

Taxonomy and typification of *Nymphaea ampla* (Salisb.) DC. sensu lato (*Nymphaeaceae*)*

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Recent work on *Nymphaea ampla* (Salisb.) DC. s.l. in tropical America suggests that two species should be distinguished within this broadly circumscribed taxon, which formerly has mostly been treated to include all of the native tropical diurnally flowering water-lilies of Central and South America and the Antilles. The two species are distinguished by their leaf margins, venation pattern, and coloration; by the number of flower parts; and by seed morphology. To determine proper nomenclature for the two recognized species, the typification of all relevant names is investigated. The typification of several names is reported, including the two names proposed for acceptance: *N. ampla* for a species of Mexico, Mesoamerica, and the Greater Antilles and *N. pulchella* DC. for a species from southern and central Mexico, southern Mesoamerica, South America, and the Greater and Lesser Antilles.

KEYWORDS: *Nymphaea* subg. *Brachyceras*, *Nymphaea leiboldiana*, *Nymphaea nervosa*, *Nymphaea pulchella*, *Nymphaea speciosa*, *Nymphaea tropaeolifolia*, water-lilies

INTRODUCTION

The name *Nymphaea ampla* (Salisb.) DC. has commonly been applied to all native diurnally flowering tropical water-lilies of Central and South America and the Antilles. The most important early contribution to the taxonomy of neotropical *Nymphaea* L. was the treatment by Robert Caspary for Martius's *Flora Brasiliensis* (Caspary, 1878). Caspary seems to have derived his understanding of *N. ampla* s.l. largely from the earlier work of Candolle (1821) and Planchon (1853). He placed *N. ampla* s.l. in his previously described *Nymphaea* subsect. *Brachyceras* Casp., now treated as *Nymphaea* subg. *Brachyceras* (Casp.) Conard (Caspary, 1866), which largely replaced the *N. sect. Cyanea* DC. of these earlier authors. Both Candolle and Planchon had accepted two New World species in *N. ampla* s.l., *N. ampla* (Salisb.) DC. and *N. pulchella* DC., treating *N. ampla* as the more variable species of two (Candolle) or three (Planchon) varieties, one of which at least partly comprised *N. rudgeana* G. Mey. of current *Nymphaea* subg. *Hydrocallis* (Planch.) Conard. Although Caspary (1878) later correctly excluded

N. rudgeana G. Mey. from *N. ampla*, he then included *N. pulchella* in recognizing three varieties: *N. ampla* vars. *plumieri*, *speciosa*, and *pulchella*.

Under *N. ampla* var. *plumieri* Planch., corresponding to Planchon's (1853) previously described "*N. ampla* a *plumieri*", Caspary (1878) together with Planchon included in the synonymy the basionym *Castalia ampla* Salisb. Because Planchon cited this as "*Castalia ampla*, Salisb., pro parte" it is not certain that the type of *N. ampla* would be included in his variety, but if it were, the varietal name would not be validly published according to Art. 26.2 of the ICBN (McNeill & al., 2006). Both *N. ampla* and its var. *plumieri* are currently untypified, thus the precise application of these names cannot yet be determined, since the protologues of both appear to include diverse elements. However, Caspary (1878) accepted *N. ampla* var. *plumieri* as the name for the variety that included the type of the species, which under current rules of nomenclature should be called *N. ampla* var. *ampla*.

Another of Caspary's three varieties, *N. ampla* var. *speciosa* (Mart. & Zucc.) Casp. based on *N. speciosa* Mart. & Zucc., replaced Planchon's other two varieties, *N. ampla* β *hookeri* and γ *salzmanni*, from which certain elements, including *N. rudgeana*, had been excluded. Caspary's final variety, *N. ampla* var. *pulchella* (DC.) Casp. expanded the concept of *N. ampla* to include the previously

*This article is dedicated to our friend, colleague, and co-author, Alejandro Novelo, who died tragically while this paper was in press.

recognized *N. pulchella*. While generally accepting most of Planchon's divisions of this group, Caspary had largely ignored the competing classification of Lehmann (1853), who had accepted as many as five species for this complex, including three new species, *N. leiboldiana* Lehm., *N. tropaeolifolia* Lehm., and *N. nervosa* Steud. ex Lehm., all of which Caspary subsumed, at least in part, under his *N. ampla* var. *speciosa*. Caspary's notes indicate that he considered several of Lehmann's New World novelties to have been founded on mixed material, which sometimes included a leaf or flower of *N. ampla* with a corresponding flower or leaf of another species. According to Nordenstam (1980) it was Caspary who purchased Lehmann's *Nymphaeaceae* specimens when these became available in 1860–1861, so he was in a unique position to evaluate this material.

