

## GLAZIOU'S PTERIDOPHYTE COLLECTION AT THE PARIS HERBARIUM

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### ABSTRACT

During our work on pteridophytes for the 'Flora of the Guianas' programme, we have examined specimens from numerous herbaria, and especially from Paris (P). We have realised the importance of Glaziou's collection which is deposited at P. The detailed study of this collection led us to point out the difficulties of interpretation of dates and localities given on the labels of this collection. Therefore, for the benefit of further users of this collection, a complete inventory is being carried out. Examination of the collection catalogue, specimens, literature and associated databases has allowed the comparison of the labels and establishment of the chronology of the specimens and of the sites of collection. We have also studied Appun's collections from Guyana; these specimens were given by Appun to Glaziou, who incorporated them within his numbering. This paper presents the preliminary results of our study. However, after some five years of works for the installation of compactors for the Paris herbarium collections, and including mounting, digitising and re-curation of the pteridophyte specimens, these are once more accessible for research and all specimens will need a new revision.

Mots clés : Ptéridophytes, Herbier MNHN Paris, Glaziou, Appun.

### RÉSUMÉ

Lors de nos travaux sur les Ptéridophytes pour le programme 'Flora of the Guianas', nous avons examiné les spécimens de nombreux herbiers, et plus spécialement celui de Paris (P). Nous avons ainsi remarqué l'importance de la collection d'A.F.M. Glaziou déposée à P. L'étude de détail de cette collection nous a permis de constater les difficultés d'interprétation des dates et des lieux de récolte portés sur les étiquettes des spécimens de cette collection. Aussi, pour le bénéfice des utilisateurs ultérieurs de cette collection, en avons-nous entrepris un inventaire complet, actuellement toujours en cours. L'examen des carnets de récolte, des spécimens, de la bibliographie et des bases de données nous a permis de comparer les étiquettes et d'établir la chronologie des spécimens et des lieux de récolte. Cet article présente les résultats préliminaires de notre étude. Toutefois, la collection de l'herbier de Paris nécessite une nouvelle révision, du fait des travaux de rénovation de l'herbier, tous les spécimens étant désormais

accessibles. Nous avons également étudié les récoltes d'Appun du Guyana. Ces spécimens ont été donnés par Appun à Glaziou qui les a intégrés dans sa numérotation.

### INTRODUCTION

In the course of our research on American pteridophytes for the 'Flora of the Guianas' international programme, and the 'Index of American Pteridophytes', we have looked for specimens collected from the three Guianas (Guyana, Suriname, French Guiana), as well as for type specimens.

We have observed that:

Glaziou's pteridophyte collection in Paris (P), mainly studied by A.L.A. Fée (1869, 1872-1873) and by J.G. Baker (1870), contains a great number of taxa new at this time and described by these two authors;

A certain number of specimens from this collection were collected in Brazil by amateurs and other botanists, but also collected in Guyana by C.F. Appun.

François-Marie Auguste Glaziou was born in Lannion (Côtes-d'Armor, France) on August 28th, 1828 of an 'unknown father'. In February 1834 his mother, Marie-Joseph Grosvalet, married Yves Glaziou, a gardener-horticulturist, who recognised him and gave him his name. At 16 years of age, he escaped from home to make a tour of France, but stopped at Bordeaux. A good horticulturist, he applied himself to botany and the art of gardening. He married, fathered a family, and in 1859 set sail for Brazil as a migrant. In 1862, he was engaged to create several gardens in Rio de Janeiro. At this period, C.F.P. von Martius (1794-1868) had undertaken the writing of '*Flora brasiliensis*' and needed correspondents in Brazil. Glaziou became involved in the important task of plant collecting from unexplored areas. He considered knowledge to be universal, and sent specimens of plants to many herbaria in Europe and in South America. His collections of lichens and mosses allowed A.L. Fée (1789-1874) to publish a flora of the Cryptogams of Brazil in 1869. In 1897, tired and sick, he took retirement and returned to France where he stayed close to Bordeaux. He spent the remaining years sorting out his herbarium and his documents until his death in 1906 (after Allain 2008).

We have now started the inventory of all Glaziou's specimens deposited at the National Museum of Natural History in Paris (P). We supplemented the data by including information from databases of various herbaria (B, BM, BR, C, G, K, MO, NY, P, RB, US). These databases were revealed to be incomplete, as entry of specimen data is still in progress. Our study of Glaziou's specimens has started with the examination of his catalogue of collections, then the literature.

Our study of this collection revealed to us the difficulties of interpretation of the information shown on Glaziou's labels. It is also known that Glaziou had collected certain plants at various periods, but referred to them under the same number. Through the inventory and the bibliographical information, we have been able to draw preliminary conclusions that we present here.

### GLAZIOU'S COLLECTION CATALOGUE

Glaziou's collection catalogue, deposited at the library of the Paris herbarium (P), consists of 3 registers noted as "carnets de récoltes" (collection notebooks) which are not true field books but rather a listing of the collection numbers, in which the information is very minimal. For each of the 26,000 records only a number and the name of the plant are indicated. From our records a total of some 1,789 of these

numbers correspond to pteridophytes. The information in this catalogue is presented in the following style:

- 362** *Acrostichum consobrinum* Kunze  
**363** *Ceropteris tartarea* Link  
**364** *Mertensia scalpturata* Fée  
**365** *Mertensia pubescens* Humb. & Bonpl.  
**366** *Mertensia pubescens* Humb. & Bonpl.  
 etc.

