

Ayahuasca religions. During the field trips, whenever possible, we collected vegetative (leaves, wood) and reproductive material (flowers, fruits) and deposited them in UB. We analyzed the protologues of *B. caapi* and *B. quitensis* and subsequent taxonomic descriptions, looking for a citation of the holotype or syntypes. Herbarium specimens were examined in person or through digital images available on the JSTOR Global Plants platform (JSTOR, 2019) and other virtual herbaria. Typification follows the *Shenzhen Code* (Turland & al., 2018).

■ ORIGINAL MATERIAL OF *BANISTERIA CAAPI*

In the protologue of *Banisteria caapi*, Grisebach (1858) cited only the gathering *Spruce 2712* and indicated neither a holotype nor an herbarium where the gathering was deposited. The same was true for Morton (1931), who transferred the epithet to *Banisteriopsis*. Cuatrecasas (1958) cited the type of *B. caapi* as “photo F.M. 21326”, referring to the photographs of type specimens from B that were taken by J.F. MacBride to the Field Museum before the original collections at B were destroyed during World War II. While the photographs taken by MacBride can be useful in understanding the application of names whose supporting types were destroyed in Berlin, they cannot serve as the types (Art. 9.1).

Later authors (Gates, 1982; Anderson, 2013) cited “holotype B? destroyed”, indicating that they considered the type to have been deposited at B and likely destroyed during World War II. Neither of these holotype citations can be treated as an error to be corrected because both included an element of uncertainty (Prado & al., 2015). Niedenzu (1928) examined a representative of *Spruce 2712* at B, and it is likely that this was the material studied by Grisebach. Nonetheless, Niedenzu (1928) did not cite that material as type, and no such material is now present at B (R. Vogt, pers. comm.).

Both Gates (1982) and Stafleu & Cowan (1988) commented that there were duplicates at NY of the types analyzed by Niedenzu, including fragments from the holotype at B. There is a specimen of *Spruce 2712* at NY (NY barcode 00055093, digital image!), which was acquired from Cambridge University and includes Niedenzu’s signature accompanied by an exclamation mark. In addition to the duplicate at NY, we were able to locate specimens of *Spruce 2712* in many herbaria including C, E, G, GH, K, LE, P, RB, and TCD. Although GOET contains many types of names introduced by Grisebach (Stafleu & Cowan, 1976), *Spruce 2712* does not appear to be represented in that herbarium (M. Appelhans, pers. comm.).

Stafleu & Cowan (1976) also indicated that many of Grisebach’s types were deposited in C. We did locate a specimen in C; however, it seems unlikely that it was used to prepare the original description because the inflorescences are broken, and Grisebach described details of the inflorescence. Although Grisebach published *Banisteria caapi*, he only validated the name given to the material by Richard Spruce. The primary set of Spruce’s South American material is deposited at K,

and material at K would be logical to serve as lectotype. There are two well-preserved specimens of *Spruce 2712* with flowers and fruits at K (K barcode K000427256 and K barcode K000427257). The first of these indicates that it was collected between October 1852 and January 1853, while the second bears a collection date of December 1852. The former’s range of months matches that given by Grisebach in the protologue, and therefore we select this specimen as the lectotype.

Detailed leaf and inflorescence descriptions of *B. caapi* were published by Cuatrecasas (1958) and Gates (1982). One character that has generally been overlooked in regards to *B. caapi* is stem morphology, and this is likely due to the fact that most studies have relied on herbarium specimens that preserve leaves or flowers, rather than bulky samples of wood. Indeed, stem cross-section morphology has been used to delimit species in Malpighiaceae (e.g., Amorim, 2003). When Spruce (1908) collected his original samples, he referred to “stem = thumb, swollen at joints” in his notes about *B. caapi*. Schultes & al. (1969) and Schultes & al. (2001) illustrated stem fragments from *B. caapi* numbered *Spruce 166*. Spruce presumably made these collections from the same plant as *Spruce 2712* (Fig. 1A). These stem fragments show branches with slightly swollen nodes, confirming Spruce’s original observations, and could be of use in resolving the uncertain species delimitation of *B. caapi*. Figure 1B–D shows stems and leaves of a plant cutting-grown by us, derived from a cultivated accession of *Ducke 25260* in the Rio de Janeiro Botanical Garden, that was collected at Rio Curicuriary, tributary of the Rio Negro in Amazonas State.

