

THE TYPE SPECIMENS OF BROMELIACEAE IN THE HERBARIUM OF THE MUSEUM OF NATURAL HISTORY IN VIENNA, AUSTRIA

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ABSTRACT. The fate of the herbarium of the Museum of Natural History in Vienna, Austria, during World War II is briefly reported. A complete and annotated account of the type specimens of Bromeliaceae still kept there is presented including type photographs from other herbaria. The following basionyms have been lectotypified in this paper: *Aechmea organensis*, *Aechmea petropolitana*, *Tillandsia globosa*, *Tillandsia ventricosa*, *Vriesea carinata*, *Vriesea carinata* var. *inflata*, and *Vriesea paraibica*.

INTRODUCTION

The Museum of Natural History in Vienna, Austria, houses one of the most important botanical collections in the world. The nearly four million specimens include many of the classical collections (Holmgren et al. 1990) which contain an extraordinarily high number of type specimens.

With regard to Bromeliaceae, before World War II the Museum's phanerogamic collections had been especially important for the specimens of F. Antoine, J.S. Blanchet, T.P.X. Haenke, N.J. Jacquin, C.F.P. von Martius, E.F. Poeppig, J.E. Pohl, H. Wawra von Fernsee, H.R. Wullschlägel, and of many others. Unfortunately this situation changed in 1945.

Alarmed by the tragedy of the Herbarium and the Library of the Botanical Museum Berlin-Dahlem in March 1943, approximately 12,000 fascicles and the library of the Botanical Department of the Vienna Museum were transferred during the summer of 1943 to seven different localities: the library within Vienna, the Herbarium to Gaming, Kirchstetten near Staatz, Klosterneuburg, Lunz, Ober-Höflein near Retz, and Purgstall, all villages in Lower Austria. The collections were returned in November 1945 and the spring of 1946 (Petraik, 1948).

After the end of war activities, the Botanical Department was informed in July 1945 that part of the material stored in Ober-Höflein had been damaged by fire. Petraik (1948) listed all the families which had been destroyed completely or for the major part, among them Bromeliaceae. This list may be the reason why the Bromeliaceae of the Museums Herbarium (acronym: W) generally have been considered as to be lost.

MATERIAL AND METHODS

In a prior paper the survival of the type of *Aechmea alopecurus* Mez in Martius has already

been reported (Till, 1987). The following account comprises all type specimens of Bromeliaceae which have survived World War II and which have been acquired since then to December 1993. Included are type photographs from other herbaria and a few specimens which cannot be identified with full certainty as types but which are suspicious. Publication dates and abbreviations of protologue literature for books follow Stafleu & Cowan (1976, 1979, 1981, 1983, 1985, 1986, 1988), those for journals Lawrence et al. (1968) and Bridson & Smith (1991).

All entries first provide the name and the protologue citation, then, in quotation marks, the original label information, followed by determination(s) in chronological order. If existent or known, photographs of the specimens in other herbaria are cited. The herbarium abbreviations follow Holmgren et al. (1990). Additional remarks from the author are found under the paragraph notes. Article 9.1 of the ICBN (Greuter et al., 1988) has been strictly applied. Photographs of the types of several hitherto not (or insufficiently) figured taxa are provided.

RESULTS

Bromelioideae

Aechmea alopecurus Mez in Martius, Fl. bras. 3(3): 367. 1892. "*Pohl 5230, Brasilia*", HOLOTYPE: W.—*Macrochordium* ? Vriese, det. Beer; *Aechmea alopecurus* Mez n.spec., det. C. Mez.

NOTE: One inflorescence only. For more details see Till (1987).

Aechmea ampla L.B.Smith, Phytologia 24: 433, pl. 2, Figs. 5-7. 1972.

"Bahia, Canavieiras, Na restinga, 29.I.1965, leg. Lanna 742 et Castellanos 25491", HOLOTYPE and ISOTYPE: Herb. Centro Pesquisas Florestais e Conservacao da Natureza—Tijuca—Rio de Janeiro, photos W.

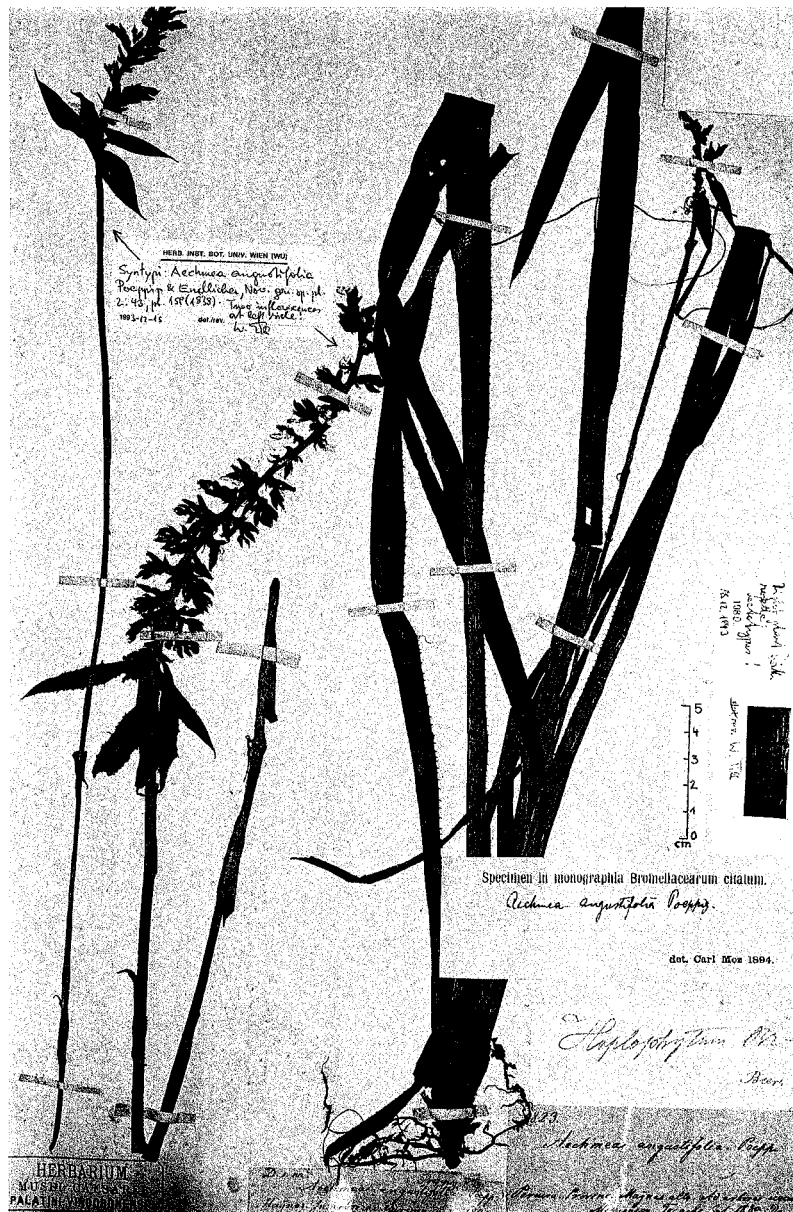


FIGURE 1. *Aechmea angustifolia*.

Aechmea angustifolia Poeppig & Endlicher, Nov. gen. sp. pl. 2: 43, pl. 159. 1838. FIGURE 1.

"Peruvia, Prov. Maynas alta. Ad arbores circum Missionem Tocache, Jul. 1830, *Poeppig 1823*", LECTOTYPE: W; "Maynas. In arbor. ad Yurimaguas, 1831, *Poeppig s.n.*", SYNTYPES: W.—*Hoplophytum* Br., det. Beer; *Aechmea angustifolia*, det. C. Mez.