Henry Conard, in his 1905 monograph of *Nymphaea*, "followed Caspary as closely as possible" in recognizing the same three varieties, although replacing *N. ampla* var. *plumieri* by the autonymic variety. An identical treatment appeared in Henkel (1907). Until very recently, nearly all subsequent neotropical floras or checklists have continued to recognize a single widespread species, *N. ampla*, for this group, mostly without reference to varieties (e.g., Standley, 1930, 1937a, b; Standley & Steyermark, 1952; Lemée, 1955; Duke, 1962; Soukup, 1965; Adams, 1972; Cramer, 1979; Lot & al., 1986, 1999; Zarucchi, 1993; Rico-Gray & Palacios-Ríos, 1993; Velásquez, 1994; Boggan & al., 1997; Wiersema, 1997; Bonifaz & Cornejo, 1999) but sometimes with varieties being mentioned (e.g., Fawcett & Rendle, 1914; Urban, 1920; Moscoso, 1943; Benjamin, 1959; Correll & Correll, 1982; Staples, 1988).

However, a few West Indian floras have recognized *N. pulchella* as distinct from *N. ampla*, including Britton (1906, sub *Castalia*), Britton & Wilson (1924, sub *Castalia*), Sauget & Liogier (1951), Liogier (1983), and Liogier (1985) and, more recently, we have independently arrived at similar conclusions (Bonilla-Barbosa & al., 2000; Bonilla-Barbosa, 2001; Wiersema, 2001, 2003), i.e., that two species should be distinguished in this group. In light of this distinction, it is now desirable to re-examine the typification of all names involved to ensure their correct

application. This is particularly true of *N. ampla*, which is now being used in a more restricted sense than previously.

Before commencing the discussion of typification, it is useful to define the two entities involved, which will be labelled here as "Species A" and "Species B". Useful characters for distinguishing between them are shown in Table 1. Further differences in seed size, fine surface topography, and number and interdigitation of sclereid lobules are illustrated in Bonilla-Barbosa & al. (2000).

Whereas both species are fairly widespread in the neotropics, their distribution overlaps only in parts of the Greater Antilles, southern Central America, and central and southern Mexico (Fig. 1). Species A is absent from the Lesser Antilles and South America, where Species B is of common occurrence, and Species B is absent from northern Central America and northern Mexico, where Species A commonly occurs.

TYPIFICATION OF NYMPHAEA AMPLA (SALISB.) DC.

Among the various names that can be applied to this group, the oldest is *Castalia ampla* Salisb., which was published by Salisbury (1805a: 73, 1805b: t. 14, in adnot.) in two places nearly simultaneously. In TL-2 (Stafleu & Cowan, 1979), the former publication is dated "1 Jun[?] 1805" with a note that this date has been questioned, since the parts of this volume were not received by the Linnean Society until April of 1806. The latter publication can be precisely dated from the notation of October 1, 1805 that appears on the accompanying plate. Determining which publication is prior may have some bearing on typification, since neither treatment references the other and their content differs somewhat. The treatment in *Annals of Botany* (Salisbury, 1805a) is much condensed compared with that in *Paradisus Londinensis* (Salisbury, 1805b), with only the diagnosis "*Folia laminis argute dentatis, nervis subtus valde prominentibus*" provided together with citation of the phrase name "*N. foliis amplioribus, &c.* Brown Hist. Jam. p. 243". In the *Paradisus Londinensis* additional

Table 1. Characters distinguishing two species within *Nymphaea ampla* s.l.

