nom. nud.</i> )
<i>Hookeria subdepressa</i> Besch. – 1891 = <b><i>Callicostella subdepressa</i></b> (Besch.) Broth.	<i>Sphagnum flaccidum</i> Besch. – 1877
<b><i>Hymenostomum balansaeum</i></b> Besch. – 1877	<i>Sphagnum paraguense</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Isopterygium guarapense</i> Besch. – 1891 = <i>Isopterygium tenerum</i> (Sw.) Mitt.	<i>Stereophyllum enerve</i> Besch. – 1885 ( <i>nom. nud.</i> )
<i>Isopterygium subtenerum</i> Besch. – 1891 = <i>Isopterygium tenerum</i> (Sw.) Mitt.	<i>Stereophyllum guarapense</i> Besch. – 1877 = <i>Stereophyllum radiculosum</i> (Hook.) Mitt.
<i>Lasia occulta</i> Besch. – 1891 = <i>Forsstroemia occulta</i> (Besch.) Paris	<i>Stereophyllum paraguense</i> Besch. – 1877 = <i>Stereophyllum radiculosum</i> (Hook.) Mitt.
<i>Lasia paraguensis</i> Besch. – 1877 = <i>Forsstroemia coronata</i> (Mont.) Paris	<i>Syrrophodon paraguensis</i> Besch. – 1891 = <i>Syrrophodon ligulatus</i> Mont.
<i>Lasia subcoronata</i> Besch. – 1877 = <i>Forsstroemia subcoronata</i> (Besch.) Paris	<b><i>Thuidium paraguense</i></b> Besch. – 1891
<i>Lasia subcoronata</i> var. <i>patens</i> Besch. – 1877 ( <i>nom. nud.</i> )	<b><i>Trematodon paletifolius</i></b> Müll. Hal. ex Besch. – 1877
<i>Leptohymerium squarrosum</i> var. <i>griseum</i> Besch. – 1877 = <i>Lorentziella paraguensis</i> Besch. – 1877	
<i>Microdus paraguensis</i> Besch. – 1891 = <b><i>Leptotrichella paraguensis</i></b> (Besch.) Ochyra	

the type citation given. Publication details are given for specimens related to names originating from Paraguay material whereas publication information is not given where the name represents a straight determination of the material. For each record the basionym and/or published name is given alongside its modern name (in bold).

Information on the specimen labels is included for the type and non-type specimens. Label information for the first specimen entry of a series of specimens with the same collection number is given in full and if subsequent labels are identical then only the G barcode, type designation (if applicable) and herbarium of origin for each specimen is listed. If label information differs between labels with the same collection number then each variant is noted. When an herbarium accession year is present on the label this is indicated in square brackets.

Where a name has been typified then the published type designation and type location(s) are indicated, along with information on the G material. The terms lectotype, isolectotype, holotype and isotype are used when types have been specified and the term syntype is used herein wherever specific type designations were not found. For type (“Type specimens”) and non-type specimens (“Specimens”) the G barcode is given as an identifier. For non-type specimens the publication in which the collection number/s first appeared is given. Information on published *nomina nuda* is included and the specimens associated with these names are listed as “original material”.

In G, Balansa collections can be found in the historical herbaria of Boissier, Reuter-Barbey, Barbey-Boissier, Duby, the non G-DC De Candolle collection as well as in the general collection. For any particular Balansa collection number present in G between 1 and 5 duplicates are found. Based on observations of the G collection, some of the Balansa duplicates appear to have been distributed without determinations as they have been annotated at a later date using the series of publications by BESCHERELLE (1877, 1885, 1891a, 1891b, 1891c).

The herbarium of origin of the specimen is noted using the following:

- G = general herbarium of G (no specific source given on the label);
- Herb. Barb.-Boiss. = Barbey-Boissier herbarium;
- Herb. Boiss. = Boissier herbarium;
- Herb. DC. = De Candolle herbarium (non G-DC);
- Herb. Duby = Duby herbarium;
- Herb. Reuter-Barb. = Reuter-Barbey herbarium.

In this work all author names are standardized according to BRUMMIT & POWELL (1992) and journal citations are according to the accepted standards of bryological literature (CROSBY, 1999). Accepted names are according to CROSBY & al. (1999) and the Missouri Botanical Garden database TROPICOS. Herbarium codes are according to Index Herbariorum.

*Acrocryphaea paraguensis* Besch. in J. Bot. (Morot) 5: 342. 1891.

≡ ***Schoenobryum paraguense*** (Besch.) Manuel in Bryologist 80: 523. 1977.

*Type citation.* – “Caraguazu, sur les arbres, janvier, *Balansa 3628*”.

*Type specimens.* – **Syntypes:** Caaguazu, sur tronc des arbres, janvier 1882, *Balansa 3628* (G [1885], **G00040482**; Herb. Boiss., **G00040481**; Herb. Boiss., **G00040483**; Herb. DC. [1884], **G00040484**).

*Type designation.* – Type designation not indicated in MANUEL (1977).

*Amblystegium haplocladium* Müll. Hal. in Hedwigia 36: 130. 1897.

*Type citation.* – “Paraguay, in sylvis prope Guarape truncos arborum habitans: *B. Balansa* 1878. *Coll. No. 3679*; L’assomption, in terra humosa, 27. Julio 1897: *Balansa Coll. No. 3679*”.

*Type specimens.* – **Syntypes:** Forêt de Guarapi, sur le tronc des arbres 1878, *Balansa 3679* (G [1885], **G00048141**; Herb. Boiss., **G00042360**; Herb. Boiss., **G00048142**; Herb. Boiss., **G00048143**; Herb. DC. [1884], **G00048140**).

*Type designation.* – None found.

*Comments.* – BESCHERELLE (1885: 19) published this collection number with the name *Microthamnium humile* Besch.

*Anacalypta paraguensis* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 261. 1877.

≡ ***Uleastrum paraguense*** (Besch.) W. R. Buck in Candollea 40: 203. 1985.

*Type citation.* – “Peragu [Pirayu], sur le tronc du *Cocos yatai*, *Balansa 1220*”.

*Type specimens.* – **Syntypes:** Pirayu, sur le tronc du *Cocos yatai*, mai 1877, *Balansa 1220* (G [1878], **G00048151**; Herb. Boiss., **G00048152**).

*Type designation.* – Type designation not indicated in BUCK (1985).

*Aptychus circinicaulis* Müll. Hal. in Hedwigia 36: 125. 1897.

≡ ***Sematophyllum circinicaule*** (Müll. Hal.) Broth. in Nat. Pflanzenfam. (ed. 2) 11: 433. 1925.

*Type citation.* – “Paraguay, ‘bords du Mbay’, in truncis arborum, Julio 1881: *B. Balansa in Coll. No. 3692*”.

*Type specimens.* – **Syntypes:** Bords du Mbay, sur le tronc des arbres, juillet 1881, *Balansa* 3692 (G [1885], **G00040506**; Herb. Boiss., **G00040496**; Herb. Boiss., **G00040497**; Herb. DC. [1884], **G00040505**) [published in BESCHERELLE, 1885: 19].

*Type designation.* – None found.

*Aulacopilum balansae* Müll. Hal. in *Flora* 70: 447. 1887.  
= *Erpodium glaucum* (Wilson) I. G. Stone, fide STONE (1997: 487).

*Type citation.* – “Guarapi, in truncis Aurantiorum, Junio 1881, *Balansa* 3643”.

*Type specimens.* – **Syntypes:** Guarapi, sur le tronc des orangers, juin 1881, *Balansa* 3643 (G [1885], **G00042261**; Herb. Boiss., **G00042262**; Herb. Boiss., **G00042263**; Herb. DC. [1884], **G00042264**).

*Type designation.* – None found.

*Comments.* – Number 3643 was also used as the original specimen by BESCHERELLE (1885: 18) for the *nomen nudum* “*Aulacopilum paraguense*”.

*Barbula pallidoviridis* Müll. Hal. in *Hedwigia* 36: 103. 1897.  
= *Tortella humilis* (Hedw.) Jenn., fide CRUM & STEERE (1957: 471).

*Type citation.* – “Paraguay ‘bords du Mobay’ in truncis arborum, Julio 1881, *B. Balansa Coll.* 3652 et 3652a”.

*Type specimens.* – **Syntypes:** Bords du Mbay, sur le tronc des arbres, juillet 1881, *Balansa* 3652 (G [1885], **G00042221**; Herb. Boiss., **G00042222**; Herb. DC. [1884], **G00042220**).

*Type designation.* – None found.

*Specimens.* – Guarapi, sur le tronc des arbres, juin 1879, *Balansa* 3652a (G [1885], **G00042219**; Herb. Boiss., **G00042223**; Herb. DC. [1884], **G00042218**) [published in BESCHERELLE, 1885: 17].

*Comments.* – Number 3652a, with the locality “Bords du Mobay”, was used by MÜLLER (1897) as one of the two types of *Barbula pallidoviridis* Müll. Hal. The G specimens for collection number 3652a have different locality information and a different collection date than those cited in the protologue under the same number. The G material under number 3652a is thus not treated as potential type material herein.

*Braunia incana* Müll. Hal.

= *Braunia cirrhifolia* (Mitt.) A. Jaeger, fide VAN DER WIJK & al. (1959: 232).

*Specimen.* – Roches éruptives, au NE du Cerro de San Tomas, mars 1881, *Balansa* 3683 (G, **G00040401**) [published in BESCHERELLE, 1885:17].

*Bruchia aurea* Besch. in *Mém. Soc. Sci. Nat. Cherbourg* 21: 259. 1877.

*Type citation.* – “Assomption, juillet 1876, *Balansa* 1261”.

*Type specimens.* – **Isotypes:** L’Assomption, juillet 1876, *Balansa* 1261 (Herb. Boiss. [non-original Balansa label], **G00046209**; Herb. DC. [1878], **G00046206**).

*Type designation.* – RUSHING (1986: 57): holotype (BM), isotypes (G, H-BR, NY, PC, S).

*Bruchia ligulata* Müll. Hal. in *Flora* 71: 11. 1888.

= *Bruchia aurea* Besch., fide VAN DER WIJK & al. (1959: 242).

*Type citation.* – “Paraguari, in terra humida camporum incultorum, Junio 1882; Assumption [sic], Junio 1879, *Balansa* 3708 et 3658”.

*Type specimens.* – **Syntypes:** L’Assomption, juin 1879, *Balansa* 3658 (G [1885], **G00046207**; Herb. Boiss., **G00046210**; Herb. DC. [1884], **G00046208**). Paraguari, sur la terre humide, dans les champs en friche, 1882, *Balansa* 3708 (Herb. Barb.-Boiss., **G00116002**; Herb. DC. [1884], **G00128216**).

*Type designation.* – Type designation not indicated in RUSHING (1986).

*Comments.* – The collection number 3658 was published under *Bruchia aurea* Besch. by BESCHERELLE (1885: 17) before being used by Müller to describe *B. ligulata*.

*Bryum argenteum* var. *corrugatum* (Hampe) Besch.

= *Bryum argenteum* Hedw., fide CRUM & STEERE (1957: 488).

*Specimen.* – L’Assomption - sur la terre, dans les clairières des broussailles, 14 août 1874, *Balansa* 1259 (Herb. DC., **G00042200**) [published in BESCHERELLE, 1877: 263].

*Bryum corrugatum* Hampe

= *Bryum argenteum* Hedw., fide OCHI (1980: 110).

*Specimens.* – Guaviati, sur la terre autour des habitations, 13 juillet 1881, *Balansa* 3647 (G [1885], **G00042201**; Herb. Boiss., **G00042197**; Herb. Boiss., **G00042198**; Herb. DC. [1884], **G00042199**) [published in BESCHERELLE, 1885: 18].

**Bryum paraguayense** Besch.

*Specimens.* – Guarapi, sur le talus des chemins, juillet 1881, *Balansa 3651a* (G [1885], **G00042404**; Herb. DC., **G00042405**). Guarapi, sur le talus des chemins, août 1881, *Balansa 3651a* (Herb. Boiss. [1885], **G00042403**) [published in BESCHERELLE, 1885: 18].

**Campylopus amabilis** (Müll. Hal.) Paris

= **Campylopus pyriformis** (Schultz) Brid., fide FRAHM (1982: 49).

*Specimens.* – Cordillère de Péribebui, dans les terrains dénudés, 1879, *Balansa 3660* (G [1885], **G00048097**; Herb. Boiss., **G00048096**; Herb. DC. [1884], **G00048095**) [published in BESCHERELLE, 1885: 17].

**Cryphaea guarapensis** Besch. in Rev. Bryol. 12: 18. 1885 [nom. nud.].

*Type citation.* – “Guarapi, *Balansa 3629a*”.

*Original specimen.* – Guarapi, sur le tronc des arbres, 30 juillet 1881, *Balansa 3629a* (Herb. Boiss., **G00042390**).

**Cylindrothecium argyreum** Besch. in J. Bot. (Morot) 5: 346. 1891.

= **Entodon argyreus** (Besch.) Broth. in Bih. Kongl. Svenska Vetensk.-Akad. Handl. 26. Afd. 3(7): 49. 1900.

*Type citation.* – “Guarapi, sur les troncs des arbres 1878, *Balansa 3678*”.

*Type specimens.* – **Syntypes:** Guarapi, sur le tronc des arbres, 1878, *Balansa 3678* (G, **G00042391**; G [1885], **G00042392**; Herb. Boiss., **G00042396**; Herb. Boiss., **G00042397**; Herb. DC. [1884], **G00042393**).

*Type designation.* – None found.

**Dimerodontium balansae** Müll. Hal. in Mém. Soc. Sci. Nat. Cherbourg 21: 267. 1877.

*Type citation.* – “Assomption, sur les troncs d’arbres, *Balansa 1207*; Villa-Rica, forêt à l’Est de la Cordillère”.