NOTE: The sheet in W bears two inflorescences on the left half and a complete

rosette with a poor inflorescence on the right side. At the bottom of the sheet are two labels, that of Poeppig s.n. (left) and of Poeppig 1823 (right). It is uncertain which label belongs to which individual plant specimen. From the arrangement of the specimens and the labels, however, it seems logical to consider the rosette with the poor inflorescence as the prior collection (= Poeppig 1823) and the two inflorescences as a later gathering (=

Poeppig s.n.) to add the missing inflorescence characteristics. If these arguments are acceptable, L.B. Smith's choice of a lectotype ("Poeppig 1823, holotype, W", Smith & Downs, 1979) must include the rosette specimen. It should further be noted that C. Mez had seen Poeppig 1823 also from herbarium G-BOIS. That specimen would represent an isolectotype.

Aechmea friedrichsthali Mez & Donnell Smith in Donnell Smith, Bot. Gaz. (Crawfordsville) 19: 263. 1894.

"Guatemala. Ins. Catina in fl. So. Juan. Parasita. 1841 *Friedrichsthal* 609.", LECTOTYPE: W. *Ae. micrantha* Mez n.sp., det. C. Mez; *Aechmea Friedrichsthali* Mez et J.D. Smith n.sp., det. C. Mez 1894.

NOTE: One inflorescence and two leaves. Currently treated as synonym of *Aechmea penduliflora* André.

Aechmea noettigii Wawra, Oesterr. Bot. Z. 30: 117. 1880.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien., 1879., Nro. 108., *Aechmea Nöttigii* Wwr., Entre Rios, Dr. H. Wawra.", HOLOTYPE: W.—*Portea Noettigii* Mez, det. Carl Mez III/93; *Portea petropolitana* var. *noettigii* (Wawra) L.B. Smith, Typus, det. W. Till 1980.

NOTE: One inflorescence and three leaves. Currently named *Portea petropolitana* (Wawra) Mez in Martius var. *noettingii* (Wawra) L.B. Smith.

Aechmea organensis Wawra, Oesterr. Bot. Z. 30: 116. 1880.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien., 1879, Nro. 317., *Aechmea organensis* Wwr., Serra d. Orgaos, Dr. H. Wawra", LECTOTYPE (designated here) and ISOLECTOTYPES: W.—*Aechmea organensis* Wawra, det. C. Mez 1894).

NOTE: The sheet bears one flowering rosette, three additional inflorescences and one additional leaf. In agreement with Art. 9.1 of ICBN (Greuter et al., 1988) the flowering rosette is chosen as the lectotype as it is the basis for pl. 23 of Itin. princ. S. Coburgi (1883). A sequence of these illustrations is present in the museum's archive: one pencil drawing, one hand-colored engraving, and one preprint of plate 23.

Aechmea petropolitana Wawra, Oesterr. Bot. Z. 30: 116. 1880.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien., 1879., Nro. 63. *Aechmea petropolitana* Wwr., Petropolis (Alto Imperador), Dr. H. Wawra.", LECTOTYPE (designated here) and ISOTYPES:

W.—*Portea petropolitana* Mez, det. Carl Mez III/93; rev. W. Till 1980.

NOTE: Six inflorescence fragments in postflowering state are mounted on two sheets. Sheet # 651 (Museum's numbering at right top corner) is chosen here as the lectotype. Currently named *Portea petropolitana* (Wawra) Mez in Martius.

Bromelia melanantha Ker, Bot. Reg. 9: pl. 766 (1824). "de Lambert", ISOTYPE: W.—*Bromelia melanantha* Bot. Reg.; [*Bromelia*] *bicolor*.

NOTE: The specimen consists of two leaves and one inflorescence which are glued on a sheet of 39,4 × 27 cm. The original sheet in the typical British format had been glued in 1889 on a sheet of the Vienna museum's format when the collection of Reichenbach filius had been acquired and this individual sheet had been numbered # 262527. Due to this remounting the handwriting at the backside top of the original sheet had been obscured: "Hort. Boyton A.B.L. 1824". The comparison with the handwriting illustrated in Miller (1970: 492) leaves no doubt that it originates from Aylmer Bourke Lambert himself who cultivated the *Bromelia melanantha* at Boyton House near Heytesbury, Wiltshire. Lambert's famous herbarium was sold by auction and one lot was obviously bought by Reichenbach pater. Ker (1824) stated: "We were supplied with the plant for our drawing by Mr. Lambert . . .". As it remains unsolved whether Ker returned the plant to Lambert or prepared a herbarium specimen to be kept with him, the holotype hence is considered as to be lost. The specimen in W represents an unremembered isotype. The species is currently named *Macrochordion bromelifolium* (Rudge) Beer.

Bromelia paniculigera Reichenbach, Iconogr. bot. exot. 3: 14, tab. 239, 240. 1830; non Swartz, 1788.

"*Bromelia paniculigera* Sw., Rchb. Bot. ex. 239 Orig." "*Bromelia paniculigera* Sw, Reich. Bot exot t 240 (Orig)".

NOTE: There are two museum sheets each bearing (glued) two drawings and paintings respectively. Although Reichenbach's name is a younger homonym of *Bromelia paniculigera* Swartz, the original icons demonstrate Reichenbach's interpretation of the name concerned. The species is currently named *Aechmea aquilega* (Salisbury) Grisebach var. *aquilega*.

Bromelia strobilina Beurling, Kongl. Svenska Vetensk. Acad. Handl. 15: 110. 1854.

"*Bromelia strobilina* Beurl., Porto-Bello,

in rupibus marinis; April 1826: *Billberg.*”, ISOTYPES: S, photo W.

NOTE: The sheet in S bears two inflorescences and one leaf, all representing isotypes according to Art. 9.1 of ICBN. No lectotype has been hitherto chosen. Currently named *Aechmea strobilina* (Beurling) L.B. Smith & Read.

Prantleia glabra Mez in Martius, Fl. bras. 3(3): 258, pl. 58, Fig. 1. 1891.

“3436. Inhumas. *Pohl.*”, ISOLECTO-TYPE: W.—*Orthophytum glabrum* Mez, det. C. Mez.

NOTE: Mez had seen Pohl 3436 also in Brussels (BR). Smith & Downs (1979) have chosen that specimen as the lectotype (“holotype”). Currently named *Orthophytum glabrum* (Mez in Martius) Mez in A. et C. DC.

Prantleia leprosa Mez in Martius, Fl. bras. 3(3): 259, tab. 58, Fig. 2. 1891.

“5229. Cach. d’Inferno. *Pohl.*”, LECTO-TYPE (Smith, 1955): W.—*Orthophytum leprosum* Mez, det. C. Mez.

NOTE: Currently named *Orthophytum leprosum* (Mez in Martius) Mez in A. et C. DC.

Pseudaechmea ambigua L.B. Smith & R.W. Read, Phytologia 52: 53, pls. 3, 4. 1982.

“Flora Colombiana. Herbario Departamento de Biología. Universidad de Antioquia. Bromeliaceae. Epiphyte. Inflorescences showy, fl bracts bright red, rhachis of inflorescences yellowish orange. Pedocens floht pink, base of fl buds green, unopened fls bright violet-blue. Periphery of primary forest. Departamento de Antioquia, Municipio de Zaragoza, Corregimiento de Providencia, trail in advanced humid secondary tropical rain forest, vicinity of the hydroelectric plant. alt. 500–650 m. Colector: *D.D. Soejarto y J.D. Villa No: 2703*. Fecha: February 9, 71”, HOLOTYPE: ECON, photo W; ISOTYPE: ECON, photo W.

Streptocalyx biflorus L.B. Smith, Phytologia 24: 448, pl. 5, Figs. 15, 16. 1972.

“Plants of Ecuador. Prov. Pastaza. *Streptocalyx biflorus* L.B. Smith. Type. Topo-along Rio Topo; tropical rain forest; elev. 1300 m. Bracts yellow; flowers pink; leaves deep red; epiphytic on tree trunk. *C.H. Dodson and L.B. Thien No. 2070*. Jan. 11, 1962”, HOLOTYPE: WIS, photo W.

Pitcairnioideae

Brocchinia delicatula L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 10(2): 19, Fig. 6 a–e. 1960.

“The New York Botanical Garden Venezuelan Expedition 1957–58, Cerro de La Neblina, Rio Yatua, Territorio de Amazonas, *Bassett Maguire, John J. Wurdack, and Celia K. Maguire 42207*, November 24, 1957”, ISOTYPES: W.