Characters	Species A	Species B
Mature leaf margins	Strongly dentate with acute teeth	Sinuate-dentate or dentate with obtuse teeth
Abaxial leaf venation	Strongly reticulate with raised cross veins between major veins	Slightly reticulate without raised cross veins
Leaf markings	Black-spotted toward the margins	Purple-spotted toward the margins
Number of petals	13–28	4–22
Number of stamens	80–190(–222)	30–90
Number of carpels	18–28	9–24

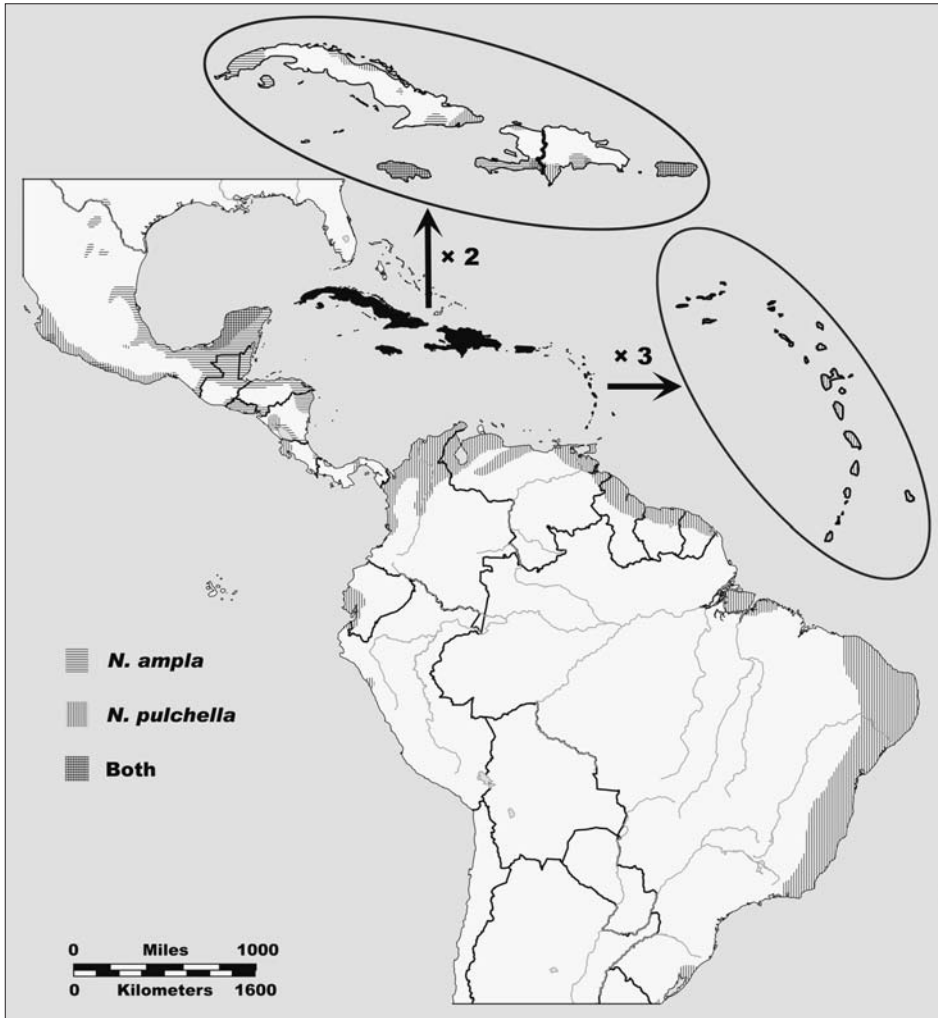


Fig. 1. Distribution of *Nymphaea ampla* (Species A) and *N. pulchella* (Species B) in tropical America.

descriptors are provided in the diagnosis both for the leaves (“*orbicularibus, ... utrinque glabris*”) and flowers (“*petalis longis: antheris apice productis*”) and the collection data “*Sponte nascentem prope La Vera Cruz, legit. G. Houston*” is cited in addition to Browne’s phrase name. To this is appended also the comment “The petals and stamens of this species are very numerous, and a leaf of it sent to Sir Joseph Banks some years ago measured above 2 feet in diameter. I trust ere long it will enrich our collection of aquatics.” Other additions to the generic description of *Castalia* that appear in the *Paradisus Londinensis*, such as broadening the range of petal, stamen, and carpel numbers given, suggest Salisbury had refined his treatment, consistent with a later publication date.

