

## The identity of the obscure *Lannea glabrescens* (Anacardiaceae) from western central Africa

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**Background and aims** – The treatment of the Anacardiaceae for the *Flore du Gabon* had to deal with three obscure *Lannea* names described from South Cameroon, namely *L. glabrescens* Engl., *L. longifoliolata* Engl. & Krause, and *L. zenkeri* Engl. & Krause. The type material of two of these names had been lost at Berlin. The paper aims at establishing their identity.

**Methods** – Normal practices of herbarium taxonomy have been applied to study the available herbarium material from BR, BRLU, HBG, K, MA, P and WAG. The relevant collecting data are stored in the Naturalis Biodiversity Center, Leiden, Section Botany. Arcgis 10.2.2. was used to produce the distribution map.

**Key results** – *Lannea longifoliolata* and *L. zenkeri* proved to be synonyms of *L. welwitschii* (Hiern) Engl. and *L. glabrescens* represents a hitherto neglected distinct species. *Lannea glabrescens* is neotypified and provided with a description and an illustration. Its distribution is mapped. A key is given to distinguish the two species of the western central African forest. *Lannea longifoliolata* and *L. zenkeri* are synonymised under *L. welwitschii* and typified.

**Key words** – Anacardiaceae, *Lannea glabrescens*, neotypification, western Central Africa.

### INTRODUCTION

*Lannea* A.Rich is a genus of forty or more species from sub-Saharan Africa to Socotra (Pell et al. 2011). The species are mostly confined to the drier parts of the forest region and to savannas (Fernandes & Fernandes 1966, Gilbert 1989, Hawthorne & Jongkind 2006, Keay 1958, Kokwaro 1986, Van der Veken 1960). In the wetter forests only two species occur, the wide-spread *Lannea welwitschii* (Hiern) Engl. and a second species, the specimens of which were hitherto identified as *Lannea nigritana* (Scott Elliot) Keay, some also as *L. welwitschii*. More recently specimens from Gabon were identified as *L. ebolowensis* Engl. & Brehmer (Sosef et al 2006). *Lannea nigritana* is a species of the drier west African forests with more leaflets (in var. *nigritana*) than in the second species or at least with an indumentum (in var. *pubescens* Keay) not observed in the second taxon. The original description of *Lannea ebolowensis*, however, fits the material of the second species in all essential characters and the isotype, which was later received on loan from HBG confirmed this. Three other *Lannea* species, described from South Cameroon by German authors, remained poorly known, *Lannea longifoliolata* Engl. & Krause, *L. zenkeri* Engl. & Krause, and *Lannea glabrescens* Engl. The present paper aims at clarifying the nomenclature of the forest species of *Lannea* to allow their treatment in the *Flore du Gabon* (Breteler 2017).

### MATERIAL AND METHODS

All the *Lannea* specimens present in the herbaria of BR, BRLU, K, MA, P and WAG from the wetter forest area in Lower Guinea, comprising eastern Nigeria, Cameroon, Equatorial Guinea and Gabon, have been studied. The search for the lost type material was done at the herbaria of BR, HBG, K and P. The neotypes of the two *Lannea* names with lost types were selected with respect to the characters mentioned in their respective original descriptions and to the origin of their types. The international herbarium acronyms used are according to Index Herbariorum (Thiers continuously updated). Specimens cited but not seen are marked with an asterisk.

Collecting data are stored in the Naturalis Biodiversity Center, Leiden, Section Botany. Arcgis 10.2.2. (ESRI 2014) was used to produce the distribution map of *Lannea glabrescens*.