NOTE: The sheet bears two flowering rosettes. No herbarium is mentioned in the protologue to keep the “type”, so the Smith & Downs (1974) citation of a “holotype” at US actually represents the lectotype.

Navia affinis L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 10(2): 21, Fig. 9 a,b. 1960.

“The New York Botanical Garden Venezuelan Expedition 1957–58, Cerro de La Neblina, Rio Yatua, Territorio de Amazonas, *Bassett Maguire, John J. Wurdack, and Celia K. Maguire 42470*, December 24, 1957”, ISOTYPES: W.

NOTE: The sheet bears two complete rosettes. As in *Brocchinia delicatula*, the specimen in US is the lectotype.

Navia fluviatilis L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 9(3): 298, Fig. 27 a–g. 1957.

“Plants of the Pakaraima Mountains, British Guiana—1951, Membaru—Kuru-pung Trail, *Bassett Maguire and D.B. Fanshawe 32360*, October 29–November 4, 1951”, ISOTYPES: W.—*Navia rupestris* (Gleason) Sandwith, rev. W. Till 1980.

NOTE: The sheet bears two just-post-flowering rosettes. Currently considered as a synonym of *Navia rupestris* (Gleason) Sandwith.

Navia nubicola L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 9(3): 303, Fig. 38 a–d. 1957.

“The New York Botanical Garden Venezuelan Expedition 1953–54, Cerro de La Neblina, Rio Yatua, Territorio de Amazonas, *Bassett Maguire, John J. Wurdack, and George S. Bunting 37382*, Jan. 24, 1954”, PARATYPE: W.

Navia ocellata L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 9(3): 310, Fig. 51 a–c. 1957.

“The New York Botanical Garden, Plants of the Kunhardt Venezuelan Expedition, 1948–49, Cerro Sipapo (Paráque), Territorio Amazonas, *Bassett Maguire and Louis Politi 27866*, December 23, 1948”, PARATYPES: W.

NOTE: The sheet bears two complete rosettes.

Navia trichodonta L.B. Smith in Maguire and Wurdack, Mem. New York Bot. Gard. 9(3): 301, Fig. 32 a–d. 1957.

"Plants of the New York Botanical Garden Venezuelan Expedition, 1950-51, Cerro Huachamacari, Río Cunucunuma, Amazonas, *Bassett Maguire, R.S. Cowan, and John J. Wurdack 30228, 1950*", ISOTYPES: W.

NOTE: The sheet bears two complete rosettes.

Pitcairnia reflexiflora André var. **minor** L.B. Smith & R.W. Read, *Phytologia* 30: 290. 1975.

"Plants of Ecuador. *Pitcairnia reflexiflora* André var. *minor* L.B. Smith. Type. Km. 110 from Duran; t[ropical] cloud forest; elev. 1300 m.; Flowers red; side of embankment. *C.H. Dodson and L.B. Thien 2097, Jan. 15, 1962*", HOLOTYPE: WIS, photo W.

Pitcairnia ruderalis L.B. Smith, *Phytologia* 18: 139, Figs. 10, 11. 1969.

"*Pitcairnia ruderalis* L.B. Smith. Type. [Peru, Loreto.], Obenteni on + pajonal edge or old chacra, ca. 1150 m. Also seen elsewhere in Gran Pajonal in old chacras and moist sites (where probably most common). *M.S. Chrostowski No.: 66-5b. Date: Aug. 13, 1966. Herbarium University of Wisconsin-Madison*", HOLOTYPE: WIS, photo W.

Tillandsioideae

Guzmania cuzcoensis L.B. Smith, *Phytologia* 24: 445, pl. 5, Figs. 7-8. 1972.

"Peru, Prov. La Convencion, Dept. Cuzco, 73°36'W; 12°38'S, *T.R. Dudley 11317, 23 July 1968*", HOLOTYPE: NA, photo W.

Guzmania seemannii Baker, *Handb. Bromel.* 153. 1889.

"No. *Tillandsia*. An Bäumen zwischen Oña & Saraguro Prov. Loja in Ecuador 10000'. Blüthenstand hellroth Blumen gelb. August 1878. leg. *Lehmann Ecuador*"., SYNTYPES: W.—*Tillandsia seemannii* (Baker) Mez, det. L.B. Smith III, 1959.

NOTE: The sheet bears two rosettes with inflorescence. Currently named *Racinaea seemannii* (Baker) Spencer & Smith.

Sodiroa pearcei Baker, *J. Bot.* 25: 53. 1887. FIGURE 2.

"416, *Tillandsia* 2, East. And.", ISOTYPE: W.—*Guzmania pearcei* (Baker) L.B. Smith, det. L.B. Smith III, 1959.

NOTE: The sheet bears an additional label from the Vienna Museum which attributes the plant to [W.] Lobb with Peruvian provenance. As both R.W. Pearce and W. Lobb collected plants for J.G. Veitch, it is very persuasive to assume that the collection has erroneously been attributed to Lobb by the museum's staff. It is, moreover, extreme-

ly unlikely that such a striking plant which had been collected only two times in the past century would have received the same number by two different collectors. The sheet in W is therefore considered as an isotype. The plant is currently named *Guzmania pearcei* (Baker) L.B. Smith.

Tillandsia achyrostachys E. Morren ex Baker var. **stenolepis** L.B. Smith, *Contr. U.S. Natl. Herb.* 29: 505, Fig. 68e. 1951.

"*C.G. Pringle, Plantae Mexicanae. 1892. State of Jalisco. 4111 Tillandsia variabilis, Schl. ex char. On Burseras, hills near Guadalajara. 25, June.*", ISOTYPE: W.—*Tillandsia achyrostachys* E. Morren var. *stenolepis* L.B. Smith, det. W. Till, 1979.

Tillandsia araujei Mez in *Martius, Fl. bras.* 3(3): 600, pl. 112, Fig. 2. 1894.

"5516. *Tillandsia apicrioides* Schott. Brasilia. *Schott.*", SYNTYPES: W.—Nomen publici juris non factum, ob *Catopsisid* speciem eodem signatam neglectum, Mez; *Tillandsia araujei* Mez n.sp., det. Carl Mez.

NOTE: The sheet bears one leafy stem with the inflorescence lost at the left side and one branched leafy stem of which each branch terminates with an inflorescence at the right side.

Tillandsia azurea Presl, *Reliq. haenk.* 1: 124, pl. 24. 1827.

"*Tillandsia azurea*. Presl. Haenke 96.", ISOTYPE: W.—*Tillandsia* II, Beer; *Till. straminea* HBK., det. C. Mez.; *Tillandsia purpurea* Ruiz & Pavon, rev. W. Till 1980.

NOTE: The specimen had been acquired by the museum in II. 1829. "Haenke 96." is written in the same red ink as had been used for the acquisition date. Treated as a synonym of *Tillandsia purpurea* Ruiz-Lopez & Pavón y Jiménez (Smith & Downs, 1977) but more recently sometimes separated from the former under *T. straminea* H.B.K.

Tillandsia bandensis Baker var. **intermedia** Hassler, *Annuaire Conserv. Jard. Bot. Genève* 20: 333. 1919.

"Dr. *E. Hassler, Plantae Paraguarienses.—1903. Plantae a custode herbarii mei T. Rojas in Chaco septentrionali lectae. No. 2778 Tillandsia bandensis var. intermedia Hassl. (ex Hassler). Gran Chaco: Santa Elisa lat. S. 23°10'. Lect. mens. Februarius*", ISOTYPES: W.

NOTE: The sheet bears three flowering plants. Currently not separated from *T. bandensis*.

Tillandsia bangii Baker in *Rusby, Mem. Torrey Bot. Club* 6: 124. 1896.



FIGURE 2. *Sodirosa pearcei*.

“Plantae Bolivianae. A Miguel Bang Lectae. Ex. Herbario Collegii Columbiae, a N.L. Britton et H.H. Rusby distributae. *Tillandsia*. Vic. Cochabamba. No. 1283. 1891.”, ISOTYPE: W.—*Tillandsia deppeana* Steud. var. *latifolia* (Griseb.) L.B. Smith, det. L.B. Smith (III 1959); *Tillandsia fendleri* Grisebach var. *fendleri*, rev. W. Till 1980.