If indeed Salisbury’s treatment in *Annals of Botany* was prior, the only element available therein that could provide a context for typification is the Browne phrase name, since no specimens were cited and Salisbury is not

known to have possessed a herbarium (Meikle, 1985) that could provide material for consideration. But Browne’s treatment of this taxon in his *Civil and Natural History of Jamaica* (1756) included diverse elements from both the Old and New World tropics. His phrase-name, *Nymphaea I. Foliis amplioribus profunde crenatis subtus areolatus*, incorporates the following five elements:

1. *Nymphaea foliis cordatis dentatis* L. Sp. Pl.
2. *Nymphaea indica tuberosa, foliis ad marginem crenatis &c.* The. Zey.
3. *Nymphaea Indica folio im ambitu serrato* Slo. Cat. 120.
4. *Nymphaea & Lotus Aegyptia authorum*
5. Ambel H.M. p. 11, t. 26.

Numbers 1, 4, and 5 all represent Old World elements that must be excluded from any typification of *C. ampla*

because they were included by Salisbury under his simultaneously validated *C. mystica* Salisb. The phrase in element 1 originated with Linnaeus's *Flora zeylanica* (1747: 194), to which later (in *Species plantarum*: 511. 1753) was applied the binary name *Nymphaea lotus* L. Linnaeus's broad 1753 concept also included elements 3, 4, and 5 above, and his name is now lectotypified on an illustration traceable to Egyptian material (Verdcourt, 1989), i.e., element 4. Element 5 from Rheedee's *Hortus Malabaricus* is now commonly associated with the Asian (to Australian) *N. pubescens* Willd. (1797), as by Nicolson & al. (1988).

Elements 2 and 3 remain to be considered, since neither of these is accounted for elsewhere by Salisbury. The Old World element 2 traces to Burman's *Thesaurus zeylanicus* (1736: 173), and was placed by Candolle (1821) in the synonymy of *N. pubescens*. This appears to be based on a collection of Hermann from Ceylon, that according to Lourteig (1966) appears on page 140 of the volume of specimens now deposited in the library of the Institut de France and is identifiable with *N. lotus*. *Nymphaea lotus* and *N. pubescens* are two doubtfully distinct species belonging to the Old World *Nymphaea* subg. *Lotos*, a subgenus readily separable from the members of *Nymphaea* subg. *Brachyceras* under consideration here by, among other things, its pubescent leaves. This distinction appears to have been recognized by Salisbury in his placing of *C. ampla* together with two other species under the subheading "subtus læves", a reference to its glabrous leaves, which were distinguished from *C. mystica* Salisb. [= *N. lotus*] and *C. edulis* Salisb. [= *N. pubescens*] with "subtus pubescentes". Although not seen by us, the Hermann specimen from Ceylon upon which element 2 is based can be excluded from consideration as original material for *C. ampla* by the pubescent leaves which, based on its identification with *N. lotus* by Lourteig, it would possess. No taxon fully matching Salisbury's protologue occurs in Ceylon. To include this element among the original material for *C. ampla* would conflict with his statements on pubescence (see ICBN Art. 9.2, Note 2a).

Of the five Browne elements mentioned above, we are left, therefore, with element 3 from Sloane's *Catalogus plantarum quæ in insula Jamaica ...* (1696: 120) as the only remaining potential link to original material for possible lectotypification. Browne neglected to cite Sloane's later *Voyage to the Islands of Madera, Barbados, Nieves, S. Christophers and Jamaica* (1: 252. 1707), where the plants of his *Catalogus* are treated in additional detail, although this is cited by Linnaeus (element 1 above). In this earlier work Sloane cited Old World elements under his polynomial from the previous works of Commelijn, Rheedee, Alpinus, Bodeus à Stapel, Vesling, and Parkinson, later (1707) citing also Morison and Plukenet, but these were not repeated by Browne and can be dismissed from consideration on the same morphological grounds