*Type specimens.* – **Isolectotypes:** L’Assomption, sur le tronc des arbres, juin 1874, *Balansa 1207* (G [1878], **G00042237**; G [1878], **G00042238**).

*Type designation.* – CÂMARA & MAGILL (2009: 305): lectotype (PC), isolectotypes (BM, G, NY).

*Specimens.* – Guarapi, *Balansa 3702* (G, **G00042239**; G, **G00042240**; G, **G00042241**; G [1884], **G00042242**) [published in BESCHERELLE, 1885: 18]. Guarapi, *Balansa 3681* (G, **G00042244**) [published in MÜLLER & STEPHANI, 1887: 57].

**Dusenias cuspidata** Müll. Hal. in Hedwigia 36: 108. 1897.

= **Forsstroemia trichomitria** (Hedw.) Lindb., fide STARK (1987: 191), see note in O’SHEA & PRICE (2008: 30).

*Type citation.* – “Paraguay, sine loco natali, *Balansa Coll. No. 3662*”.

*Type specimens.* – **Lectotype:** Guarapi, sur le tronc des arbres, 10 août 1881, *Balansa 3662* (G [1885], **G00042104**). **Isolectotypes:** (Herb. Boiss., **G00042103**; Herb. DC. [1884], **G00042102**).

*Type designation.* – STARK (1987: 191): lectotype (G).

*Comments.* – Number 3662 was named “*Lasia subcoronata* Besch.” by BESCHERELLE (1885: 18) before being used by MÜLLER (1897) as the type of *Dusenias cuspidata*.

**Ectropothecium glaucinum** Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 271. 1877.

= **Vesicularia glaucina** (Besch.) Broth. in Engl. & Prantl, Nat. Pflanzenfam. I(3): 1094. 1908.

*Type citation.* – “Caaguazu, *Balansa 1198*; Assomption, *Balansa 1271*”.

*Type specimens.* – **Syntypes:** Caaguazu, dans les forêts, 24 mars 1876, *Balansa 1198* (Herb. Boiss., **G00042207**; Herb. DC. [1878], **G00042208**).

*Type designation.* – None found.

*Specimens.* – Guarapi, sur les troncs des arbres, juin 1881, *Balansa 3691* (Herb. Boiss., **G00042204**; Herb. DC. [1884], **G00042203**) [published in BESCHERELLE, 1885: 19].

**Entodon denticulatum** Müll. Hal. in Rev. Bryol. 14: 57. 1887 [nom. nud.].

= **Erythrodonium longisetum** (Hook.) Paris, fide MAJESTYK (2009: 808).

*Type citation.* – “s.l., *Balansa 3678a*”.

*Original specimen.* – Town in Caaguazu, Paraguay, 1884, *Balansa 3678a* (Herb. Boiss. [non-original Balansa label], **G00042394**).

**Entosthodon balansae** Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 263. 1877.

*Type citation.* – “Assomption, sur la terre, dans les clairières, *Balansa 1227*; sur les talus, *Balansa 1228*; Villa-Rica, *Balansa 1233*; Guarapi, *Balansa 1226*”.

*Type specimens.* – **Syntypes:** Guarapi, sur la terre humide, juin 1877, *Balansa 1226* (Herb. Boiss., **G00042519**; Herb. DC. [1878], **G00042520**; Herb. Reuter-Barb., **G00042535**). L’Assomption, sur la terre, dans les clairières des broussailles, 14 août 1874, *Balansa 1227* (Herb. Boiss.,



**G00042521**; Herb. DC. [1878], **G00042522**). L'Assomption, sur les talus des chemins, août 1876, *Balansa* 1228 (Herb. Boiss., **G00042523**; Herb. DC. [1878], **G00042524**).

*Type designation.* – None found.

*Specimens.* – L'Assomption, sur les talus des chemins ombragés, juillet 1881, *Balansa* 3649 (G [1885], **G00042527**; Herb. Boiss., **G00042525**; Herb. Boiss., **G00042528**; Herb. DC. [1884], **G00042526**) [published in BESCHERELLE, 1885: 18].

*Ephemerum conicum* Müll. Hal.

*Specimens.* – Guarapi, sur la terre humide, 1878, *Balansa* 3621 (G, **G00040404**; G [1885], **G00040405**; Herb. DC. [1884], **G00040406**) [published in BESCHERELLE, 1885: 17].

*Erpodium balansae* Müll. Hal. in *Flora* 70: 449. 1887.

= *Erpodium glaziovii* Hampe, fide CRUM (1972: 216).

*Type citation.* – “Guarapi et Assumption in truncis Auran-torium Junio 1881 et 1884, *Balansa* 3645 et 3645a. Cum *Aulacopilo Balansae* associatum”.

*Type specimens.* – **Syntypes:** Guarapi, sur le tronc des orangers, juin 1881, *Balansa* 3645 (Herb. Boiss., **G00042229**; Herb. DC. [1884], **G00042345**; Herb. DC [1885], **G00042346**). L'Assomption, sur le tronc des orangers, juin 1881, *Balansa* 3645a (G [1885], **G00042226**; Herb. Boiss., **G00042227**; Herb. Boiss., **G00042228**; Herb. DC. [1884], **G00042225**).

*Type designation.* – None found.

*Comments.* – Number 3645a was published as “*Erpodium coronatum* Hook. et Wils., Assumption” by BESCHERELLE (1885: 18) before being used later by Müller as the type of *E. balansae*.

*Erpodium exsertum* Besch. in *J. Bot. (Morot)* 5: 254. 1891.

= *Erpodium biseriatum* (Austin) Austin, fide CRUM (1972: 209).

*Type citation.* – “Péribébuy, *Balansa* 3646”.

*Type specimens.* – **Syntypes:** Cordillère de Péribébui, sur le tronc des arbres, juillet 1879, *Balansa* 3646 (Herb. Boiss., **G00042273**; Herb. Boiss., **G00042274**; Herb. DC. [1884], **G00042275**).

*Type designation.* – CRUM (1972: 210): type (PC [Crum!]), type designation not indicated.

*Erpodium lanceolatum* Besch. in *Rev. Bryol.* 12: 18. 1885 [nom. nud.].

= *Erpodium beccarii* Müll. Hal., fide CRUM (1972: 211).

*Type citation.* – “Guarapi, *Balansa* 3644”.

*Original specimens.* – Guarapi, sur le tronc des orangers, juin 1881, *Balansa* 3644 (G, **G00042231**; G, **G00042234**; G [1884], **G00042232**; G [1885], **G00042233**).

*Comments.* – CRUM (1972: 212) indicated that this collection number was found under different names in different herbaria.

*Fabronia balansae* Besch. in *J. Bot. (Morot)* 5: 345. 1891.

= *Fabronia ciliaris* var. *polycarpa* (Hook.) W. R. Buck, fide BUCK (1983: 251).

*Type citation.* – “Guarapi, associé au *Dimerodontium balansae*, 1881, *Balansa* 3656”.

*Type specimens.* – **Isolectotypes:** Guarapi, 1881, *Balansa* 3656 (G, **G00042333**; G [1885], **G00042334**; Herb. DC. [1884], **G00042335**).

*Type designation.* – BUCK (1983: 251): lectotype (BM), isolectotype (G).

*Fabronia guarapiensis* Besch. in *J. Bot. (Morot)* 5: 345. 1891.

= *Fabronia ciliaris* var. *polycarpa* (Hook.) W. R. Buck, fide BUCK (1983: 251).

*Type citation.* – “Guarapi, sur le tronc des arbres, 14 juillet 1881, *Balansa* 3681, associé au *Dimerodontium Balansae* et à divers *Frullania* et autres *Jungermannes*”.

*Type specimens.* – **Isolectotypes:** Guarapi, sur le tronc des arbres, 14 juillet 1881, *Balansa* 3681 (G, **G00042243**; Herb. Boiss., **G00042336**; Herb. Boiss., **G00042337**).

*Type designation.* – BUCK (1983: 251): lectotype (BM), isolectotypes (G [2]).

*Fabronia julacea* Besch. in *Mém. Soc. Sci. Nat. Cherbourg* 21: 265. 1877.

= *Fabronia ciliaris* var. *polycarpa* (Hook.) W. R. Buck, fide BUCK (1983: 251).

*Type citation.* – “Assomption, sur les troncs des arbres, *Balansa* 1256”.

*Type specimens.* – **Syntypes:** L'Assomption, sur le tronc des arbres, avril 1877, *Balansa* 1256 (G, **G00042530**; G [1878], **G00046104**).

*Type designation.* – BUCK (1983: 251): types (BM, NY), holotype location not indicated.

*Fissidens balansaeanus* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 260. 1877.

= *Fissidens zollingeri* Mont., fide PURSELL (1994: 266).

*Type citation.* – “Assomption, parois des puits, août 1874, *Balansa 1241*”.

*Type specimens.* – **Isolectotypes:** L’Assomption, sur les parois d’un puits, 8 août 1874, *Balansa 1241* (Herb. Boiss., **G00042254**; Herb. DC. [1878], **G00042253**).

*Type designation.* – PURSELL (1994: 266): lectotype (BM). PURSELL (2007: 225): holotype (BM).

*Fissidens balansaeanus* var. *limosus* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 261. 1877.

= *Fissidens zollingeri* Mont., fide PURSELL (2007: 225).

*Type citation.* – “Yaguarou [Yaguaron], sur la terre, *Balansa 1245*”.

*Type specimens.* – **Isolectotypes:** Yaguaron, 1877, *Balansa 1245* (Herb. Boiss., **G00042255**; Herb. DC. [1878], **G00114035**).

*Type designation.* – PURSELL (2007: 225): lectotype (S) “Yaguarou, 1877, *Balansa s.n.*”.

*Fissidens brevipes* Besch. in J. Bot. (Morot) 5: 252. 1891.

*Type citation.* – “Paraguay, ad cortices, *Balansa 3698*”.

*Type specimen.* – **Isolectotype:** Guarapi, dans les forêts, *Balansa 3698* (Herb. Boiss., **G00042276**).

*Type designation.* – PURSELL (1994: 256): lectotype (NY).

*Fissidens glaucifrons* Besch. in J. Bot. (Morot) 5: 252. 1891.

= *Fissidens elegans* Brid., fide PURSELL (1994: 258).

*Type citation.* – “Assomption, talus, *Balansa 3697*”.

*Type specimens.* – **Lectotype:** L’Assomption sur le talus des chemins, juillet 1879, *Balansa 3697* (Herb. Boiss., **G00042250**). **Isolectotypes:** (Herb. Boiss., **G00042251**; Herb. DC. [1884], **G00042252**).

*Type designation.* – PURSELL (1994: 258): lectotype (G), isolectotypes (G, NY).

*Fissidens guarapiensis* Besch. in J. Bot. (Morot) 5: 252. 1891.

= *Fissidens zollingeri* Mont., fide PURSELL (1994: 266).

*Type citation.* – “Guarapi, sur la terre, *Balansa 3699*”.

*Type specimens.* – **Isolectotypes:** Guarapi, sur la terre, avril 1881, *Balansa 3699* (G [1885], **G00042249**; Herb. Boiss., **G00042245**; Herb. Boiss., **G00042246**; Herb. Boiss. [non-original Balansa label], **G00042247**; Herb. DC. [1884], **G00042248**).

*Type designation.* – PURSELL (1994: 266): lectotype (BM). PURSELL (2007: 226): holotype (BM), isotype (NY).

*Comments.* – Number 3699 was used by Müller (MÜLLER & STEPHANI, 1887: 57) for the *nomen nudum* “*Fissidens stenocarpus*”.

*Fissidens subcrispus* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 260. 1877.

= *Fissidens crispus* Mont., fide PURSELL (1994: 256).

*Type citation.* – “Assomption, sur les pelouses, juillet 1876, *Balansa 1202*”.

*Type specimens.* – **Isolectotypes:** L’Assomption, sur les pelouses, juillet 1876, *Balansa 1202* (G [1878], **G00121791**; Herb. DC., **G00040407**).

*Type designation.* – PURSELL (1994: 256): lectotype (H-BR). PURSELL (2007: 78): holotype (BM), isotypes (H-BR, NY, S).

*Specimens.* – Bords du Mbaii, sur le tronc des arbres, juillet 1881, *Balansa 3637* (G [1885], **G00048101**; Herb. Boiss., **G00048098**; Herb. Boiss., **G00048099**; Herb. DC. [1884], **G00048100**) [published in BESCHERELLE, 1885: 17].

*Funaria calvescens* Schwägr.

= *Funaria hygrometrica* var. *calvescens* (Schwägr.) Mont., fide BOWERS (1970: 17).

*Specimens.* – Paraguari, sur la terre humide, juillet 1881, *Balansa 3653* (G, **G00040410**; G [1884], **G00040409**; G [1885], **G00040411**; Herb. Boiss., **G00040408**). Guarapi, dans les défrichés nouvellement incendiés, juin 1879, *Balansa 3653a* (G [1885], **G00040412**; Herb. Boiss., **G00040413**; Herb. DC. [1884], **G00040414**). L’Assomption, sur la terre humide, juillet 1879, *Balansa 3653b* (Herb. Boiss., **G00040415**) [published in BESCHERELLE, 1885: 18].

*Helicodontium capillare* (Hedw.) A. Jaeger

*Specimen.* – L’Assomption, 1876, *Balansa 1208* (Herb. DC. [1878], **G00042367**) [published in BESCHERELLE, 1877: 268].

*Helicodontium pervirens* (Müll. Hal.) Paris

*Specimens.* – Guarapi, sur le tronc des arbres, 1881, *Balansa 3687* (G [1885], **G00042362**; Herb. Boiss., **G00042364**; Herb. Boiss., **G00042365**; Herb. DC. [1884], **G00042363**) [published in BESCHERELLE, 1885: 18].

*Hookeria luteoviridis* Besch. in J. Bot. (Morot) 5: 344. 1891.