### RESULTS

Two of the above mentioned “German” names, *Lannea longifoliolata* and *L. zenkeri* could by the description of the stellate indumentum of their inflorescences rather easily be classified as synonyms of *L. welwitschii*. For *Lannea zenkeri* the isotype found in Paris confirmed this conspecificity. For

Key to the *Lannea* species of the western Central African forest

1. Branchlets and inflorescences glabrous or with very short, simple, appressed hairs; male and female inflorescences narrowly paniculate to racemose, up to 18 cm long.....*L. glabrescens*
- 1'. Branchlets and inflorescences always with small stellate hairs; male inflorescences widely paniculate, up to 20 cm long and 8 cm wide, the female narrowly paniculate  $\leq$  13 cm long.....*L. welwitschii*

*Lannea longifoliolata* a neotype is designated here to replace its destroyed type collected by Tessmann. The inflorescence of the remaining *Lannea glabrescens* was described as sparsely hairy to glabrous as observed on the type of *L. ebolowensis*. Unfortunately the type material of *L. glabrescens*, also collected by Tessmann, is lost at B and no isotype could be traced. Engler's detailed description of *Lannea glabrescens* fits that of *L. ebolowensis* and its isotype *Mildbraed* 5547 (HBG) in all essential characters, notably its indumentum, characters of the leaves, and shape of the inflorescence. Engler's name *Lannea glabrescens*, however, has been published six years earlier than *L. ebolowensis*. Therefore the second species of the wetter forests must be named *Lannea glabrescens*. Like its original type, the neotype of *Lannea glabrescens* is a male flowering specimen from the same area in South Cameroon.

***Lannea glabrescens*** Engl. (Engler & Krause 1911: 328). – Type: Cameroon, Campo area, near Bebai on the road to Akum, Sep. 1908, *Tessmann* 560 (holo-: B†); **neotype, designated here**: Cameroon, South Province, Campo Ma'an area, Memve'le water falls, 2°24'N 10°21'48"E, alt. 360 m, 17 Jan. 2002, *Tchouto et al.* 3371 (WAG).

*Lannea ebolowensis* Engl. & Brehmer (Engler & von Brehmer 1917: 324), **syn. nov.** – Type: South Cameroon, Ebolowa Distr., between Sangmélina and Ebolowa, Jun. 1911, *Mildbraed* 5547 (holo-: B†; lecto-: HBG, **designated here**).

**Small tree** up to 10(–15) m tall. **Branchlets** glabrous to sparsely appressed-puberulous, usually soon glabrescent. **Leaves** 1–2(–3)-jugate, more rarely unifoliolate; petiole terete, 3–7 mm long, glabrous; rachis terete, 3–4 cm long, glabrous; leaflets opposite to subopposite: petiolule 0–2 mm long for the lateral leaflets and up to 3 cm long for the apical one; lamina obovate-elliptic, (3.5–)5–7(–11) × (1.5–)3–6 cm, rounded to cuneate and sometimes unequal-sided at base, 0.5(–1) cm acuminate at the apex, glabrous or with  $\pm$  sparse, short, appressed hairs both sides, glabrescent, often with red margin; lateral nerves (6–)7(–9) pairs. **Inflorescence** axillary or just below the leaves or subterminal, narrowly paniculate to racemose, up to 18 cm long, glabrous or with short appressed hairs; flower buds often dark red. **Flowers** unisexual, dioecious. **Male flowers** arranged in 3-flowered glomerules; pedicel 1.5–3 mm long, articulated at the apex, glabrous or with a few, short, appressed hairs; sepals free or shortly united at base, elliptic, 0.7–1 mm long, glabrous; petals obovate-oblong, spreading or reflexed, 2–4 × 1–1.2 mm, glabrous; stamens 1.5–2.5 mm long, glabrous, anthers  $\leq$  1 mm long; pistillode 0.8–1 mm long, glabrous. **Female flowers** usually single: pedicel 1.5 mm long; sepals  $\pm$  free, subtriangular, 0.6 mm long; petals elliptic, 2.2 × 1 mm, reflexed, glabrous;

staminodes 0.6 mm long, glabrous; ovary cylindrical, 2 mm long, glabrous; stigmas 4, 0.2 mm stipitate. Fruit ellipsoid, laterally compressed, to reniform, 8–12 × 5–7 mm, glabrous. Fig. 1.

**Habitat and distribution** – Tropical primary or old secondary rain forest, often on granitic outcrops as well as in mangroves, in southeastern Nigeria, Cameroon, Equatorial Guinea and Gabon of the Lower Guinea Domain (White 1979). Altitude 0–980 m. Fig. 2.