(i.e., pubescence) as before. Sloane's polynomial appears to have been based on a plant which was observed at "loco caymanes nuncupato, prope lacunam magnam, fluvio aquae dulcis" (Sloane, 1696), later stated as "It grew on the Fresh River going up to the Laguna" (Sloane, 1707) and doubtless observed during his time (1687–1689) in Jamaica. The "Caymanes" locality is a reference to the Caymanas Estate, a sugar plantation a short distance east of Spanish Town, where Sloane resided, on the road to Kingston, according to online information from the Sloane Herbarium database (<http://www.nhm.ac.uk/botany/databases/sloane/>). A search of this database, however, reveals that no specimen of *Nymphaea* is available for consideration. Likewise, Browne (1756: 243) reported that "this plant is very common in all the ponds, lagoons, and rivers, about the Ferry" but again no specimen appears to have been collected.

However, it seems unlikely that Salisbury could have distinguished his plant from the Old World elements without consulting a specimen, since leaf pubescence was not described by earlier authors. His treatment in *Paradisus londinensis* provides evidence that he may have seen at least two specimens, the Houstoun collection from Veracruz and a specimen with large leaves received by Banks. Both should be at BM and indeed Caspary (1878), under *C. ampla*, cites two specimens there as the basis for this name, the Houstoun collection and a collection from Jamaica by R. Shakespear. Conard (1905) based *N. ampla* "fid. leaf of original specimen, in hb. British Museum", an apparent act of typification if the phrase "original specimen" could be considered as equivalent to "type" under ICBN Art. 7.11, but there is no further indication which of the two specimens is intended. At least two later authors have effectively typified this species name, Cramer (1979) on the Houstoun collection from Veracruz, without indicating the herbarium of deposit but citing both Caspary (1878) and Conard (1905) where this information was provided, and Staples (1988) on the Shakespear collection from Jamaica at BM. Neither of these authors examined the indicated types.

The collections under discussion are currently mixed on two sheets at BM. One sheet contains only a single large leaf, collected by Shakespear in Jamaica, measuring about 16 inches across in a dried condition. It is likely the basis for Salisbury's comment regarding the large leaves sent to Banks, as according to Vegter (1986) the specimen would have been collected between 1777–1782, well after the publications of Sloane and Browne on Jamaican plants were completed, and received by the Banks Herbarium thereafter. The second sheet contains the segregated parts of three separate collections: (1) two smaller leaves and a flower collected by Houstoun in 1731 from Vera Cruz, (2) a single flower collected by Shakespear in Jamaica, and (3) a leaf collected by Aublet in Guiana.

The third part is difficult to identify with certainty, but is irrelevant to the current typification discussion, as it cannot be connected with Salisbury's name. Fortunately both of the other specimens belong to the same taxon, matching our "Species A" above and the concept currently applied to *Nymphaea ampla* s.str., but they bear no identification or markings that could connect them to Salisbury. Neither can they be linked to the Browne reference in the *Annals of Botany* treatment, so one cannot establish unequivocally that either of these two specimens constitutes original material and designation of a lectotype is not possible. The earliest type designation, that of Cramer (1979), remains acceptable, however, as an act of neotypification.

TIPIFICATION OF NYMPHAEA PULCHELLA DC.

Although in recent times this name has only been applied to plants of the West Indies, it was originally based on a collection of Ruiz and Pavón from Guayaquil, Ecuador. As cited by Candolle ("N. species nova. *Ruiz et Pav!* ined. Hab. in Peruvia circa Guayaquil. (*R. et P.*) ... v.s. sp. in h. Lamb."), the holotype was formerly in the Lambert Herbarium, but is now at BM. It bears the original label "*Nymphaea* de Huayaguil sp nova" and on the back is labelled "Peru. Herb. Pavón". Although a younger plant with entire leaves, it otherwise agrees with our concept of Species B. Other specimens at FI-W, labelled "*Nymphaea* sp. nov. herb. Pavon" and "*Nymphaea* sp. nova Peru ...", and at P, bearing only the information "Peru" and "Pavón", that also match this concept are probable isotypes. Another specimen labelled "Peru" and "Pavón" exists at G and may be that cited by Caspary (1878) from G-BOIS, but because its identification with this taxon is uncertain it is not listed below as an isotype.