= *Thamniopsis langsdorffii* (Hook.) W. R. Buck, fide BUCK (1987: 218).

*Type citation.* – “Cerro León, près de Pirayu, sur les troncs d’arbres, 23 juillet 1881, *Balansa 3638*”.

*Type specimens.* – **Isotypes:** Cerro León, près de Pirayu, sur l’écorce des arbres, 23 juillet 1881, *Balansa 3638* (G [1885], **G00042182**; Herb. Boiss., **G00042184**; Herb. DC. [1884], **G00042183**).

*Type designation.* – BUCK (1987: 218): holotype (BM).

*Hookeria subdepressa* Besch. in J. Bot. (Morot) 5: 345. 1891.

= *Callicostella subdepressa* (Besch.) Broth. in Engl. & Prantl, Nat. Pflanzenfam. I(3): 937. 1907.

*Type citation.* – “Guarapi, 1881, *Balansa 3689*”.

*Type specimens.* – **Syntypes:** Paraguay: Guarapi, dans les forêts, 1881, *Balansa 3689* (G [1885], **G00042270**; Herb. Barb.-Boiss., **G00042271**; Herb. Boiss., **G00042272**; Herb. DC. [1884], **G00042269**).

*Type designation.* – None found.

*Comments.* – Number 3689 was used by Müller (MÜLLER & STEPHANI, 1887: 57) as original material for the *nomen nudum* “*Hookeria paraguensis*”.

*Hymenostomum balansaeanum* Besch.

*Specimens.* – Bopicua entre Paraguari et Yaguaron, sur le talus des chemins, juillet 1881, *Balansa 3700* (G [1885], **G00042348**; Herb. Boiss., **G00042352**; Herb. DC. [1884], **G00042350**) [published in BESCHERELLE, 1885: 17].

*Hypnum circinicaule* Müll. Hal. in Rev. Bryol. 14: 57. 1887 [nom. nud.].

= *Sematophyllum circinicaule* (Müll. Hal.) Broth. in Engl., Nat. Pflanzenfam. ed. 2, 11: 433. 1925.

*Type citation.* – “Sin. loc., *Balansa 3692*”.

*Original specimen.* – 3692. *Hypnum circinicaulis* C. Müller n. sp. Peribebuy (Paraguay) *Balansa* (Herb. Barb.-Boiss. [non-original *Balansa* label], **G00048085**).

*Comments.* – A specimen numbered 3692 from the locality “Bords du Mbaï” was named “*Rhaphidostegium circinale* (Hpe)” by BESCHERELLE (1885: 19) and later served as the type of *Aptychus circinicaulis* Müll. Hal. (= *Sematophyllum circinicaule* (Müll. Hal.) Broth.), see under that name. Since the above specimen does not have an original *Balansa* label, and is assumed to be possibly erroneous, this specimen is not included in Appendix 1.

*Hypnum nanum* Müll. Hal. in Rev. Bryol. 14: 57. 1887 [nom. nud.].

*Type citation.* – “Sin. loc., *Balansa 3695*”.

*Original specimen.* – Guarapi, sur le tronc des arbres, juillet 1881, *Balansa 3695* (Herb. Boiss., **G00040495**).

*Hypopterygium argentinicum* Lorentz ex Müll. Hal.

= *Hypopterygium tamarisci* (Sw.) Brid. ex Müll. Hal., fide KRUIJER (2002: 202).

*Specimens.* – Guarapi, dans les forêts, sur le tronc des arbres, août 1879, *Balansa 3628a* (G [1885], **G00048104**; Herb. Barb.-Boiss., **G00048105**; Herb. Boiss., **G00048103**; Herb. DC. [1884], **G00048102**). Cordillère de Mbatobi, près de Paraguari, sur les roches humides, juin 1881, *Balansa 3629* (G [1885], **G00048106**; Herb. Barb.-Boiss., **G00048107**; Herb. Boiss., **G00048108**; Herb. DC. [1884], **G00048109**). Guarapi, sur le tronc abattu des arbres, dans les forêts, 8 avril 1879, *Balansa 3630* (Herb. Barb.-Boiss., **G00048110**; Herb. Boiss., **G00048111**) [published in BESCHERELLE, 1885: 18].

*Isopterygium guarapense* Besch. in J. Bot. (Morot) 5: 349. 1891.

= *Isopterygium tenerum* (Sw.) Mitt., fide IRELAND (1991: 270).

*Type citation.* – “Guarapi, sur les écorces d’arbres, 1878, *Balansa 3619*”.

*Type specimens.* – **Isotypes:** Guarapi, sur les écorces des arbres, 1878, *Balansa 3619* (Herb. Boiss., **G00042532**; Herb. DC. [1884], **G00042531**).

*Type designation.* – IRELAND (1991: 270): holotype (BM), isotype (H).

*Isopterygium subtenerum* Besch. in J. Bot. (Morot) 5: 348. 1891.

= *Isopterygium tenerum* (Sw.) Mitt., fide IRELAND (1991: 270).

*Type citation.* – “Cordillère de Péribébui, juillet 1879, *Balansa 3690*”.

*Type specimens.* – **Isotypes:** Cordillère de Péribébui, juillet 1879, *Balansa 3690* (G [1885], **G00040418**; Herb. Boiss., **G00040416**; Herb. DC. [1884], **G00040417**).

*Type designation.* – IRELAND (1991: 270): holotype (BM).

*Lasia occulta* Besch. in J. Bot. (Morot) 5: 342. 1891.

= *Forsstroemia trichomitria* (Hedw.) Lindb., fide STARK (1987: 191).

*Type citation.* – “Guarapi, sur les troncs d’arbres, *Balansa 3663*”.

*Type specimens.* – **Isolectotypes:** Guarapi, sur le tronc des arbres, 10 août 1881, *Balansa 3663* (G [1884], **G00042101**; Herb. Boiss., **G00042100**; Herb. DC. [1884], **G00042099**).

*Type designation.* – STARK (1987: 191): lectotype (PC).

*Lasia paraguensis* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 266. 1877.

= *Forsstroemia coronata* (Mont.) Paris, fide STARK (1987: 177).

*Type citation.* – “Yaguaron, dans les forêts, sur les troncs d’arbres, *Balansa 1252*”.

*Type specimen.* – **Lectotype:** Forêts de Yaguarone, juin 1877, *Balansa 1252* (Herb. DC. [1878], **G00042093**).

*Type designation.* – STARK (1987: 177): lectotype (G).

*Specimens.* – Cerro León, près de Pirayu, sur l’écorce des arbres, 23 juillet 1881, *Balansa 3667* (Herb. Boiss., **G00042097**; Herb. DC. [1884], **G00042098**). Bords du Mbai, sur les branches des arbres, juillet 1881, *Balansa 3668* (G [1885], **G00042368**; Herb. Boiss., **G00042369**; Herb. DC. [1884], **G00042370**). Cordillère de Péribébui, sur les écorces des arbres, 1879, *Balansa 3669* (G [1885], **G00042096**; Herb. Boiss., **G00042094**; Herb. DC. [1884], **G00042095**) [published in BESCHERELLE, 1885:18].

*Leptohymenium squarrosus* Hampe

= *Erythrodontium squarrosus* (Hampe) Paris, Index Bryol. (ed. 2) 2: 159. 1904.

*Specimens.* – Cordillère de Mbatobi, près de Paraguari, sur le tronc des arbres, 26 juin 1881, *Balansa 3666* (G [1885], **G00042382**; Herb. Boiss., **G00042383**; Herb. Boiss., **G00042384**; Herb. DC. [1884], **G00042381**). Bords du Mbay, sur le tronc des arbres, juillet 1881, *Balansa 3676* (G [1885], **G00042388**; Herb. Boiss., **G00042385**; Herb. Boiss., **G00042386**; Herb. DC., **G00042387**). Forêts Paraguari, *Balansa 3676* (Herb. Boiss. [non-original Balansa label], **G00042395**) [published in BESCHERELLE, 1885: 19].

*Lorentziella paraguensis* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 259. 1877.

= *Lorentziella imbricata* (Mitt.) Broth., fide LAWTON (1953: 287).

*Type citation.* – “Assomption, sur les pelouses, juillet 1876, *Balansa 1258*”.

*Type specimens.* – **Syntypes:** L’Assomption, sur les pelouses, juillet 1876, *Balansa 1258* (Herb. Boiss., **G00046141**; Herb. DC. [1878], **G00040419**).

*Type designation.* – LAWTON (1953: 281): types (NY, PC), holotype location not indicated.

*Specimens.* – L’Assomption, dans les clairières des broussailles, juin 1881, *Balansa 3623* (G [1885], **G00046142**; Herb. Boiss., **G00046143**; Herb. DC. [1884], **G00046140**) [published in BESCHERELLE, 1885: 17].

*Macromitrium phyllorhizans* Müll. Hal. ex Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 262. 1877.

= *Macrocoma orthotrichoides* (Raddi) Wijk & Margad., fide VITT (1980: 413).

*Type citation.* – “Pirayu, sur les troncs d’arbres, *Balansa 1237*; Paraguari dans les forêts, *Balansa 1240*”.

*Type specimen.* – **Isolectotype:** Perayu, dans les forêts, sur le tronc des arbres, mai 1877, *Balansa 1237* (Herb. DC. [1878], **G00048069**).

*Type designation.* – VITT (1980: 413): lectotype (NY).

*Specimens.* – Cordillère de Péribébui, juillet 1879, *Balansa 3665* (G [1885], **G00048124**; Herb. Boiss., **G00048117**; Herb. DC. [1884], **G00048121**). Guarapi, sur les troncs des arbres, 1881, *Balansa 3670* (G [1885], **G00048125**; Herb. Boiss., **G00048118**; Herb. Boiss., **G00048119**; Herb. DC. [1884], **G00048120**). Cordillère de Péribébui, juillet 1879, *Balansa 3671* (Herb. DC., **G00048123**) [published in BESCHERELLE, 1885: 18].

*Meiothecium fabronia* Besch. in J. Bot. (Morot) 5: 343. 1891.

= *Sematophyllum fabronia* (Besch.) W. R. Buck in Contr. Univ. Michigan Herb. 15: 139. 1982.

*Type citation.* – “Cordillère de Péribébui, juillet 1879, *Balansa 3693*, associé au *Rhaphidostegium (Aptychus) percircinale* C. Muell.”.

*Type specimens.* – **Syntypes:** Cordillère de Péribébui, juillet 1879, *Balansa 3693* (G [1885], **G00042265**; Herb. Boiss., **G00042266**; Herb. Boiss., **G00048077**; Herb. DC. [1884], **G00048076**).

*Type designation.* – Type designation not indicated in BUCK (1982).

*Comments.* – Number 3693 was used by Müller (MÜLLER & STEPHANI, 1887: 57) as original material for the earlier nomen nudum “*Hypnum percircinale*”.

*Microdus paraguensis* Besch. in J. Bot. (Morot) 5: 145. 1891.

= *Leptotrichella paraguensis* (Besch.) Ochyra in Fragm. Florist. Geobot. 42: 563. 1997.

*Type citation.* – “Paraguay: Péribébui, *Balansa* 3661”.

*Type specimens.* – **Syntypes:** Cordillère de Peribébui, dans les terrains dénudés, juillet 1879, *Balansa* 3661 (G [1885], **G00040428**; Herb. Boiss., **G00040425**; Herb. Boiss., **G00040427**; Herb. DC., **G00042267**).

*Type designation.* – Type designation not indicated in OCHYRA (1997).

*Comments.* – Number 3661 was also used as the type for *Conomitrium polycarpum* Besch. (= *Fissidens hornschuchii* Mont.) with locality information “Paraguay” by BESCHERELLE (1891b: 252).

*Specimen.* – Yaguaron, sur les berges humides des ruisseaux, juillet 1879, *Balansa* 3659 (Herb. Boiss., **G00040424**).

*Microthamnium eurystomum* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 269. 1877.

= *Mittenothamnium eurystomum* (Besch.) Cardot in Rev. Bryol. 40: 21. 1913.

*Type citation.* – “Villa-Rica, *Balansa* 1199, 1209, 1278”.

*Type specimens.* – **Syntypes:** Villa-Rica, dans les forêts sur la terre humide, septembre 1874, *Balansa* 1199 (Herb. DC., **G00048082**). Villa-Rica, dans les forêts, septembre 1874, *Balansa* 1209 (Herb. Boiss., **G00048080**; Herb. DC. [1878], **G00048081**).

*Type designation.* – None found.

*Specimens.* – Cerro-Leon, près de Diraya, sur l’écorce des arbres, 23 juillet 1881, *Balansa* 3639 (G [1885], **G00048129**; Herb. Boiss., **G00048132**; Herb. DC., **G00048127**). Guarapi, dans les bois, 1879, *Balansa* 3640a (Herb. Boiss., **G00048126**; Herb. Boiss., **G00048130**). Guarapi, dans les bois, mars 1880, *Balansa* 3641a (Herb. Boiss., **G00048131**; Herb. DC. [1884], **G00048128**) [published in BESCHERELLE, 1885: 19].

*Neckera balansae* Müll. Hal. in Hedwigia 36: 107. 1897.

= *Neckeropsis disticha* (Hedw.) Kindb., fide VAN DER WIJK & al. (1964: 435).

*Type citation.* – “Paraguay, Guarapi, in truncis arboretum; 1884, *Balansa* 3627”.

*Type specimens.* – **Syntypes:** Guarapi, sur le tronc des arbres, *Balansa* 3627 (G [1885], **G00040434**; Herb. Boiss., **G00040432**; Herb. DC. [1884], **G00040433**).

*Type designation.* – None found.

