



## Taxonomic novelties in African *Dracaena* (*Dracaenaceae*)

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### Key words

Africa  
Central Africa  
*Dracaena*  
Gabon  
Lucky Bamboo  
new species  
taxonomy

**Abstract** In preparing the treatment of *Dracaena* for *Flore du Gabon* and *Flore d'Afrique centrale*, a relatively high number of taxonomic and nomenclatural novelties were discovered; these are presented here. Within *Dracaena* five species and one forma are described as new, *D. bushii*, *D. haemanthoides*, *D. marina*, *D. wakaensis*, *D. waltersiae* and *D. laxissima* forma *aureillicia*. Each new species is provided with a full description and taxonomic notes. Apart from that, five species are reinstated, *D. braunii*, *D. nitens*, *D. perrottetii*, *D. tholloniana* and *D. usambarensis*. A further 23 names are treated here as a synonym for the first time: *D. bequaertii*, *D. buettneri*, *D. cuspidibracteata*, *D. densifolia*, *D. gabonica*, *D. gazensis*, *D. ledermannii*, *D. letestui*, *D. litoralis*, *D. longipetiolata*, *D. monostachya* var. *angolensis*, *D. oddonii*, *D. perrottetii* var. *minor*, *D. poggei*, *D. pseudoreflexa*, *D. reflexa* var. *buchneri*, *D. rubroaurantiaca*, *D. soyauxiana*, *D. talbotii*, *D. tessmannii*, *D. usambarensis* var. *longifolia*, *D. vanderystii* and *Pleomele heudelotii*, while for four names a neotype and for 14 names a lectotype has been designated. Distribution maps are provided for a total of 23 species. An index of taxon names is included.

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### INTRODUCTION

The genus *Dracaena* L. has approximately 116 species, of which some 63 occur in Africa (incl. Madagascar) (Govaerts et al. 2017). The remainder is found in Asia, Australia and Central America. Most recent studies generally place the genus in the family *Asparagaceae* subfamily *Nolinoideae* (Stevens 2001 onwards, Lu & Morden 2014, Angiosperm Phylogeny Group 2016), but others have placed it in *Agavaceae* (i.e., Hepper 1968b) or recognised it as a distinct family, *Dracaenaceae*, along with the genera *Sansevieria* Thunb. and *Pleomele* Salisb. (Bos 1992, 1998, Watson & Dallwitz 1992 onwards).

Various species of *Dracaena* have a high importance in horticulture (Singh & Dadlani 2000, Wijsman 2012), while others show medicinal (Staner & Boutique 1937) or social functions in marking graves, sacred sites and farm plots in many African societies (Sheridan 2008). Globally, *Dracaena* is in the top ten of most important crops in floriculture (Singh & Dadlani 2000), while in the Netherlands *Dracaena* is in the top five of the most exported pot plants with an annual turnover of c. 33 million euro (Wijsman 2012). It is remarkable that, even despite this importance, the taxonomy of various species is still unstable, while new species are being discovered on a regular basis (Mwachala et al. 2007, Mwachala & Fischer 2013), even in such well-studied places as the Canary Islands (Marrero et al. 1998).

Back in 2006, the first author started his investigations in *Dracaena* at Wageningen University, The Netherlands (WAG), by sorting out the enormous legacy left by the *Dracaena* specialist J.J. Bos (1939–2003). This legacy was composed of herbarium loans from all over the world, living plants in the greenhouse,

pictures, literature and notes. The written data was digitized and a database compiled with all herbarium collections, before they were returned to their respective owners. The database, which is maintained by the first author, now contains data on more than 9400 African specimens and on some 14000 from elsewhere. Where possible, specimens were georeferenced and photographed.

During his *Dracaena* investigations, Bos had already recognised several new African species, but never came to publish these. He was also convinced that flower length was extremely variable and not a good character for species delimitation. In personal communication, Bos often referred to the type material of *Dracaena mannii* Baker which had led him to this conclusion: “The Berlin isotype of *D. mannii* for instance includes a considerably larger flower than any of its duplicates in other herbaria. Under these circumstances I fully endorse Hutchinsons view to treat them as one variable species” (Bos 1984). However, it turns out that the Berlin isotype (*Mann* 2329) consists of an inflorescence with smaller flowers while an envelope attached to the sheet contains a distinctly larger flower. With all other isotype sheets (at P, K and WAG) having flowers of the same much smaller size, we hypothesize that the single larger flower on the Berlin sheet does not belong to the same specimen/collection and was put there by accident. This unfortunate situation has thus led to a misconception of flower size as an unimportant character in *Dracaena* taxonomy! During our long experience with this genus, we have now learned that flower size is an important character, very useful for species recognition, and concluded that as a consequence Bos’ species concept was often too wide. As a consequence, some names treated as synonym by Bos need to be reinstated as accepted species (De Roos 2014). For South Africa, Venter (1996) came to the same conclusion and reinstated *D. transvaalensis* Baker which Bos (1992) had treated as a synonym of *D. aletriformis* (Haw.) Bos. Such clarifications are also important for *Dracaena* plant breeders who use only a few clones (R. Scheffers, pers. comm.) and such reinstated ‘new’ species may point them to the potential of the introduction of a wider genetic variation to select from.

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With *Dracaena* having been revised and treated for West Africa (Hepper 1968b, Bos 1984), southern Africa (Bos 1992), Ethiopia (Bos & Teketay 1997), tropical East Africa (Mwachala & Mbugua 2007) and the Zambesiaca region (La Croix 2010), the main gap in African *Dracaena* knowledge is in the Central African region. The first and second author are engaged in preparing the treatment for *Flore du Gabon* and *Flore d'Afrique centrale*. With Gabon harbouring most likely the most species-rich rainforest in Africa (Sosef et al. 2017), it is not surprising that a relatively high number of taxonomic and nomenclatural novelties were discovered during the preparation of both Flora treatments. Most of these would seem out of place in such a treatment, and are thus published here. Since, apart from the species dealt with below, still others occur in the region covered by both Floras, no key is provided here. For identification, the interested user is referred to those Flora treatments which will appear soon.

## MATERIALS AND METHODS

The study was performed using herbarium material and applying standard herbarium techniques (De Vogel 1987). The vast majority of this material came from BR, BRLU, K, LBV, MO, P and WAG (now at L), with additions from A, B, BISH, BM, BRUNOY, C, E, EA, FHO, GOET, HUJ, IFAN, IG, L, MA, NY, O, POZG, PRE, SRGH, UC, US and Z. Acronyms of institutes holding herbarium collections follow Thiers (continuously updated). Types not available in one of these were generally studied using the Global Plants facility (JSTOR 2000–2016). Data and illustrations were stored in a local version of BRAHMS 7 (Filer 2001). Most of the living material was studied in the botanic garden Burgers' Zoo, Arnhem, The Netherlands, which houses the biggest collection of *Dracaena* in the world, thanks to efforts of Bos, Jongkind, Damen and several other WAG collectors. Furthermore, the first author visited the Botanic Garden Meise, the Royal Botanic Gardens Kew, the Muséum national d'Histoire naturelle Paris, the Poznań Palm House, the Botanical Garden of the Adam Mickiewicz University, Poznań, the Botanika Bremen, the Alter Botanischer Garten Göttingen, the Jardín Botánico Canario Viera y Clavijo Gran Canaria, the Arboretum de Sibang Libreville and the *Dracaena* nursery De Plaats at Honselersdijk, The Netherlands, to study living *Dracaena* material. Furthermore, in 2013 and 2015, the first author conducted two field trips (together with E.L.A.N. Simons) to Gabon to collect herbarium specimens, living material and to study the plants *in situ*.

The QGIS program (Quantum GIS Development Team 2017) was used to prepare the distribution maps, together with a layer of the UNESCO Vegetation map of Africa (White 1983).

In Africa, *Dracaena* is generally easy to propagate; only a small piece of the plant is required to form a new plant, and even when thrown away it may easily root and thus occur as an escape (Damen pers. obs.). Therefore, in the field it is sometimes impossible to tell whether an individual is wild or escaped from cultivation, or was even originally planted but then abandoned. Hence, it is not impossible that in the distribution maps presented here a number of collections from cultivated or escaped plants are incorrectly included.

IUCN conservation status assessments for all Central African species, also those not discussed below, are being prepared and will be published in a separate paper.

## RESULTS

The results are presented below per species/taxon, in alphabetical sequence.

### 1. *Dracaena acaulis* Baker — Map 1

*Dracaena acaulis* Baker (1878) 252. — Lectotype (designated here): *Welwitsch* 3752 (lecto LISU [LISU222113]; isolecto BM [BM000911607], COI [COI00100196]), Angola, Pungo Audongo, cataractas do rio Cuanza, July 1855.

*Dracaena rubroaurantiaca* De Wild. (1906) 228. — Lectotype (designated here): *Dewèvre* 169 (lecto BR [BR0000008807441]; isolecto BR [BR0000008807458]), Democratic Republic of the Congo, 20 July 1895, syn. nov.