### GLAZIOU'S COLLECTION

Using this list of pteridophyte specimens given by Glaziou in his collection catalogue, we have looked for the specimens deposited at P. The information shown on the specimen labels has been recorded, together with information found in the literature. There is variation in the type of information from one specimen label to another. The list below provides examples of the various categories of these labels, with the current name of the taxon given for each Glaziou number.

#### Case 1

This is the simplest category:

**364** **Catalogue:** *Mertensia scalpturata* Fée

**Specimen label:** Rio de Janeiro: (syn- P00633236!) [det. as *Dicranopteris flexuosa* (Schrad.) Underw. by S. Roth in 1985].

Syntype of *Mertensia scalpturata* Fée, Crypt. Vasc. Brés. 1: 199, t.72, f.1. 1869.

Protologue: “*Habitat in Brasilia fluminensi* (Claussen, n° 102 a [Herb. F.]; Glaziou, n° 364, et 1695)”.

**Current name:** *Dicranopteris flexuosa* (Schrad.) Underw. [fide Lellinger 1989, Andersen & Øllgaard 2001].

#### Case 2

When naming Glaziou's specimens, it happens that several authors did not give the same name for a specimen. The names given now become synonyms of the current name of the taxon.

**378** **Catalogue:** *Alsophila scrobiculata* Fée

**Specimen label:** Rio de Janeiro: Corcovado, 12 Jan 1867 (syn- P00631754!; isosyn-BR!, P00631755!, P00631756!).

Syntype of *Alsophila scrobiculata* Fée, Crypt. vasc. Brés. 1: 157, t.53, f.1. 1869.

Protologue: “*Habitat in Brasilia fluminensis* (Glaziou, n° 378, 2293, 2294, et 2295)”.

*In*: *Alsophila paleolata* Mart. [Fl. Bras. 1(2): 329. 1870].

**Current name:** *Cyathea phalerata* Mart. [fide Zuloaga *et al.* 2008, Forzza *et al.* 2012].

#### Case 3

Sometimes, the same number is indicated for different taxa and, very occasionally, for different dates. But, the collection dates are not always reported on the specimens, and notably never on the duplicate specimens. A specimen number shown on the herbarium sheet can only be related to the numbers in the catalogue when dates are indicated on the specimens, and that is extremely rare.

**1221** **Catalogue:** *Goniophlebium lepidopteris* T. Moore

**a) Specimen label:** Rio de Janeiro: in sands of Talupu, 18 Jun 1867 (P01374808!)

*Goniophlebium lepidopteris* T. Moore, *Acrostichum lepidopteris* Langsd. & Fisch.

*In* : *Goniophlebium lepidopteris* T. Moore [Crypt. Vasc. Brés. 1869.]

**Current name:** *Pleopeltis lepidopteris* (Langsd. & Fisch.) de la Sota [fide Sota 2007].

**b) Specimen label:** Rio de Janeiro: (syn- P00167446!; isosyn- NY148808-fragm.).

Syntype of *Alsophila tijuensis* Fée, Crypt. vasc. Bres. 1: 171, t.73, f.1. 1869.

Protologue : “*Habitat in Brasilia fluminensis, ad Tijuca* (Glaziou, n° 1221, et 1707).”

**Current name:** *Cyathea poeppigii* (Hook.) Domin [fide Lellinger 1989, Forzza *et al.* 2010].

**c) Specimen label:** Rio de Janeiro

*In* : *Dicksonia cicutaria* Sw. [Crypt. Vasc. Brés. 1869.]

**Current name:** *Dennstaedtia cicutaria* (Sw.) T. Moore [fide Sota 1977, Smith 1981, Stolze 1981, Proctor 1985, Mickel & Beitel 1988, Proctor 1989, Tryon & Stolze 1989, Mickel 1992, Moran & Riba 1995, Mickel & Smith 2004, Zuloaga *et al.* 2008].

**d) The Glaziou number 1221 is also cited by Baker, Fl. Bras 1(2): 527. 1870.**

- *Polypodium lepidopteris* (Langsd. & Fischer) Kunze var. *rufulum* (C. Presl) Baker

**Current name:** *Pleopeltis hirsutissima* (Raddi) de la Sota [fide Zuloaga *et al.* 2008].

#### Case 4

Two specimens collected at different dates are indicated under the same number. As an example, we present here number 1680, but this applies also for numbers 424 and 917.

**1680 Catalogue:** *Aspidium amaurolepis* Fée

**a) Specimen label:** Rio de Janeiro: Serra dos Órgãos, Tijuca, 8 Aug 1867 (syn-P00170065!; isosyn- C, P001415573!, US!).

Syntype of *Aspidium amaurolepis* Fée, Crypt. vasc. Bres. 1: 137, t.44, f.2. 1869.

