

Typification of the Linnaean name *Onoclea polypodioides*, type of the fern genus *Gleichenia* (Gleicheniaceae, Polypodiopsida)

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Introduction

The fern family Gleicheniaceae was established by Presl (1825: 10) from the order Gleicheneae created by Brown (1810: 160) to accommodate two genera: *Platyzoma* Brown (1810: 160) and *Gleichenia* Smith (1793: 419). When the genus *Gleichenia* was established by Smith (1793), it included only *G. polypodioides*, but the genus concept was later used in a broader sense to include all Gleicheniaceae species known until the early 20th century (Diels 1900, Christensen 1905). The name proposed by Smith (1793) is a later homonym conserved against *Gleichenia* Necker (1790: 314) (Dryopteridaceae) (Nomenclature Committees 1954), and *Gleichenia* Smith is currently used with a narrow circumscription, with about 10 species (PPG I 2016). Nowadays, Gleicheniaceae is divided into six genera, although their monophyly is still questionable (PPG I 2016). The nomenclature of the family still needs attention due to the existence of few papers dealing with this subject as noted by Lima *et al.* (2018) and Lima & Salino (2018). While conducting taxonomic studies in Gleicheniaceae, we realized that the Linnaean name *Onoclea polypodioides* Linnaeus (1771: 306), the type species of *Gleichenia*, was not properly typified, as we explain in the next paragraphs.

Smith (1793) cited only *G. polypodioides* when he described the genus, based on *O. polypodioides*. In the original protologue of *O. polypodioides*, Linnaeus provided a very detailed description, citing material from Koenig, to which he attributed the number 44. Johann Gerhard Koenig sent many specimens to Linnaeus, however some of his collections were not numbered (Jarvis 2007). We sought to find the holotype of *O. polypodioides* at LINN, but could not locate any specimen labeled with this number. The same holds true of the specimens he sent to Anders Retzius, some of which were described as new taxa by Retzius (1779, 1781, 1783, 1786, 1789, 1791) (Fischer 1932). Such specimens are housed in Retzius' herbarium, now incorporated at LD (herbarium acronyms according to Thiers 2019, continuously updated). Fischer (1932) examined those specimens and observed that they do not have name initials, signature, nor any information that could be directly related to Koenig. There is a single specimen in Retzius' herbarium of *Gleichenia polypodioides*, although it was not used by him to describe any taxa, neither it was cited in his publications. There is a possibility that Koenig may have sent duplicates of the same collection to both Linnaeus and Retzius. However, the dates of Retzius' publications (from 1779 to 1791) are not close to the Linnaeus' description (1771), and there is no evidence that the material housed at Retzius' herbarium is a duplicate of the material cited in *G. polypodioides* protologue, nor that Linnaeus saw this material at the time of his publication.

During the revision of Linnaeus' materials, we found one sheet of *G. polypodioides* housed at LINN (Herb. Linn. No. 1242.3) (Fig. 1). This sheet carries few annotations but no signature to associate the material with Koenig, nor the number "44" cited by Linnaeus in the protologue. It is unlike the other fern species described by Linnaeus (1771) based on Koenig collections housed at LINN, which have at least Koenig's name on the sheet. Instead, there is the name '*Onoclea trilocularis*' written on the sheet, which had subsequently the epithet '*trilocularis*' crossed out and added '*polypodioides*' by Linnaeus filius (Jarvis 2007).

Additionally, on the *G. polypodioides* sheet Herb. Linn. No. 1242.3 there is an inscription ['Spar 31'], which seems to be a reference to Anders Sparrman, a onetime student of Linnaeus who sent his former teacher many specimens. Therefore, it seems most unlikely that this material can be linked in any way with Koenig. Moreover, there is conflict regarding the chronology between this specimen and the species' publication date. Sparrman apparently was not at the Cape of Good Hope before 1772, and then he was there again in 1775–1776 (Jarvis 2007). Furthermore, his correspondence with Linnaeus started only in December 1771. Thus, all these evidences suggest strongly that Linnaeus

could not have had the Sparrman specimen available to him when he described *Onoclea polypodioides* in October 1771. Therefore, it cannot be an original material for the name, which makes it ineligible for lectotype designation. Aiming to contribute to the nomenclatural elucidation within Gleicheniaceae, in accordance with the International Code of Nomenclature (Turland *et al.* 2018), here we propose a neotype for *Onoclea polypodioides*. We have chosen a well-documented, recently collected material housed at P, with a silica sample to be included in molecular phylogenetic studies in course (Lima *et al.* *in prep*). Moreover, this specimen matches perfectly with Linnaeus' description of the species and Smith's description of the genus *Gleichenia*.

