

31. SCHATZ, George E., Porter P. LOWRY II, Cyrille MAS & Martin W. CALLMANDER: Further nomenclatural notes on Malagasy *Diospyros* L. (Ebenaceae): Goudot types in the Geneva herbarium.

Introduction

In the course of evaluating *Ebenaceae* for the Catalogue of the Vascular Plants of Madagascar (MADAGASCAR CATALOGUE, 2013), and subsequently clarifying the nomenclature of more than half of the currently recognized species (SCHATZ & LOWRY, 2011), the identity of several names remained uncertain because their types had not yet been located, and/or there was confusion about their typification. Recent examination of several specimens collected in Madagascar by Jules Prosper Goudot in the herbarium of the Conservatoire et Jardin botaniques de la Ville de Genève confirms that they include material that should be considered the types of two names: *Diospyros leucocalyx* Hiern and *Maba madagascariensis* A. DC. Jules P. Goudot, not to be confused with his brother Justin, who collected plants in South America, was born in the Jura region of France, and died at some unknown date in Madagascar, having probably returned there in 1861 after the death of Queen Ranavalona I, who had expelled him along with other French in 1858 (DORR, 1997). Having married a Merina and become fluent in Malagasy, Goudot's Malagasy nickname, Bibikely or insect, reflected his equally consuming passion for collecting insects in addition to plants. In this note we provide information clarifying both the identity and typification of *Diospyros leucocalyx* and *Maba madagascariensis*.

Systematics

1. *Diospyros leucocalyx* Hiern in Trans. Cambridge Philos. Soc. 12: 267. 1873.

Typus: MADAGASCAR: Ambanivoules, 1833, *Goudot s.n.* (holo-: G [G00368907]!).

= *Diospyros megasepala* Baker in J. Linn Soc., Bot. 21: 423. 1885. **Typus:** MADAGASCAR: Central Madagascar, s.d., *Baron 2365* (holo-: K [K000350806]!; iso-: P [P00541783]!).

Observations. – *Diospyros leucocalyx* was described in HIERN's Monograph of *Ebenaceae* (1873) with only a single collection cited as "Madagascar, Ambanivoule, *Goudot!* A. D. 1833". Later, PERRIER DE LA BATHIE (1952a, 1952b) placed *D. leucocalyx* into synonymy under *D. gracilipes* Hiern, but failed to cite the Goudot specimen in either publication. A specimen in the Geneva herbarium with the label "Madagascar. M. Goudot 1833." [printed], and "petit arbrisseau. Ambanivoules (frts.) Voir le fruit." [handwritten] must certainly be the type of *D. leucocalyx* Hiern. Based on the extremely large female calyx and large leaves, Laurent Gautier (G) annotated the specimen in 1995 as the long recognized but later published *D. megasepala* Baker, which must now be placed into synonymy under *D. leucocalyx*.

With regard to the location of Goudot's collection, "Ambanivoules" likely refers to an ethnic group of Malagasy, and corresponds to "Antanbanivolo", or "people living at the base of the mountains covered with bamboos". In his compendium on the Delessert herbarium and library, LASÉGUE (1845: 188) includes an entry on Goudot in which he discusses where Goudot collected in Madagascar: "...chez les Ambanivoules, dans la chaîne des hautes montagnes qui s'étendent du nord au sud

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de l'île, à 20 ou 25 lieues [approximately 80 to 100 km] de Tamatave. Il a herborisé, en 1832, dans les environs de la petite rivière de Manaarez, qui prend sa source dans les montagnes des Ambanivoules, ainsi que sur les bords et dans les épaisses forêts qui suivent le cours d'Yvondrou [Ivondro], rivière qui sépare le territoire des Bétanimènes de celui des Ambanivoules”.

2. *Diospyros ferrea* (Willd.) Bakh. in Gard. Bull. Straights Settle. ser. 3, 7: 162. 1933.

≡ *Ehretia ferrea* Willd., Phytographia 1: 4. 1794.

Typus: INDIA: sine loc., s.d., *König s.n.* (holo-: B†; iso-: C [C10010825, C10010826, C10010827] images seen).

≡ *Pisonia buxifolia* Rottb. in Nye Saml. Kongel. Danske Vidensk. Selsk. Skr. 2: 536. 1783. ≡ *Ferreola buxifolia* (Rottb.) Roxb., Pl. Coromandel 1: 35. 1795. ≡ *Maba buxifolia* (Rottb.) Pers., Syn. Pl. 2: 606. 1807. ≡ *Ebenus buxifolia* (Rottb.) Kuntze, Revis. Gen. Pl. 2: 408. 1891. ≡ *Diospyros ferrea* var. *buxifolia* (Rottb.) Bakh. in Bull. Jard. Bot. Buitenzorg ser. 3, 15: 57. 1937 [non *Diospyros buxifolia* Hiern in Trans. Cambridge Philos. Soc. 12: 218. 1873]. **Typus:** INDIA: sine loc., s.d., *König s.n.* (holo-: C [C10010827]; iso-: C [C10010825, C10010826] images seen).