Protologue: “*Habitat in Brasilia fluminensis* (Glaziou, n° 1680, a Tijuca, et 2370, 2371, 2372).”

**Current name:** *Ctenitis distans* (Brack.) Ching

For Baker [Fl. Bras. 1(2): 472. 1870] this specimen corresponds to *Nephrodium caripense* (Willd.) Hooker

**Current name:** *Ctenitis submarginalis* (Langsd. & Fischer) Ching [fide Sota 1977, Stolze 1981, Zuloaga 1997, Zuloaga *et al.* 2008].

**b) Specimen label:** Rio de Janeiro: Corcovado, 8 Sep 1867 (P01592212!, P01592213!, P01592214!, P01592215!)

*Gymnotheca polyodon* Presl

**Current name:** *Marattia cicutifolia* Kaulf. [det. Christenhusz 2006]

#### Case 5

Appun's specimens, collected in Guyana and given to Glaziou, are integrated within the numbering of Glaziou's collection. For the other gifts of specimens, it is extremely rare that they are mentioned in the collection catalogue:

**12347 Catalogue:** *Blechnum asplenioides* Sw.

**Specimen label:** GUYANA: *Appun s.n.* (P01532127!)

*Blechnum asplenioides* Sw.

**Current name:** *Blechnum asplenioides* Sw. [fide Murillo 1968, Sehnem 1968, Kramer 1978, Cremers & Hoff 1990, Tryon & Stolze 1993, Smith 1995, Killeen & Schulenberg 1998, Forzza *et al.* 2010].

#### Case 6

Numerous specimens are without number:

In the description of taxa, the author mentions "Glaziou s.n.", as in this case, here below, for a Christ species.

This is correct and conforms to the protologue.

**s.n.** (holo- P00559058!).

Type of *Lycopodium alopecuroides* var. *pseudo-reflexum* H. Christ, Bull. Herb. Boiss. ser. 2, 2: 706. 1902. [det. as *Lycopodiella alopecuroides* (L.) Cranfill var. *integerrima* (Spring) B. Øllg. & P.G. Windisch by B. Øllgaard and P.G. Windisch in 1993]

Protologue: "Glaz. s.n."

**Current name:** *Lycopodiella longipes* (Hook. & Grev.) Holub [fide Arana & Øllgaard 2012]

In most cases, the number is frequently omitted on the label. This is the case for a number of duplicates. However, thanks to the indication of location and date of collection, it is possible to extrapolate and to estimate a probable number for the specimen.

**s.n.** Petropolis, 16 Feb 1866 (P01227946!) [prob. n° 913]

*Lycopodium complanatum* L.

**Current name:** *Diphasiastrum thyoides* (Humb. & Bonpl. ex Willd.) Holub [fide Arana & Øllgaard 2012].

### Case 7

By comparison of the numbers mentioned in the collection catalogue and the numbers found on the specimens, we have established that there are a further 75 additional numbers:

- either with a name belonging to a Phanerogam, but with a specimen being a pteridophyte:

**11 Catalogue:** *Scoparia dulcis* L. [Scrophulariaceae]

**Specimen label:** Rio de Janeiro : Alto Macahé, Jul 1870 (P01541570!)

*Heteroneuron serratifolium* (Mert. ex Kaulf.) Fée

**Current name:** *Bolbitis serratifolia* (Mert. ex Kaulf.) Schott [fide Sota 1977, Sehnem 1979, Smith 1981, Tryon & Stolze 1991, Smith 1995, Kessler *et al.* 2000, Mickel & Smith 2004, Funk *et al.* 2007, Hokche *et al.* 2008].

- or without name, but with a specimen being a pteridophyte:

**248 Catalogue:** No indication.

**Specimen label:** (P01224203!)

*Lycopodium reflexum* Lam. [det. B. Øllgaard 1987]

**Current name:** *Phlegmariurus reflexus* (Lam.) B. Øllg. [fide Øllgaard 2012].

### GLAZIOU'S LABELS

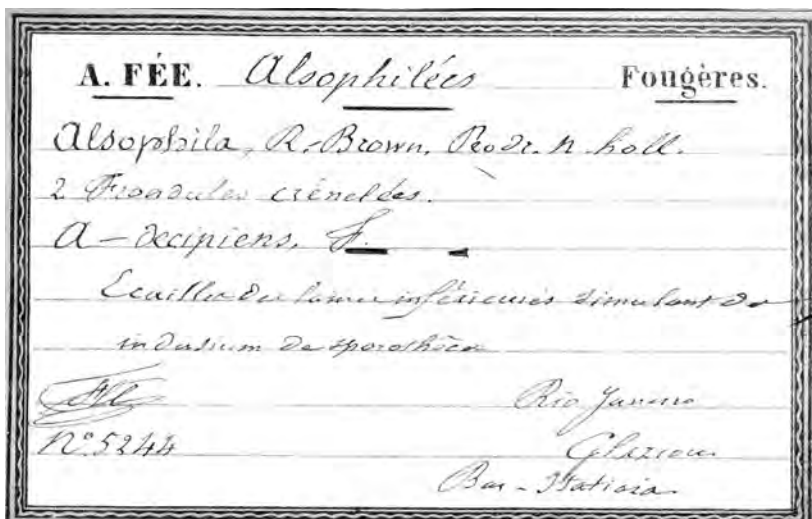
Up to 370 new taxa have currently been recorded in Glaziou's collection, mainly described by Fée (276) and Baker (51), but also by other botanists:

C. Christensen	9	W.R. Maxon & C.V. Morton	1
H. Christ	8	G.H. Mettenius	1
G.H. Hieronymus	6	K.A.E. Prantl	1
K. Domin	3	E. Rosenstock	1
W.G.F. Herter	3	A. Saint-Hilaire	1
C.A.M. Lindman	3	A.F. Spring	1
G.F. Kaulfuss	2	L.M. Underwood & F.E. Lloyd	1
M. Kuhn	1	C.A. Weatherby	1

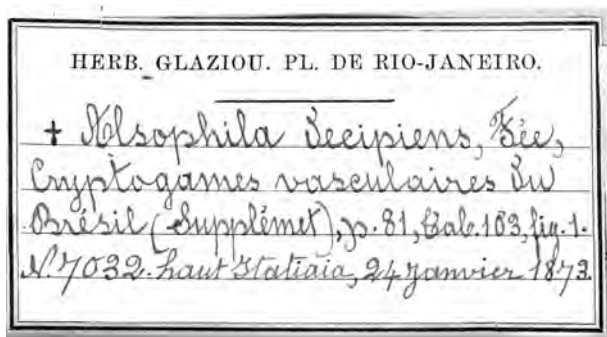
As some of the new taxa have been described with the citation of several specimens, the total number of Glaziou's collection recorded to date as syntypes is 475.

Several forms of label have been identified:

- Label from Fée, mostly with his signature ( Figure 1);
- Label of duplicates with additional data from Fée and Glaziou ( Figure 2);
- Label with uncomplete data written in Glaziou's hand ( Figure 3);
- Label bearing one number only:
  - either attached to an axis of the plant by a thread ( Figure 4);
  - or with a number written with a blue pen on a piece of brown paper in Glaziou's hand ( Figure 5).



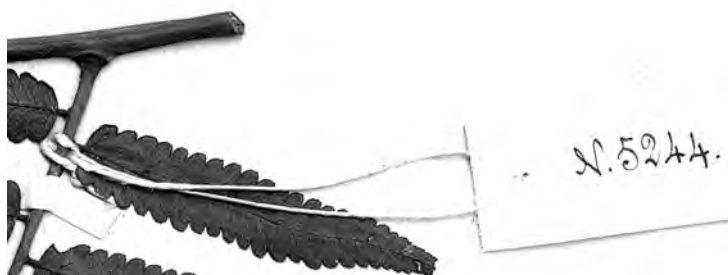
**Figure 1.** Label written by Fée with his signature: specimen *Glaziou* 5244 (P00625682), syntype of *Alsophila decipiens* Fée.



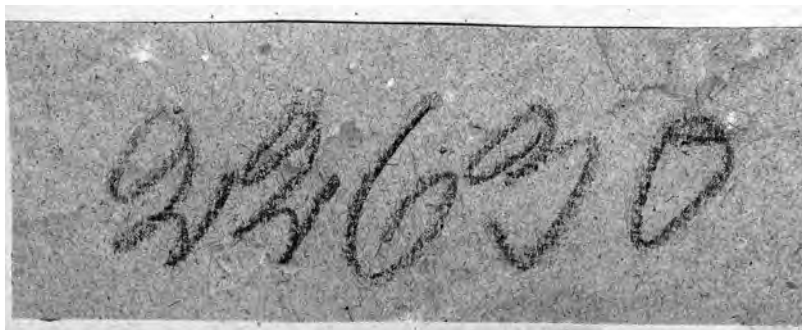
**Figure 2.** Label written by Glaziou, with various data: specimen *Glaziou* 7032 (P00631702).

Monte de l'Estacion,  
le 10 juillet 1872.  
+ Abs. decipiens, Fée.

**Figure 3.** Label written by Glaziou, with his original data: specimen *Glaziou 5244* (P00625687), isosyntype of *Alsophila decipiens* Fée.



**Figure 4.** Label of the number 5244, written by Glaziou and attached to the plant by a thread (P00625687).



**Figure 5.** Label of the number 22630, written by Glaziou (P00631772), isotype of *Alsophila goyazensis* H. Christ.

#### OTHER LISTS ESTABLISHED

##### List of specimens of Glaziou's collection

As an example of the list that we are compiling, we show the first page in Figure 6.