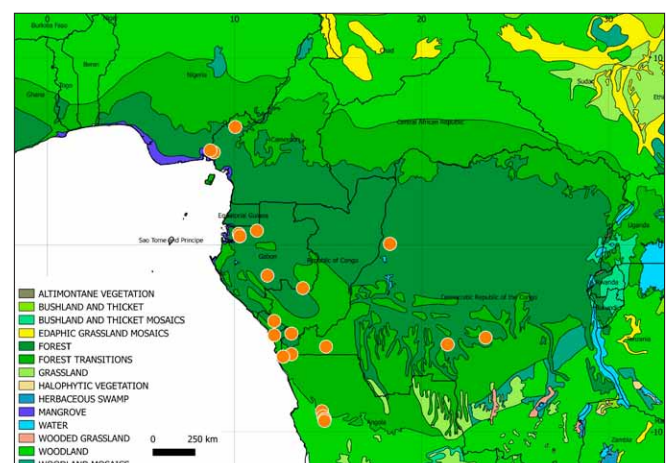
*Sansevieria longifolia* Welw. in sched.

Distribution — Cameroon, Gabon, Republic of the Congo, Democratic Republic of the Congo, Angola.

Notes — The protologue of *D. acaulis* cites no specimen, but mentions 'Golungo Alto, regio 2 (1000–2400 pedes) in sylvaticis editoribus et ad rivulorum latera montium de, Alta Queta. Floret Julio.' as a reference. The specimen *Welwitsch* 3752 matches both the description and the reference to its locality in the protologue. There are several duplicates, but the LISU specimen is the only specimen with labels carrying all locality data of the protologue, a label in the handwriting of J.G. Baker and a plant description very similar to that published in the protologue. Therefore, this specimen has been chosen as the lectotype for *D. acaulis*. It is known that Welwitsch provided specimens collected on different dates and localities with the same number (Albuquerque et al. 2009). The specimens in BM and COI carry the same date (July 1855) as the specimen in LISU and thus probably belong to the same collection and can be regarded as isolectotypes. The other duplicates in K, LISU and P, without dates, as well as those of *Welwitsch* 3753 (with date April 1856), are disregarded.

*Dracaena rubroaurantiaca* was described from a plant with the same inflorescence type and leaf shape as *D. acaulis*. In the protologue, De Wildeman compared *D. rubroaurantiaca* with *Dracaena fragrans* (L.) Ker Gawl only; he probably had not seen any material of *D. acaulis* when describing his new species.

In his unpublished PhD thesis, Mwachala (2005) selected Plate 58 published along with the protologue (De Wildeman 1906: 228) as lectotype for *D. rubroaurantiaca*. In this protologue, however, De Wildemann cited: "dans les environs de Malella, 20-juillet 1895 (Alf. Dewèvre)". In BR, two sheets of the specimen *Dewèvre* 169 were found in a type folder together with Plate 58. One of the two sheets is annotated as '*Dracaena rubro-aurantiaca*. De Wild. n.sp.'. Although there is no location written on this sheet, it is cited in Durand & Durand (1909) with the location 'île du Congo dans les env. de Malela', and the morphology fits the protologue. Thus, although the plate published in the protologue is part of the original material, it is preferred to select a herbarium sheet as the lectotype.



Map 1 Distribution of *Dracaena acaulis* Baker.

*Sansevieria longifolia* Welw. is an unpublished name written on labels mounted on several duplicates of *Welwitsch 3752* and *Welwitsch 3753*.

**2. *Dracaena acutissima* Hua — Map 2**

*Dracaena acutissima* Hua (1897) 669. — Lectotype (designated here): *Thollon 913* (lecto P [P00442404]; isolecto B, K (drawing), P (2×), WAG), Republic of the Congo, rivière Alima, Mar. 1888.

Distribution — Gabon, Republic of the Congo, Democratic Republic of the Congo.

Notes — In his unpublished PhD thesis, Mwachala (2005) selected a neotype for *D. acutissima*. However, in the protologue Hua wrote: “Région de l’Alima (Thollon, n° 913), terrains sableux, sous-bois, fl. mars 1888”. Material of *Thollon 913* is available in several herbaria and hence the selection of a neotype is superfluous. The specimen P00442404 was chosen as the lectotype from among the three sheets available at P, since that is the only sheet carrying a label with the details mentioned in the protologue.

**3. *Dracaena bicolor* Hook. — Map 3**

*Dracaena bicolor* Hook. (1861) t. 5248. — Lectotype (designated by Bos 1984): *Hort. Kew s.n.* (lecto K [K000099865]; isolecto K [K000099866]), culta (ex *G. Mann s.n.*, Equatorial Guinea, Fernando Po), Feb. 1861.

*Dracaena talbotii* Rendle (1913) 112. — Lectotype (designated by Bos 1984): *Talbot 1532* (lecto BM [BM000911624]; isolecto BM [BM000911623], K (2×), WAG-spirit), Nigeria, Oban, 1912, syn. nov.

*Dracaena densifolia* Baker (1874) 165. — Lectotype (designated by Hepper 1968a): *Mann 1037* (lecto K [K000099863]), Gabon, Gaboon River, 1861, syn. nov.

*Dracaena densiflora* Baker (1875) 535 ‘*densifolia*’.

Distribution — Nigeria, Cameroon, Equatorial Guinea, Gabon, Republic of the Congo, Democratic Republic of the Congo.

Notes — In the protologue, Hooker (1861) described the inflorescence of *D. bicolor* s.str. as a dense spicate-capitate compound raceme. Hepper (1968b) stated it is a shortly cylindrical, very dense spike, while according to Bos (1984) the inflorescence is subcapitate to thyrsoid. The inflorescence of *D. bicolor* s.lat. has several (4–10) dense clusters of c. 20 flowers forming a compact bracteate subcapitate inflorescence of up to 26 cm long. Further anatomic study might reveal that it has a thyrsoid structure, similar to that in *Sansevieria* (Budweg 2016).

*Dracaena talbotii* was described from a plant with the same inflorescence type as in *D. bicolor*, but with narrow leaves. We have observed leaf shape to be highly variable within *D. bicolor* (for example the collection *Bos 4160* represents two distinct leaf forms collected from the same plant before and after it fell down and re-sprouted), reason why we do not recognise this form as a distinct taxon. *Dracaena densifolia* represents a form of *D. bicolor* with a more open inflorescence, but otherwise, including flower size, fits well within the range of *D. bicolor*.

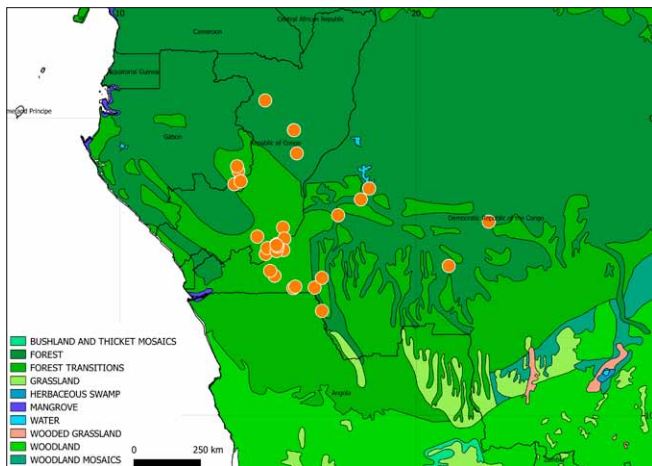
**4. *Dracaena braunii* Engl. — Map 4**

*Dracaena braunii* Engl. (1892) 479. — Lectotype (designated here): *culta Berlin s.n.* (lecto B [B\_10\_0184054]) (ex. Cameroon, Malimba, 1889, *Braun 329*), Aug. 1891.

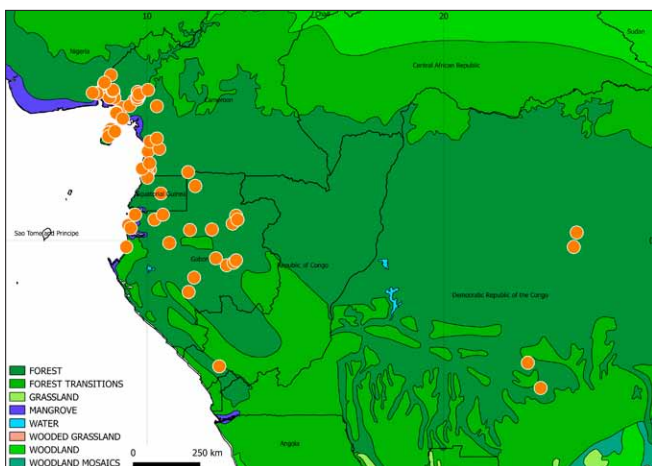
*Dracaena litoralis* Mwachala & Eb.Fisch. (2013) 444. — Type: *Mezili 90* (holo P [P00283988, P00283989]), Cameroon, Kribi District, between Kribi and Lonji, 19 Mar. 1968, syn. nov.

Distribution — Cameroon, Equatorial Guinea, Gabon, Republic of the Congo.

