



## Typification of some species names in *Elaphoglossum* section *Polytrichia* (Dryopteridaceae) from Brazil

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### ABSTRACT

The fern genus *Elaphoglossum* has received a great deal of attention in Brazil over the last two centuries. Nevertheless, many of the early names remain inadequately typified. In this paper, the nomenclature of some Brazilian species of *Elaphoglossum* sect. *Polytrichia* is discussed under the rules and recommendations of the International Code of Nomenclature for algae, fungi, and plants. Lectotypes are designated for the following names: *Acrostichum amplissimum* Fée; *A. apodum* Kaulf. var. *sprucei* Baker; *A. glaziovii* Fée; *A. lindbergii* Mett. ex Kuhn; *A. prestonii* Baker; *Elaphoglossum spannagelii* Rosenst.; and *Elaphoglossum ulei* H. Christ. Most of these types were collected in Brazil during the 19th century and are now preserved in several European herbaria.

**Key words:** Ferns, neotropics, nomenclature, taxonomy, types

## Introduction

During the preparation of a taxonomic revision of *Elaphoglossum* Schott ex J. Sm. (Dryopteridaceae) in Brazil, I found several scientific names that needed to be lectotypified. Many of these names were first published in *Acrostichum* L., which formerly included all ferns with acrostichoid sori. It is realized nowadays that such an assemblage results in a paraphyletic group containing species now placed in distinct families (see Smith *et al.* 2006). Within Brazil, *Elaphoglossum* has received a great deal of floristic attention (e.g., Fée 1869; 1873; Baker 1870; Rosenstock 1906–1907; Alston 1958; Brade 1961; 1965; Sehnem 1979; Windisch & Kieling-Rúbio 2010), but many names have yet to be typified. Brade (1966) studied some types that were collected by Glaziou in Brazil and are now preserved at the Herbarium of the National Museum of Natural History in Paris, France (herbarium P). He cited many of these collections as “*typus*,” in what was then an effective lectotypification, but without designating a specific specimen as a lectotype. This situation is covered by Article 9.17 of the International Code of Nomenclature (McNeill *et al.* 2012), which provides for the narrowing of a lectotypification from such a “first-step” designation of a gathering to a “second-step” designation of a single specimen. Rouhan & Cremers (2006) also lectotypified some names from Brazil.

In this paper, I clarify the names of certain species of *Elaphoglossum* sect. *Polytrichia* H. Christ described from

Brazil. The members of this section can be recognized morphologically by the presence of subulate scales and absence of hydathodes on the leaves of adult sporophytes (Mickel & Atehortúa 1980; Matos & Moran 2013).

## Material and methods

This study was largely based on the examination of types and other specimens from the following herbaria: AAU, ALCB, B, BHCB, BM, BR, CEPEC, CGE, COL, CR, F, GH, HB, HBR, HUEFS, INB, INPA, JBSD, K, LE, LIL, LSCR, M, MBM, MEXU, MO, NY, P, PH, PI, R, RB, S, SP, SPE, UC, UPCB, and US (acronyms according to Thiers 2013). Many of these herbaria are currently in the process of databasing their collections, and in several cases the sheets are provided with a barcode label and number serving as a unique identifier. Whenever possible, these numbers were used here to refer to a particular specimen of a gathering. Most of the information about botanical publications, authors, collectors, dates, and types was taken from Urban (1906) and Stafleu & Cowan (1976–1988). In some cases, I included additional information about collecting localities in the nomenclatural paragraphs. Such information is enclosed in square brackets and was inferred from reliable external evidence other than the protologue. Typification followed the guidelines established in the Melbourne Code (McNeill *et al.* 2012).

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## Typifications

1. *Acrostichum amplissimum* Fée, Crypt. Vasc. Brés. 1: 5, tab. 6. 1869. *Elaphoglossum amplissimum* (Fée) H. Christ, Bull. Herb. Boissier, sér. 2, 2(3): 328. 1902 – **Lectotype (designated here): BRAZIL. Rio de Janeiro:** [Angra dos Reis], Serra do Ariri, 19/VI/1868, *Glaziou 2436* (P00249820!; isolectotypes P00249821 p.p.!, P00249822!, P00249823!). = *Elaphoglossum scolopendrifolium* (Raddi) J. Sm., Bot. Mag. 72: 17. 1846.