##### List of Glaziou's specimens regrouped under the current names of taxa

As an example of how this list is being presented, we show here *Abrodictyum rigidum* (Hymenophyllaceae):

*Abrodictyum rigidum* (Sw.) Ebihara & Dubuisson

- 11 CATALOGUE:** *Scoparia dulcis* L. [SCROPHULARIACEAE]  
**SPECIMEN:** Rio de Janeiro: Alto Macahé, Juillet 1870 (P01541570!)  
*Heteroneuron serratifolium* (Mert. ex Kaulf.) Fée  
**CURRENT NAME:** *Bolbitis serratifolia* (Mert. ex Kaulf.) Schott
- 17 CATALOGUE:** *Sophora littoralis* Schrad. [FABACEAE]  
**SPECIMEN:** Rio de Janeiro: (syn-).  
 Syntype of *Alsophila leucolepis* Mart. var. *firma* Domin  
**CURRENT NAME:** *Alsophila leucolepis* Mart. var. *firma* Domin
- 24 CATALOGUE:** *Euphorbia sabulicola* Baill. [EUPHORBIACEAE]  
**SPECIMEN:** Rio de Janeiro: Trannin (P01248867!)  
*Doryopteris hastata* Raddi  
**CURRENT NAME:** *Doryopteris sagittifolia* (Raddi) J. Smith
- 32 CATALOGUE:** *Borreria tenella* Cham. & Schlechtdl. [RUBIACEAE]  
**SPECIMEN:** Rio de Janeiro: près de Rio de Janeiro, 1872 (MO-1826063)  
**CURRENT NAME:** *Cyathea delgadii* Sternb.
- 34 CATALOGUE:** *Borreria tenella* Cham. & Schlechtdl. [RUBIACEAE]  
**SPECIMEN:** Rio de Janeiro: près de Rio de Janeiro, 1872 (MO-1856064)  
**CURRENT NAME:** *Cyathea delgadii* Sternb.
- 39 CATALOGUE:** *Beyrichia ocyroides* Cham. [SCROPHULARIACEAE]  
**SPECIMEN:** Rio de Janeiro: près de Rio de Janeiro, novembre 1871 (MO-1855168)  
**CURRENT NAME:** *Cyathea microdonta* (Desv.) Domin
- 49 CATALOGUE:** *Coccoloba populifolia* Wedd. [POLYGONACEAE]  
**SPECIMEN:** Rio de Janeiro: janvier 1872 (MO-1870292)  
**CURRENT NAME:** *Cyathea phalerata* Mart.
- 51 CATALOGUE:** *Myrcia recurvata* Berg [MYRTACEAE]  
**SPECIMEN:** Rio de Janeiro: 1872 (MO-1870306, MO-1823787)  
**CURRENT NAME:** *Cyathea phalerata* Mart.
- 61 CATALOGUE:** *Byrsonima sericea* DC. [MALPIGHIACEAE]  
**SPECIMEN:** Rio de Janeiro  
*In: Polypodium cilare* Fée [Crypt. vasc. Bres. 1869].  
**CURRENT NAME:** *Alansmia reclinata* (Brack.) Moguel & M. Kessler
- 65 CATALOGUE:** *Myrcia brasiliensis* Kiaersk. [MYRTACEAE]  
**SPECIMEN:** Rio de Janeiro: près de Rio de Janeiro, 1872 (MO-1872924)  
**CURRENT NAME:** *Cyathea axillaris* (Fée) Lellinger
- 67 CATALOGUE:** *Plukenetia tamnoides* M. Arg. [EUPHORBIACEAE]  
**SPECIMEN:** Rio de Janeiro: 1872 (MO-1870291)  
**CURRENT NAME:** *Cyathea phalerata* Mart.
- 68 CATALOGUE:** Nothing  
**SPECIMEN:** Rio de Janeiro: Passeio Publico, 14 mars 1867 (P!)  
*Craspedaria vacciniifolia* (Langsd. & Fisch.) Link  
*In: Polypodium vacciniifolium* Langsd. & Fisch. [Fl. Bras. 1(2): 519. 1870]  
**CURRENT NAME:** *Microgramma vacciniifolia* (Langsd. & Fisch.) Copel.
- 69 CATALOGUE:** Nothing  
**SPECIMEN:** Rio de Janeiro:  
*In: Polypodium lepidopteris* (Langsd. & Fisch.) Kunze var. *rufulum* (C. Presl) Baker [Fl. Bras 1(2): 527. 1870]  
**CURRENT NAME:** *Polypodium hirsutissimum* Raddi

**Figure. 6.** First page of the list of pteridophyte specimens collected by Glaziou.



- 456** Rio de Janeiro: Corcovado, 2 Sep 1867 (P01304055!)  
**3178** Rio de Janeiro: Petropolis, Serra do Couto, 25 Mar 1869 (P01304056!, S06-1259)  
**7033** Rio de Janeiro: Pic de la Tijuca, 19 Apr 1873 (P01304058!, P01304057!, P01304059!)  
**16646** Rio de Janeiro: (P01304060!, P01304061!, P01304062!, P01304063!)  
**s.n.** Rio de Janeiro: Corcovado, 2 Sep 1867 (P01304071!) [prob. N° 456]  
**s.n.** (P01304064!, P01304065!, P01304066!, P01304067!, P01304068!, P01304069!, P01304070!).