*Neckeropsis undulata* (Hedw.) Reichardt

*Specimens.* – Forêts situées à l’est de la Cordillère de Villa-Rica, 30 septembre 1877, *Balansa* 1255 (Herb. DC. [1878], **G00040445**) [published in BESCHERELLE, 1877: 265]. Cordillère de Villa-Rica, dans les forêts vierges, tronc des arbres, octobre 1877, *Balansa* 1255 (Herb. Boiss., **G00040444**). Guarapi, sur l’écorce des arbres, août 1881, *Balansa* 3625 (G [1885], **G00040436**; Herb. Boiss., **G00040435**; Herb. Boiss., **G00040438**; Herb. DC. [1884], **G00040437**). Cordillère de Mbatobi, près de Paraguari, sur le tronc des arbres, 26 juin 1881, *Balansa* 3626 (G [1885], **G00040440**; Herb. Boiss., **G00040439**; Herb. Boiss., **G00040442**; Herb. DC. [1884], **G00040441**) [published in BESCHERELLE, 1885: 18].

*Octoblepharum albidum* Hedw.

*Specimens.* – Guarapi, dans les forêts, sur le tronc des arbres, mars 1880, *Balansa* 3654 (G [1885], **G00040448**; Herb. DC. [1884], **G00040447**; Herb. Duby, **G00040446**) [published in BESCHERELLE, 1885: 17]. Ecorce des arbres. Cordillère de Mbatobi, 24 mai 1883, *Balansa* 4256 (Herb. Barb.-Boiss., **G00040450**; Herb. DC. [1885], **G00040451**; Herb. DC. [1885], **G00040452**; Herb. Duby, **G00040449**) [published in MÜLLER & STEPHANI, 1887: 57].

*Papillaria subnigrescens* Besch. in Rev. Bryol. 12: 17. 1885 [nom. nud.].

*Type citation.* – “Guarapi, *Balansa* 3664, Paraguari, *Balansa* 3666a”.

*Original specimens.* – Guarapi, sur le tronc des arbres, 1881, *Balansa* 3664 (Herb. Boiss., **G00040430**; Herb. Boiss., **G00040431**). Cordillère de Mbatobi, près de Paraguari sur le tronc des arbres, 26 juin 1881, *Balansa* 3666a (G [1885], **G00040422**; Herb. Boiss., **G00040420**; Herb. DC. [1884], **G00040421**).

*Phascum recurvirostrum* Müll. Hal. in Flora 71: 5. 1888.

= *Tetrapterum recurvirostre* (Müll. Hal.) Broth. in Engl., Nat. Pflanzenfam. ed. 2, 10: 253. 1924.

*Type citation.* – “Yaguaron [Yaguaron], ad vias cavas, Julio 1879, *Balansa* 3657”.

*Type specimens.* – **Syntypes:** Yaguaron, sur le talus des chemins, juillet 1879, *Balansa* 3657 (G [1885], **G00042349**; Herb. Boiss., **G00042347**; Herb. DC. [1884], **G00042351**).

*Type designation.* – None found.

*Comments.* – Number 3657 was published as *Hymenostomum balanseanum* Besch. in BESCHERELLE (1885: 17) before being used as the type of *Phascum recurvirostrum* by Müller.

*Philonotis balansaeana* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 264. 1877.

= *Philonotis curvata* (Hampe) A. Jaeger, fide DISMIER (1910: 8).

*Type citation.* – “Villa-Rica, sur la terre, septembre 1874, *Balansa 1195*”.

*Type specimens.* – **Syntypes:** Villa-Rica, sur la terre, septembre 1874, *Balansa 1195* (Herb. DC. [1878], **G00040393**). Forêts situées à l’est de la Cordillère de Villa-Rica, 30 septembre 1874, *Balansa 1195* (Herb. Boiss., **G00040394**).

*Type designation.* – None found.

*Philonotula oreadea* Müll. Hal. in Hedwigia 36: 99. 1897.

= *Philonotis uncinata* (Schwägr.) Brid., fide GRIFFIN (1994: 560).

*Type citation.* – “Paraguay, Paraguari, ad declivitates viarum, Julio 1881: *B. Balansa. Coll. No. 3655*”.

*Type specimens.* – **Syntypes:** Paraguari, sur le talus des chemins, juillet 1881, *Balansa 3655* (G [1885], **G00040395**; Herb. Boiss., **G00040397**; Herb. Boiss., **G00040398**; Herb. DC. [1884], **G00040396**) [published in BESCHERELLE, 1885: 18].

*Type designation.* – None found.

*Comments.* – Number 3655 was published by BESCHERELLE (1885: 18) as *Philonotis balansaeana* Besch. before being used by Müller as the type of *Philonotula oreadea*.

*Physcomitrium luteolum* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 263. 1877.

*Type citation.* – “Assomption, talus ombragés, *Balansa 1230*”.

*Type specimens.* – **Syntypes:** Talus ombragés des chemins, L’Assomption, 20 août 1876, *Balansa 1230* (Herb. Boiss., **G00046204**). L’Assomption, sur les talus des chemins ombragés, 20 août 1876, *Balansa 1230* (Herb. DC. [1878], **G00046205**).

*Type designation.* – None found.

*Specimens.* – Guarapi, sur la terre humide, 10 août 1881, *Balansa 3648* (G, **G00046212**; G [1885], **G00042195**; Herb. Boiss., **G00042193**; Herb. DC. [1884], **G00042194**) [published in BESCHERELLE, 1885: 18].

*Physcomitrium paraguense* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 261. 1877.

*Type citation.* – “Assomption, bords des mares desséchées et sur les pelouses, *Balansa 1229, 1231, 1232*”.

*Type specimens.* – **Syntypes:** L’Assomption, sur les pelouses, juillet 1876, *Balansa 1229* (Herb. Boiss., **G00042185**; Herb. DC. [1878], **G00042187**). L’Assomption, bord des mares desséchées, 1876, *Balansa 1231* (Herb. DC. [1878], **G00042188**; Herb. DC. [1878], **G00042189**).

*Type designation.* – None found.

*Specimens.* – L’Assomption, sur la terre humide, septembre 1878, *Balansa 3650* (G [1885], **G00042191**). Cordillère de Péribébui, sur la terre humide, juillet 1879, *Balansa 3650b* (Herb. Boiss., **G00042186**; Herb. Boiss., **G00042192**; Herb. DC. [1884], **G00042190**) [published in BESCHERELLE, 1885: 18].

*Plagiothecium villae-ricae* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 271. 1877.

= *Isopterygium tenerifolium* Mitt., fide BUCK & IRELAND (1989: 19).

*Type citation.* – “Villa-Rica, *Balansa 1210*”.

*Type specimens.* – **Isotypes:** Villa-Rica, dans les forêts, septembre 1774, *Balansa 1210* (Herb. Boiss., **G00046238**; Herb. DC. [1878], **G00046235**).

*Type designation.* – BUCK & IRELAND (1989: 19): holotype (BM).

*Specimens.* – Cordillère de Péribébui, dans les terrains humides ombragés, juillet 1879, *Balansa 3636* (G, **G00046236**; Herb. Boiss., **G00046237**; Herb. DC. [1884], **G00046239**) [published in BESCHERELLE, 1885: 19].

*Polytrichum perpusillum* Müll. Hal. in Hedwigia 36: 90. 1897.

= *Pogonatum pensilvanicum* (Hedw.) P. Beauv., fide O’ SHEA & PRICE (2008: 36).

*Type citation.* – “Paraguay, Caraguaza, ad ripas rivulorum humiditas et umbrosas, Febr. 1884, *Balansa 3618*”.

*Type specimens.* – **Isotypes:** Caaguazu, sur les berges humides et ombragées des ruisseaux, février 1882, *Balansa 3618* (G [1885], **G00048075**; Herb. Boiss., **G00048068**; Herb. DC. [1884], **G00048074**).

*Type designation.* – HYVÖNEN (1989: 18): isotype (H-BR), holotype location not indicated.

*Comments.* – Number 3618, *Pogonatum pallens* Besch. in Rev. Bryol. 2: 18. 1885. *nom. nud.* was later used as a type by MÜLLER (1897: 90) for *Polytrichum perpusillum* Müll. Hal. See discussion in O’ SHEA & PRICE (2008: 36).

*Pseudoleskea paraguensis* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 267. 1877.

= *Haplocladium microphyllum* (Hedw.) Broth., fide REIMERS (1937: 228).

*Type citation.* – “Assomption, *Balansa* 1201, 1203, 1204, 1205, 1206, 1211; Villa-Rica, *Balansa* 1200”.

*Type specimens.* – **Syntypes:** Villa-Rica, dans les forêts, septembre 1874, *Balansa* 1200 (Herb. DC. [1878], **G00042359**). L’Assomption, sur les talus des chemins ombragés, septembre 1875, *Balansa* 1201 (Herb. DC., **G00042358**). L’Assomption, 1876, *Balansa* 1203 (Herb. DC. [1878], **G00042354**). L’Assomption, août 1874, *Balansa* 1204 (Herb. DC. [1878], **G00042353**). L’Assomption, mai 1877, *Balansa* 1205 (Herb. DC. [1878], **G00042356**). L’Assomption, mai 1874, *Balansa* 1206 (G, **G00042361**; Herb. DC. [1878], **G00042355**). L’Assomption, 1876, *Balansa* 1211 (Herb. DC. [1878], **G00042357**).

*Type designation.* – None found.

*Specimens.* – L’Assomption sur la terre humide, 27 juillet 1879, *Balansa* 3679a (G [1884], **G00046263**; G [1885], **G00046265**; Herb. Boiss., **G00046262**; Herb. Boiss., **G00046264**) [published in BESCHERELLE, 1885: 18].

*Comments.* – Number 3679a also appears in MÜLLER & STEPHANI (1887: 14) under the *nomen nudum* “*Hypnum* (*Tamariscella*) *subnudum* var.”.

*Ptychomitrium balansae* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 261. 1877.

= *Ptychomitrium muelleri* (Mitt.) A. Jaeger, fide CAO & al. (2001: 522).

*Type citation.* – “Yaguaron, sur les toits, mars 1877, *Balansa* 1235”.

*Type specimens.* – **Syntypes:** Yaguaron, sur les toits, mai 1877, *Balansa* 1235 (Herb. Boiss., **G00040454**; Herb. DC. [1878], **G00040453**).

*Type designation.* – CAO & al. (2001: 522): isotype (BM), holotype location not indicated.

*Ptychomitrium vaginatum* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 262. 1877.

*Type citation.* – “Cerro Hu, dans les forêts, sur les rochers, *Balansa* 1234”.

*Type specimen.* – **Syntype:** Rochers dans les forêts du Cerro-Hu, près de Paragari, juin 1874, *Balansa* 1234 (Herb. DC. [1878], **G00114192**).

*Type designation.* – None found.

*Specimens.* – Yaguaron, sur les toits, 6 juillet 1881, *Balansa* 3672 (G [1885], **G00048115**; Herb. Boiss., **G00048112**; Herb. DC. [1884], **G00048116**). Roches verticales couronnant le Cerro Hu, près de Paraguari, 10 mai 1881, *Balansa* 3674 (G [1885], **G00048122**; Herb. Boiss., **G00048113**; Herb. DC. [1884], **G00048114**) [published in BESCHERELLE, 1885: 18].

*Racopilum tomentosum* (Hedw.) Brid.

*Specimens.* – L’Assomption, sur la terre humide, 12 septembre 1875, *Balansa* 1221 (G, **G00040457**; Herb. DC. [1878], **G00048084**). L’Assomption, 1876, *Balansa* 1221 (Herb. Reuter-Barb., **G00040456**). Forêts situées à l’est de la Cordillère de Villa-Rica, 30 septembre 1874, *Balansa* 1222 (G, **G00040462**; Herb. DC. [1878], **G00048087**). Forêts à l’Est de la Cordillère de Villa-Rica, 29 septembre 1874, *Balansa* 1224 (Herb. DC. [1878], **G00048086**) [published in BESCHERELLE, 1877: 267]. Bojicua, entre Paraguari et Yaguaron, sur le talus des chemins, juillet 1881, *Balansa* 3677 (G, **G00040459**; G [1885], **G00040458**; Herb. Boiss., **G00048090**; Herb. DC. [1884], **G00048088**). Villa-Rica, sur la margelle d’un puits, 13 janvier 1881, *Balansa* 3685 (G, **G00040461**; G [1885], **G00040460**; Herb. Boiss., **G00048091**; Herb. DC. [1884], **G00048089**) [published in BESCHERELLE, 1885: 18].

*Rhaphidostegium aureolum* (Hampe) A. Jaeger

= *Sematophyllum subpinnatum* (Brid.) E. Britton, see O’ SHEA & PRICE (2008: 36).

*Specimens.* – Guarapi, sur le tronc des arbres, juillet 1881, *Balansa* 3695a (Herb. Boiss., **G00040494**; Herb. DC. [1884], **G00040490**) [published in BESCHERELLE, 1885: 19].

*Rhaphidostegium chlorothecium* Besch.

= *Sematophyllum chlorothecium* (Besch.) Broth. in Engl., Nat. Pflanzenfam. ed. 2, 11: 433. 1925.

*Specimens.* – Guarapi, sur le tronc des arbres, 29 juillet 1881, *Balansa* 3696 (Herb. Boiss., **G00048093**; Herb. Boiss., **G00048094**; Herb. DC. [1884], **G00048092**) [published in BESCHERELLE, 1885: 19].

*Rhaphidostegium circinale* (Hampe) Besch.

= *Sematophyllum subpinnatum* (Brid.) E. Britton, see O’ SHEA & PRICE (2008: 36).

*Specimen.* – L’Assomption, 1874, *Balansa* 1218 (Herb. DC. [1878], **G00040493**) [published in BESCHERELLE, 1877: 270].

*Rhaphidostegium fallax* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 270. 1877.

= *Sematophyllum subpinnatum* (Brid.) E. Britton, see O'SHEA & PRICE (2008: 36).

*Type citation.* – “Assomption, sur les troncs d'arbres, *Balansa 1213*; Pirayu, sur le tronc du *Cocos yatai*, *Balansa 1219*”.