NOTE: Currently treated as a synonym of *Tillandsia fendleri* Griseb. var. *fendleri*.

Tillandsia bicolor Brongniart in Duperrey, Voyage monde 185. 1834, Atlante pl. 36. 1826.

“*Tillandsia parasita*. Ile Sa. Catherine, Brésil. d’Urville”, ISOTYPE: W.—*Tillandsia aeranthos* (Loisel.) L.B. Smith, det. L.B. Smith (III 1959); *Tillandsia tenuifolia* L. var. *tenuifolia*, rev. W. Till 1980.

NOTE: Currently treated as a synonym of *Tillandsia aeranthos* (Loiseleur Deslongchamps in Mordant de Launay) L.B. Smith.

Tillandsia boliviana Mez, Bull. Herb. Boissier ser.2. 4: 1130. 1904.

"Plantae Boliviana. A Miguel Bang lectae. Ex. Herbario Collegii Columbiae, a N.L. Britton et H.H. Rusby distributae. *Tillandsia*, Probably n. sp. No. 2202", ISOTYPE: W.—*Tillandsia boliviana* Mez, det. L.B. Smith III. 1959.

Tillandsia bryoides Grisebach ex Baker, J. Bot. 16: 236. 1878.

"Flora Argentina No. 128. *Tillandsia*. Estancia Germania prope Cordoba. Junio-December 1874. Dr. P.G. Lorentz", SYNTYPES: W.—*T. tricholepis* Baker, rev. W. Till 1979.

NOTE: *T. bryoides* as based on Lorentz 128 is treated as a synonym of *Tillandsia tricholepis* Baker (Till, 1984, 1989). The sheet in W bears four clusters of the Lorentz collection.

Tillandsia flagellata L.B. Smith, Phytologia 6: 258, pl. 1, Figs. 9, 10. 1958.

"United States Department of Agriculture, Gray Herbarium of Harvard University, New York Botanical Garden. Explorations in South America. *Tillandsia* cf. *platyrhachis*. On tree. Dry hill. Ecuador: Province Oro. Portovelo (Gold mine near Zaruma). Alt. 600-1000 M, No. 21245, A.S. Hitchcock, Collector, Aug. 30-Sept. 1, 1923." ISOTYPES: US, photo W.

NOTE: The sheet in US bears one fruiting rosette and one infrutescence. No lectotype has hitherto been chosen.

Tillandsia funkiana Baker, Handb. Bromel. 196. 1889.

"No. 1258 Funcke & Schlim, Venezuela, &c. Coll. 1846.", ISOTYPE: W.—*Tillandsia andreana* E. Morren ex André, det. L.B. Smith (III 1959).

NOTE: Currently accepted as a species distinct from *T. andreana*.

Tillandsia gilliesii Baker, J. Bot. 16: 240. 1878.

"*Tillandsia*. Mendoza. Hook. 837", probably ISOTYPES: W.—*Till. myosura* Gris., det. Carl Mez 1894.; *Tillandsia gilliesii* Bak., det. A. Castellanos, XI 1935.

NOTE: Hooker himself never had collected in Argentina but had received plants from Gillies. Hence the four plants on the sheet are most probably isotypes as Hooker's herbarium had been seen and studied by Baker in Kew.

Tillandsia globosa Wawra, Oesterr. Bot. Z. 30: 222. 1880.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 142b. *Tilland-*

sia globosa Wwr. Entre rios. Dr. H. Wawra.", LECTOTYPE (designated here: right plant): W, ISOLECTOTYPE (left plant): W.—*Till. globosa* Wawra, det. Carl Mez.; Specim. exam. Wilhelm Weber, July 1981.

Tillandsia globosa Wawra var. **crinifolia** Wawra, Oesterr. Bot. Z. 30: 223. 1880.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 142c. *Tillandsia globosa* var. *crinifolia* Wwr. Dr. H. Wawra.", HOLOTYPE: W.—*Till. globosa* Wawra, det. Carl Mez.; Specim. exam. Wilhelm Weber, July 1981.

NOTE: Currently not separated from *T. globosa* Wawra var. *globosa*.

Tillandsia herzogii Wittmack, Meded. Rijks-Herb. 29: 89. 1916.

"Plantae in itinere secundo per Boliviam lectae. leg. Th. Herzog No. 1151", ISOTYPE: W.—*T. reichenbachii* Baker 1889, rev. W. Till 1979.

NOTE: Currently treated as a synonym of *Tillandsia reichenbachii* Baker.

Tillandsia hieronymi Mez in A. et C.DC., Monogr. phan. 9: 876. 1896.

"Flora Argentina No. 124. *Tillandsia*. Estancia Germania prope Cordoba. Junio-December 1874. Dr. P.G. Lorentz", ISOLECTOTYPES: W.—*Tillandsia capillaris* Ruiz & Pavon forma *hieronymii* (Mez) L.B. Smith, Syntypus, rev. W. Till 1979.

NOTE: The lectotype has been chosen by Till (1984) and is kept in B. The sheet in W bears two clusters of the Lorentz collection. Currently treated as a synonym of *Tillandsia capillaris* Ruiz Lopez & Pavón y Jiménez.

Tillandsia incana Wawra, Oesterr. Bot. Z. 30: 223. 1880. FIGURE 3.

"Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 508. *Tillandsia incana* Wwr. Itatiaia (Catingáa). Dr. H. Wawra.", HOLOTYPE: W.—*Tillandsia geminiflora* Brongn. var. *incana* (Wawra spec.), Carl Mez III/93.

NOTE: One preanthetic rosette. The sheet bears an additional leaf from a plant cultivated in the "Augarten" in Vienna under the name *Tillandsia Rolissonii*. Currently named *Tillandsia geminiflora* Brongniart in Duperrey var. *incana* (Wawra) Mez in Martius.

Tillandsia lancifolia Baker, Handb. Bromel. 202. 1889.

"3458. fl. lutei, ad rupes. Bras. Blanchet.", ISOTYPE: W.—*Vriesea Platzmanni* E. Morr., det. Carl Mez III/93.

NOTE: Currently named *Vriesea lancifolia* (Baker) L.B. Smith emend. Martinelli & Leme.



FIGURE 3. *Tillandsia incana*.

Tillandsia laxissima Mez, Bull. Herb. Boissier ser.2. 5: 108. 1905.

“Plantae Bolivianae. A Miguel Bang Lectae. Ex. Herbario Collegii Columbiae, a N.L. Britton et H.H. Rusby distributae. N. Gen. in Bromeliaceae. No. 2301”, ISOTYPE: W.—*Tillandsia laxissima* Mez, det. L.B. Smith (III 1959).

Tillandsia lescaillei C. Wright ex Sauvalle, Anales Acad. Ci. Méd. Habana 8: 52. 1871.

“*Tillandsia*. On trees in thick woods.

M.[onte] V.[erde] Dec 30”, ISOTYPE: W.—*Tillandsia lescaillei* C. Wright ex Sauv., Iso-type, det. L.B. Smith (III 1959).

NOTE: The specimen is recognized as a type by C. Wright’s characteristic handwriting. Currently named *Racinaea lescaillei* (C. Wright ex Sauvalle) Spencer & Smith.

Tillandsia mandonii E. Morren ex Mez in A. et C. DC., Monogr. phan. 9: 871. 1896.

“*G. Mandon*.—Plantae Andium Boli-viensium. No. 1180.—*Tillandsia*. Hab. Pro-



FIGURE 4. *Tillandsia martinicensis*.

va. Larecaja. — Viciniis Sorata; inter San Pedro et Coaconi, in scopulis super arbores. Alt. Reg. tempa. 2650 m. Mart. 1861.”, ISOLECTOTYPES: W. — *Till. mandonii* Ed.Morr., det. Carl Mez 1894.

NOTE: The lectotype has been chosen by Till (1984) and is kept in BM.

Tillandsia martinicensis Baker, J. Bot. 26: 45. 1888. FIGURE 4.