There are four sheets of *Glaziou 2436* at P. From among these, I select P00249820 as the lectotype because it has Fée's original label and a paper tag with the collection number (*n.* 2436) attached to the petiole. It also has a handwritten note suggesting that the specimen was used to prepare the illustrations for the original publication (Fée 1869: *Tab. 6*).

Sheet number P01398966 bears the same collection number as the type (i.e., *Glaziou 2436*), but should not be considered part of the original material for two reasons: First, the label has a different collection date (i.e., 1870), indicating that the specimen was collected after the name was validly published. Second, this specimen was probably never examined by Fée, as suggested by a label stating that it was transferred to P from the “*Herbarium Cadomense*” (CN) on 6 November 1974.

Sheet number P00249821 is a mixed collection containing two different species. Only the specimen at the bottom corresponds to the original description, being a young sporophyte of *Acrostichum amplissimum* [= *Elaphoglossum scolopendrifolium* (Raddi) J. Sm.], and not *E. glaziovii* (Fée) Brade as stated by Brade (1966). In his treatment of the Brazilian species of *Elaphoglossum*, Alston (1958) was the first to synonymize *A. amplissimum* under *E. scolopendrifolium* (Raddi) J. Sm. After observing plants in the field and studying both types, I can confirm that Alston's interpretation was correct.

2. *Acrostichum apodum* Kaulf. var. *sprucei* Baker in Mart., Fl. Bras. 1(2): 578. 1870 – **Lectotype (designated here): [BRAZIL. Amazonas:** São Gabriel da Cachoeira], “Prope San Gabriel da Cachoeira, ad Rio Negro, Brasiliae borealis”, I–VIII 1852, *Spruce 2186* (K000898850!; isolectotypes B200071758!, B200072410!, BM001026214!, BR0000006972011!, CGE13097!, CGE13098!, CGE13099!, GH!, K000898849!, P01464083!, P01464084!, P01464085!, US00067318!, US01100827!).

Another syntype: [BRAZIL. Pará:] “Tanaii, ad Rio Acara, juxta Para,” VII–IX 1849, *Spruce s.n.* (CGE13096!, K: on 3 sheets!, P01464087!).

= *Elaphoglossum raywaense* (Jenman) Alston, Bol. Soc. Brot., sér. 2, 32: 24. 1958.

This varietal name (as “Var.  $\beta$ . *apodum*”) was based on two syntypes, both from Amazonian Brazil: [1] “*prope Tanaii ad Rio Acara prov. Paraensis: Spruce s.n.*”; and [2] “*in sylvis Caatingas prope S. Gabriel da Cachoeira prov. do Alto*

*Amazonas: Spruce 2186*”. Of these two gatherings, *Spruce 2186* has more duplicates. Two sheets of *Spruce 2186* are at K where Baker worked, both being fertile and complete. I select K000898850 as the lectotype because it has Spruce's authentic label annotated as “cotype.” Alston (1958) was the first to synonymize this species under *Elaphoglossum raywaense*, a decision followed by Mickel (1991), who did not locate the types, in his treatment of *Elaphoglossum* for Peru.

3. *Acrostichum glaziovii* Fée, Crypt. Vasc. Brés. 1: 6, tab. 1, f. 1. 1869. *Elaphoglossum glaziovii* (Fée) Brade, Sellowia 18: 99. 1966 – **Lectotype (designated here): BRAZIL. Rio de Janeiro:** [Floresta da] Tijuca, 18/XI/1867, *Glaziou 2059* (P00249745!; isolectotypes BR0000006972530!, P00249746!, P00249747!, P00249748!).

There are four sheets of *Glaziou 2059* at P and one at BR, all of which are fertile and complete (i.e., leaves attached to the stem). I select P00249745 as the lectotype because it is the only one with Fée's original label and has a paper tag with the collection number (*n.* 2059) attached to the petiole. There is also indication that this material was used to prepare the illustrations for the original publication (Fée 1869: *Tab. 1, Fig. 1*).

Sheet number P01604287 of *Glaziou 2059* should not be considered an isolectotype for the same reasons presented above for P01398966 (see under *Acrostichum amplissimum* Fée).