■ ORIGINAL MATERIAL OF *BANISTERIA QUITENSIS*

The situation for *B. quitensis* is similar to that of *B. caapi*. Cuatrecasas (1958) indicated that the type was a photograph of *Eggers 15485* from B taken by MacBride (“Photo F.M. 12792”). However, a photograph cannot serve as the type. A review of the literature also failed to locate an effective lectotypification of the name. Gates (1982) cited duplicates in NY and F; however, no specimen could be located at F (C. Niezgoda, pers. comm.). Stafleu & Cowan (1976) stated that many of Egger’s collections were deposited in C, but no duplicates of *Eggers 15485* were located at that institution (O. Ryding, pers. comm.). The NY duplicate (NY barcode 00055139) is very poor, with only leaf and fruit fragments. However, it appears to be the only extant material, and the fruit match those in the photograph of the original type at B. Therefore, we select this specimen as the lectotype.

■ NOMENCLATURE

Banisteriopsis caapi (Spruce ex Griseb.) C.V.Morton in J. Wash. Acad. Sci. 21: 486. 1931 ≡ *Banisteria caapi* Spruce ex Griseb. in Martius, Fl. Bras. 12(1): 43. 1858 –



Fig. 1. *Banisteriopsis caapi* (Spruce ex Griseb.) C.V.Morton stems and leaves. **A**, Branches from the *Spruce 166* gathering from the same plant of the type collection *Spruce 2712* (Economic Botany Section, Kew Gardens); **B–D**, Branches, leaves and glands details of a plant cutting-grown by us, survived from a cultivated accession of *Ducke 25260* in the Rio de Janeiro Botanical Garden (JBRJ) collected at Rio Curicuriari in the Brazilian Amazon.

Lectotype (designated here): [Brazil], Panuré ad Rio Uaupés, Oct 1852–Jan 1853, *R. Spruce 2712* (K barcode K000427256 [digital image!]; isolectotype: NY barcode 00055093 [digital image!]).

= *Banisteriopsis quitensis* (Niedenzu) C.V.Morton in J. Wash. Acad. Sci. 21: 486. 1931 ≡ *Banisteria quitensis* Niedenzu, *Banisteria*: 10. 1900 – **Lectotype (designated here):** [Ecuador], E. Rosario, v. Vejuco Bravo, 10 Apr 1897, *H.F.A. Eggers 15485* (NY barcode 00055139 [digital image!]).

= *Banisteriopsis inebrians* C.V.Morton in J. Wash. Acad. Sci. 21: 485. 1931 – Holotype: [Colombia], Comisaria de Putumayo, Umbria, 00°54'N, 76°10'W, in forest, alt. 325 m, Jan–Feb 1931, *G. Klug 1964* (US barcode 00108559 [No. 1517293; digital image!]).

■ AUTHOR CONTRIBUTIONS

RCdO and RS searched all the necessary material and prepared the first draft of the paper. JS-O and CWF checked the draft prepared by RCdE and provided suggestions to improve the manuscript. TACdS and MSeS: acquisition of ethnobotanical data, photos and drafting. — RCdO, <https://orcid.org/0000-0001-7891-2630>; JS-O, <https://orcid.org/0000-0002-4905-8145>; TACdS, <https://orcid.org/0000-0001-9042-092X>; MSeS, <https://orcid.org/0000-0003-0133-0055>; CWF, <https://orcid.org/0000-0001-6072-7832>; RS, <https://orcid.org/0000-0003-4565-6137>

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