“Martinique leg. Hahn.”, SYNTYPE ?:

W. — *Guzmania plumieri* (Griseb.) Mez, det. L.B. Smith III 1959.

NOTE: The single inflorescence originates from the collection of Reichenbach fil. and was acquired by the museum in 1889 under the number 132030. It probably represents a syntype. The plant is currently named *Guzmania plumieri* (Griseb.) Mez in A. et C. DC.

Tillandsia mathewsii Baker, J. Bot. 25: 236. 1887.

“651. *Tillandsia*. Obragilla, Mathews. Hook 837”, ISOTYPE: W, F photo 29981.-*Tillandsia* II, Beer; *Till. humilis* Presl, det. Carl Mez.

NOTE: Currently treated as a synonym of *Tillandsia humilis* Presl.

Tillandsia mollis H. Hromadnik & W. Till, Pl. Syst. Evol. 142: 123, Abb. 1-6. 1983.

“*Tillandsia mollis* H. Hromadnik & W. Till spec. nov. Bromeliaceae. Bolivia, Departamento Tarija, near the pass “Cumbre del condor”, between Tarija and Narvaez, ca. 25 km west of Narvaez, 2700 m.s.m., leg. H. Hromadnik (HR 9088), On perpendicular rocks in southern exposition with *T. capillaris* R. & P. forma *virescens* (R. & P.) L.B. Smith, *T. usneoides* (L.) L., *Abromeitiella* sp. cf. nov., *Cleistocactus straussii* (Heese) Backbg. and *Aylostera spinosissima* (Backbg.) Backbg.”, ISOTYPES: W.

Note: The sheet bears three post-flowering plants.

Tillandsia myosura Grisebach ex Baker, J. Bot. 16: 240. 1878.

“Flora Argentina No. 122. *Tillandsia myosura* Gris. Estancia Germania prope Cordoba. Junio–Diciembre 1874. Dr. P.G. Lorentz”, ISOLECTOTYPES: W.

NOTE: The lectotype has been chosen by Till (1984) and is kept in BM. The sheet in W bears two clusters of the Lorentz collection.

Tillandsia pohliana Mez in Martius, Fl. bras. 3(3): 597, pl. 111. 1894.

“3658. San- Miguel. Pohl.”, LECTOTYPE (Smith & Downs, 1977): W.—*Tillandsia Pohliana* Mez n.sp., det. Carl Mez III/93; *Till. meridionalis* Bak., Mez.

NOTE: The inflorescence is damaged and now consists only of two basal floral bracts and one calyx.

Tillandsia pulchella Hooker var. *surinamensis* Miquel ex Mez in Martius, Fl. bras. 3(3): 603. 1894. FIGURE 5.

“Nro. 592.c. *Tillandsia surinamensis* Miq. Ipse. In Surinam collegit Dr. Hostmann. Ed. R.F. Hohenacker 1846.”, HOLOTYPE: W.—*Tillandsia* II, Beer; *Tillandsia pulchella* Hook. var. *surinamensis* Miq. (spec.), Carl Mez III/93.; *T. tenuifolia* L. var. *surinamensis* (Mez) L.B. Smith, Isotypus!, rev. W. Till 1979.

NOTE: Smith and Downs (1977) cite the herbarium U for the type. In the protologue, however, U is not mentioned. According to Gouda (1987), no specimen is present in U but one in P. The specimen in W is hence considered as the holotype as it was seen, revised, and cited by Mez. Currently treated

as a synonym of *Tillandsia tenuifolia* L. var. *tenuifolia*.

Tillandsia pulchra Hooker var. *vaginata* Wawra, Oesterr. Bot. Z. 30: 224. 1880.

“Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 212. *Tillandsia pulchra* Hook. var. *vaginata* Wwr. Juiz de Fora (Catinga’s). Dr. H. Wawra.”, ISOTYPES: W.—*Tillandsia pulchella* Hook. var. *pitiphylla* Mart (spec.). Carl Mez III/93.; *Tillandsia tenuifolia* L. var. *vaginata* (Wawra) L.B. Smith, rev. W. Till 1979.

NOTE: Two sheets bear three and four plants respectively, nearly all in full bloom. No lectotype has been chosen. Currently named *Tillandsia tenuifolia* L. var. *vaginata* (Wawra) L.B. Smith.

Tillandsia rectangula Baker, J. Bot. 16: 238. 1878.

“Flora Argentina No. 127. *Tillandsia rectangula* Bak. Estancia Germania prope Cordoba. Junio–Diciembre 1874. Dr. P.G. Lorentz”, ISOLECTOTYPES: W.

NOTE: The lectotype has been chosen by Till (1984) and is kept in K. The sheet in W bears three clusters of the Lorentz collection.

Tillandsia recurvata (L.) L. var. *ciliata* E. Morren ex Mez in Martius, Fl. bras. 3(3): 610. 1894.

“*Tillandsia ciliata* Link. [3/4.], Valle de Mexico, leg. Schmitz. Mexico”, SYNTYPES: W; “367. *Tillandsia uniflora*. [env: de] Mexico, [Juni], [Berlandier]”, SYNTYPES: W.

NOTE: The mere citation alone of Berlandier 367 as the type (Smith & Downs, 1977) cannot be considered as a lectotypification as none of the at least two specimens of the herbaria P and US has been designated as the lectotype. Of both of the syntype collections three sheets are kept in W. Currently not separated from *T. recurvata*.

Tillandsia retorta Grisebach ex Baker, J. Bot. 16: 238. 1878.

“Flora Argentina No. 125. *Tillandsia retorta* Gris. Estancia Germania prope Cordoba. Junio–Diciembre 1874. Dr. P.G. Lorentz”, ISOLECTOTYPES: W.

NOTE: The lectotype has been chosen by Till (1984) and is kept in BM. The sheet in W bears two clusters of the Lorentz collection.

Tillandsia soratensis Baker, J. Bot. 25: 235. 1887.

“G. Mandon.—Plantae Andium Boliuensiensium. No. 1185.—*Tillandsia*. Hab. Prova. Larecaja.—Viciniis Sorata; colle Cataraguata; super arbores. Alt. Reg. tempa. 2600 m. Decembr. 1858.”, ISOTYPE: W.

NOTE: Currently treated as a synonym of *Tillandsia streptocarpa* Baker var. *streptocarpa*.