In tentatively transferring *Acrostichum glaziovii* Fée to *Elaphoglossum*, Brade (1961) did not provide a full and direct reference to the basionym and its place of valid publication. Being made after 1 January 1953, this new combination was not validly published (McNeill *et al.* 2012: Art. 41.5). After five years, however, the same author validly published the new combination *E. glaziovii* (Fée) Brade (Brade 1966) by indicating the basionym, as well as its author and place of valid publication.

4. *Acrostichum hybridum* Bory var. *minor* Baker in Mart., Fl. Bras. 1(2): 574. 1870 – **Holotype: [BRAZIL. Rio de Janeiro:]** Serra dos Órgãos, s.d., *Gardner 5925* (BM!). = *Elaphoglossum hybridum* (Bory) Brack., U.S. Expl. Exped., Filic. 16: 69. 1854.

This infraspecific taxon (as “Var.  $\beta$ . *minor*”) was described from a single specimen, *Gardner 5925* (BM). This specimen must, therefore, be regarded as the holotype (McNeill *et al.* 2012: Art. 9, Note 1). The sheet contains an entire plant, with two sterile leaves and one fertile leaf attached to a short creeping stem.

5. *Acrostichum lindbergii* Mett. ex Kuhn, Linnaea 36: 46. 1869. *Elaphoglossum lindbergii* (Mett. ex Kuhn) Rosenst., Hedwigia 46: 153. 1907 – **Lectotype (designated here): BRAZIL. [Minas Gerais:]** Caldas, Chácara do Oliveira, I/1855, *Lindberg 537* (B200071096!; isolectotypes B200071099!, K!).

= *Elaphoglossum hybridum* (Bory) Brack., U.S. Expl. Exped., Filic. 16: 69. 1854.

There are two duplicates of *Lindberg 537* at B, which is where the German pteridologist Kuhn used to work. Although both duplicates are fertile, I select B200071096 as the lectotype of *Acrostichum lindbergii* because it is the most complete (it has a stem that the other sheet lacks). There is also a duplicate at K, which should be regarded as an isolectotype. Apparently, the types of *A. lindbergii* went missing for a number of years, generating a lot of confusion regarding the interpretation of this name. Baker (1870), based on his examination of the specimen at K, was the first to interpret this name correctly as a synonym of *A. hybridum* Bory.

6. *Acrostichum prestonii* Baker, Gard. Chron. 1872: 1555. 1872. *Acrostichum insigne* Fée, Crypt. Vasc. Brésil 2: 6, tab. 82, f. 1. 1873, nom. illeg. superfl. *Elaphoglossum prestonii* (Baker) J. Sm., Ferns Brit. For. (ed. 2) 298. 1877 – **Lectotype (designated here): BRAZIL. Rio de Janeiro:** Itatiaia, “prope Campo Bello”, 07/VI/1871, *Glaziou 5367* p.p. (K000994040!; isolectotypes B200071696!, K000501504!, P00249771!, P00249772!, P00249773!, P00249774!, S05-9352!).

Baker stated that *Acrostichum prestonii* was described partly from dried specimens collected by Glaziou in Brazil and partly from living material cultivated at Kew Gardens. I found three sheets annotated as *A. prestonii* at K: two of them collected by *Glaziou 5367*, and one (K000501503) undoubtedly vouchered from a cultivated plant. The cultivated plant, which was brought from Brazil by Rev. T.A. Preston, represents another species, *Elaphoglossum glaziovii* (Fée) Brade, and should be disregarded as a type. Although Glaziou’s collection number was not mentioned in the protologue, Baker indicated *Glaziou 5367* in a subsequent publication (Hooker & Baker, Syn. Fil., 520. 1874).

Working with a different set of Brazilian collections sent by Glaziou, Fée (1873) described *Acrostichum insigne* based on the same type of *A. prestonii* Baker. By definition, *A. insigne* Fée is a superfluous name and must be rejected (McNeill *et al.* 2012: Art. 52.1). Consequently, the more recent combination *Elaphoglossum insigne* (Fée) Brade (Brade 1956) is illegitimate because it is based on a superfluous name. *Acrostichum insigne* Baker (1877) is also illegitimate, being a later homonym of *A. insigne* Fée (1873) (McNeill *et al.* 2012: Art. 53.1). When Christensen (1906) transferred *A. insigne* Baker to *Polybotrya*, he correctly created the replacement name *Polybotrya andina* C. Chr.