NOMENCLATURE

All remaining names that have been applied to this complex are placed below in the synonymy of *N. ampla* (Species A) or *N. pulchella* (Species B), either from study of their type specimens, some of which are designated here, or as otherwise indicated. The complete distribution of both recognized species is also provided.

Nymphaea ampla (Salisb.) DC., Syst. Nat. 2: 54. 1821 ≡ *Castalia ampla* Salisb. in Ann. Bot. [König & Sims] 2: 73. Jun(?) 1805 – Neotype (see Cramer in Flora of Suriname 5(1): 378. 1979): Vera Cruz, 1731, *W. Houstoun s.n.* (BM!).
= *Nymphaea ampla* var. *plumieri* Planch. in Ann. Sci.

Nat. Bot., sér. 3, 19: 44. 1853 – Lectotype (designated here): Jamaica, *Dr. Dancer s.n.* (G!, ex Herb. Lambert).

The selected type is one of two syntypes cited by Planchon. The other specimen, reportedly collected by Plée in Martinique and observed by both Planchon and Caspary (1878) at P, was not among the Paris neotropical material examined by Wiersema in the 1980's. Planchon also cited an unpublished Plumier illustration (*Botanicon americanum* 4: t. 124) that must have provided the basis for his epithet, but this is of lesser importance for lectotypification (Art. 9.10). Both Planchon and Caspary emphasized sharply dentate and prominently veined leaves as distinguishing features of this variety, which matches the type of the species name. In addition, all their cited specimens agree with the present geographic range of *N. ampla* except the Plée collection, which may well be *N. pulchella*, so this specimen has not been selected.

Distribution (Fig. 1). – NORTH AMERICA: United States (Florida, Texas), México (Campeche, Chiapas, Coahuila, Colima, Guerrero, Jalisco, Michoacán, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Tabasco, Tamaulipas, Veracruz, Yucatán); CENTRAL AMERICA: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá; WEST INDIES: Cayman Islands; Greater Antilles: Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico.

Nymphaea pulchella DC., Syst. Nat. 2: 51. 1821 ≡ *N. ampla* var. *pulchella* (DC.) Casp. in Martius, Fl. Bras. 4(2): 159. 1878 ≡ *Castalia pulchella* (DC.) Britton in Bull. New York Bot. Gard. 4: 138. 1906 – Holotype: Ecuador, Guayaquil, without date, *Ruiz & Pavón s.n.* (BM!; isotypes: FI-W[photo seen], P!).

= *Nymphaea lineata* A. St.-Hil., Voy. Distr. Diam. 2: 425. 1833 – Holotype: Brazil, Rio de Janeiro, "près la mer, entre le Sitio do Paulista et le Sitio do Pires", 1816–1821, *Saint-Hilaire s.n.* (P!).

Saint-Hilaire (1833) indicated that his description was prepared from a single specimen, for which he provided no locality data. However, in the narrative of his travels this species was referenced ("un nénuphar blanc", p. 100) as being between the two localities indicated above and on the holotype.

= *Nymphaea speciosa* Mart. & Zucc. in Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 1: 361. 1832 ≡ *Nymphaea ampla* var. *speciosa* (Mart. & Zucc.) Casp. in Martius, Fl. Bras. 4(2): 158. 1878 – Holotype: Brazil, Rio de Janeiro, "in aquis stagnantibus et fossis prope St. Cristophe", 1817–1820, *Martius exsicc.* 28 (M[with 2 flowers]!; isotype: M[with 1 leaf]!).

The protologue includes only the locality information indicated. Two sheets are associated with this

name and no. 28 from Martius's unpublished manuscript *Plantae in itinere brasiliensi* ... at M. One, containing a single leaf, is labelled "*Nymphaea reticulata* M." (with "*Nymphaea speciosa* Mart." added above in smaller writing) and "in aquis ad S. Christoph."; the other, with two opened flowers, is labelled "*Nymphaea reticulata* Mart. v. *speciosa* Mart.", with locality data exactly as the protologue to which is appended "retro lacu d'Alferes", and the indication "Aug". The corresponding entry (no. 28) from the *Pl. itin. bras.*, with the identical trinomial, is attached to this second sheet. Both sheets appear to be duplicates of the same gathering, but since they are not clearly labelled as part of the same specimen (Art. 8.3), the latter is here designated as lectotype.