### List of locations of collection classified by date

Here below is the example for the year 1865:

Month	Day	Locality	Number
<b>1865</b>			
January	12	R.J.: Corcovado	372
		R.J.: Serra dos Órgãos, Corcovado	955 c*
	16	R.J.: Corcovado	400
	24	R.J.: Corcovado	386
February	2	R.J. :	978
	8	R.J.: Serra dos Órgãos, Corcovado	956
	13	R.J.: Serra dos Órgãos, Corcovado	436
	14	R.J.: Corcovado	405
	15	R.J.: Corcovado	437
March	12	R.J.: Corcovado	381
	14	R.J.: Corcovado	420
	15	R.J.: Tijuca	931
	18	R.J.: Corcovado	367, 382,
April	25	R.J.: Serra dos Órgãos	916
May	16	R.J.: Gavia	422
	17	R.J.: Corcovado	397
June	7	R.J.: Corcovado	383
	23	R.J.: Gavia	982
July	4	R.J.: Bico do Papagaio	418
	10	R.J.: Lacangueiros	1669
	September	10	R.J.: Corcovado
16		R.J.: Corcovado	431
22		R.J.: Tijuca	950 b
October	5		409
	10	R.J.: Copacabana	449
	18	R.J.: Corcovado	s.n., s.n.,
	22	R.J.: Corcovado	s.n.
November	25	R.J.: Corcovado, à la Tijuca	413
	27	R.J.: Tijuca	392

\*Suffixes added by authors

### List of taxa having for type a specimen from Glaziou

As an example, here below are given the first three taxa of this list:

- 1. *Acrostichum acuminans*** Fée, Crypt. Vasc. Brésil 1: 12, t.1, f.2. 1869.

PROTOLOGUE: “*Habitat in Brasilia fluminensi, Serra d’Estrella* (H.F.) (Glaziou, n° 951, 2437, 2438, petite forme, et 2469, Alto Macahé, Nova Friburgo).”

LECTOTYPE: BRAZIL: Rio de Janeiro: Serra de Nova Friburgo, 22 May 1868, *A.F. Glaziou 2438* (lecto- P00249800!; isolecto- BR!, P00249801!, P00249802!). Designated by Rouhan & Cremers 2006.

SYNTYPES: BRAZIL: Rio de Janeiro: Serrada Estrella, *A.F. Glaziou 951* (syn-P00249803!; isosyn- BR!).

BRAZIL: Rio de Janeiro: Serrada Estrella, *A.F. Glaziou 2437* (syn-P00249803!; isosyn- K000590644).

BRAZIL: Rio de Janeiro: Alto Macahé, Nova Friburgo, Jul. 1870, *A.F. Glaziou 2469* (syn- P00249804!; isosyn- BR!, P00249805!).

= *Elaphoglossum auricomum* (Kunze) T. Moore [fide Smith 1981, Stolze 1981, Mickel & Beitel 1988, Tryon & Stolze 1991, Mickel 1995, Smith 1995, Rojas-Alavarado 2002, Mickel & Smith 2004, Rouhan & Cremers 2006, Funck *et al.* 2007, Hokche *et al.* 2008].

**2. *Acrostichum acutum*** Fée, Crypt. Vasc. Brés. 2: 9, t.83, f.3. 1873. non Kuhn (1869). *nom. illeg.*

PROTOLOGUE: “*Habitat in Brasilia fluminensi* (Glaziou, n° 5373).”

TYPE: BRAZIL: Rio de Janeiro: Alto Macahé, 10 Jul 1870, *A.F. Glaziou 5373* (holo-P00249807!; iso- B 20-0069724!, MO-1322125, P00249808!, P00602733!).

= *Elaphoglossum acutum* (Fée) Brade [fide Pichi Sermolli 1965, Forzza *et al.* 2010].

**3. *Acrostichum amplissimum*** Fée, Crypt. Vasc. Brés. 1: 5, t.6. 1869.

PROTOLOGUE: “*Habitat in Brasilia, Serra do Airo* (Glaziou, n° 2436, 1868).”

TYPE: BRAZIL: Rio de Janeiro: Serra do Airo, 18 Jun 1868, *A.F. Glaziou 2436* (holo-P00249820!; iso- P00249821!, P00249822!, P00249823!).

= *Elaphoglossum amplissimum* (Fée) H. Christ [fide Forzza *et al.* 2010].

#### THE COLLECTION OF C.F. APPUN (1820-1872)

Born at Bunzlau (Germany) on May 24<sup>th</sup>, 1820, Carl Ferdinand Appun died in British Guyana on July 18<sup>th</sup>, 1872. This naturalist was recommended by Alexander von Humboldt to King Frederick William IV of Prussia, who sent him to Venezuela as a botanist. He arrived in this country in early 1849. For about 10 years, he collected plants and animals, notably in the Puerto Cabello, Yaracuy and Cojedes regions, and in the plains of the Orinoco delta. In 1858, he returned to Germany. The following year, the British Government sent him to Guyana where he stayed until 1868. He also visited part of Brazil, notably the Rio Branco and Rio Negro region in Amazonia up to Tabatinga, at the Peruvian border. During his stay in Germany (1868-1871), he published a series of notes in various magazines. In 1871, he returned a second time to Guyana where he died, in 1872, in an accident on the Mazaruni River.