≡ *Maba madagascariensis* A. DC., Prodr. 8: 241. 1844. ≡ *Diospyros ferrea* var. *madagascariensis* (A. DC.) Bakh. in Bull. Jard. Bot. Buitenzorg ser. 3, 15: 432. 1941. **Lectotypus** (designated here): MADAGASCAR: env. de Tamatave, 15.II.1831, *Goudot s.n.* (G [G00368886]!; isolecto-: G [G00368906]!, G-DC [G0012323]!).

Observations. – *Maba madagascariensis* A. DC. was described by Alphonse de CANDOLLE (1844) without any indication of a collection other than “v. in h. Deless.”, and a location in Madagascar as “prope Tamatave”. At the time, Benjamin Delessert’s herbarium was still at his home in Paris, where both his close friend A. P. de Candolle and de Candolle’s son Alphonse were frequent visitors (STAFLEU, 1970). Delessert died in 1847, and his herbarium was eventually given to the city of Geneva in 1869 by the daughters of Delessert’s brother François. In preparation for his monograph of *Ebenaceae*, W. P. Hiern visited various herbaria on the continent, including the Delessert herbarium “at Geneva” (HIERN, 1873: 28). In his monograph, HIERN (1873) placed *M. madagascariensis* in synonymy under *M. buxifolia* (Rottb.) Pers., citing three collections from Madagascar: *Gerard 28*, *Bernier 112*, and *Pervillé 700*. Regarding the first two of these collections, we have been unable to relocate *Gerard 28*, and *Bernier 112* is a *Convolvulaceae*, *Evolvulus alsinoides* (L.) L. from Ling Vatou [Lanivato], although *Bernier 113* is a collection of *Diospyros*

(the type of *D. bernieri* Hiern from Tintingue, which we have placed in synonymy under *D. squamosa* A. DC.), suggesting that Hiern may have made an error when preparing or transcribing his notes. The third collection Hiern cited, *Pervillé 700*, which was collected on Nosy Be, i.e., not near Tamatave, is discussed further below.

Some eighty years later, PERRIER DE LA BÂTHIE, both in the precursor to (1952a) and treatment of *Ebenaceae* in the *Flore de Madagascar et des Comores* (1952b), accepted *Maba madagascariensis* A. DC., stating that it was “toujours représentée dans l’Herbier du Muséum de Paris que par le type (*Pervillé 700*), qui a été récolté sur l’île de Nosy-be” (PERRIER DE LA BÂTHIE, 1952a: 104). Perrier de la Bâthie also accepted *M. buxifolia* as a species of the eastern littoral forest, including *Bernier 112* from “Ile Sainte Marie” among the material cited, apparently repeating Hiern’s error. Given its true provenance as cited in the protologue of near Tamatave, it is unclear why Perrier would have considered *Pervillé 700* from Nosy Be to be the type of *M. madagascariensis*. Rather, a specimen at Geneva, *Goudot s.n.*, collected in 1831 at Tamatave, is certainly the type of this name. In addition to the collection label, it bears an original label identifying it as “*Maba madagascariensis* A. DC.” It also bears an annotation label affixed by Frank White in 1972 correctly identifying it as *Diospyros ferrea* (Willd.) Bakh., a name based on *Ehretia ferrea* Willd., which provides the oldest available epithet for the taxon first described as *Pisonia buxifolia* Rottb., but which cannot be transferred to *Diospyros* because the epithet “buxifolia” is already occupied in *Diospyros* as *D. buxifolia* Hiern (HIERN, 1873). *Pisonia buxifolia* and *Ehretia ferrea* are both based on specimens of *J. G. König (s.n.)* collected in India, originally deposited in Copenhagen and Berlin respectively. We have been unable to locate any material that could be the *König s.n.* type of *E. ferrea*, having enquired at both B, where Willdenow was based, and BM, which has significant holdings of König specimens. In Copenhagen, there is a König collection [C10010827] that bears a handwritten label “Irumbilli Tamulorum idest Lignum duritie fer. dioeca pentandr. baccifera Arbor interdum frutex habitat in sylvis Kön.”, the “Irumbilli Tamulorum”, which refers to the vernacular name (“Irumbilli”) of the Tamil people and derives from the word for iron (“irumpu”) in the Tamil language, corresponding closely to “Irrumbili Thamulorum” in the Rottbøl protologue of *Pisonia buxifolia*. Interestingly, the Willdenow protologue of *Ehretia ferrea* includes the citation “Frambelli Tamulis, i.e. lignum ferreum. Frambo significat ferrum.” Therefore, it seems likely that Rottbøl and Willdenow were studying duplicates of the same König gathering, with Willdenow interpreting the “I” in “Irumbilli” as an “F”. The “I” in “Irumbilli” has also been interpreted as a “T”, both by Copenhagen in their transcription of the label on [C10010827] and by Roxburgh; BAKHUIZEN VAN DEN BRINK (1936-1941) attributes the vernacular name “Trumbilli” to Roxburgh, and