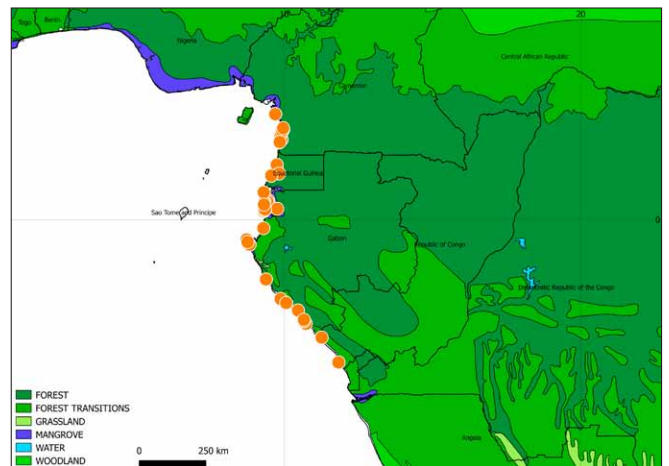
Notes — *Dracaena litoralis* was recently described to accommodate a plant similar to the original material of *D. braunii* (type and plate in protologue of cultivated plant) but with smaller flowers and different leaf shape. However, we think the difference in the flower size is explained because *D. braunii* was based on cultivated material in which the flower size is often a little larger (phenotypic plasticity due to better growing conditions?). For example, a flower measured in Gabon (*Damen et al. 499*) was 18 mm long, but when this plant was transplanted and flowered in the greenhouse at WAG, the flower was 22 mm long. Flowers in *D. braunii* are nocturnal and only a few hours at full anthesis (*Damen, pers. obs.*). In the field, collections are usually made when the flowers are not yet at full anthesis and therefore still slightly smaller. In cultivation, where often the light levels are lower, full anthesis starts earlier during the evening and it is easier to collect the flowers at full anthesis. These phenomena could thus well explain the difference in flower size



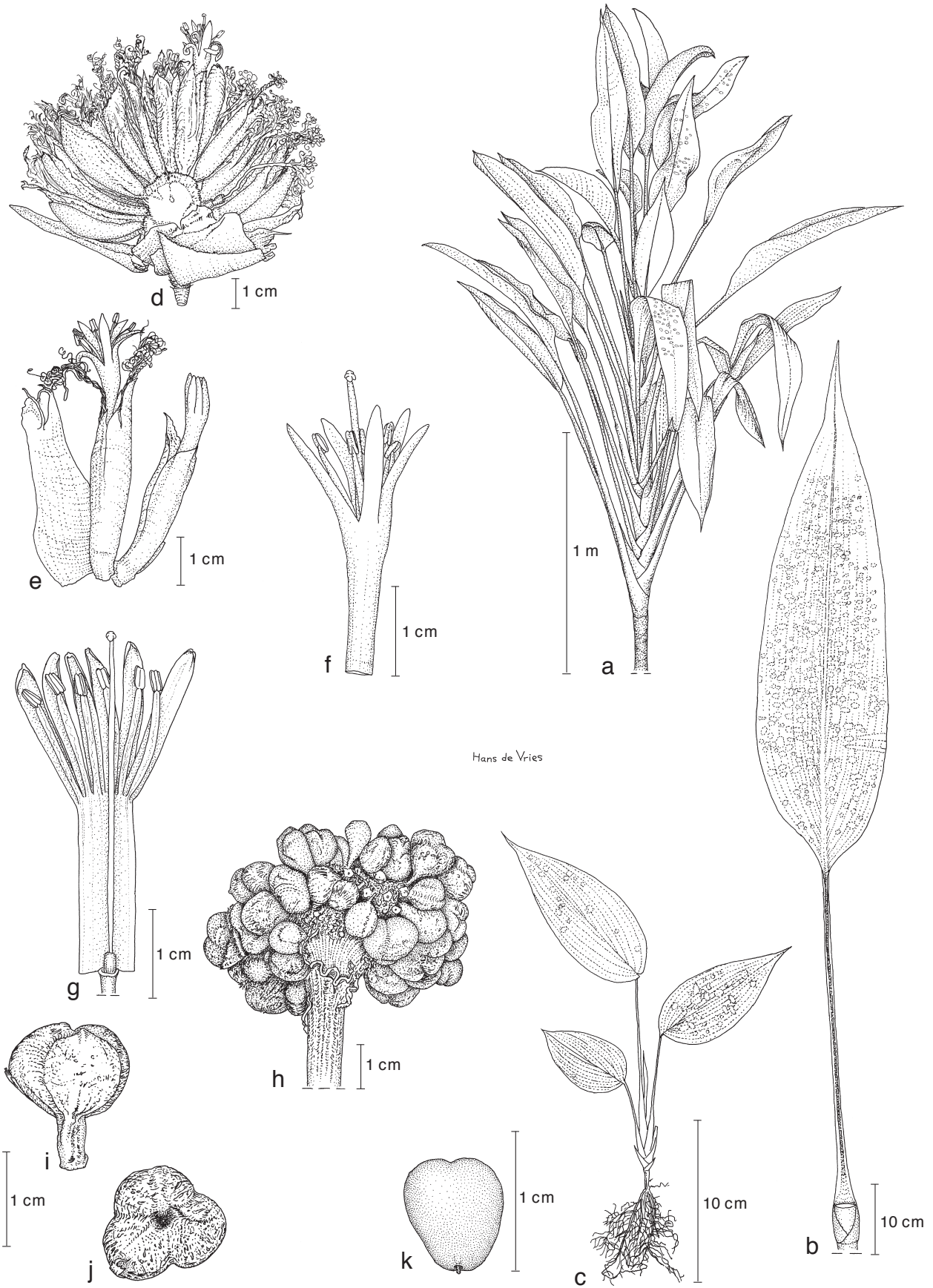
Map 2 Distribution of *Dracaena acutissima* Hua.



Map 3 Distribution of *Dracaena bicolor* Hook.



Map 4 Distribution of *Dracaena braunii* Engl.



**Fig. 1** *Dracaena bushii* Damen. a. Habit; b. leaf; c. seedling; d. cross section inflorescence; e. part of inflorescence; f. part of flower; g. dissected flower; h. infructescence; i. fruit side view; j. fruit from above; k. single seed (a: culta Burgers Bush n° 20120214025; b, d–g: *Van Setten 988*; c: *Breteler 3043*; h–k: *Van den Burg 40*). — Drawing by Hans de Vries.

observed by Mwachala & Fischer (2013). Moreover, we have been able to study *D. braunii* populations in the field, which occurred to be very polymorphic, possibly due to the extreme growing conditions, (salty places near the coast often grazed by buffalos). From those observations we conclude that leaf shape and phyllotaxis of *D. littoralis* fit comfortably within the range of *D. braunii*, as does the characteristic ecology.

In his unpublished PhD thesis, Mwachala (2005) selected Plate 20 in the protologue (Engler 1892: 479) as a lectotype for *D. braunii*. In that protologue, however, Engler cited a cultivated plant: “Die Pflanze wurde von J. Braun nach dem botan. Garten zu Berlin importiert und blühte daselbst im Aug. 1891.” According to the label attached to the herbarium sheet in B with barcode B\_10\_0184054, it represents material from that plant and should thus be regarded as the original material to be preferred over a plate. This corrected typification was already communicated by Mwachala & Fischer (2013).

##### 5. *Dracaena bushii* Damen, *sp. nov.* — Fig. 1; Plate 1; Map 5

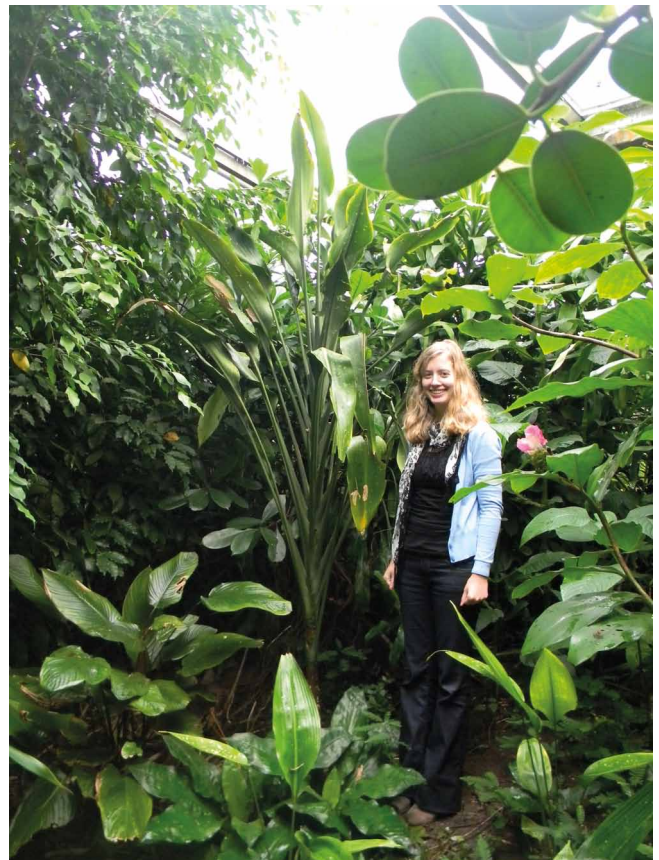
*Dracaena bushii* is similar to *Dracaena phrynioides* Hook., both having capitate inflorescences and leaves with long pseudopetioles. *Dracaena bushii* is easily distinguished from that species by its flowers which are twice as long and the presence of a distinct stem up to 50 cm long, and an equitant (with overlapping leaf bases) leaf arrangement, where *D. phrynioides* is subcauliculous with its leaves arranged in a rosette. — Type: *van Setten 988* (holo WAG [WAG.1152725 (sheet 1), WAG.1152726 (sheet 2), WAG0108898 (spirit), WAG0116789 (spirit)]), culta at Wageningen, The Netherlands, 3 Aug. 1988 (ex *Breteler 2438*, Cameroon, East Province, 24 km NE of Bertoua, along the road to Bétaré Oya, N4°42' E13°49', alt. 750 m, 2 Oct. 1962).

*Etymology.* *Dracaena bushii* honours J.J. Bos (the Dutch word ‘bos’ translates to ‘bush’ in English) who has been a great inspiration of the first author, and at the same time credits Burgers Bush in Arnhem, The Netherlands, where the largest collection of living *Dracaena* in the world is being maintained, including a few specimens of *D. bushii*.