About Appun’s collections, it is known that:

- numerous taxa, new to science, are represented by specimens in this collection;
- his collection from Guyana is made of 401 numbers (i.e. from 199 to 400, then 1419 to 1703), the specimens being deposited mainly in the B, BM and K herbaria;
- his specimens from Venezuela are deposited at BM, K, NY, P (those from LZ having been destroyed during the war);
- his specimens from the Roraima have not been found again, and were thought to have

disappeared.

At P and in other herbaria where a specimen or image has been seen, under the Glaziou's numbering, we have been able to find the following specimens:

**12341** GUYANA: *Appun s.n.* (P01403370!) noted as *Acrostichum squamosum* Sw.  
= *Elaphoglossum plumosum* (Fée) T. Moore var. *maternum* Mickel [det. J.T. Mickel 1984]  
= *Elaphoglossum plumosum* (Fée) T. Moore [fide Cremers & Boudrie 2007].

**12344** GUYANA: *Appun s.n.* (P01463383!) noted as *Elaphoglossum simplex* Sw.  
= *Elaphoglossum flaccidum* (Fée) T. Moore [det. G. Cremers 2000]

**12347** GUYANA: *Appun s.n.* (P01532127!) noted as *Blechnum asplenoides* Sw.  
= *Blechnum asplenoides* Sw.

**12348** GUYANA: *Appun s.n.* (P!) noted as *Lindsaea guianensis* (Aubl.) Dryand.  
= *Lindsaea guianensis* (Aubl.) Dryand. [fide Christ 1899]  
= *Lindsaea portoricensis* Desv. [fide Kramer 1957]

NOTE: In B 20-0123954, B 20-0123956, B 20-0123957, this number 12348 is mentioned on the sheets, but Kramer's determination in 1957 is as *Lindsaea stricta* var. *stricta*. The specimen from P will have to be checked again for a final determination when accessible.

**12351** GUYANA: *Appun s.n.* (B, BM, BR, C, G, K, LE, P!-4 sheets) noted as *Lindsaea pendula* Klotzsch  
= *Lindsaea pendula* Klotzsch [fide Kramer 1957].

**12352** GUYANA [as "BRAZIL"]: probably *Appun* 962 (syn- BM000586177!; isosyn- B 20-0079819, B 20-0079820, C, MPU017978, P00539191!, P00539192!, P00539193!) [det. G. Cremers 1985].  
= *Lindsaea semilunata* (C. Chr.) C. Chr. [fide Cremers & Kramer 1991, Kramer 1995, Cremers & Boudrie 2007].

NOTE: This is a syntype of *Lindsaea lancea* (L.) Bedd. var. *semilunata* C. Chr., Bot. Tidsskr. 25: 81. 1902.

PROTOLOGUE: "Glaziou 12352, 12353."

**12353** GUYANA [as "BRAZIL"]: probably *Appun* 962 (syn- P?).  
= *Lindsaea semilunata* (C. Chr.) C. Chr. [fide Cremers & Kramer 1991, Kramer 1995, Cremers & Boudrie 2007].

NOTE: This is a syntype of *Lindsaea lancea* (L.) Bedd. var. *semilunata* C. Chr., Bot. Tidsskr. 25: 81. 1902.

PROTOLOGUE: "Glaziou 12352, 12353."

**12355** p.p. GUYANA: *Appun s.n.* (P!-3 sheets, B 20-0079836, B 20-0079837) noted as *Lindsaea tetraptera* Kramer  
= *Lindsaea tetraptera* K.U. Kramer [fide Kramer 1957].