*Type specimen.* – **Syntype:** L'Assomption, sur le tronc des arbres, mai 1877, *Balansa 1213* (Herb. DC. [1878], **G00040488**).

*Type designation.* – None found.

*Specimens.* – Cordillère de Peribébui, 1879, *Balansa 3694* (Herb. Boiss., **G00040498**; Herb. Boiss., **G00040504**) [published in BESCHERELLE, 1885: 19].

*Rhaphidostegium fuscoviride* Besch. in J. Bot. (Morot) 5: 347. 1891.

= *Sematophyllum subpinnatum* (Brid.) E. Britton, see O'SHEA & PRICE (2008: 36).

*Type citation.* – “Cordillère de Péribébui, *Balansa 3682*”.

*Type specimens.* – **Syntypes:** Cordillère de Péribébui, 1879, *Balansa 3682* (G, **G00040492**; G, **G00040500**; Herb. Boiss., **G00040501**).

*Type designation.* – None found.

*Specimen.* – Cordillère de Péribébui, 1879, *Balansa 3682b* (Herb. Boiss., **G00040499**) [published in BESCHERELLE, 1885: 19].

*Rhaphidostegium globosum* Besch. in J. Bot. (Morot) 5: 347. 1891.

= *Sematophyllum subpinnatum* (Brid.) E. Britton, see O'SHEA & PRICE (2008: 36).

*Type citation.* – “Paraguay, sur les rochers des cascades de la Cordillère de Mbatobi près de Paraguari, *Balansa 3633*”.

*Type specimens.* – **Syntypes:** Roches des cascades de la Cordillère de Mbatobi, près de Paraguari, mai 1881, *Balansa 3633* (G [1885], **G00040507**; Herb. Boiss., **G00040502**; Herb. Boiss., **G00040503**; Herb. DC. [1884], **G00040491**).

*Type designation.* – None found.

*Rhaphidostegium* ?

= *Sematophyllum subpinnatum* (Brid.) E. Britton

*Specimens.* – Cerro Leon, près de Pirayu, sur le tronc des arbres, 23 juillet 1881, *Balansa 3635* (G, **G00048072**; G, **G00048073**; Herb. DC. [1884], **G00048071**; Herb. DC. [1885], **G00048070**) [published in BESCHERELLE, 1885: 19].

*Rhynchostegium assumptionis* Besch.

*Specimens.* – Cordillère du Cerro Péron, près de Pirayu, juillet 1880, *Balansa 3632* (G, **G00042560**; G [1885], **G00040468**; Herb. Boiss., **G00040467**; Herb. Boiss., **G00040469**). Guarapi, dans les bois, 1879, *Balansa 3642* (G, **G00040471**; G [1885], **G00040473**; Herb. Boiss., **G00040472**; Herb. DC. [1884], **G00040470**). Guarapi, sur le tronc des arbres, juin 1881, *Balansa 3701* (G [1885], **G00040477**; Herb. Boiss., **G00040475**; Herb. DC., **G00040474**) [published in BESCHERELLE, 1885: 19].

*Rhynchostegium fissidentellum* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 270. 1877.

*Type citation.* – “Guarapi, sur la terre ferrugineuse, *Balansa 1217*”.

*Type specimen.* – **Syntype:** Guarapi, 1877, *Balansa 1217* (Herb. DC. [1878], **G00040476**).

*Type designation.* – None found.

*Schlotheimia argentinica* Lorentz & Müll. Hal.

*Specimens.* – Guarapi, sur le tronc des arbres, 1881, *Balansa 3675* (G, **G00042214**; G [1884], **G00042215**; Herb. Boiss., **G00040478**; Herb. Boiss. [1885], **G00040479**) [published in BESCHERELLE, 1885: 18].

*Comments.* – Number 3675 was named “*Schlotheimia paraguensis* Besch.” by Müller (MÜLLER & STEPHANI, 1887: 57).

*Schlotheimia paraguensis* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 262. 1877.

*Type citation.* – “Pirayu, sur les troncs d'arbres dans les forêts, mai 1877, *Balansa 1236*”.

*Type specimen.* – **Syntype:** Pirayu dans les forêts, sur les troncs des arbres, mai 1877, *Balansa 1236* (Herb. Boiss., **G00042213**).

*Type designation.* – None found.

*Sphaerangium lorentzii* (Müll. Hal.) Paris

= *Astomum lorentzii* (Müll. Hal.) Broth. in Engl. & Prantl, Nat. Pflanzenfam. I(3): 397. 1902.

*Specimen.* – L'Assomption, dans les clairières des broussailles, juin 1881, *Balansa 3624* (G [1885], **G00042406**) [published in BESCHERELLE, 1885: 17].

*Comments.* – Number 3624, with locality information of “Paraguay, summitate montis Cerro de Yugaron, in terra planitie, 17 junio 1879” was used as the type of *Aucaulon nanum* Müll. Hal.



*Sphagnum flaccidum* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 272. 1877.

*Type citation.* – “Villa-Rica. Prairies marécageuses à l’Est de la Cordillère, septembre 1874, *Balansa 1260*”.

*Type specimens.* – **Isotypes:** Prairies marécageuses à l’est de la Cordillère de Villa-Rica, 25 septembre 1874, *Balansa 1260* (Herb. Boiss., **G00042517**; Herb. DC. [1878], **G00042518**).

*Type designation.* – CRUM & BUCK (1988: 193): isotype (NY), holotype location not indicated.

*Stereophyllum enerve* Besch. in Rev. Bryol. 12: 19. 1885 [nom. nud.].

*Type citation.* – “Bords de l’Aroyo Piragu [Pirayu], *Balansa 3634*”.

*Original specimens.* – Bords de l’Aroyo Pirayu, sur le tronc des arbres, 1 août 1880, *Balansa 3634* (G [1885], **G00042258**; Herb. Boiss., **G00042257**; Herb. Boiss., **G00042259**; Herb. DC. [1884], **G00042260**).

*Stereophyllum guarapense* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 269. 1877.

= *Stereophyllum radiculosum* (Hook.) Mitt., fide GROUT (1945: 61); IRELAND & BUCK (1994: 4).

*Type citation.* – “Guarapi, *Balansa 1216*”.

*Type specimen.* – **Isotype:** Guarapi, juin 1877, *Balansa 1216* (Herb. DC. [1878], **G00042202**).

*Type designation.* – IRELAND & BUCK (1994: 4): holotype (BM).

*Specimens.* – L’Assomption, Mai 1874, *Balansa 1196* (G [1878], **G00042584**) [published in BESCHERELLE, 1877: 269]. Guarapi, sur le tronc des arbres, juin 1881, *Balansa 3680* (G, **G00048139**; G [1885], **G00048136**; Herb. Barb.-Boiss., **G00048144**; Herb. Boiss., **G00048137**; Herb. DC. [1884], **G00048135**). Guarapi, sur le tronc des orangers, 28 juillet 1881, *Balansa 3682a* (G, **G00048134**; Herb. Boiss., **G00048138**) [published in BESCHERELLE, 1885: 19].

*Comments.* – Number 3680 was used by Müller (MÜLLER & STEPHANI, 1887: 57) for the *nomen nudum* “*Hypnum turgidicaule*”.

*Stereophyllum homalioides* Besch. in J. Bot. (Morot) 5: 252. 1891.

= *Entodontopsis nitens* (Mitt.) W. R. Buck & R. R. Ireland, fide BUCK & IRELAND (1985: 104).

*Type citation.* – “Cordillère de Peribébui, sur les écorces, juillet 1879, *Balansa 3880a*”.

*Type specimens.* – **Isotypes:** Cordillère de Peribébui, juillet 1879, *Balansa 3680a* (Herb. Boiss., **G00048078**; Herb. Boiss., **G00048079**).

*Type designation.* – IRELAND & BUCK (1994: 11): holotype (BM).

*Comments.* – Number 3680a was published under the *nomen nudum* “*Omalia paraguensis*” by BESCHERELLE (1885, 18) with the same locality information.

*Syrhropodon paraguensis* Besch. in J. Bot. (Morot) 5: 349. 1891.

= *Syrhropodon ligulatus* Mont., fide REESE (1978: 203).

*Type citation.* – “Cerro de Mani, près de Paraguay, sur le tronc du *Cocos australis*, mars, 1888, *Balansa 3673* R.R.R.”.

*Type specimen.* – **Isotype:** Cerro de Maui, près de Paraguari, sur le tronc du *Cocos australis*, mars 1880, *Balansa 3673* (G, **G00042407**).

*Type designation.* – REESE (1978: 204): holotype (BM), isotypes (G, S-PA).

*Comments.* – Number 3673 was first published as “*Syrhropodon argentinicus* C. Müll.” by BESCHERELLE (1885: 17) before later being used as the type of *S. paraguensis*. Müller (MÜLLER & STEPHANI, 1887) cited the collection number 3673 for his *nomen nudum* “*Hypnum subnudum*”, although it appears not to be based on the same material as that used to describe *S. paraguensis* as the locality information differs.

*Thuidium paraguense* Besch. in J. Bot. (Morot) 5: 346. 1891.

*Type citation.* – “Guarapi, dans les forêts, sur les troncs pourris, juillet 1878, *Balansa 3688*, associé au *Cylindrothecium argyreum* Nob.”.

*Type specimen.* – **Syntype:** Guarapi, dans les forêts, sur les troncs pourris, juillet 1878, *Balansa 3688* (Herb. Boiss., **G00042256**).

*Type designation.* – None found.

*Trematodon palettifolius* Besch. in Mém. Soc. Sci. Nat. Cherbourg 21: 260. 1877.

*Type citation.* – “Villa-Rica, talus des chemins, septembre 1874, *Balansa 1257*. Proche du *T. reflexus* C. Müll.”.

*Type specimens.* – **Syntypes:** Villa-Rica, Talus des chemins, 9 septembre 1874-1878, *Balansa 1257* (Herb. DC. [1878], **G00050525**). s.l., s.d., *Balansa 1257* (Herb. Boiss., **G00042209**).

*Type designation.* – None found.

*Specimens.* – L’Assomption, sur terre argileuse humide, juin 1879, *Balansa 3631* (G, **G00042212**; Herb. DC., **G00042210**; Herb. DC. [1884], **G00042211**) [published in BESCHERELLE, 1885: 17].

### Previously unpublished Balansa collection numbers from Paraguay

Names for 7 previously unpublished collection numbers and two collections without collection numbers (all unmarked) were taken for the herbarium label. New determinations are given for a further 8 collection numbers (marked with “§”).

#### *Bryum paraguense* Besch.

*Specimen.* – Cordillère de Péribébui, juillet 1879, *Balansa 3651b* (Herb. Boiss., **G00042402**).

#### *Entodon argyreus* (Besch.) Besch. §

*Specimen.* – Guarapi, dans les bois, 1881, *Balansa 4265* (Herb. Barb.-Boiss., **G00040402**).

#### *Entodontopsis nitens* (Mitt.) W. R. Buck & R. R. Ireland §

*Specimen.* – Bords du Mbay, sur le tronc des arbres, juillet 1880, *Balansa 4260* (Herb. Barb.-Boiss., **G00040403**).

#### *Forsstroemia coronata* (Mont.) Paris §

*Specimen.* – Bords du Mbay, sur le tronc des arbres, juillet 1881, *Balansa 4259* (G, **G00042529**).

#### *Haplocladium microphyllum* (Hedw.) Broth. §

*Specimens.* – Bords du Mbay, sur le tronc des arbres, juillet 1881, *Balansa 4258* (Herb. Barb.-Boiss., **G00042587**). Yaguaron, sur le talus des chemins, juillet 1879, *Balansa 4262* (Herb. Barb.-Boiss., **G00042559**).

#### *Leptotrichella paraguensis* (Besch.) Ochyra

*Specimens.* – Cordillère de Péribébui, dans les terrains dénudés, juillet 1879, *Balansa 3661a* (Herb. Barb.-Boiss., **G00040429**; Herb. Boiss., **G00040426**; Herb. DC. [1885], **G00042572**).

#### *Pogonatum pensilvanicum* (Hedw.) P. Beauv. §

*Specimens.* – Vallée de l’Y-acan guazu entre Paraguari et Valenzuela, sur les talus des chemins, 20 janvier 1884, *Balansa 4332* (G, **G00042224**; Herb. DC. [1885], **G00128743**; Herb. DC. [1886], **G00128740**).

#### *Ptychomitrium muelleri* (Mitt.) A. Jaeger

*Specimen.* – Paraguay, *Balansa s.n.* (G, **G00040455**).

#### *Racopilum tomentosum* (Hedw.) Brid.

*Specimens.* – Villa-Rica, dans les forêts, septembre 1874, *Balansa 1194* (Herb. DC. [1878], **G00040463**). Guarapi, 1877, *Balansa s.n.* (Herb. DC. [1878], **G00040464**).

#### *Sphagnum magellanicum* Brid.

*Specimens.* – Pastoréo, près de Caaguazu, dans les prairies marécageuses, janvier 1882, *Balansa 3616* (Herb. Boiss., **G00046938**; Herb. DC., **G00042378**).

#### *Tortella pseudocaespitosa* (Müll. Hal.) Broth.

*Specimens.* – Cordillère de Péribébui, juillet 1879, *Balansa 3652b* (G [1885], **G00042217**). L’Assomption, sur les murs, septembre 1878, *Balansa 3652c* (Herb. Barb.-Boiss., **G00042216**).

#### *Vesicularia glaucina* (Besch.) Broth.

*Specimens.* – Guarapi, dans les bois, mars 1880, *Balansa 3641* (G [1884], **G00042578**; Herb. Boiss., **G00042205**; Herb. Boiss., **G00042206**).