Shrub to 2.5 m tall, with a single stem arising from a woody rhizome; stem to c. 5 cm diam, up to 50 cm long, yellowish grey, marked by dark green annular scars of fallen leaves, occasionally forming aerial roots. Leaves alternate, equitant; pseudopetiole bluish dark green, longer than the lamina, to 80 cm long, sulcate along its upper surface, gradually extending into a sheathing base, clasping the stem for distinctly more than its circumference; lamina ovate, up to 65 by 20 cm, corrugated lengthwise, shiny dark green above, dull pale green beneath, midrib paler, variegated with scattered transversely orientated oval pale green dots, each dot with a yellow centre, coriaceous, leaf base rounded, leaf tip acuminate, mucro to 2 cm long. Inflorescence terminal, usually erect; peduncle up to 8 cm long, smooth, terminating in a bracteate capitulum of up to 13 cm diam; bracts enveloping the capitulum, broadly ovate, c. 5 by 3 cm, scarious, dark brown; flowers in fascicles of 2 or 3, each fascicle closely enveloped by 3.5–4 cm long light brown bracts. Flower: pedicel 0–1 mm long; perianth white, 45–50 mm long, lobes 15 by 2 mm, spreading, each with a single central distinct costa; stamens inserted near the throat, up to 2 mm shorter than the lobes, filaments white, terete, inflated, with subulate tips, anthers pale yellow, 3 by 1 mm; ovary oblong, up to 3 by 2 mm; style filiform, to 1 mm exerted, white, stigma capitate, shallowly trilobed, c. 1 mm diam. Fruits depressed globose, shallowly 1–3-lobed, c. 14 by 9 mm, bright orange to bright red, with 2 or 3 seeds, receptacle of up to 4 mm long. Seeds smooth, ellipsoid, up to c. 10 by 7 mm, flattened where pressed against adjacent seeds.

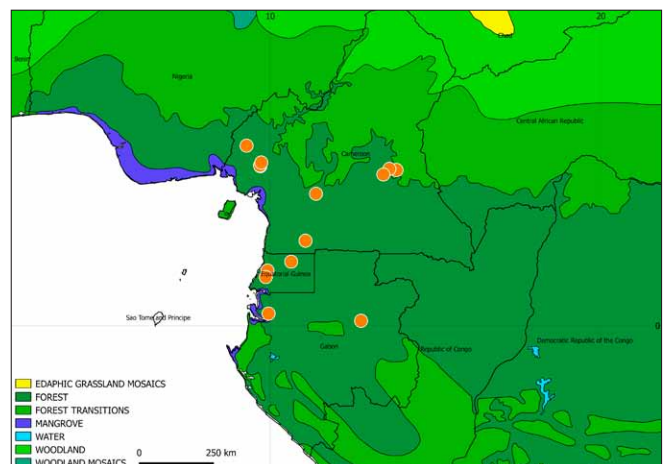
Distribution — Cameroon, Equatorial Guinea, Gabon.

Ecology — Understorey of secondary forest, forest edges, humid places, on sandy soil and clayish river banks; at 100–1500 m altitude. Flowering in June (fide *Letouzey 13823*).



**Plate 1** *Dracaena bushii* Damen, habit and two seedlings with SJ van de Kerke; culta Burgers Bush n° 20120214025. — Photo: THJ Damen.

*Other specimens examined.* CAMEROON, **Centre**, Nkolukie dans le massif du Mbam-Minkom 18 km nord-ouest Yaoundé, c. N3°59' E11°23', 28 Sept. 1984, *Achoundong, G 622* (P); **East**, 24 km NE of Bertoua, along the road to Bétaré Oya, N4°42' E13°49', alt. 750 m, 8 Jan. 1962, *Breteler, FJ 2438* (WAG); 500 m NW of Koundi, 22 km N of Bertoua, N4°44' E13°36', alt. 670 m, 29 Dec. 1977, *Van den Burg, HC 16* (WAG); 1.5 km S of Yanda I, between Bertoua and Diang, N4°34' E13°25', alt. 720 m, 16 May 1978, *Van den Burg, HC 40* (WAG); culta, in greenhouse botanical gardens Wageningen, The Netherlands, (seedling from *Breteler et al. 2438* collected in Cameroon, 24 km NE of Bertoua, along the road to Bétaré Oya, N4°42' E13°49', alt. 750 m), 2 Oct. 1962, *Breteler, FJ 3043* (WAG); culta in The Bush, Burgers' Zoo, Antoon van Hooffplein 1, Arnhem, The Netherlands, gift from WAG, No. 1969PT00479, (ex *Breteler 2438*, Cameroon, East Province, 24 km NE of Bertoua, along the road to Bétaré Oya, N4°42' E13°49', alt. 750 m, 2 Oct. 1962), 24 Nov. 2011, *Damen, THJ 463* (WAG); *ibid.*, 7 Apr. 2013, *Roos, JR de 11* (WAG); **South**, colline Mbok, 5 km à l'est de Meyo Centre, 40 km SSW d'Ebolowa, c. N2°34' E11°04', 24 Mar. 1970, *Letouzey, R 10228* (P); **South-West**, colline au SE d'Okororoba, 20 km NE Ngati, c. N5°26' E9°17', alt. 772 m, 13 June



**Map 5** Distribution of *Dracaena bushii* Damen.

1975, *Letouzey, R 13823* (P, WAG-spirit); Mt Kupe, Nyasoso, along Max's trail, N4°50' E9°42', alt. 1100 m, 2 Dec. 2004, *Richardson, JE 250* (WAG); Mt Kupe, Ngomboku, path to the east, N4°55.6' E9°43.7', alt. 1100 m, 3 Dec. 2004, *Richardson, JE 261* (WAG); Meme, N4°49' E9°42', alt. 1200–1500 m, 1 Dec. 1985, *Thomas, DW 5098* (WAG). – EQUATORIAL GUINEA, **Litoral**, Bata-Senge, Estrada km 38, entrada maderera hacia el monte Bibogo, c. N1°40' E9°55', alt. 650 m, 13 May 1997, *Carvalho, MF de 6324* (BRLU, MA); SE Bata, c. 50 km Oborobiko, Bata to Rio Benito, c. N1°28' E9°52', 25 Feb. 1969, *Sanford, WW 6027* (K); **Wele Nzaz**, région d'Anisok, env. de Temelon, près du village Ayene, c. N1°56' E10°38', 10 Sept. 1997, *Lisowski, S M614* (BRLU). – GABON, **Estuaire**, Andem, Kougouleu-Kango c. 10 km, 2 km N, N0°22' E9°57', 9 Oct. 1985, *Louis, AM 1859* (LBV, WAG); **Ogooué-Ivindo**, Parc National de l'Ivindo, chutes de Djidji, N0°08.9' E12°44.6', alt. 335 m, 28 Mar. 2004, *Moungazi, A 1475* (LBV, WAG). – UNKNOWN, culta, Plantentuin, Rijksuniversiteit Gent, Belgium, 15 Nov. 1984, *Laan, FM van der 830* (WAG, WAG-spirit); Botanic Garden Meise, Belgium, No. 19073927, origin unknown, 17 Oct. 2017, *Caekenberghe, F van 52* (BR-spirit).

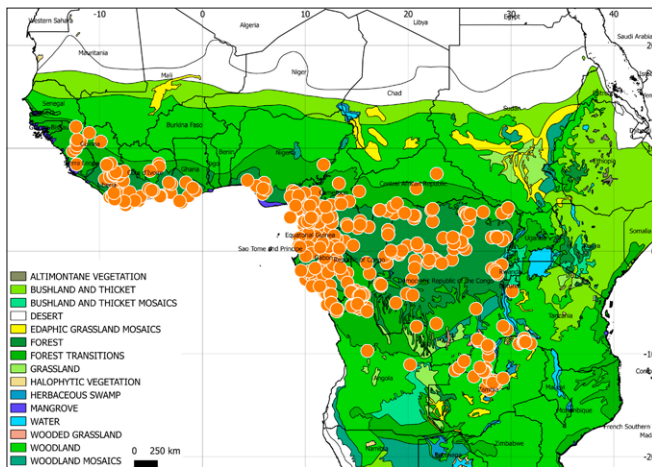
Note — The description of *Dracaena* sp. aff. *phrynoides* Hook in Cheek et al. (2004) matches the new species *D. bushii*. Unfortunately, the herbarium at Kew could not locate the three specimens cited in this publication during a recent visit of the first author, and so this could not be checked.

## 6. *Dracaena camerooniana* Baker — Map 6

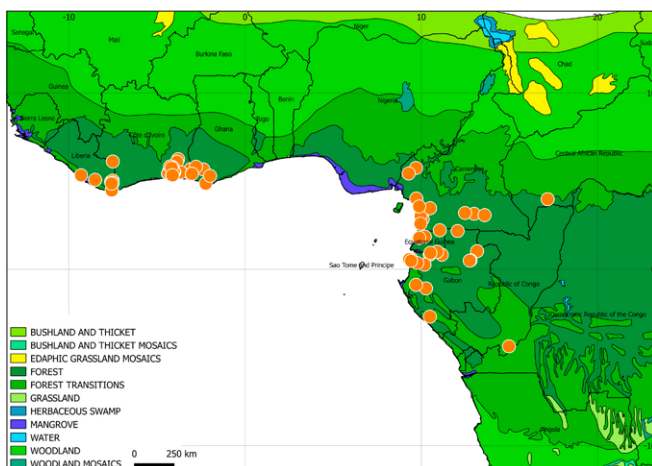
*Dracaena camerooniana* Baker (1874) 166. — Type: *Mann 1204* (holo K (K000255899)); iso GH, K, P, S, U), Cameroon, Cameroon Mount, Jan. 1862.