**Additional specimens studied** – **Nigeria**: Calabar, 21 Mar. 1959, *Latilo* 25 (FHI 40924) (P).

**Cameroon**: 24 km SE of Ebolowa, Akoakas rock, 19 Feb. 1975, *J.J. de Wilde* 7981 (BR, K, P, WAG); 10 km W of Masok, bank of Ehelé R., 30 Mar. 1965, *Leeuwenberg* 5260 (BR, WAG); Biboumane, près Ebemvak, c. 2°48'N 10°40'E, 11 Jan. 1956, *Letouzey* 533 (BR); 50 km SE of Ebolowa on road to Evindissi, 30 Jan. 1970, *Letouzey* 9930 (BR, P\*, WAG); Akok Bekoé, 10 km WSW of Mbalmayo, 3°29'N 11°25'E, 4 Feb. 1979, *Lowe* 3731 (K); 24 km SE of Ebolowa, Akoakas rock, 27 Mar. 1981, *Meyer* 15299 (WAG); Inselberg Akoakas, 15 Mar. 2001, *Parmentier & Kouob* 2027 (WAG); SW Province, Fako Div., Limbe., Idenau, 24 Feb. 1992, *Tchouto* 3 (K); Korup Nat. Park, 28 Feb.–3 Apr., *Thomas* 3193 (WAG); *ibid.*, 5°1'N 8°50'E, 12–21 Apr. 1985, *Thomas* 4716 (WAG); South Prov., 11 km ENE of Mvie, 2°55'N 10°39'E, 29 Jan. 1998, *van der Burgt & van der Laan* 366 (MO\*, WAG, YA\*); Korup Nat. Park, 25 Mar. 2003, *van der Burgt* 628 (BR, K, P); Nkoltsia hill, 18 km NW of Bipindi, 24 Feb. 1974, *Villiers* 756 (P); Mboltua hill, 23 km NW of Bipindi, 19 Jan. 1976, *Villiers* 1108 (P); Littoral Prov., in the proposed Ebo F.R., 9 Mar. 2007, *Wieringa et al.* 5859 (WAG).

**Equatorial Guinea (Rio Muni)**: 85–86 km on the road from Bata to Niefang, Alen Mt, 14 Jan. 1994, *Carvalho* 5459 (MA, WAG); Piedra Nzaz, 1°27'N 11°2'E, 9 Jan. 1999, *Lejoly* 99/226 (MA).

**Gabon**: Ovang, E of Libreville, 0°29'N 9°31'E, 23 Jul. 1985, *Bos et al.* 10784 (P, WAG); Nyanga, Boumé R. crossing, 3°13'S 10°32'E, 9 Dec. 1986, *J.J. de Wilde et al.* 9246 (WAG); Ogooué-Maritime, Loango Nat. Park, 10 May 2006, *Harris et al.* 8532 (K, P, WAG); Woleu Ntem, Inselberg Ossapamda, 13 Jan. 2003, *Ngok Banak et al.* 1441 (BRLU); *ibid.*, Oyem, Inselberg Koum, 14 Jan. 2003, *Ngok Banak et al.* 1497 (BRLU, WAG); *ibid.*, Minkébé Nat. Park, southern Inselberg area, 1°23.25'N 12°34'E, 1 May 2003, *Ngok Banak et al.* 1503 (BRLU, WAG); *ibid.*, Inselberg Koum, 1°50'N 11°38'E, 28 Dec. 1999, *Parmentier & Nguema* 525 (BRLU); Estuaire, Malibé, 0°33'N 9°22'E, 9 Aug. 1985, *Reitsma c.s.* 1302 (WAG); *ibid.*, *Reitsma c.s.* 1303 (WAG); Inselberg, c. 28 km ESE of Médouneu, 0°55'N 11°01'E, 3 Feb. 1986, *Reitsma c.s. & Louis* 1804 (WAG); Estuaire, Malibé, 0°33'N 9°22'E, 31 Jul. 1986, *Reitsma c.s.* 2465 (WAG).