### Duplicated collection numbers within the Balansa Paraguay collection

Within the Balansa Paraguay collection (see Appendix 1) 15 collection numbers are duplicated. For six of these duplicated collection numbers (1199, 3624, 3661, 3673, 3679, 3686) locality information differs and the taxonomic determinations of the material differ to the extent that it can be assumed that these numbers were assigned twice. For one of the numbers (3657) locality information is identical but given the taxonomic determinations of the specimens it can be assumed that this number was assigned twice. For the remainder of the numbers (3619, 3645a, 3658, 3675, 3681, 3687, 3691, 3699) the locality information is the same (or very similar) or missing for one of the duplicated numbers and the specimen determinations are close (mostly in same genus). This would indicate that the specimens with these collection numbers may well have been determined differently by different authors or that two close

species were included within the original collection that was later split into duplicates. In some cases one of the duplicated numbers is a type for a particular name while the other represents a specimen of a different taxon.

## Conclusion

In all 200 Balansa collection numbers for Paraguay have been located in the literature. G holds 158 of these collection numbers, as presented in Appendix 1. A total of 390 Balansa specimens are now known to be present in G for 88 names representing 67 currently accepted taxa and eight *nomina nuda*. Of the 390 Balansa specimens located to date in G 160 are types: 3 lectotypes, 28 isolectotypes, 19 isotypes and 110 syntypes. Seventeen original specimens for the 8 *nomina nuda* were also located. A total of 22 specimens for 15 previously unpublished Balansa collection numbers, representing 12 taxa, were enumerated herein.

As pointed out by BUCK (1985) the moss flora of Paraguay is poorly known, mainly owing to under-collecting within the country. This is echoed in the number of types that were encountered during this work for which no published designation could be found and in the high number of endemic moss taxa that are still listed for Paraguay. O'SHEA & PRICE (2008) highlighted that very few collections are known from the departments of Canindeyú, Ñeembecú, Misiones and San Pedro. These four departments contain areas that are potentially interesting bryologically given their location, topography and/or humidity levels (see ZARDINI, 1993 for an overview of the habitat types in Paraguay).

The widely distributed moss collection of Benjamin Balansa from Paraguay, with its 200 published numbers, is one of the most important of the historical bryophyte collections from Paraguay and one that has made a significant contribution to the understanding of mosses in the country. This catalogue of the published moss collections of Balansa from Paraguay in G and the full listing of the Balansa collection numbers linked to their current names (Appendix 1) provides information that should facilitate the integration of specimens that were distributed without determinations into herbarium collections as well as the inclusion of these collections in future taxonomic work on South American mosses.

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**Appendix 1.** – A list of the published Balansa collection numbers from Paraguay (including 5 without a collection number). Numbers that represent type material are indicated in bold. Specimens held in G are marked «G» and those that were not found in G are marked «-». For each known Balansa collection number the name under which the specimen was published, the literature source(s) in which it was published and its current name are given. Specimens that have not previously been published are indicated as such. For specimens present in G the principal label-based locality is indicated whereas for specimens that are not present in G locality information has been taken from the associated literature.

No.	In G	Locality	Name used in publication	Reference	Current name
1194	G	Villa-Rica		Published here	<i>Racopilum tomentosum</i> (Hedw.) Brid.
1195	G	Villa-Rica	<i>Philonotis balansaeana</i> Besch.	BESCHERELLE, 1877 : 264	<i>Philonotis curvata</i> (Hampe) A. Jaeger
1196	G	s. l.	<i>Stereophyllum guarapense</i> Besch.	BESCHERELLE, 1877 : 269	<i>Stereophyllum radiculosum</i> (Hook.) Mitt.
1198	G	Caaguazu	<i>Ectropothecium glaucinum</i> Besch.	BESCHERELLE, 1877 : 271	<i>Vesicularia glaucina</i> (Besch.) Broth.
1199	—	Assomption	<i>Racopilum tomentosum</i> (Hedw.) Brid.	BESCHERELLE, 1877 : 267	<i>Racopilum tomentosum</i> (Hedw.) Brid.
1199	G	Villa-Rica	<i>Microthamnium eurystromum</i> Besch.	BESCHERELLE, 1877 : 269	<i>Mittenthamnium eurystromum</i> (Besch.) Cardot
1200	G	Villa-Rica	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1201	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1202	G	Assomption	<i>Fissidens subcrispus</i> Besch.	BESCHERELLE, 1877 : 260	<i>Fissidens crispus</i> Mont.
1203	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1204	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1205	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1206	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1207	G	Assomption	<i>Dimerodontium balansae</i> Müll. Hal.	BESCHERELLE, 1877 : 267	<i>Dimerodontium balansae</i> Müll. Hal.
1208	G	Assomption	<i>Helicodontium capillare</i> (Hedw.) A. Jaeger	BESCHERELLE, 1877 : 268	<i>Helicodontium capillare</i> (Hedw.) A. Jaeger
1209	G	Villa-Rica	<i>Microthamnium eurystromum</i> Besch.	BESCHERELLE, 1877 : 269	<i>Mittenthamnium eurystromum</i> (Besch.) Cardot
1210	G	Villa-Rica	<i>Plagiothecium villaericae</i> Besch.	BESCHERELLE, 1877 : 272	<i>Isoterygium tenerifolium</i> Mitt.
1211	G	Assomption	<i>Pseudoleskea paraguensis</i> Besch.	BESCHERELLE, 1877 : 267	<i>Haplodadium microphyllum</i> (Hedw.) Broth.
1212	—	Assomption	<i>Stereophyllum paraguense</i> Besch.	BESCHERELLE, 1877 : 268	<i>Stereophyllum radiculosum</i> (Hook.) Mitt.
1213	G	Assomption	<i>Rhaphidostegium fallax</i> Besch.	BESCHERELLE, 1877 : 270	<i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
1214	—	Assomption	<i>Erpodium paraguense</i> Besch.	BESCHERELLE, 1877 : 265	<i>Erpodium beccarii</i> Müll. Hal.
1215	—	Guarapi	<i>Microthamnium humile</i> Besch.	BESCHERELLE, 1877 : 269	<i>Mittenthamnium humile</i> (Besch.) Cardot.
1216	G	Guarapi	<i>Stereophyllum guarapense</i> Besch.	BESCHERELLE, 1877 : 269	<i>Stereophyllum radiculosum</i> (Hook.) Mitt.
1217	G	Guarapi	<i>Rhynchostegium fissidentellum</i> Besch.	BESCHERELLE, 1877 : 270	<i>Rhynchostegium fissidentellum</i> Besch.
1218	G	Assomption	<i>Rhaphidostegium circinale</i> (Hampe) Besch.	BESCHERELLE, 1877 : 270	<i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
1219	—	Pirayu	<i>Rhaphidostegium fallax</i> Besch.	BESCHERELLE, 1877 : 270	<i>Sematophyllum subpinnatum</i> (Brid.) E. Britton
1220	G	Pirayu	<i>Anacalypta paraguensis</i> Besch.	BESCHERELLE, 1877 : 261	<i>Uleastrum paraguensis</i> (Besch.) W. R. Buck.
1221	G	Assomption	<i>Racopilum tomentosum</i> (Hedw.) Brid.	BESCHERELLE, 1877 : 267	<i>Racopilum tomentosum</i> (Hedw.) Brid.
1222	G	Assomption	<i>Racopilum tomentosum</i> (Hedw.) Brid.	BESCHERELLE, 1877 : 267	<i>Racopilum tomentosum</i> (Hedw.) Brid.
1224	G	Assomption	<i>Racopilum tomentosum</i> (Hedw.) Brid.	BESCHERELLE, 1877 : 267	<i>Racopilum tomentosum</i> (Hedw.) Brid.
1225	—	Villa-Rica	<i>Bryum paraguense</i> Besch.	BESCHERELLE, 1877 : 264	<i>Bryum paraguense</i> Besch.
1226	G	Guarapi	<i>Entosthodon balansae</i> Besch.	BESCHERELLE, 1877 : 263	<i>Entosthodon balansae</i> Besch.
1227	G	Assomption	<i>Entosthodon balansae</i> Besch.	BESCHERELLE, 1877 : 263	<i>Entosthodon balansae</i> Besch.
1228	G	Assomption	<i>Entosthodon balansae</i> Besch.	BESCHERELLE, 1877 : 263	<i>Entosthodon balansae</i> Besch.
1229	G	Assomption	<i>Physcomitrium paraguense</i> Besch.	BESCHERELLE, 1877 : 262	<i>Physcomitrium paraguense</i> Besch.
1230	G	Assomption	<i>Physcomitrium luteolum</i> Besch.	BESCHERELLE, 1877 : 263	<i>Physcomitrium luteolum</i> Besch.
1231	G	Assomption	<i>Physcomitrium paraguense</i> Besch.	BESCHERELLE, 1877 : 262	<i>Physcomitrium paraguense</i> Besch.
1232	—	Assomption	<i>Physcomitrium paraguense</i> Besch.	BESCHERELLE, 1877 : 262	<i>Physcomitrium paraguense</i> Besch.

Appendix 1. – Cont.

No.	In G	Label locality	Name used in publication	Reference	Current name
1233	—	Villa-Rica	Entoshodon balansae Besch.	BESCHERELLE, 1877 : 263	Entoshodon balansae Besch.
1234	G	Cerro Hu	Pychomitrium vaginatum Besch.	BESCHERELLE, 1877 : 262	Pychomitrium vaginatum Besch.
1235	G	Ygauron	Pychomitrium balansae Besch.	BESCHERELLE, 1877 : 261	Pychomitrium muelleri Mitt.
1236	G	Pirayu	Schlotheimia paraguensis Besch.	BESCHERELLE, 1877 : 262	Schlotheimia paraguensis Besch.
1237	G	Pirayu	Macromitrium phyllorhizans Müll. Hal.	BESCHERELLE, 1877 : 262	Macromitrium angulicaule Müll. Hal.
1238	—	Villa-Rica	Pychomitrium subdentatum Besch.	BESCHERELLE, 1877 : 262	Pychomitrium subdentatum Besch.
1239	—	Coaguasu [Caaguazu]	Schlotheimia paraguensis f. pruinosa Besch. (nom. nud.)	BESCHERELLE, 1877 : 262	Schlotheimia paraguensis f. pruinosa Besch.
1240	—	Paraguari	Macromitrium phyllorhizans Müll. Hal.	BESCHERELLE, 1877 : 262	Macromitrium angulicaule Müll. Hal.
1241	G	Assomption	Fissidens balansaeus – Besch.	BESCHERELLE, 1877 : 260	Fissidens zollingeri Mont.
1242	—	Paraguari	Funaria calvescens Schwägr.	BESCHERELLE, 1877 : 263	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
1243	—	Villa-Rica	Funaria calvescens Schwägr.	BESCHERELLE, 1877 : 263	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
1244	—	Villa-Rica	Funaria calvescens Schwägr.	BESCHERELLE, 1877 : 263	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
1245	G	Ygauron	Fissidens balansaeus var. limosus Besch.	BESCHERELLE, 1877 : 260	Fissidens zollingeri Mont.
1246	—	Villa-Rica	Hypopterygium argentinicum Lorentz ex Müll. Hal.	BESCHERELLE, 1877 : 266	Hypopterygium tomanisci (Sw.) Brid. ex Müll. Hal.
1249	—	Villa-Rica	Lesia subcoronata var. patens Besch. (nom. nud.)	BESCHERELLE, 1877 : 266	Forsstroemia trichomitria (Hedw.) Lindb.
1250	—	Paraguari	Lesia subcoronata Besch.	BESCHERELLE, 1877 : 266	Forsstroemia trichomitria (Hedw.) Lindb.
1252	G	Ygauron	Lesia paraguensis Besch.	BESCHERELLE, 1877 : 266	Forsstroemia coronata (Mont.) Paris
1253	—	Villa-Rica	Acrocryphaea julecea (Dozy & Molk.) A. Jaeger	BESCHERELLE, 1877 : 264	Schoenobryum juleceum Dozy & Molk.
1254	—	Villa-Rica	Neckera villae-ricae Besch.	BESCHERELLE, 1877 : 264	Neckera villae-ricae Besch.
1255	G	Villa-Rica	Neckeropsis undulata (Hedw.) Reichenhart	BESCHERELLE, 1877 : 265	Neckeropsis undulata (Hedw.) Reichenhart
1256	G	Assomption	Fabronia julecea Besch.	BESCHERELLE, 1877 : 265	Fabronia ciliaris var. polycarpa (Hook.) W. R. Buck
1257	G	Villa-Rica	Trematodon paleifolius Müll. Hal. ex Besch.	BESCHERELLE, 1877 : 260	Trematodon paleifolius Müll. Hal. ex Besch.
1258	G	Assomption	Lorentziella paraguensis Besch.	BESCHERELLE, 1877 : 259	Lorentziella imbricata (Mitt.) Broth.
1259	G	Assomption	Bryum argenteum var. corrugatum (Hampe) Besch.	BESCHERELLE, 1877 : 263	Bryum argenteum Hedw.
1260	G	Villa-Rica	Sphagnum flaccidum Besch.	BESCHERELLE, 1877 : 272	Sphagnum flaccidum Besch.
1261	G	Assomption	Bruchia aurea Besch.	BESCHERELLE, 1877 : 259	Bruchia aurea Besch.
1262	—	Assomption	Leptohymenium squarrosum var. griseum Besch.	BESCHERELLE, 1877 : 268	Erythrodonium squarrosum (Hampe) Paris
1263	—	Villa-Rica	Mnium rostratum Schrad.	BESCHERELLE, 1877 : 263	Plagiommium rhynchophorum (Harv.) T. J. Kop.
1264	—	Villa-Rica	Barbula caespitosa Schwägr.	BESCHERELLE, 1877 : 261	Tortella humilis (Hedw.) Jenn.
1265	—	Guarapi	Barbula caespitosa Schwägr.	BESCHERELLE, 1877 : 261	Tortella humilis (Hedw.) Jenn.
1267	—	Assomption	Racomium tomentosum (Hedw.) Brid.	BESCHERELLE, 1877 : 267	Racomium tomentosum (Hedw.) Brid.
1268	—	Assomption	Racomium tomentosum (Hedw.) Brid.	BESCHERELLE, 1877 : 267	Racomium tomentosum (Hedw.) Brid.
1270	—	Ygauron	Stereophyllum paraguense Besch.	BESCHERELLE, 1877 : 268	Stereophyllum radiculosum (Hook.) Mitt.
1271	—	Assomption	Ectropohecium glaucinum Besch.	BESCHERELLE, 1877 : 271	Vesicularia glaucina (Besch.) Broth.
1272	—	Assomption	Rhaphidostegium chlorohectium Besch.	BESCHERELLE, 1877 : 270	Sematophyllum chlorohectium (Besch.) Broth.
1273	—	Assomption	Rhynchostegium assumptionis Besch.	BESCHERELLE, 1877 : 271	Rhynchostegium assumptionis Besch.
1274	—	Assomption	Racomium tomentosum (Hedw.) Brid.	BESCHERELLE, 1877 : 267	Racomium tomentosum (Hedw.) Brid.
1278	—	Villa-Rica	Microthamnium euryostomum Besch.	BESCHERELLE, 1877 : 269	Mittenthamnium euryostomum (Besch.) Cardat