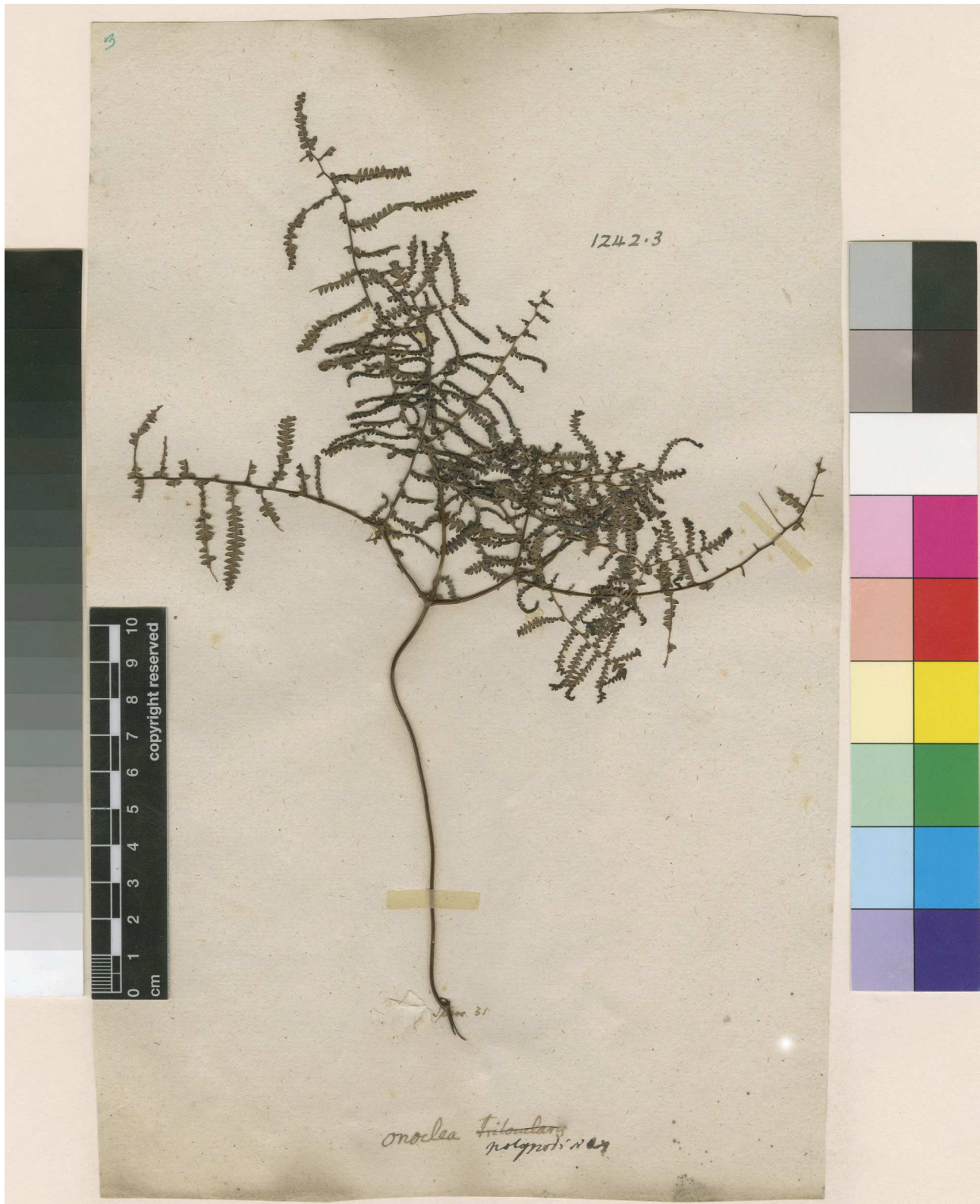


FIGURE 1. *Onoclea polypodioides* L. housed at LINN (1242.3). This image is © copyright of The Linnaean Society of London.



FIGURE 2. Neotype of *G. polypodioides*: *G. Rouhan et al.* 1747 (P P02434554). This image is © copyright of the Muséum National d'Histoire Naturelle (MNHN)—Paris Herbarium (P).