also cites “Iramballi” as another Tamil vernacular name. The Goudot *s.n.* Geneva type of *Maba madagascariensis* appears to be conspecific with the König *s.n.* type of *Pisonia buxifolia* at Copenhagen, and thus *Maba madagascariensis* is confirmed as a synonym of *Diospyros ferrea*. Whether *D. ferrea* is interpreted to have an extremely broad distribution from West Africa to Polynesia and Hawaii, as circumscribed by BAKHUIZEN VAN DEN BRINK (1936-1941), is highly questionable. In our opinion, with the exception of material from coastal East Africa, collections from continental Africa do not conform particularly well to the König *s.n.* type of *Pisonia buxifolia* and thus probably do not belong in *D. ferrea*. While coastal collections from Southeast Asia and Polynesia may represent *D. ferrea*, many of the infraspecific taxa described by BAKHUIZEN VAN DEN BRINK (1936-1941) may well deserve recognition at the species level pending a comprehensive revision of this complex throughout its range.

The enigma of *Pervillé 700* [P00573496], cited initially by Hiern as representing *Maba buxifolia*, the taxon under which he placed *M. madagascariensis* as a synonym, and then cited by Perrier de la Bâthie as the type of *M. madagascariensis*, is further confounded by Descoings’s misinterpretation of handwriting on the label of a Perrier de la Bâthie collection. In his precursor to the treatment of *Dichapetalaceae* for the *Flore de Madagascar et des Comores* (DESCOINGS, 1961), DESCOINGS (1960) described *Dichapetalum thouarsianum* var. *pubescens* Desc., citing the type as “*Pervillé 700*”, but he then failed to cite this specimen the following year in his *Flore de Madagascar* treatment. In fact, the specimen in question is certainly *Perrier de la Bâthie 700* [P00298479], collected in 1898 at Tampo and bearing a handwritten label with an abbreviated signature by Perrier that appears to read “*M. PerrdelB*”, which was misinterpreted by Descoings as “*Pervillé*”, despite the fact that *Pervillé* had died by 1868. In a supplemental note the following year, DESCOINGS (1962) also failed to cite *Pervillé 700*, but did cite *Perrier de la Bâthie 700*, albeit not under *D. thouarsianum* var. *pubescens*, but rather under the species name *D. thouarsianum* with the indication “sans localité”. In placing *D. thouarsianum* var. *pubescens* in synonymy under *D. madagascariense* Poir. var. *madagascariense*, BRETILER (1981) perpetuated the incorrect citation of *Perrier de la Bâthie 700* as *Pervillé 700*. In reality, *Pervillé 700* from Nosy Be is neither a type of *Maba madagascariensis* nor of *Dichapetalum thouarsianum* var. *pubescens*, nor is it a collection of *Diospyros ferrea*, which is restricted in Madagascar to the east coast. Rather, it is indeed an as yet undescribed species of *Diospyros* with affinity to *D. bernieriana* (Baill.) H. Perrier.

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References

- BAKHUIZEN VAN DEN BRINK, R. C. (1936-1941). Revisio Ebenacearum Malayensium. *Bull. Jard. Bot. Buitenzorg* ser. 3, 15: 1-515.
- BRETILER, F. J. (1981). The African Dichapetalaceae, VII. A taxonomic revision species m-q. *Meded. Landbouwhogeschool* 81(10): 1-94.
- CANDOLLE, A. P. DE (1844). Ebenaceae. *Prodromus Systematis Naturalis Regni Vegetabilis* 8: 209-243.
- DESCOINGS, B. M. (1960). Revision des Dichapetalum de Madagascar. *Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég.* 9: 63-120.
- DESCOINGS, B. M. (1961). Dichapétalacées. In: HUMBERT, H. (ed.), *Fl. Madagascar Comores* 110.
- DESCOINGS, B. M. (1962). Note complémentaire sur les Dichapetalum Malgaches. *Nat. Malg.* 13: 47-51.
- DORR, L. J. (1997). *Plant collectors in Madagascar and the Comoro Islands*. Royal Botanic Gardens, Kew.
- HIERN, W. P. (1873). A monograph of Ebenaceae. *Trans. Cambridge Philos. Soc.* 12: 27-300.
- LASÉGUE, A. (1845). *Musée Botanique de M. Benjamin Delessert*. Librairie de Fortin, Masson & C^{ie}, Paris.
- MADAGASCAR CATALOGUE (2013). *Catalogue of the Vascular Plants of Madagascar*. Missouri Botanical Garden, St. Louis & Antananarivo [<http://www.efloras.org/madagascar>].
- PERRIER DE LA BÂTHIE, H. (1952a). Révision des Ebénacées de Madagascar et des Comores. *Mém. Inst. Sci. Madagascar, Sér. B, Biol. Vég.* 4: 93-154.
- PERRIER DE LA BÂTHIE, H. (1952b). Ebénacées. In: HUMBERT, H. (ed.), *Fl. Madagascar Comores* 165.
- SCHATZ, G. E. & P. P. LOWRY II (2011). Nomenclatural notes on Malagasy *Diospyros* L. (Ebenaceae). *Adansonia* ser. 3, 33: 271-281.
- STAFLEU, F. A. (1970). Benjamin Delessert and Antoine Laségue. *Taxon* 19: 920-936.