*Dracaena oddonii* De Wild. (1906) 227. — Type: *Oddon in Gillet 3333* (holo BR (BR0000008807397); iso BR (BR0000008807380)), Democratic Republic of the Congo, Janda, 1903, *syn. nov.*

*Dracaena silvatica* Hua (1897) 665. — Type: *Thollon 4074* (holo P (P00442299)); iso WAG (WAG0184575)), Republic of the Congo, Brazzaville, May 1891.



Map 6 Distribution of *Dracaena camerooniana* Baker.



Map 7 Distribution of *Dracaena cerasifera* Hua.

Distribution — Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Nigeria, Cameroon, Equatorial Guinea, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Tanzania, Angola, Zambia.

Notes — *Dracaena oddonii* was described from a plant with larger leaves and a longer petiole than the typical *D. camerooniana*. We do not recognise this form as a distinct taxon, because leaf shape within *D. camerooniana* is highly variable and both leaf forms can occur even on the same plant (Damen, pers. obs.).

*Dracaena silvatica* was described from a plant with much smaller flowers than typical *D. camerooniana*. This ecotype has been observed several times in the wild and grows in deep shade and inundated forest where the flowers and fruits are often poorly developed or even malformed (Damen, pers. obs.). It is regarded as a phenotype not worthy of a distinct taxonomic rank.

## 7. *Dracaena cerasifera* Hua — Map 7

*Dracaena cerasifera* Hua (1897) 663. — Lectotype (designated here): *Leroy s.n.* (lecto P (P00442279); isolecto K (K000255922), P (P00442280, P00442281), WAG (WAG0251836)), Gabon (Congo français), Ogooué, 1894–1895.

Distribution — Liberia, Ivory Coast, Ghana, Cameroon, Equatorial Guinea, Gabon, Central African Republic, Republic of the Congo.

Note — In the protologue, Hua gives 'Ogooué (Mgr Leroy)' to indicate the material seen. This material is represented at P by three sheets, two with flowers and one with fruits, which match the description provided in the protologue. The sheet chosen here to serve as lectotype is richest in flowers.

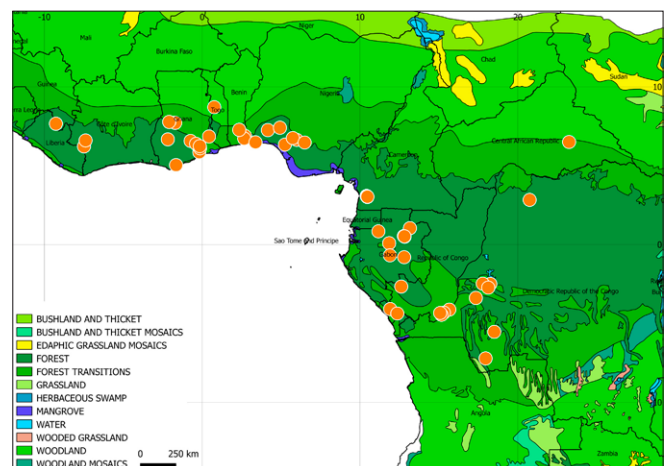
## 8. *Dracaena congoensis* Hua — Map 8

*Dracaena congoensis* Hua (1897) 668. — Type: *Thollon s.n.* (holo P (P00442278); iso K-drawing & fragment (K000255935), WAG-fragment (WAG0010776)), Republic of the Congo, Forêt de Mayumba, 1890–1891.

*Dracaena cuspidibracteata* Engl. (1902) 96. — Type: *Zenker 1616* (holo B (B\_10\_0160844); iso BM, COI, E, G, GOET, HBG, K, L, M, MO, P, PRE, S, WAG, WU, Z), Cameroon, Bipindi, 22 Dec. 1897, *syn. nov.*

Distribution — Guinea, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo.

Note — *Dracaena cuspidibracteata* was described from a plant that fits well the inflorescence and leaf shape characteristics of *D. congoensis*. In the protologue, Engler compared



Map 8 Distribution of *Dracaena congoensis* Hua.

*D. cuspidibracteata* only with *D. fragrans* and we assume he had not seen any material of *D. congoensis* when describing his new species.

### 9. *Dracaena glomerata* Baker — Map 9

*Dracaena glomerata* Baker (1874) 166. — Type: Mann 1630 (holo K (K000255925); iso K (K000255926), P), Equatorial Guinea, Corsico Bay, Iloby Island, Aug. 1862.

*Dracaena buettneri* Engl. (1892) 478. — Type: Büttner 537 (holo B (B\_10\_0160843)), Gabon, Wald bei Sibange, Sept. 1884, *syn. nov.*

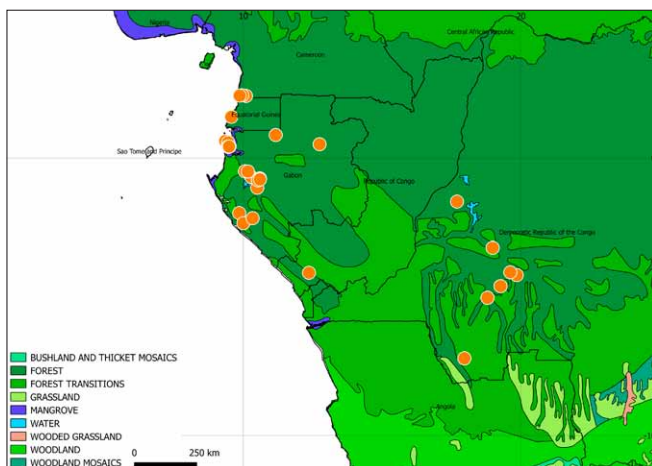
*Dracaena gabonica* Hua (1897) 669. — Lectotype (designated here): Soyaux 98 (lecto P (P00487007); isolecto K (K000255923)), Gabon, in ditione Munda, Sibange-Farm, 16 July 1880, *syn. nov.*

*Dracaena soyauxiana* Baker (1901) 857. — Lectotype (designated here): Soyaux 158 (lecto Z (Z-000075491)), Gabon, in ditione Munda, Sibange-Farm, 13 Nov. 1880, *syn. nov.*

Distribution — Cameroon, Equatorial Guinea, Gabon, Republic of the Congo, Democratic Republic of the Congo.

Notes — *Dracaena buettneri*, *D. gabonica* and *D. soyauxiana* represent the same species collected at the same locality (Gabon, Sibang area) in different stages of growth, respectively, with young inflorescence, at anthesis and fruiting. They all represent a form with a spicate inflorescence, while the other extreme of the variable inflorescence shape, a short and branched inflorescence, is represented by the type specimen of *D. glomerata*. Since all intermediate inflorescence forms can be found (Damen, pers. obs.), we do not recognise them as distinct taxa.

The protologue of *D. gabonica* mentions two collections: Soyaux 98 and Klaine 104; the Soyaux specimen at P with both leaves and an inflorescence is most suited to serve as the lectotype. The protologue of *D. soyauxiana* cites Soyaux 158 as the type and states 'Ad *D. ellipticum* Thunb., accedit' [close to *Dracaena elliptica* Thunb. & Dalm.]. However, at K, where we first expected to find the holotype, Soyaux 158 represents a *Combretaceae* (*Combretum platypterum* (Welw.) Hutch. & Dalziel). The original label gives '*Cacoucia paniculata* Laws.', which is a synonym of that species. Baker, publishing his new species in the *Bulletin de l'Herbier Boissier*, probably saw the sheet at Z, where Soyaux 158 indeed represents this taxon, though the label also carries the *Combretaceae* name. Obviously some mixture of labels and/or plants has taken place. Even more confusing is that at K the label of Soyaux 98, the isotype of *D. gabonica*, carries the remark 'n.sp.? near elliptica'. It might thus even be that Baker actually intended to assign Soyaux 98 as the type.



Map 9 Distribution of *Dracaena glomerata* Baker.



Plate 2 Iconotype *Dracaena goldieana* Bullen ex Mast. & T. Moore from Bull (1877), Retail list, No 129: t. VIII.

### 10. *Dracaena goldieana* Bullen ex Mast. & T. Moore — Plate 2; Map 10

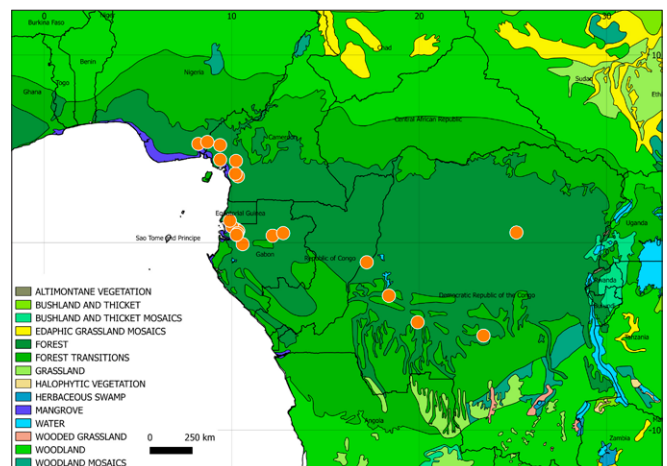
*Dracaena goldieana* Bullen ex Mast. & T. Moore (1872) 1232. — Neotype (designated here): Bull (1877), Retail list, No 129: t. VIII (iconotype).