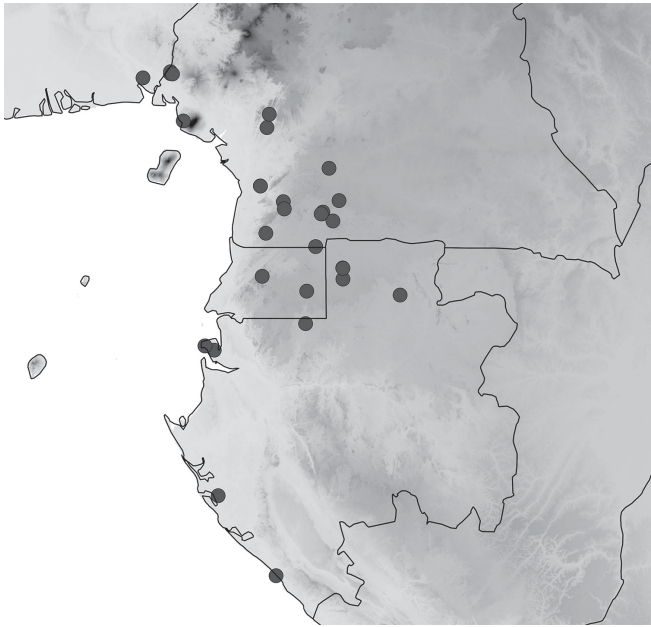
**Note** – *N.W. Thomas* 4716 and *X.M. van der Burgt* 628 reported *Lannea glabrescens* as an epiphytic tree.

***Lannea welwitschii*** (Hiern) Engl. (Engler 1898: 498).

*Calesiam welwitschii* Hiern (Hiern 1896: 179). – Type: Angola, Golungo Alto, Jan. 1856, *Welwitsch* 4543 (holo-: BM\*).



**Figure 1** – *Lanea glabrescens*: A, fruiting branchlet; B, male flowering branchlet; C, detail of male inflorescence; D, male flower, one sepal and petal removed; E, male flower from above; F, pistillode; G, branchlet with female inflorescences; H, part of female inflorescence; I, female flower; J, female flower, one sepal and one petal removed; K, fruit. A & K from *Harris et al.* 8532 (WAG); B–F from *Reitsma c.s. & Louis* 1804 (WAG); G–J from *Reitsma c.s.* 1302 (WAG). Drawn by H. de Vries. © Botanic Garden Meise, reproduced from Breteler (2017: 11, pl. 4).



**Figure 2** – Distribution of *Lannea glabrescens*.

*Lannea longifoliolata* Engl. & Krause (Engler & Krause 1911: 326), **syn. nov.** – Type: Cameroon, Campogebiet, near Akonango on the road to Bendambejusch, Mar. 1909, *Tessmann* 890 (holo-: B<sup>†</sup>); **neotype, designated here**: Cameroon, 15 km S of Ebolowa, 28 Feb. 1964, *W. de Wilde* c.s. 1980 (WAG, 2 sheets numbered WAG 1533289, WAG 1533290).

*Lannea zenkeri* Engl. & Krause (Engler & Krause 1911: 330), **syn. nov.** – Type: Cameroon, Bipindi, Feb. 1902, *Zenker* 2511 (holo-: B<sup>†</sup>; lecto-: P, **designated here**; isolecto-: L).

**Habitat and distribution** – Primary and secondary forests, more numerous in the semi-deciduous forest, in West and Central Africa extending to Uganda, Ethiopia, Kenya, Tanzania and Angola. Altitude 0–1250 m.

**Note** – In Kenya and Tanzania *Lannea welwitschii* var. *ciliolata* Engl. is distinguished (Kokwaro 1986). It differs from the type variety by the smaller leaflets that are pubescent beneath.

#### ACKNOWLEDGEMENTS

The author is grateful to J.J. Wieringa for the distribution map and to H. de Vries for the detailed illustration. Mrs. B.J.M. Breteler-Klein Breteler is kindly acknowledged for the electronic version of the manuscript.

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Manuscript received 5 Jan. 2017; accepted in revised version 20 Jul. 2017.

Communicating Editor: Elmar Robbrecht.