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No.	In G	Label locality	Name used in publication	Reference	Current name
1280	—	Assomption	Hymenostomum balansaeum Besch.	BESCHERELE, 1877 : 260	Hymenostomum balansaeum Besch.
2621	—	Cerro de Yaguaron	Ephemerum homomallum Müll. Hal.	MÜLLER, 1888 : 12	Ephemerum homomallum Müll. Hal.
3616	G	Pastoréo		Published here	Sphagnum magellanicum Brid.
3617	—	Pastoréo	Sphagnum paraguayense Besch. (nom. nud.)	BESCHERELE, 1885 : 19	Sphagnum magellanicum Brid.
3618	G	Caaguazu	Pogonatum pallens Besch. (nom. nud.)	BESCHERELE, 1885 : 18	Pogonatum pensilvanicum (Hedw.) P. Beauv.
3619	G	Guarapi	Isopterygium guarapense Besch.	BESCHERELE, 1885 : 19 ; BESCHERELE, 1891c : 349 (Guarapi, sur les écorces d'arbres, 1878)	Isopterygium tenerum (Sw.) Mitt.
3619	—	s.l.	Toxicaulis exilis Müll. Hal.	MÜLLER, 1897 : 116	Isopterygium exile (Müll. Hal.) Paris
3621	G	Guarapi	Ephemerum conicum Müll. Hal.	BESCHERELE, 1885 : 17	Ephemerum conicum Müll. Hal.
3623	G	Assomption	Lorentziella paraguayensis Besch.	BESCHERELE, 1885 : 17	Lorentziella imbricata (Mitt.) Broth.
3624	G	Assomption	Sphaerangium lorentzii (Müll. Hal.) Paris (= Acaulon lorentzii Müll. Hal.)	BESCHERELE, 1885 : 17	Asiomum lorentzii (Müll. Hal.) Broth.
3624	—	Cerro de Yaguaron [Yaguaron]	Acaulon nanum Müll. Hal.	MÜLLER, 1888 : 1	Acaulon nanum Müll. Hal.
3625	G	Guarapi	Neckeropsis undulata (Hedw.) Reichenardt	BESCHERELE, 1885 : 18	Neckeropsis undulata (Hedw.) Reichenardt
3626	G	Paraguari	Neckeropsis undulata (Hedw.) Reichenardt	BESCHERELE, 1885 : 18	Neckeropsis undulata (Hedw.) Reichenardt
3627	G	Guarapi	Neckera balansae Müll. Hal. – 1897	MÜLLER, 1897 : 107; BESCHERELE, 1885 : 18 as Neckeropsis undulata (Hedw.) Reichenardt	Neckeropsis disticha (Hedw.) Kndb.
3628	G	Caaguazu	Acrocryphaea paraguayensis Besch.	BESCHERELE, 1885 : 18 (no description); BESCHERELE, 1891c : 342 (Caaguazu, sur les arbres, janvier)	Schoenobryum paraguayensis (Besch.) Manuel
3628 ep.	—	Caaguazu	Orthotrichum paraguayense Besch.	BESCHERELE, 1891b : 254	Sehmobryum paraguayense (Besch.) Lewinsky-Haapasari & Hedenäs
3628a	G	Guarapi	Hypopterygium argentinicum Lorentz ex Müll. Hal.	BESCHERELE, 1885 : 18	Hypopterygium tamarisci (Sw.) Brid. ex Müll. Hal.
3629	G	Mbatobi	Hypopterygium argentinicum Lorentz ex Müll. Hal.	BESCHERELE, 1885 : 18	Hypopterygium tamarisci (Sw.) Brid. ex Müll. Hal.
3629a	G	Guarapi	Cryphaea guarapensis Besch. (nom. nud.)	BESCHERELE, 1885 : 18	Cryphaea guarapensis Besch.
3630	G	Guarapi	Hypopterygium argentinicum Lorentz ex Müll. Hal.	BESCHERELE, 1885 : 18	Hypopterygium tamarisci (Sw.) Brid. ex Müll. Hal.
3631	G	Assomption	Trematodon paletifolius Müll. Hal. ex Besch.	BESCHERELE, 1885 : 17	Trematodon paletifolius Müll. Hal. ex Besch.
3632	G	Cerro Péron	Rhynchostegium assumptionis Besch.	BESCHERELE, 1885 : 19	Rhynchostegium assumptionis Besch.
3633	G	Mbatobi	Rhaphidostegium globosum Besch.	BESCHERELE, 1885 : 19	Sematophyllum subpinnatum (Brid.) E. Britton
3634	G	Bords de l'Aroyo Pirayu	Stereophyllum enerve Besch. (nom. nud.)	BESCHERELE, 1885 : 19	Stereophyllum enerve Besch.
3635	G	Cerro-Léon, près de Pirayu	Rhaphidostegium sp.	BESCHERELE, 1885 : 19	Isopterygium tenerifolium Mitt.
3636	G	Péribébui	Plagiothecium villaericae Besch.	BESCHERELE, 1885 : 19	Fissidens crispus Mont.
3637	G	Bords du Mbatí	Fissidens subcrispus Besch.	BESCHERELE, 1885 : 17	Fissidens crispus Mont.
3638	G	Cerro-Léon	Hookeria luteoviridis Besch.	BESCHERELE, 1885 : 19 (no description); BESCHERELE, 1891c : 344 (Cerro Léon, près de Pirayu, sur les troncs d'arbres, 23 juillet 1881)	Thamniopsis langsdorffii (Hook.) W. R. Buck

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No.	In G	Label locality	Name used in publication	Reference	Current name
3638	G	Cerro-Léon	Hookeria lueoviridis Besch.	BESCHERELLE, 1885 : 19 (no description); BESCHERELLE, 1891 c: 344 (Cerro Léon, près de Pirayu, sur les troncs d'arbres, 23 juillet 1881)	Thamniopsis langsdorffii (Hook.) W. R. Buck
3639	G	Cerro-Léon	Microhammium eurystomum Besch.	BESCHERELLE, 1885 : 19	Mittnohammium eurystomum (Besch.) Caradot
3640	—	Guarapi	Microhammium eurystomum Besch.	BESCHERELLE, 1885 : 19	Mittnohammium eurystomum (Besch.) Caradot
3640a	G	Guarapi	Microhammium eurystomum Besch.	BESCHERELLE, 1885 : 19	Mittnohammium eurystomum (Besch.) Caradot
3641	G	Guarapi		Published here	Vesicularia glaucina (Besch.) Broth.
3641a	G	Guarapi	Microhammium eurystomum Besch.	BESCHERELLE, 1885 : 19	Mittnohammium eurystomum (Besch.) Caradot
3642	G	Guarapi	Rhynchostegium assumptioides Besch.	BESCHERELLE, 1885 : 19	Rhynchostegium assumptioides Besch.
3643	G	Guarapi	Aulacopilum balansae Müll. Hal.	MÜLLER, 1887 : 447. BESCHERELLE, 1885 : 18 as Aulacopilum paraguayense Besch. (nom. nud.)	Epodium glaucum (Wilson) I. G. Stone
3644	G	Guarapi	Epodium lanceolatum Besch. (nom. nud.)	BESCHERELLE, 1885 : 18	Epodium beccarii Müll. Hal.
3644a	—	Paraguay	Epodium paraguayense Besch.	O'STEA & PRICE, 2008 : 12	Epodium beccarii Müll. Hal.
3645	G	Guarapi	Epodium balansae Müll. Hal.	MÜLLER, 1887 : 449	Epodium glaziovii Hampe
3645a	G	Assumption (sic)	Epodium balansae Müll. Hal.	MÜLLER, 1887 : 449	Epodium glaziovii Hampe
3645a	—	Assumption	Epodium coronatum (Hook. f. & Wilson) Mitt.	BESCHERELLE, 1885 : 18	Epodium coronatum (Hook. f. & Wilson) Mitt.
3646	G	Péribébui	Epodium exsertum Besch.	BESCHERELLE, 1885 : 18 (no description); BESCHERELLE, 1891 b: 254 (Péribébui)	Epodium biseriatum (Austin) Austin
3647	G	Guaititi	Bryum corrugatum Hampe.	BESCHERELLE, 1885 : 18	Bryum argenteum Hedw.
3648	G	Guarapi	Physcomitrium luteolum Besch.	BESCHERELLE, 1885 : 18	Physcomitrium luteolum Besch.
3649	G	Assomption	Entosthodon balansae Besch.	BESCHERELLE, 1885 : 18	Entosthodon balansae Besch.
3650	G	Assomption	Physcomitrium paraguayense Besch.	BESCHERELLE, 1885 : 18	Physcomitrium paraguayense Besch.
3650a	—	Berges de l'Aroyo Pirayu	Philonotis balansae Besch. (nom. nud.)	BESCHERELLE, 1885 : 18	Philonotis curvata (Hampe) A. Jaeger
3650b	G	Péribébui	Physcomitrium paraguayense Besch.	BESCHERELLE, 1885 : 18	Physcomitrium paraguayense Besch.
3651a	G	Guarapi	Bryum paraguayense Besch.	BESCHERELLE, 1885 : 18	Bryum paraguayense Besch.
3651b	G	Péribébui		Published here	Bryum paraguayense Besch.
3652	G	Bords du Mabay	Barbula pallidoviridis Müll. Hal.	BESCHERELLE, 1885 : 17 as Barbula pseudocaeespitosa Müll. Hal.	Tortella humilis (Hedw.) Jenn.
3652a	G	Guarapi	Barbula pseudocaeespitosa Müll. Hal.	BESCHERELLE, 1885 : 17	Tortella pseudocaeespitosa (Müll. Hal.) Broth.
3652b	G	Cordillere de Péribébui		Published here	Tortella pseudocaeespitosa (Müll. Hal.) Broth.
3652c	G	Assomption		Published here	Tortella pseudocaeespitosa (Müll. Hal.) Broth.
3653	G	Assomption	Funaria calvescens Schwägr.	BESCHERELLE, 1885 : 18	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
3653a	G	Guarapi	Funaria calvescens Schwägr.	BESCHERELLE, 1885 : 18	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
3653b	G	Paraguari	Funaria calvescens Schwägr.	BESCHERELLE, 1885 : 18	Funaria hygrometrica var. calvescens (Schwägr.) Kindb.
3654	G	Guarapi	Octoblepharum albidum Hedw.	BESCHERELLE, 1885 : 17	Octoblepharum albidum Hedw.
3655	G	Paraguari	Philonotis aredea Müll. Hal.	MÜLLER, 1897 : 99. BESCHERELLE, 1885 : 18 as Philonotis balansae Besch.	Philonotis curvata (Hampe) A. Jaeger