Distribution — Nigeria, Cameroon, Equatorial Guinea, Gabon, Democratic Republic of the Congo.

Note — The protologue describes a plant exhibited in 1872 by Robert Bullen of the Glasgow Botanic Gardens. No herbarium material of the original plant seems to have been preserved. Although we could not find direct proof of the statement by Bos (1984) that William Bull received plants of *D. goldieana* from Edinburgh Botanic Garden, it is a highly likely assumption that William Bull received material from this same plant and published the drawing carrying that name in his Retail List (Bull 1877). This drawing thus represents the material closest to the original cultivated plant and we decided to select that as the neotype.

### 11. *Dracaena haemanthoides* Bos ex Damen, *sp. nov.* — Fig. 2; Plate 3; Map 11

*Dracaena haemanthoides* is similar to the West African *Dracaena adamii* Hepper; both are found on streambanks and share the same phyllotaxis and inflorescence type. *Dracaena haemanthoides* is easily distinguished, however, because its flowers are almost 2 times as long as those of *D. adamii* while the corolla lobes are much shorter than the tube. Furthermore, the peduncle is smooth, not scabrid as in *D. adamii*. — Type: Veldhuizen, J van 982 (holo WAG [WAG.1153971 (sheet 1), WAG.1153970 (sheet 2), WAG0116648 (spirit)], culta, in greenhouse at Wageningen, The Netherlands (No. 1972PT00634 ex Leeuwenberg, *AJM* 10334, 16 Sept. 1972, 14 km E of Kumba, 28 km W of Loum., N4°41' E9°31'), 26 Jan. 1984.

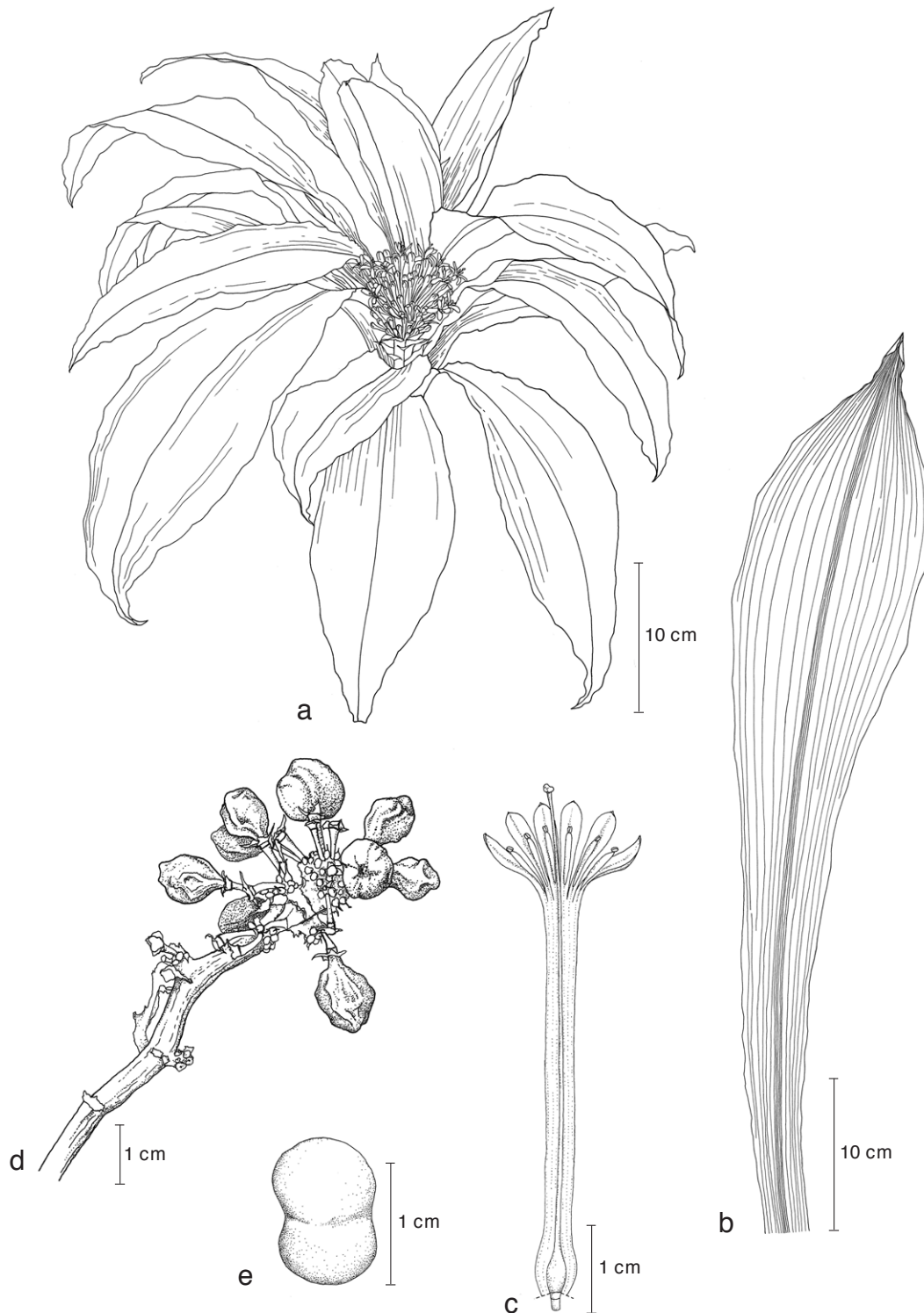


Map 10 Distribution of *Dracaena goldieana* Bullen ex Mast. & T. Moore.

*Etymology.* Bos did already recognise this species as distinct and provisionally named it *D. haemanthoides* on his identification slips (fide Bos 10828), probably because it resembles the growth habit and capitate flowers of some species of *Haemanthus*.

Shrub, single-stemmed or occasionally acaulescent, up to c. 50 cm high; stem unbranched, erect, up to c. 20 cm long, densely leafy towards the top, greenish. *Leaves* alternate, equitant; pseudopetiole broadly winged, gradually extending into a sheathing base, clasping the stem for slightly more than its circumference; lamina oblanceolate or narrowly elliptic in smaller specimens, up to 80 by 12 cm, thickly coriaceous, glossy dark green above, pale green or occasionally dark purple with midrib prominent for c. 3/4 of its length beneath,

base gradually tapering, apex acuminate, subulate, mucro up to 3 mm long. *Inflorescence* terminal, erect, up to 18 cm long; peduncle smooth, purplish green, base with cuspidate transitional leaves, merging into purplish green cymbiform bracts of up to 16 by 10 mm which subtend the closely packed glomerules containing well over 10 flowers each, forming a subcapitate inflorescence. *Flower:* pedicel 1–2 mm long, persistent basal part to 1.5 mm long; perianth creamy white, 51–59 mm long, tube longitudinally striped, pink-purple on the outside, lobes reflexed, c. 11 by 3 mm, apex obtuse with minute mucro, outside greenish white, inside white; stamens inserted near the throat, up to 1 mm shorter than the lobes, filaments filiform, white, anthers c. 1.5 mm long, pale yellow; ovary ovoid, 3 by



**Fig. 2** *Dracaena haemanthoides* Bos ex Damen. a. Habit; b. upper part of leaf; c. dissected flower; d. infructescence; e. seed (a: culta Hort. Bot. Wageningen n° 1972PT00634; b: Van Setten 1061; c: Van Setten 991; d: Van Veldhuizen 1539; e: Van Veldhuizen 982). — Drawing by Kinga Berdysz.





**Plate 3** *Dracaena haemanthoides* Bos ex Damen, habit and inflorescence; culta greenhouse WAG n° 1984PTCB057A. — Photo: JJ Bos.

2 mm; style filiform, to 2 mm exserted, white; stigma capitate, 3-lobed, 1 mm diam. *Fruits* broadly ellipsoid, c. 18 by 21 mm, orange to yellow, receptacle to 3 mm long. *Seeds* broadly ellipsoid, shallowly bilobed, 8 by 12 mm, smooth.

**Distribution** — Cameroon, Gabon, Equatorial Guinea.

**Ecology** — Creek banks in forest, on flat loamy banks of shallow forest streamlet; at 25–450 m altitude. Flowering period unknown, but in cultivation in The Netherlands, it flowered in January and February.