**12355** p.p. GUYANA: *Appun s.n.* (B, G, LE, NY, US)  
= *Lindsaea divaricata* Klotzsch

- 12356** GUYANA: *Appun s.n.* (prob. Appun 1259) (B 20-0124258, B 20-0124259, BR, C, G, LE, NY, P!-3 sheets)  
= *Lindsaea pallida* Klotzsch
- 12357** GUYANA : *Appun s.n.* (B 20-0079707, B 20-0079708, C, LE, NY, P!)  
= *Lindsaea cultriformis* K.U. Kramer [fide Kramer 1957]
- 12359** GUYANA : *Appun s.n.* (P01577977!, P01588529!, P01588530!), noted as *Lithobrochia pungens* Willd [det. as below by M. Boudrie & G. Cremers in 2013, from scans, P website].  
= *Pteris pungens* Willd.
- 12365** GUYANA : *Appun s.n.* (P!) noted as *Polypodium marginellum* Sw.  
= *Grammitis marginella* (Sw.) Sw. [fide Moran & Riba 1995]. However, the specimen has not recently been seen at P, due to the works at the herbarium, therefore, this uncertain determination needs to be further checked, as *Grammitis marginella* is currently unknown from the Guianas.
- 12370** GUYANA : *Appun s.n.* (P!) noted as *Polypodium incanum* Sw.  
= *Pleopeltis polypodioides* (L.) E.G. Andrews & Windham [fide Flora of North America 1993, Mickel & Smith 2004, Christenhusz 2009, Forzza *et al.* 2010].
- 12371** GUYANA : *Appun s.n.* (P00696802!, P00696803!, P00696804!) noted as *Polypodium subsessile* Baker  
= *Lellingeria subsessilis* (Baker) A.R. Sm. & R.C. Moran
- 12372** GUYANA: *Appun s.n.* (P01559788!, P01369974!, P01369975!) noted as *Hemitelia subincisa* Kunze  
= *Cyathea roraimensis* (Domin) Domin [det. M. Boudrie & M. Lehnert 2013, from scan, P website]
- 12373** GUYANA: *Appun s.n.* (P01443985!) noted as *Aspidium (Nephrodium) subobliquatum* Baker  
= *Cyclodium inerme* (Fée) A.R. Sm. [det. M. Boudrie & G. Cremers 2013, from scan, P website]
- 12374** GUYANA [Brazil]: without loc., *Appun s.n.* (holo- C; iso- B 20-0040062, B 20-0040063, G, P00630614!) [det. as below by G. Cremers, without date]  
= *Cyclodium meniscioides* (Willd.) C. Presl var. *rigidissimum* (C. Chr.) A.R. Sm. [fide Cremers *et al.* 1993, Cremers & Boudrie 2007, Funck *et al.* 2007].  
NOTE: Type of *Cyclodium rigidissimum* C. Chr., Bot. Tidsskr. 25: 79. 1902.  
PROTOLOGUE: "Glaziou 12374."
- 12375** GUYANA: Guating Cr., *Appun 1032* (holo- K000589888; iso- NY8640!-fragm., P00625671!, US00066231-fragm.).  
= *Cyathea bipinnatifida* (Baker) Domin [fide Smith 1985, 1995, Cremers & Boudrie 2007].

NOTE: Type of *Alsophila bipinnatifida* Baker, in Hook. & Baker, Syn. fil. ed. 2, 456. 1874.

PROTOLOGUE: "Hab. British Guiana, Appun 1032."

**12376** GUYANA: *Appun s.n.* (P01491676!) noted as *Aspidium capense* Willd.  
= *Ruhmora adiantiformis* (G. Forst.) Ching [det. M. Boudrie 2013, from scan, P website]

**12380** GUYANA: *Appun s.n.* (P01559792!) noted as *Hemitelia multiflora* R. Br.  
= *Cyathea cyatheoides* (Desv.) K.U. Kramer [det. M. Boudrie & M. Lehnert 2013, from scan P website]

**12388** GUYANA: *Appun s.n.* (P01417237!, P01469405!) [det. as below by D.B. Lellinger in 1989]  
= *Trichomanes bicorne* Hook.

**12389** GUYANA: *Appun s.n.* (G, P01415518!, P01415519!, P01415526!) noted as *Trichomanes filiforme* Sturm [det. as *Trichomanes celluloseum* Klotzsch by Lellinger in 1989]  
= *Abrodictyum celluloseum* (Klotzsch) Ebihara & Dubuisson

**12398** GUYANA: 1866, *Appun s.n.* (holo- US00135398-fragm.; iso- P00573996!, P00573997!) noted as *Actinostachys dichotoma* Sw.  
= *Schizaea stricta* Lellinger [fide Cremers & Boudrie 2007, Funk *et al.* 2007, Hokche *et al.* 2008, Forzza *et al.* 2010].

NOTE: Type of *Schizaea stricta* Lellinger, Mem. New York Bot. Gard. 18: 8, f.1. 1969.

**12399** GUYANA : 1866, *Appun s.n.* (P01593700!)  
= *Actinostachys pennula* (Sw.) Hook. [det. M. Boudrie & G. Cremers 2013, from scan, P website]

**s.n.** GUYANA : gift in 1893, *Appun s.n.* (P01526597 !)  
= left : *Trichomanes plumosum* Kunze, likely from upland western Guyana  
= right : *Trichomanes accedens* C. Presl [fide Lellinger 1989].

From this list of 24 numbers from the Glaziou collection, we can establish that:

- three specimens only are probably related with the numbering of Appun's specimens (962, 1032, 1259);
- most of Appun's specimens are without a number;
- five specimens are types;
- although no taxon is described by Fée, certain of them are described by Baker (1874), Christensen (1902) and Lellinger (1969).

### CONCLUSION

From the current status of our knowledge, we can confirm the historical and taxonomic importance of Glaziou's collection deposited in the herbarium of the National Museum of Natural History in Paris. To date, we have recorded:

- 1,789 specimens of pteridophytes mentioned within his collection catalogue, to which

are added 75 numbers not recorded in the catalogue;

- 370 taxa described new to science, amongst them 276 by A.L.A. Fée and 51 by J.G. Baker.

By very careful examination of the specimens, we have been able to identify the original labels from Fée (and therefore holotypes or lectotypes for the Fée's taxa), and the labels corresponding to duplicates. A more thorough study of the numbers of the collections made at different dates is in progress by referring to the difficulties of interpretation in the formulation of the labels.

Despite the consultation of databases and visits to other herbaria, we have not been able to find again all the numbers mentioned in Glaziou's collection catalogue. Several files and lists have been established preliminarily to facilitate further research. However, a new inventory of the P herbarium will be necessary as soon as the specimens, previously in storage, are incorporated into the new herbarium system.

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