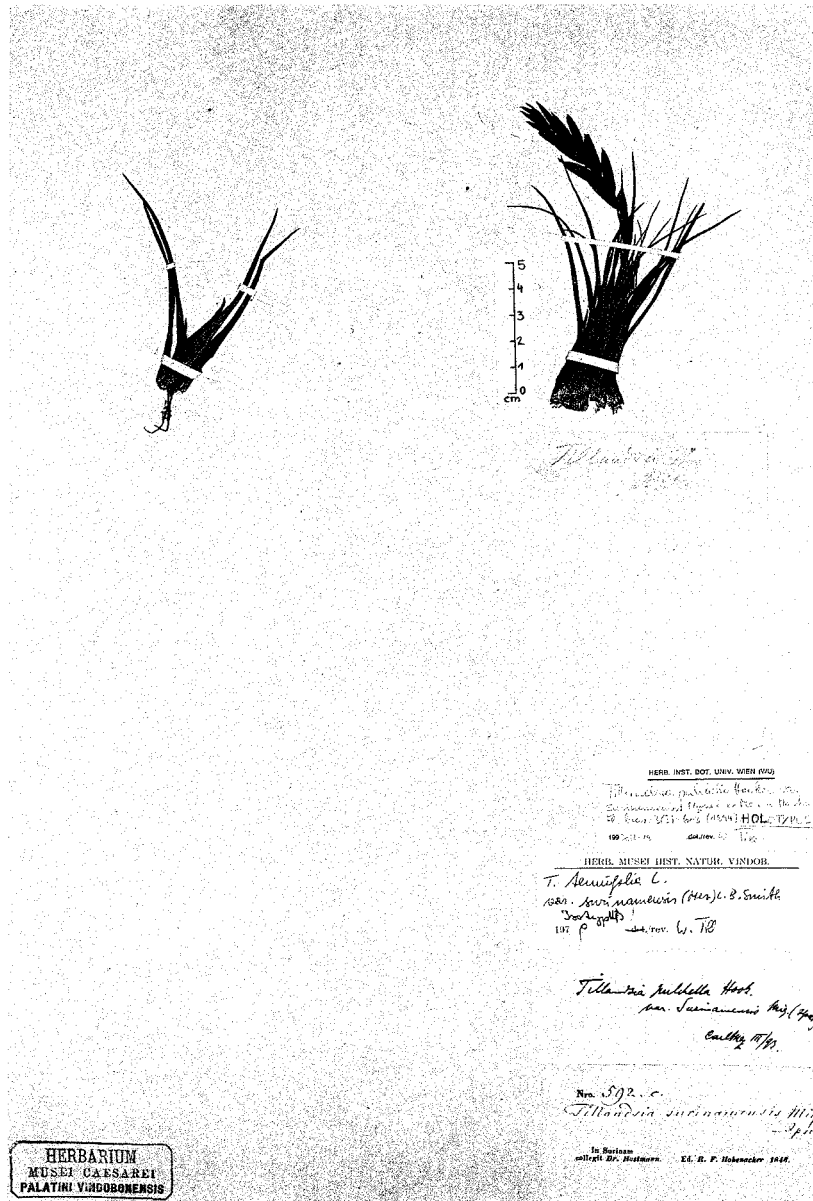


FIGURE 5. *Tillandsia pulchella* var. *surinamensis*.

Tillandsia tenebra L. Hromadnik & W. Till, Bromelie 2/1991: 32, Abb. 1-4. 1991.

"Dr. G.P. Lorentz, Herbarium Americanum. No. [96]. *Tillandsia Nappii* Ltz. et Ndl. Fl. argentina: Sierras Pampeanas. Sierra Ventana. Febr.-April. 1881. leg. Prof. Dr. P.G. Lorentz.", PARATYPES: W.—*Tillandsia Gilliesii* Bak., A. Castellanos, XI. 1935; *Tillandsia tenebra* L. Hromadnik & W. Till, rev. W. Till 1991-06-26.

NOTE: The sheet bears two clusters of the Lorentz collection. Its citation has been omitted in the protologue.

Tillandsia tricholepis Baker, J. Bot. 16: 237. 1878.

"G. Mandon.—Plantae Andium Boliuensiensium. Nro. 1179.—*Tillandsia*. Hab. Prova. Larecaja.—Viciniis Sorata; Poquerani San Pedro, super frutes. Alt. Reg. tempa. 2500-2650 m. X.ber 1858.—April. 1859.", ISOLECTOTYPES: W.—*Tilland-*

sia polytrichoides E.Morr., det. E. Morren; Carl Mez III/93.

NOTE: The lectotype has been chosen by Till (1984) and is kept in K. The two sheets in W each bear four clusters of the Mandon collection.

Tillandsia usneoides (L.) L. fa. **filiformis** André, Bromel. Andr. 64. 1889.

“Guiana. *Schomburgk* [No. 159]”, SYNTYPE: W.—*Tillandsia usneoides* L. fa. *tenuissima* Mez, Carl Mez III/93.

NOTE: Currently not separated from *T. usneoides*.

Tillandsia usneoides (L.) L. fa. **robusta** E. Morren ex Mez in Martius, Fl. bras. 3(3): 615. 1894.

“S. M. d. Kais. Maximilian Reise n. Mexico. No. 401. Mexico u. Umgebung. Dr. *Wawra*.”, SYNTYPE: W.—“460 *Tillandsia usneoides*. Chapoltotpetl. *Berlandier*”, SYNTYPE: W.—“1002. *Tillandsia usneoides* L. E Mexico. *Schiede & Deppe*”, SYNTYPE: W.—*Tillandsia usneoides* L. fa. *robusta* E. Morr., Carl Mez III/93.

NOTE: Currently not separated from *T. usneoides*.

Tillandsia ventricosa Wawra, Oesterr. Bot. Z. 30: 222. 1880.

Reise d. Prinz. Aug. u. Ferdin. v. S-Coburg nach Brasilien. Nro. 224. *Tillandsia ventricosa* Wwr. Tijuca. Dr. *H. Wawra*.”, LECTOTYPE and ISOLECTOTYPES: W.

NOTE: Obviously both existing sheets were used by Wawra when he prepared the protologue. W-sheet # 622 bears a fruiting rosette, which is chosen here as the lectotype and an infrutescence (isolectotype); sheet (# 623) bears a single fruiting and proliferating rosette and also represents an isolectotype. The neotype of Smith & Downs (1977) is no longer necessary and valid. Currently named *Vriesea corcovadensis* (Britten) Mez in Martius.

Vriesea bituminosa Wawra, Oesterr. Bot. Z. 12: 347. 1862. FIGURE 6.

“Reise S. M. d. Kais. Maximilian n. Brasil. 1859-60. No. 257 *Vriesea bituminosa* Wwr. Ilheos. Dr. *Wawra & Maly*.”, HOLOTYPE: W.—v. Carl Mez III/93.

NOTE: One postflowering inflorescence and three rather small leaves. The neotype of Smith & Downs (1977) is no longer necessary and valid.

Vriesea breedloveana L.B. Smith, Phytologia 28: 326, pl. 1. 1974.

“Plants of Chiapas, Mexico. *Vriesea breedloveana* L.B. Smith. Type. Steep cliff along Mexican Highway 190 in the Zinacantan paraje of Navenchauk. Municipio of Zinacantan. Elevation 7000 feet. *D.E.*

Breedlove 15438. 29 August 1966”, HOLOTYPE: US, photo W.

Vriesea burgeri L.B. Smith, Phytologia 28: 326, pl. 2. 1974.

“Costa Rica. Field Museum of Natural History. *Vriesea aff. gladioliflora* (Wendl.) Ant. (*Vriesea cf. rugosa* Mez & Wercklé). Det. H.L. Liesner 1969. Epiphyte on a fallen tree probably about 10m high at first, fruit becoming brown. Forested land between the Rio Coton and Rio Negro (about 15 km. from Sabalito) near Las Alturas lumber camp, 1200-1300m. alt., 8°53'N × 82°54'W. *William Burger & Guillermo Matta U. 4583*, 17 & 18 Jan. 1967”, ISOTYPES: US, photo W.

NOTE: The sheet in US bears two post-flowering rosettes. As none of them has hitherto been designated as the lectotype both are considered as isotypes.

Vriesea carinata Wawra, Oesterr. Bot. Z. 12: 349. 1862. FIGURE 7.

“Reise S. M. d. Kais. Maximilian n. Brasil. 1859-60. No. 443 *Vriesea carinata* Wwr. Petropolis. Dr. *Wawra & Maly*.”, LECTOTYPE (designated here): W, ISOLECTOTYPE: W.—v. Carl Mez III/93.

NOTE: The sheet bears one complete rosette with a preanthetic inflorescence (chosen as the lectotype) and a fragmentary additional inflorescence which necessarily is an isolectotype as it doubtlessly originates from a second plant.

Vriesea carinata Wawra var. **constricta** Wawra, Oesterr. Bot. Z. 30: 183. 1880.

“Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 184. *Vriesea paraibica* Wwr. Juiz de Fora. Dr. *H. Wawra*”, ISOTYPES: W.

NOTE: No lectotype for var. *constricta* has been chosen. See also under *Vriesea paraibica* Wawra.

Vriesea carinata Wawra var. **inflata** Wawra, Oesterr. Bot. Z. 30: 183. 1880. FIGURE 8.

“Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 219a. *Vriesea carinata* var. *inflata* Wwr. Dr. *H. Wawra*.”, LECTOTYPE (designated here): W, ISOLECTOTYPE: W.—*Vriesea incurvata* Gaud. var. *inflata* Wawra (spec.), det. Carl Mez III/93.

NOTE: The sheet bears an old inflorescence at the left side, three joined leaves in the middle, and a just postanthetic inflorescence at the right side. The leaves and the right inflorescence are chosen as the lectotype. Currently named *Vriesea inflata* (Wawra) Wawra.