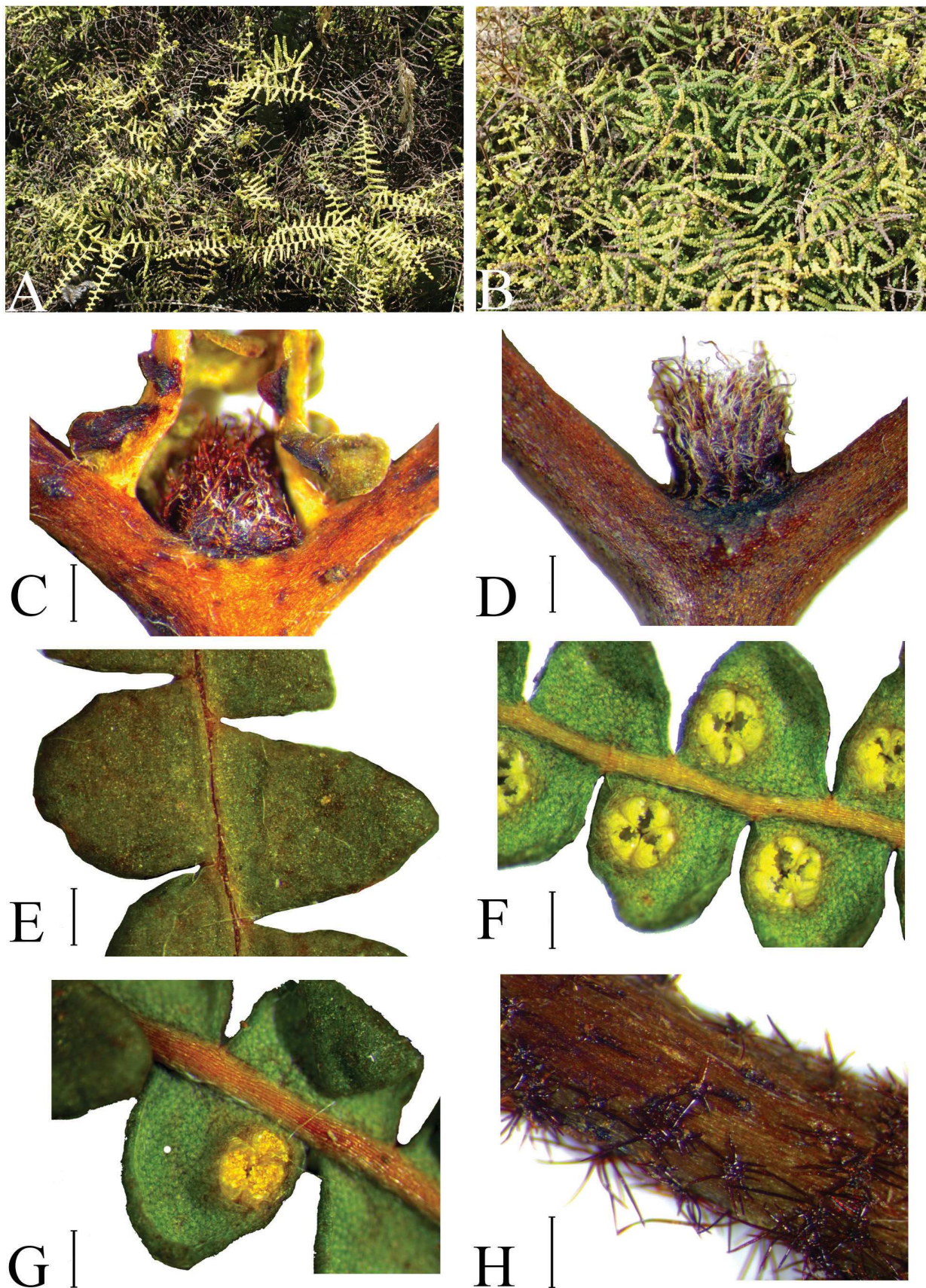


FIGURE 3. Neotype of *G. polypodioides*: *G. Rouhan et al. 1747* (P P02434554). **A-B.** Habit of *G. polypodioides*. **C.** Frond primary branch, showing the bud with pseudostipule. **D.** Secondary branch showing the bud without the pseudostipule. **E.** Ultimate branch adaxial surface. **F.** Ultimate branch abaxial surface. **G.** Detail of the ultimate branch abaxial surface showing the soral chamber. **H.** Rhizome detail showing the stellate scales. Scale bars = 5 mm.

Typification

Gleichenia polypodioides (L.) Smith (1793: 419).

Basionym:—*Onoclea polypodioides* Linnaeus (1771: 306).

Neotype (**designated here**):—TERRES AUSTRALES ET ANTARCTIQUES FRANÇAISES. Ile Saint-Paul, crête de la Novara, 38° 43' 0.984" S 77° 31' 9.984" E, 256 m, 22 November 2016, G. Rouhan *et al.* 1747, (P [P02434554!]). (Fig. 2-3).

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