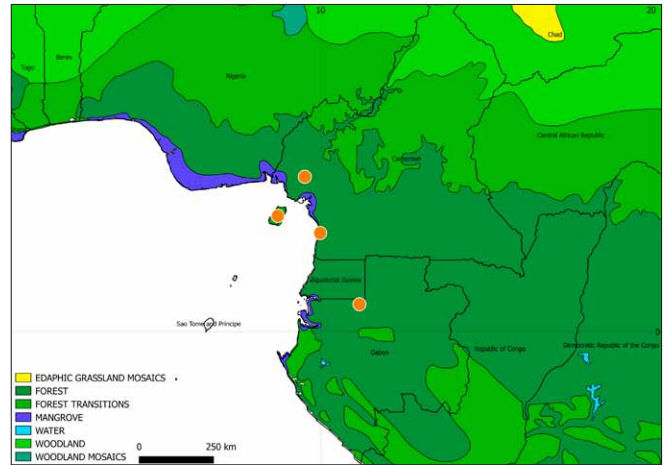
**Other specimens examined.** CAMEROON, **South**, 12 km from Kribi, S. of Lolodorf road, towards Kienke river, c. N2°59' E9°59', 9 July 1970, *Bos, JJ 7065* (WAG); **South-West**, 14 km E of Kumba, 28 km W of Loum., N4°41' E9°31', 16 Sept. 1972, *Leeuwenberg, AJM 10334* (BR, MO, P, WAG, YA); culta, in greenhouse Wageningen, The Netherlands, No. 1972PT00634 (leg. *Leeuwenberg 10334*), Aug. 1983, *Hort Bot Wageningen s.n.* (WAG, WAG-spirit); *ibid.*, 19 July 1984, *Setten, K van 845* (WAG, WAG-spirit); *ibid.*, 17 Feb. 1992, *Setten, K van 1061* (WAG); *ibid.*, *Veldhuizen, J van 1355* (WAG); *ibid.*, 5 Aug. 1997, *Veldhuizen, J van 1539* (WAG, WAG-spirit). — EQUATORIAL GUINEA, **Bioko**, Fernando Po, c. N3°30' E8°42', July 1860, *Mann, G 8A* (K [K000321374]). — GABON, **Woleu-Ntem**, c. 75 km E of Chantier SEF of Leroy-Abanga, at the end of concession road, c. N0°50' E11°10', 10 July 1985, *Bos, JJ 10571* (LBV, WAG); culta, in greenhouse Wageningen, The Netherlands, No. 85PTGA220, leg. *Bos, JJ 10570* [1]; *ibid.*, 24 Jan. 1985, *Bos, JJ 10828* (WAG). — UNKNOWN, Berggarten, Herrenhausen, sine loco, 21 Feb. 1905, *Hort Bot Herrenhausen s.n.* (K).

**12. *Dracaena laxissima* Engl. — Map 12**

*Dracaena laxissima* Engl. (1892) 478. — Type: *Pogge 1462* (holo B (B\_10\_0160916)), Democratic Republic of the Congo, Mukenge, 18 Feb. 1882.

*Dracaena bequaertii* De Wild. (1921) 37. — Type: *Bequaert 6322* (holo BR (BR0000008808493)), Democratic Republic of the Congo, Mukule-Mokoto, 19 Dec. 1914, *syn. nov.*

*Dracaena thomensis* Dandy in sched.



**Map 11** Distribution of *Dracaena haemanthoides* Bos ex Damen.

**Distribution** — Nigeria, Cameroon, Equatorial Guinea, Sao Tome and Principe, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Rwanda, Burundi, Sudan, Uganda, Kenya, Tanzania, Zambia, Malawi, Mozambique.

**Notes** — *Dracaena bequaertii* was described from a lianescent plant with a shorter inflorescence than the typical *D. laxissima*, but otherwise fits that species' morphology. From studying a large number of herbarium collections, it appears that the inflorescence length in *D. laxissima* can vary between 5 and 50 cm, and hence we do not recognise *D. bequaertii* as a distinct taxon.

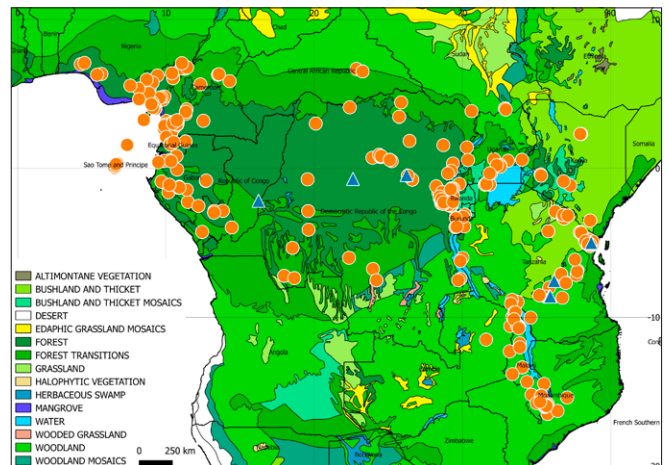
*Dracaena thomensis* was encountered as a name written on the identification slip mounted on the specimen *Quintas 1*, deposited in K (K000255924). The name does not seem to have been formally published.

**13. *Dracaena laxissima* Engl. forma *aureilicia* Wiland & Q.Luke, forma nov. — Plate 4; Map 12**

A form differing from the typical form of *D. laxissima* by distinctive, white cream or yellowish, irregularly undulating bands along transversal veins of the leaves. Flowers greenish white, usually with no pinkish taint, as in the typical form of *D. laxissima*. — Type: *Lisowski, S 80127* (holo POZG 2 sheets), Democratic Republic of the Congo, Orientale, route Kisangani-Lubutu, km 189, près du village Mengwe, S0°26' E26°13', 6 Dec. 1981.

**Etymology.** The transversal bands on the leaves of this form reminds of a golden thread in a green fabric.

**Distribution** — Democratic Republic of the Congo, Tanzania.



**Map 12** Distribution of *Dracaena laxissima* Engl. forma *laxissima* (●) and *Dracaena laxissima* Engl. forma *aureilicia* Wiland & Q.Luke (▲).



**Plate 4** *Dracaena laxissima* Engl. forma *aureilicia* Wiland & Q. Luke, habit and young inflorescence showing typical variegation, *Luke s.n.* — Photo: WRQ Luke.

**Ecology** — Primary, riverine and swamp forest; foodplant for *Artitropa* sp. (S. Collins, pers. comm.), at 300–1600 m altitude. Flowering: February, March.

**Other specimens examined.** DEMOCRATIC REPUBLIC OF THE CONGO, **Bandundu**, Mushie, Bomongo, c. S2°10' E16°14', Feb. 1951, *Flamigni*, A 10269 (BR, WAG); **Equateur**, Ikela, Yalikungu, c. S0°42' E22°36', 28 Nov. 1958, *Evrard*, CM 5258 (BR). — TANZANIA, **Iringa**, Kilolo District, Iyai village, Image Forest Reserve, Mountains Range, Selebu Mountain Base, Ihongole valley, S7°33.4' E36°09.9', alt. 1510–1600 m, 2 Sept. 2011, *Kayombo*, CJ 6963 (TAN, WAG); **Morogoro**, Kilombero District, top end of Kihanzi Gorge, S8°34' E35°51', alt. 1000–1100 m, 17 Apr. 2008, *Bidgood*, GS 6462 (K, P, WAG); culta in Steve Collins' garden Nairobi, Kenya, ex Kihansi Gorge, c. S8°35'149' E35°5059'16', alt. 910 m, 5 Mar. 2010, *Luke Q s.n.* (WAG-photo); **Tanga**, Muheza District, Kwezitu public forest along path to peak between Mkalamo and Gonja subvillages, S4°59.3' E38°40.2', alt. 825 m, 4 Aug. 2000, *Mwangoka*, MA 1594 (MO, POZG).

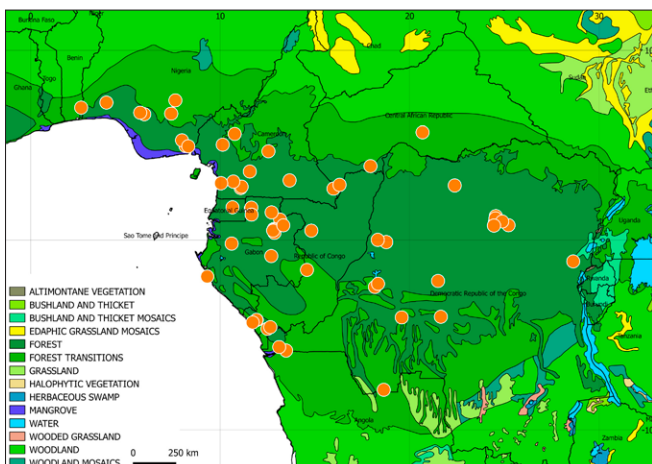
#### 14. *Dracaena mannii* Baker — Map 13

*Dracaena mannii* Baker (1874) 164. — Lectotype (designated here): *Mann* 2329 (lecto K (K000255908); isolecto A, B, K (K000255909, K000255910), P, WAG), Nigeria, River Old Calabar, 1863.

*Dracaena tessmannii* Engl. & K. Krause (1910) 151. — Type: *Tessmann* 358 (holo B (B\_10\_0160913); iso B (B\_10\_0160914), WAG-fragment), Equatorial Guinea, Mabungo, 21 Apr. 1908, *syn. nov.*

*Dracaena usambarensis* Engl. var. *longifolia* De Wild. (1905) 43. — Lectotype (designated here): *Laurent & Laurent s.n.* (lecto BR (BR0000008807427)), Democratic Republic of the Congo, Lisala, 7 Jan. 1904.

**Distribution** — Benin, Nigeria, Cameroon, Equatorial Guinea, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Angola.



**Map 13** Distribution of *Dracaena mannii* Baker.

**Notes** — The protologue of *D. mannii* mentions two collections: *Mann* 2329 and *Thompson s.n.*; Bos (1984) already selected *Mann* 2329 deposited at K as the lectotype for this name. However, this collection is composed of three sheets. Since Bos has clearly annotated sheet K000255908 as lectotype and the others as duplicates, we have herewith made his choice more explicit and limited it to a single sheet, in conformity to Art. 8.2 and 8.3 of the ICN (McNeill et al. 2012).

*Dracaena tessmannii* was described from a plant with the same inflorescence and leaf shape as *D. mannii*. In the protologue, Engler & Krause (1910) compared *D. tessmannii* with *D. fragrans* only. We assume they probably did not see any material of *D. mannii* when describing this new species.