=? *Nymphaea leiboldiana* Lehm. in *Hamburger Garten-Blumenzeitung* 9: 197, 209. 1853 – Syntypes: "in terris Mexicanis collegit F. Leibold! In Asia australi Burke?"

Lehmann cited two collections. His tentative inclusion of the Burke collection and his choice of epithet suggests that he was basing his taxon entirely on the Leibold collection. Caspary (1878) viewed a "spec. orig." of the American plant (apparently this Leibold collection, although not so indicated) at W, now destroyed, and referred it to his *N. ampla* var. *speciosa*. Searches for duplicate Leibold material in other herbaria (B, E, HAL, K, KIEL, LZ) have been unsuccessful. Caspary also mentions another "speciminis originalis" from Lehmann's personal herbarium, which was then in his possession, that contained a flower of *N. rudgeana* and a leaf of *N. ampla* var. *plumieri*. According to Urban (1891: 37), Caspary's *Nymphaeaceae* collection was given to the Berlin Museum in 1890, thus several of Lehmann's *Nymphaea* types are now at B, but this one is not among them and may no longer exist. Lehmann's reference to "Asia australi" must have been an error, since Conard (1905) cites two other specimens (at K and B) from Lehmann's herbarium labelled *N. leiboldiana* from southern Africa (the source of most Burke collections). These were identified by Conard as *N. capensis* Thunb.

=? *Nymphaea nervosa* Lehm. in *Hamburger Garten-Blumenzeitung* 9: 197, 211. 1853. – Syntypes: "Brasilia australi collegit J. Hansen" (Herb. Lehmann [destroyed?]); "Paraguay collegit Bergger" (P, ex Herb. Steudel!).

Lehmann cited two collections. Caspary (1878) placed this name in the synonymy of *N. ampla* var. *speciosa*, on the basis of a "speciminis orig." in Lehmann's herbarium. Such a specimen does not exist at B. The specimen at P from Steudel's herbarium consists only of a large, but heavily mutilated, leaf

fragment. While the specimen's size would match this species, its reported provenance ("Paraguay") does not, as *N. pulchella* is absent from interior South America. The collector's name, "Bergger" as deciphered by Lehmann, is not represented (nor are any likely alternative spellings) among known Paraguayan plant collectors (see <http://www.ville-ge.ch/cjb/bd/fdp/> or *Index Herbariorum*, part II, *Collectors*). Due to the uncertainties surrounding both syntypes, we have refrained from selecting a lectotype for this name.

= *Nymphaea tropaeolifolia* Lehm. in *Hamburger Garten-Blumenzeitung* 9: 197, 209. 1853. – Neotype (designated here): "in Brasilia prope Bahiam in aquis stagnantibus", 1831, *Salzmann 381* (MPU!; isoneotypes: BM[flower only]!, E[flower only]!, G[flower only]!), K[flower only]!, P[5, flowers only]!).

For further discussion on the typification of this name, originally based on material of at least three species, see Wiersema (1987), who interpreted Lehmann's citation "in Brasilia prope Bahiam in aquis stagnantibus et in Surinamia" together with some other considerations as referring to the collection above by Salzmann and another from Suriname by Hostmann (*Hostmann 565* at K [= *N. amazonum* Mart. & Zucc.]), neither of which was directly cited. All examples of *Salzmann 381* seen are mixed, with leaves of *N. rudgeana* and flowers of *N. pulchella*, except the selected neotype.

= *Nymphaea ampla* var. *hookeri* Planch. in *Ann. Sci. Nat. Bot.*, sér. 3, 19: 45. 1853. – Lectotype (designated here): Brazil, Rio de Janeiro, 1824, *Gaudichaud 1036* (G!; isolectotype: P!).