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No.	In G	Label locality	Name used in publication	Reference	Current name
3656	G	Guarapi	Fabronia balansaeana Besch.	BESCHERELLE, 1885: 18 (no description); BESCHERELLE, 1891c: 345 (Guarapi, associé ou "Dimerodontium Balansae", 1881)	Fabronia ciliaris var. polycarpa (Hook.) W. R. Buck
3657	—	Yaguaron	Hymenostomum balansaeanaum Besch.	BESCHERELLE, 1885: 17	Hymenostomum balansaeanaum Besch.
3658	G	Yaguaron	Phascum recurvirostre Müll. Hal.	MÜLLER, 1888: 5	Weissia diffidentia R. H. Zander
3659	G	Assomption	Bruchia aurea Besch.	BESCHERELLE, 1885: 17	Bruchia aurea Besch.
3660	—	Assumption (sic)	Bruchia ligulata Müll. Hal.	MÜLLER, 1888: 11	Bruchia aurea Besch.
3661	G	Yaguaron	Microdus paraguensis Besch.	BESCHERELLE, 1885: 17	Leptotrichella paraguensis (Besch.) Ochyra
3662	G	Cordillere de Péribébui	Campylopus amabilis (Müll. Hal.) Paris	BESCHERELLE, 1885: 17	Campylopus pyriformis (Schultz) Brid.
3663	—	Paraguay	Conomitrium polycarpum Besch.	BESCHERELLE, 1891b: 252 (Paraguay)	Fissidens hornschuchii Mont.
3664	G	Cordillere de Péribébui	Microdus paraguensis Besch.	BESCHERELLE, 1885: 17; BESCHERELLE, 1891a: 145 (Péribébui)	Leptotrichella paraguensis (Besch.) Ochyra
3665	G	Cordillere de Péribébui	Conomitrium polycarpum Besch.	Published here	Leptotrichella paraguensis (Besch.) Ochyra
3666	—	Péribébui	Conomitrium polycarpum Besch.	BESCHERELLE, 1885: 17 as Fissidens polycarpus nom. nud.; BESCHERELLE, 1891b: 252 as Conomitrium polycarpum	Fissidens hornschuchii Mont.
3667	G	Guarapi	Lasia subcoronata Besch.	BESCHERELLE, 1885: 18; MÜLLER, 1897: 108 as type of Duseneta cuspidata Müll. Hal.	Forsstroemia trichomitria (Hedw.) Lindb.
3668	G	Guarapi	Lasia occulta Besch.	BESCHERELLE, 1885: 18; BESCHERELLE, 1891c: 342 (Guarapi, sur les troncs d'arbres)	Forsstroemia trichomitria (Hedw.) Lindb.
3669	G	Guarapi	Papillaria subnigrescens Besch. (nom. nud.)	BESCHERELLE, 1885: 19	Papillaria guarapiensis Besch.
3670	G	Péribébui	Macromitrium phyllophizans Müll. Hal.	BESCHERELLE, 1885: 18	Macromitrium angulicaule Müll. Hal.
3671	G	Mbatobi	Leptohymenium squarrosom Hampe	BESCHERELLE, 1885: 19	Erythrodonium squarrosom (Hampe) Paris
3672	G	Paraguari	Papillaria subnigrescens Besch. (nom. nud.)	BESCHERELLE, 1885: 19	Papillaria guarapiensis Besch.
3673	G	Cerro León, Pirayu	Lasia paraguensis Besch.	BESCHERELLE, 1885: 18	Forsstroemia coronata (Mont.) Paris
3674	G	Bords du Mbatí	Lasia paraguensis Besch.	BESCHERELLE, 1885: 18	Forsstroemia coronata (Mont.) Paris
3675	G	Péribébui	Lasia paraguensis Besch.	BESCHERELLE, 1885: 18	Forsstroemia coronata (Mont.) Paris
3676	G	Guarapi	Macromitrium phyllophizans Müll. Hal.	BESCHERELLE, 1885: 18	Forsstroemia coronata (Mont.) Paris
3677	G	Péribébui	Macromitrium phyllophizans Müll. Hal.	BESCHERELLE, 1885: 18	Macromitrium angulicaule Müll. Hal.
3678	G	Yaguarou	Pychoomitrium vaginatum Besch.	BESCHERELLE, 1885: 18	Macromitrium angulicaule Müll. Hal.
3679	—	Cerro de Macchi, près de Paraguay	Syrhropodon argenticus Lorentz ex Müll. Hal. ("argentinicus")	BESCHERELLE, 1885: 17; BESCHERELLE, 1891c: 349 as Syrrhopodon paraguensis; BESCHERELLE, 1891c: 349 as S. paraguensis, see below	Pychoomitrium vaginatum Besch. Syrhropodon gaudichaudii Mont.
3680	—	s. l.	Hypnum subnudum Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Haplodadium microphyllum (Hedw.) Broth.
3681	G	Cerro de Mani	Syrhropodon paraguensis Besch.	BESCHERELLE, 1891c: 349 (Cerro de Mani, près de Paraguay, sur le tronc du Cocos australis, mars 1888)	Syrhropodon gaudichaudii Mont.
3682	G	Cerro Hu, près du Paraguay	Pychoomitrium vaginatum Besch.	BESCHERELLE, 1885: 18	Pychoomitrium vaginatum Besch.

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No.	In G	Label locality	Name used in publication	Reference	Current name
3675	—	s. l.	Schlotheimia paraguensis Besch.	MÜLLER & STEPHANI, 1887: 57	Schlotheimia paraguensis Besch.
3675	G	Guarapi	Schlotheimia argentinica Lorentz & Müll. Hal.	BESCHERELLE, 1885: 18	Schlotheimia argentinica Lorentz & Müll. Hal.
3676	G	Bords du M'iaï (sic)	Lepidophyllum squarrosum Hampe	BESCHERELLE, 1885: 19	Erythrodonium squarrosum (Hampe) Paris
3677	G	Bobicua	Racopilum tomentosum (Hedw.) Brid.	BESCHERELLE, 1885: 18, MÜLLER & STEPHANI, 1887: 57	Racopilum tomentosum (Hedw.) Brid.
<b>3678</b>	G	Guarapi	Cylindrothecium argyreum Besch.	BESCHERELLE, 1885: 19 (no description); BESCHERELLE, 1891c: 346 (Guarapi, sur les troncs des arbres 1878)	Entodon argyreus (Besch.) Besch.
3678a	—	s. l.	Entodon denticulatum Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Erythrodonium longisetum (Hook.) Paris
<b>3679</b>	—	Assomption	Amblystegium haplocladium Müll. Hal.	MÜLLER, 1897: 130	
<b>3679</b>	G	Guarapi	Amblystegium haplocladium Müll. Hal.	MÜLLER, 1897: 130, BESCHERELLE, 1885: 19 as Microthamnium humile Besch.	
3679a	G	Assomption	Pseudoleskea paraguensis Besch.	BESCHERELLE, 1885: 18, MÜLLER & STEPHANI, 1887: 57 as Hypnum subnudum Müll. Hal. (nom. nud.)	Haplocladium microphyllum (Hedw.) Broth.
3680	G	Guarapi	Stereophyllum guarapense Besch.	BESCHERELLE, 1885: 19, MÜLLER & STEPHANI, 1887: 57 as Hypnum turgidaucule Müll. Hal. (nom. nud.)	Stereophyllum radicosum (Hook.) Mitt.
3680a	G	Péribébui	Homalia paraguensis Besch. (nom. nud.)	BESCHERELLE, 1885: 18 (no description); BESCHERELLE, 1891c: 348 (Cordillère de Péribébui, sur les écorces, juillet 1879)	Stereophyllum radicosum (Hook.) Mitt.
3681	G	s.l.	Dimerodontium balansae Müll. Hal.	MÜLLER & STEPHANI, 1887: 57	Dimerodontium balansae Müll. Hal.
<b>3681</b>	G	Guarapi	Fabronia guarapensis Besch.	BESCHERELLE, 1885: 18 (no description); BESCHERELLE, 1891c: 346 (Guarapi, sur le tronc des arbres, 14 juillet 1881)	Fabronia ciliaris var. polycarpa (Hook.) W. R. Buck
<b>3682</b>	G	Cordillere de Péribébui	Rhaphidostegium fusco-viride Besch.	BESCHERELLE, 1885: 19 (no description); BESCHERELLE, 1891c: 347 (Cordillère de Péribébui)	Sematophyllum subpinnatum (Brid.) E. Britton
3682a	G	Guarapi	Stereophyllum guarapense Besch.	BESCHERELLE, 1885: 19	Stereophyllum radicosum (Hook.) Mitt.
3682b	G	Cordillere de Péribébui	Rhaphidostegium fusco-viride Besch.	BESCHERELLE, 1885: 19	Sematophyllum subpinnatum (Brid.) E. Britton
3683	G	Cerro de San Tomas	Braunia incana Müll. Hal.	BESCHERELLE, 1885: 17	Braunia cirrhifolia (Mitt.) A. Jaeger
3684	—	Santa-Barbara	Anacalypta paraguensis Besch.	BESCHERELLE, 1885: 17	Uleastrum paraguensis (Besch.) W. R. Buck
3685	G	Villa Rica	Racopilum tomentosum (Hedw.) Brid.	BESCHERELLE, 1885: 18	Racopilum tomentosum (Hedw.) Brid.
3686	—	s. l.	Brachythecium cylindraceum Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Brachythecium cylindraceum Müll. Hal.
3686	—	Près de Cerro San Tomas	Pychoomitrium mandoni Besch. (nom. nud.)	BESCHERELLE, 1885: 18	Pychoomitrium mandoni Besch.
3687	G	Guarapi	Helicodontium pervirens (Müll. Hal.) Paris	BESCHERELLE, 1885: 18	Helicodontium pervirens (Müll. Hal.) Paris
3687	—	s.l.	"Hypnum tenuirostre Hook. 1819 var."	MÜLLER & STEPHANI, 1887: 57	Helicodontium capillare (Hedw.) A. Jaeger
<b>3688</b>	G	Guarapi	Thuidium paraguense Besch.	BESCHERELLE, 1885: 18 (no description); BESCHERELLE, 1891c: 346 (Guarapi, dans les forêts, sur les troncs pourris, juillet 1878)	Thuidium paraguense Besch.

## Appendix 1. – Cont.

No.	In G	Label locality	Name used in publication	Reference	Current name
3689	G	Guarapi	Hookeria subdepressa Besch.	BESCHERELLE, 1885: 19 (no description); BESCHERELLE, 1891 c: 345 (Guarapi, 1881), MÜLLER & STEPHANI, 1887: 57 as Hookeria paraguensis Müll. Hal. (nom. nud.)	Callicostella subdepressa (Besch.) Broth.
3690	G	Péribébui	Isopterygium subtenerum Besch.	BESCHERELLE, 1885: 19 (no description); BESCHERELLE, 1891 c: 348 (Cordillère de Péribébui, juillet 1879)	Isopterygium tenerum (Sw.) Mitt.
3691	—	Guarapi	Isopterygium sp.	BESCHERELLE, 1885: 19	
3691	G	Guarapi	Ectropithegium glaucinum Besch.	BESCHERELLE, 1885: 19	Vesicularia glaucina (Besch.) Broth.
3692	G	Bords du Mbatï	Apychus circincaulis Müll. Hal.	BESCHERELLE, 1885: 19 as Rhapidothegium circinale Hampe, MÜLLER & STEPHANI, 1887: 57 as Hypnum circincaule Müll. Hal. (nom. nud.), MÜLLER, 1897: 125 as Apychus circincaulis	Sematophyllum circincaule (Müll. Hal.) Broth.
3693	—	s. l.	Hypnum percircinale Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Rhaphidostegium percircinale Besch.
3693	G	Péribébui	Pterogoniopsis fabronia Besch.	BESCHERELLE, 1885: 18 (no description) as Meiothecium fabronia Besch.; BESCHERELLE, 1891 c: 343 (Cordillère de Péribébui, juillet 1879)	Sematophyllum fabronia (Besch.) W. R. Buck
3694	G	Péribébui	Rhaphidostegium fallax Besch.	BESCHERELLE, 1885: 19	Sematophyllum subpinatum (Brid.) E. Britton
3695	G	s. l.	Hypnum nanum Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Rhaphidostegium nanum Kindb. (nom. nud.)
3695a	G	Guarapi	Rhaphidostegium aureolum (Hampe) A. Jaeger	BESCHERELLE, 1885: 19	Sematophyllum subpinatum (Brid.) E. Britton
3696	G	Guarapi	Rhaphidostegium chlorohectium Besch.	BESCHERELLE, 1885: 19	Sematophyllum chlorohectium (Besch.) Broth.
3697	G	Assomption	Fissidens glaucifrons Besch.	BESCHERELLE, 1885: 17 as Fissidens glaucifrons (no description); BESCHERELLE, 1891 b: 252 (Assomption, talus)	Fissidens elegans Brid.
3698	G	Guarapi	Fissidens brevipes Besch.	BESCHERELLE, 1885: 17 as Fissidens brevipes (no description); BESCHERELLE, 1891 b: 252 (Paraguay, ad cortices)	Fissidens elegans Brid.
3699	—	s. l.	Fissidens stenocarpus Müll. Hal. (nom. nud.)	MÜLLER & STEPHANI, 1887: 57	Fissidens zollingeri Mont.
3699	G	Guarapi	Fissidens guarapiensis Besch.	BESCHERELLE, 1885: 17, as Fissidens guarapiensis (no description); BESCHERELLE, 1891 b: 252 (Guarapi, sur la terre)	Fissidens zollingeri Mont.
3700	G	Bopigua	Hymenostomum balansaeum Besch.	BESCHERELLE, 1885: 17, MÜLLER & STEPHANI, 1887: 57	Hymenostomum balansaeum Besch.
3701	G	Guarapi	Rhynchostegium assumptionis Besch.	BESCHERELLE, 1885: 19	Rhynchostegium assumptionis Besch.
3702	G	Guarapi	Dimerodontium balansae Müll. Hal.	BESCHERELLE, 1885: 18	Dimerodontium balansae Müll. Hal.
3708	G	Paraguari	Bruchia ligulata Müll. Hal.	MÜLLER, 1888: 11	Bruchia aurea Besch.
4256	G	s. l.	Octoblepharum albidum Hedw.	MÜLLER & STEPHANI, 1887: 57	Octoblepharum albidum Hedw.
4258	G	Bords du Mbay		Published here	Haplocladium microphyllum (Hedw.) Broth.
4259	G	Bords du Mbay		Published here	Forsstroemia coronata (Mont.) Paris
4260	G	Bords du Mbay		Published here	Entodontopsis nielsenii (Mitt.) W. R. Buck & R. R. Ireland

Appendix 1. – Cont.

No.	In G	Label locality	Name used in publication	Reference	Current name
4262	G	Yaguaron		Published here	Haplocladium microphyllum (Hedw.) Broth.
4265	G	Guarapi		Published here	Entodon argyreus (Besch.) Besch.
4332	G	Paraguari		Published here	Pogonatum pensilvanicum (Hedw.) P. Beauv.
s.n.	G	Paraguay		Published here	Ptychomitrium muelleri (Mitt.) A. Jaeger
s.n.	G	Guarapi		Published here	Racopilum tomentosum (Hedw.) Brid.
s.n.	—	Guarapi	Brachymenium spirale Besch.	BESCHERELLE, 1891b: 254	Brachymenium spirale Besch.
s.n.	—	Cerro San Thomas	Holomitrium paraguense Besch.	BESCHERELLE, 1891a: 146	Holomitrium paraguense Besch.
s.n.	—	Guarapi	Papillaria guarapiensis Besch.	BESCHERELLE, 1891c: 434	Papillaria guarapiensis Besch.