There are four sheets of *Glaziou 5367* at P, including one with an original tag. The type collection of *Acrostichum insigne* Fée was cited in the protologue as *Glaziou 5369*, but this was a typographical error. Indeed, *Glaziou 5369* is cited again on the next page of Fée’s publication, as the type of *A. omphalodes* (Fée 1873: 7). Other duplicate specimens are found at B, K, and S. All of these are part of the same gathering and should be considered syntypes. There are

two duplicates of the original material at Kew, both being sterile but complete (i.e., leaves attached to a stem). Between them, I select the herbarium sheet that has three leaves (K000994040) as the lectotype of *A. prestonii*.

7. *Elaphoglossum spannagelii* Rosenst., Hedwigia 46: 153. 1907 – **Lectotype (designated here): BRAZIL. Santa Catarina:** Lages, IX/1904, *Spannagel 2* (S no. S-R-1881!, isolectotypes HB40105!, HBR39634!, R13771!, UC443383!). Other syntypes: **BRAZIL. Santa Catarina:** Lages, “ad ripas umbrosas flum. Rio do Caveiras”, 1905, *Spannagel s.n.* [Rosenstock, Filices austrobrasilienses, no. 3] (B200071967!, B200072067!, BM!, LE00000073!, LIL001940!, M0206998!, NY00149708!, NY00149710!, P00249968!, P00249969!, P00249970!, P00249971!, P00249972!, P00249973!, P00249974!, R109523!, S05-9543!, US00067380!); Brazil, Paraná, Lucena, 1903, *Wielewski s.n.* (NY00149709!, S11-7324!).

= *Elaphoglossum ulei* H. Christ, Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturwiss. 114, f. 2. 1899.

Rosenstock examined three different gatherings from Brazil when describing *Elaphoglossum spannagelii*: *Spannagel no. 2*, collected in Lages, Santa Catarina, on September 1904; (2) *Spannagel s.n.*, also collected in Lages, Santa Catarina, but on March 1905; and (3) *Wielewski s.n.*, collected in Lucena, Paraná [which is now the municipality of Itaiópolis in Santa Catarina], in 1903. Among them, *Spannagel s.n.* is the only one that was not mentioned in the protologue. Nevertheless, all of its specimens have an authentic label headed “*Dr. E. Rosenstock, Filices austrobrasilienses exsiccatae – n. 3*”. Duplicates of this gathering are preserved in several herbaria in Europe and the United States, and should be regarded as syntypes.

Although not mentioned in *Taxonomic Literature II* (Stafleu & Cowan 1983), many types of ferns described by Rosenstock are now deposited at S. The S material no. S-R-1881 is selected as the lectotype of *Elaphoglossum spannagelii*, even though it has teratological (i.e., lobed) leaves. The sheet bears an authentic label noting “*Elaphoglossum Spannagelii* Ros. n. sp.” and stamped with “*Dr. E. Rosenstock, Gotha*”, indicating that it belonged to Rosenstock’s personal herbarium. Duplicates of this collection are kept at HB, HBR, R, and UC.

The UC specimen (UC443383) has an authentic label printed with the heading “*E. Rosenstock Filices brasilienses*”. It is annotated as “*Spannagel 2*”, but all other information in the label matches *Spannagel s.n.*, including the collection date (i.e., 1905) and a more specific locality “*ad ripas umbrosas flum. Rio do Caveiras*.”

8. *Elaphoglossum ulei* H. Christ, Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturwiss. 114, f. 2. 1899 – **Lectotype (designated here): BRAZIL. Santa Catarina:** [Lages], “An einer felswand bei Minas”, VI/1890, *Ule 327* (P00249984!; isolectotypes B200070088 p.p.!, P00249985!).

There are two sheets of *Ule* 327 at P and one at B. One of the specimens from P (P00249984) has an authentic stamp indicating that it once belonged to “*Herb. H. Christ*,” and for this reason I have selected it as the lectotype of *Elaphoglossum ulei*.

The specimen at B (B200070088) is a mixed collection containing three gatherings. Only *Ule* 327, which is composed of 10 plants in a small paper envelope, corresponds to the protologue. Therefore, it is designated here as an isolectotype.

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