Planchon's varietal name was inspired by Hooker's (1849) treatment of "*Nymphaea ampla*" for the *Botanical Magazine* that was based on material collected by Macfadyen in Jamaica. Planchon cited several collections, indicating the herbarium of deposit for most (including the designated lectotypes), but Macfadyen's was not among these so is not eligible for lectotypification (Art. 9.10). A Macfadyen collection from Jamaica at E has the sharply dentate leaf margins Planchon described for his *N. ampla* var. *plumieri*, not the repand-sinate type he indicated for this variety, so it would not be an appropriate choice even if eligible.

= *Nymphaea ampla* var. *salzmannii* Planch. in *Ann. Sci. Nat. Bot.*, sér. 3, 19: 45. 1853. "*salzmannii*" – Lectotype (designated here): Brazil, Bahia, 1831, *Salzmann 381* (G[flower only]!; isolectotypes: BM[flower only]!, E[flower only]!, FI-W[flower only?], K[flower only]!, MPU!, P[5, flowers only]!).

Planchon cited two syntypes ("Bahia, *Salzmann!* in herb. Webb. et Deless."). Two Salzmann collections

from Bahia exist at both FI-W and G, one (*Salzmann s.n.*) labelled by him “*Nymphaea integrifolia*” and the other (*Salzmann 381*) “*Nymphaea sinuata*”. Collections bearing the former unpublished “name” were referred by Planchon to *N. amazonum*, with the latter being cited under *N. ampla* var. *salzmannii*, so *Salzmann 381* was the intended type for his variety. As indicated above under *N. tropaeolifolia*, this collection is mixed in most herbaria, with leaves of *N. rudgeana* and flowers of *N. pulchella*. Because we have not seen the FI-W example, we have selected the floral specimen at G to represent this variety. Although not eligible for selection as lectotype, the isosytype at MPU bears leaves that match these flowers.

Distribution (Fig. 1). – NORTH AMERICA: México (Campeche, Guerrero, Jalisco, Michoacán, Morelos, Nayarit, Oaxaca, Puebla, Tabasco, Yucatán); CENTRAL AMERICA: Costa Rica, El Salvador, Guatemala, Nicaragua, Panamá; WEST INDIES: Bahamas; Greater Antilles: Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico; Lesser Antilles: Antigua and Barbuda, Barbados, Dominica, Grenada, Guadeloupe, Martinique, Montserrat, Netherlands Antilles (Curaçao), St. Kitts and Nevis (Nevis), St. Lucia, St. Vincent and Grenadines (St. Vincent), Trinidad and Tobago, British Virgin Islands (Tortola), U.S. Virgin Islands (St. Croix); SOUTH AMERICA: French Guiana, Guyana, Suriname, Venezuela (Aragua, Barinas, Carabobo, Cojedes, Delta Amacuro, Falcón, Guárico, Mérida, Miranda, Portuguesa, Sucre, Táchira, Yaracuy, Zulia), Brazil (Alagoas, Bahia, Ceará, Minas Gerais, Pará, Pernambuco, Rio Grande do Sul, Rio de Janeiro, Sergipe), Colombia (Antioquia, Atlántico, Chocó, Córdoba, Cundinamarca, Magdalena, Norte de Santander, Tolima, Valle), Ecuador (Guayas, Los Ríos, Manabí), Peru (La Libertad, Tumbes).

ACKNOWLEDGMENTS

The authors wish to thank Roy Vickery for providing information on, and loan of, type material from BM; Gerritt Crow of NHA for use of his Costa Rican collections; Martin Nickol (KIEL), Peter Otto (LZ), and Uwe Braun (HAL) for searching for Leibold material in their respective herbaria; and the staffs of several herbaria (ASU, BAF, BM, BR, C, CAS, CHAPA, CICY, COL, CORD, E, ENCB, F, FCME, G, GH, GOET, GUA, HUMO, IAN, IBUG, IEB, INPA, IZTA, K, LIL, LSU, M, MEXU, MICH, MO, MPU, MY, NY, P, PH, PORT, S, SLPM, SMU, SP, TEX, U, UAMIZ, UCWI, UJAT, UNA, US, USF, VEN, W, WIS, XAL, Z) for the prior use or loan of specimens which contributed to this study. Thanks are also due to Joseph Kirkbride, for much useful nomenclatural discussion relating to this paper, and to John McNeill and an anonymous reviewer for helpful reviews of our manuscript.

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