FIGURE 6. *Vriesea bituminosa*.

***Vriesea conferta* Gaudichaud var. *recurvata* Wawra, Oesterr. Bot. Z. 30: 184. 1880.**

“Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 126b. *Vriesea conferta* Gaud. var. *recurvata*. Entre rios. Dr. H. Wawra.”, HOLOTYPE: W.—*Vr. conferta* Gaudich., det. Carl Mez 1894; *V. ensiformis* (Vellozo) Beer, rev. W. Till 1979.

NOTE: One infructescence and three leaves. Currently treated as a synonym of *Vriesea ensiformis* (Vellozo) Beer var. *ensiformis*.

***Vriesea longicaulis* (Baker) Mez in Martius var.**

***secunda* Wawra ex Mez in Martius, Fl. bras. 3(3): 543. 1894.**

“Reise d. Prinz. Aug. u. Ferdin. v. S.—Coburg nach Brasilien. Nro. 359. *Vriesea Jonghei*? Morr fm. flor. secund. Wwr. S. d. Orgaos. Dr. H. Wawra.”, HOLOTYPE: W.—Praeter vaginas scapales longas optime *Vr. Claussenianae* quadrat, sed in dubio remaneat specimen nimis pauperum, det. Carl Mez 1894.

NOTE: This taxon seems to be identical with *Vriesea lidicensis* Reitz.

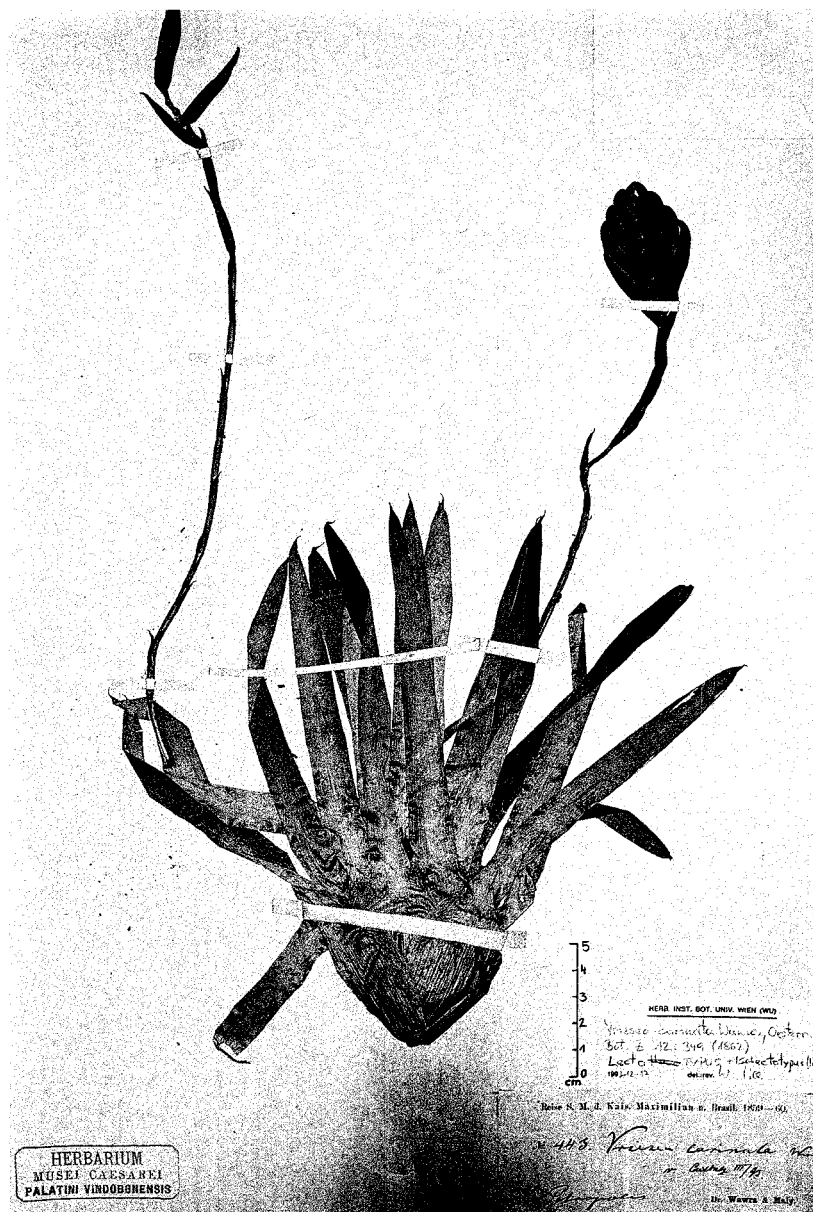


FIGURE 7. *Vriesea carinata*.

***Vriesea mosenii* Mez** in Martius, Fl. bras. 3(3): 558. 1894.

"Herb. Mus. Paris. *Vriesea mosenii*. Sao Cristovao, 29 mars Brésil R.J. Herbier de A. Glaziou n. 15467. donné par Mme Sismard, sa fille, en 1907.", SYNTYPE: W.

NOTE: Currently treated as a synonym of *V. gigantea* Gaudichaud.

***Vriesea paraibica* Wawra**, Itin. princ. S. Coburgi 1: 160, pl. 33, Fig. b, pl. 36, Fig. b. 1883.

"Wawra # 184 (see *V. carinata* var. *constricta*), LECTOTYPE (designated here): cult. in "Augarten", left inflorescence): W, ISOLECTOTYPE (right inflorescence, leaves): W, ISOTYPES: W.—v. Carl Mez III/93; *Vriesea paraibica* Wawra, det. C. Mez 1894.

NOTE: One sheet of the field collected specimens (W # 610) bears two preanthetic rosettes and one preanthetic inflorescence,

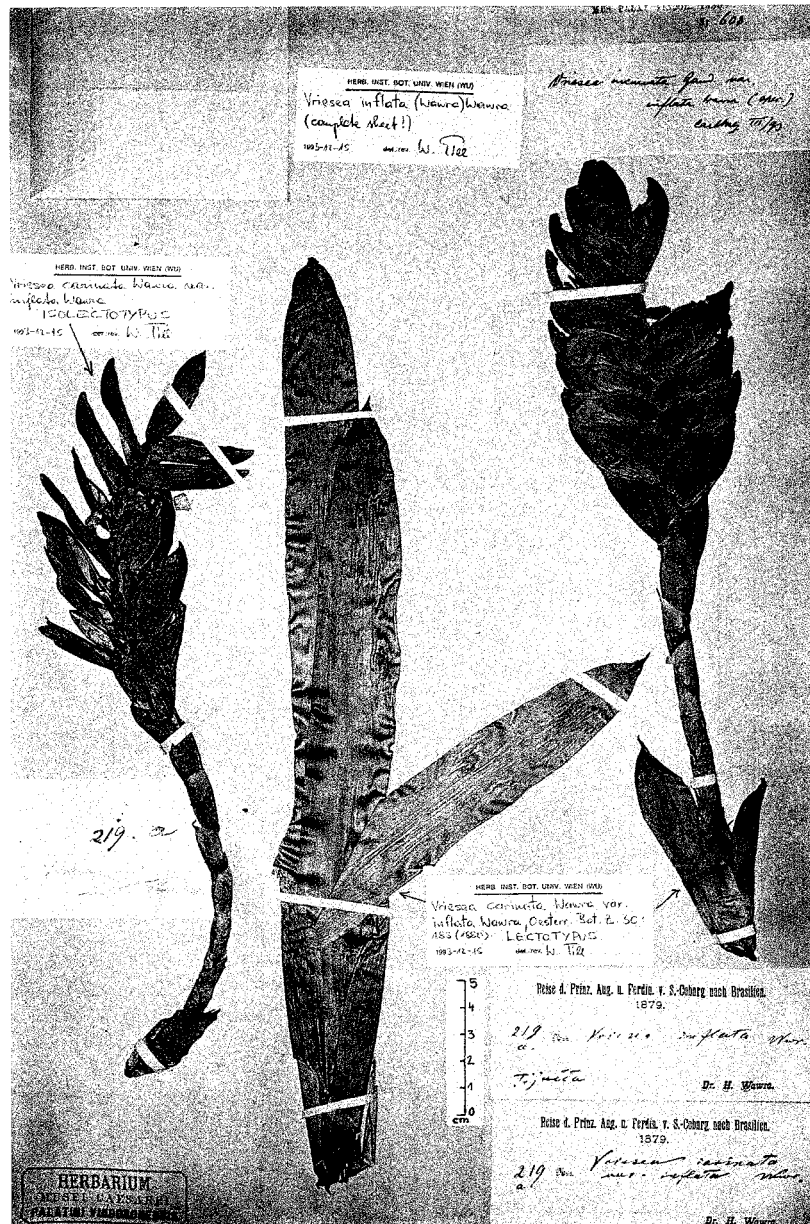


FIGURE 8. *Vriesea carinata* var. *inflata*.

a second sheet (W # 611) bears one preanthetic rosette and one infructescence, the latter being the basis for pl. 36 fig. b. There is a third sheet bearing two inflorescences and four leaves labelled "*Vriesea carinata* Wwr. Cult. in Augart. Dr. H. Wawra." Mez wrote III/93 on the sheet: "Zettelverwechslung! Dies ist *V. paraibica* Wawra" [label confusion! This is *V. paraibica* Wawra]. The nam-

ing as *V. carinata* is easily explained. Wawra (1880) had described # 184 first as *V. carinata* var. *constricta*. In the protologue of *V. paraibica*, Wawra cited both "Coll. II 184" and "In den k. k. Hofgärten cultivirt." On p. 161 he explained that the material collected in Brazil was immature and that the infructescence (pl. 36 fig. b) had yielded the seeds for the plants cultivated in the

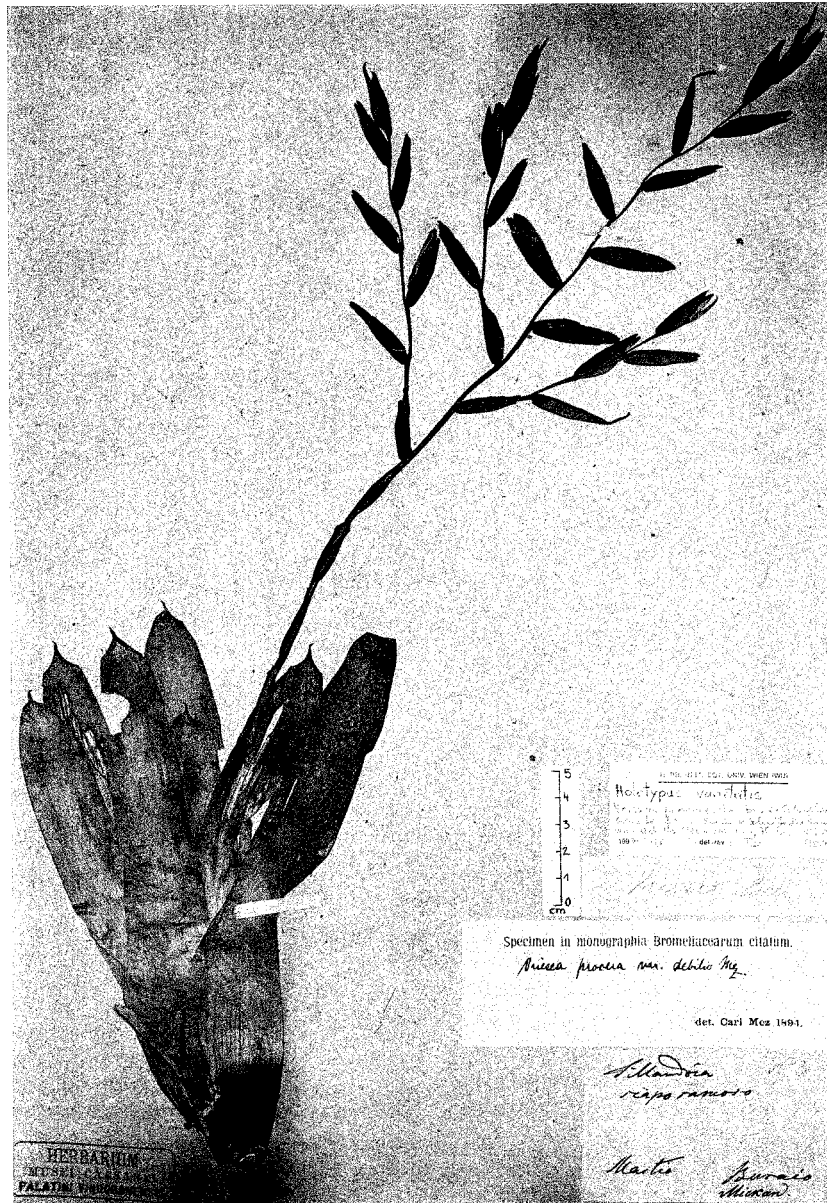


FIGURE 9. *Vriesea procera* var. *debilis*.

‘Hofgärten’ which flowered in 1882. The description had been made from the cultivated plants and the left inflorescence on the herbarium sheet in W originates from the plant figured in pl. 33 fig. b. This inflorescence is therefore chosen as the lectotype.

Vriesea procera (Martius ex Schultes & Schultes fil. in Roemer & Schultes) Wittmack

var. ***debilis*** Mez in Martius, Fl. bras. 3(3): 540. 1894. FIGURE 9.

“*Tillandsia scapo ramoso*. Martio. Burzio. Mikan.”, HOLOTYPE: W.

Vriesea psittacina (Hooker) Lindley var. ***decolor*** Wawra, Oesterr. Bot. Z. 30: 183. 1880. FIGURE 10.

“Reise d. Prinz. Aug. u. Ferdin. v. S.—



FIGURE 10. *Vriesea psittacina* var. *decolor*.

Coburg nach Brasilien. Nro. 266. *Vriesea psittacina* Lindl. var. *decolor* Wwr. Cantagallo. Dr. H. Wawra.", ISOTYPES: W.—v. Carl Mez III/93; *Vriesea psittacina* var. *decolor* Wawra., det. Carl Mez 1894.

NOTE: The sheet bears two fruiting rosettes and one infructescence. They all represent isotypes. No lectotype has been chosen.

Vriesea sarcolepis L.B. Smith, *Phytologia* 28: 328, pl. 3, 1974.

"Costa Rica, Provincia de Alajuela, 10°11'N, 84°13'W, *Guzmania*, Volcan Poas,

alt 2525 m. Terrestrial, fls. greenish yellow, lvs. chartaceous with yellow striations. Common, but only one in bloom. Wet montane forest, lake bed and sedge meadows. *M.F. Tessene No. 1580*, Aug 13, 1964.", HOLOTYPE: WIS, photo W.—*Vriesea sarcolepis* L.B. Smith, Type, det. L.B. Smith.

NOTE: Currently treated as a synonym of *Vriesea williamsii* L.B. Smith.

Vriesea umbrosa L.B. Smith, *Phytologia* 28: 328, pl. 4, 1974.

"Costa Rica. Field Museum of Natural History. *Vriesea pedicellata* (Mez & Werc-

klé) Sm. & Pitt., det. H.L. Liesner Large epiphyte, on *Inga* in deep shade, corolla pale greenish white, stamens 6; leaves dark green. Pasture land and wooded areas near the escarpment with frequent wind and rain from the Caribbean. La Palma area, northeast of San Jeronimo, above the La Hondura valley, Prov. San José, 10°2'N × 84°0'W. 1500 m. altitude. *William C. Burger & Robert G. Stolze 5333, 27 May, 1 June 1968*", HOLOTYPE: US, photo W.

Vriesea wawraea Antoine, *Phyto-Iconogr. Bromel.* 1, tab. 1, 2. 1884.

NOTE: No plant specimens are preserved. There exist, however, plates one and two in the herbarium in black and white print, the second being partially hand colored (leaf apex and flower). Both plates and the protologue are generally considered as a substitute for the missing type.

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