All four syntypes of *D. usambarensis* var. *longifolia* at BR are ± similar in the sense that they are composed only of leaves mounted on a sheet. They were collected at different locations on different dates. The lectotype chosen represents the only specimen with a plant description written on the label. This description is most likely used as the basis for the description in the protologue.

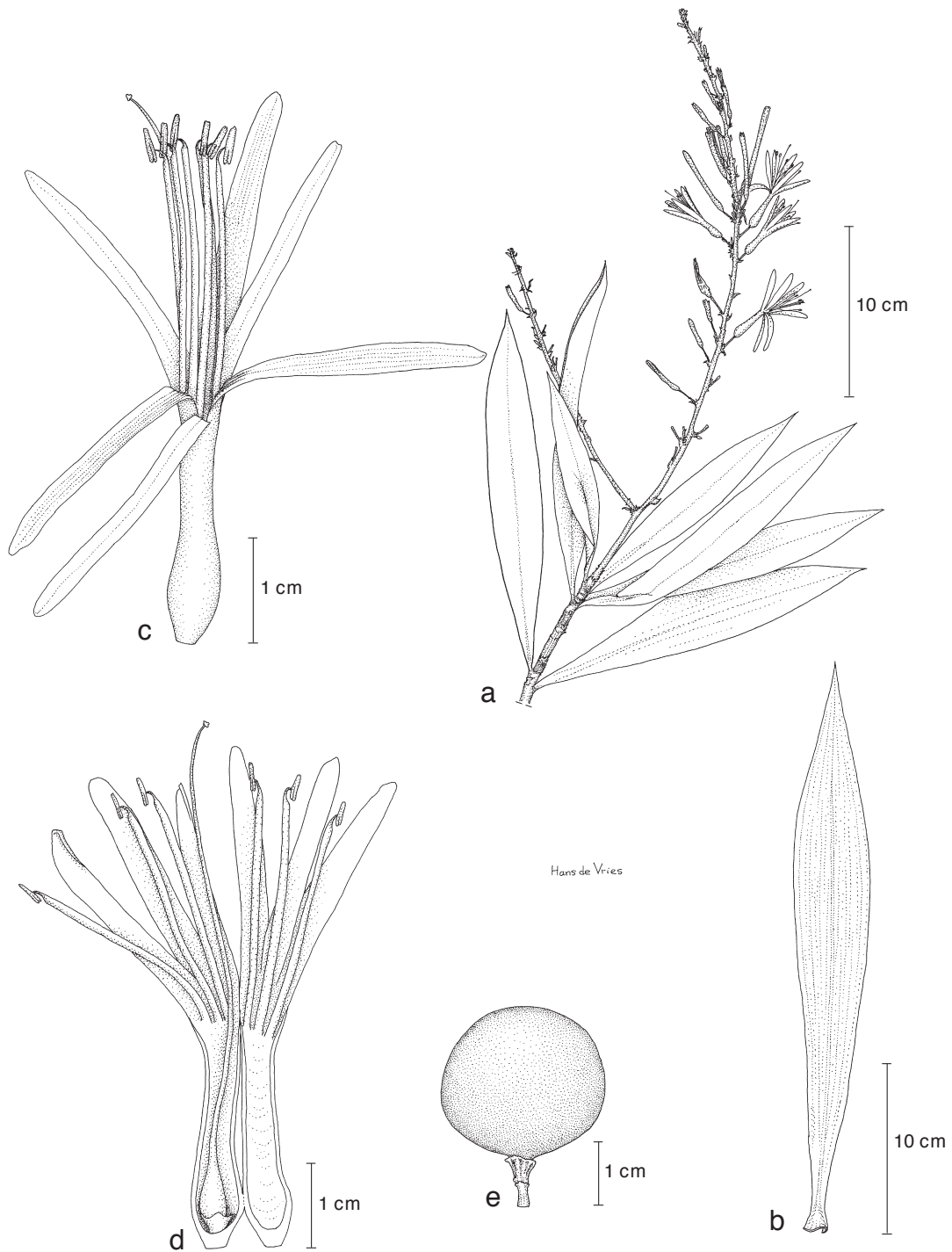
#### 15. *Dracaena marina* Bos ex Damen, *sp. nov.* — Fig. 3; Plate 5, 6; Map 14

*Dracaena marina* is similar to the East African *Dracaena usambarensis* Engl.; it is easily distinguished from that species by the oblanceolate to narrowly oblanceolate leaves, its bright red to yellow inflorescence axes, and the perianth lobes that are longer than the tube. In *D. usambarensis* the leaves are narrow elliptic, the inflorescence axes are green to orange and the perianth lobes are shorter than the tube. — Type: *Breteler* 14640 (holo WAG (WAG0047304); iso LBV (LBV0008874), WAG (WAG0047305), WAG-spirit (WAG0029799)), Gabon, Gamba region. c. S2°40' E10°00', 11 Nov. 1998.

*Dracaena* sp., Keay et al. (1964) 439, based on *Stanfield FHI47067* (not located), Lagos, Apapa.

**Etymology.** Bos already recognised this species as distinct and had provisionally named it *D. marina*, because it is often found close to the ocean. With this name, Bos also wanted to honour Ms Marina Wassink, the former secretary of the Plant Taxonomy Department at Wageningen University, The Netherlands, who had been a great help to him.

Shrub or large tree of up to 40 m high; trunk up to 60 cm diam, forming stilt roots when growing in inundated areas or mangroves; bark smooth to shallowly longitudinally fissured, grey, slash creamy white, not exuding resin; leaves densely set along the branches, tufted at the apex in older specimens, stem visible between the leaves. *Leaves* spirally arranged, sessile; lamina variable, oblanceolate and up to 30 by 9 cm, but on fast growing shoots often narrowly oblanceolate and up to 60 by 8 cm, coriaceous, dark dull green above, pale green with prominent midrib below, secondary veins inconspicuous, base gradually tapering, then abruptly expanding and clasping the stem for 1/2 to 3/4 of its circumference, apex acute to acuminate, mucro c. 3 mm long. *Inflorescence* terminal, erect, a much branched panicle, up to 75 by 55 cm; peduncle smooth, flexible (like rubber), bright yellow to bright red; bracts supporting the branches triangular, up to 10 by 7 mm (distally decreasing in size), early caducous, coriaceous; flowers solitary or arranged in fascicles of up to c. 5, each solitary flower or fascicle subtended by a small triangular, membranous, caducous bract with scarious margin, up to 2 mm long. *Flower*: pedicel bright orange, to 15 mm long, persistent basal part to 13 mm long, surrounded by early caducous scarious floral bracts of c. 1 mm long; perianth creamy white, 35–55 mm long, lobes 24–33 mm long; stamens inserted near the throat, up to 3 mm shorter than the lobes, filaments filiform, white, anthers c. 2.5 mm long, pale yellow; ovary ovoid, 3 by 2.5 mm; style filiform, exerted for up to 3 mm, white, stigma c. 0.5 mm diam. *Fruits* globose to depressed globose, up to 23 by 28 mm, glossy, orange-brown to red, usually with 1 seed, receptacle swollen, up to 6 by 3



**Fig. 3** *Dracaena marina* Bos ex Damen. a. Branch and inflorescence; b. leaf; c. flower; d. dissected flower; e. fruit (a, c–d: *Breteler* 14640; b: *Damen* 671; e: *Louis*, AM 4034). — Drawing by Hans de Vries.

mm wide, mesocarp orange. *Seeds* depressed globose, 17 by 22 mm, shallowly bilobed, smooth, brown; endosperm slightly transparent white.

**Distribution** — Benin, Nigeria, Cameroon, Gabon, Republic of the Congo, Democratic Republic of the Congo, Angola.

**Ecology** — Primary and secondary forest, in swamp or mangrove vegetation, on sandy soil; at 0–200 m altitude. Flowering: January, March, June, August to November.

**Uses** — Fruits are eaten by rodents (fide *Wieringa* 5044).

**Vernacular names** — Alenokue (Pahouin de Libreville) (fide *Fleury in Chevalier* 33649); Mungonga (fide *Vermoesen* 1189).

**Other specimens examined.** ANGOLA, **Zaire**, Lower Congo river, Santo Antonio do Zaire. c. S6°08' E12°23', 14 Nov. 1922, *Gossweiler*, J 8505 (K). — BENIN, **Ouémé**, Adjarra, Adjarra-Anagodomé, N6°32.2' E2°40.3', 8 Feb. 2000, *Akoëgninou*, A 3090 (BENIN, BR, MO, WAG). — CAMEROON, **South-West**, au

delà de la rivière Banan, sur piste de Tabo à Agborkem, c. N5°46' E9°07', 4 June 1975, *Letouzey*, R 13727 (K, P, WAG, YA). — DEMOCRATIC REPUBLIC OF THE CONGO, **Bas-Congo**, Kinshasa, Lukula, Luki, vallée Lusona, c. S5°38' E13°04', 1 June 1948, *Donis*, C 1787 (BR, WAG); Boma, environs de Malela, c. S5°59' E12°37', 28 Dec. 1918, *Vermoesen*, FMC 1241 (BR, K, P); *ibid.*, 23 Dec. 1918, *Vermoesen*, FMC 1189 (BR). — GABON, **Estuaire**, Moka creek, E of Moudah River, N0°39' E9°28', alt. 5 m, 24 July 1985, *Bos*, JJ 10800 (WAG); Alenokue, environs de Libreville, c. N0°25' E9°26', May 1917, *Fleury in Chevalier*, AJB 33649 (LBV, P, WAG); Mondah ecotour forest, N0°34.54' E9°20.09', alt. 53 m, 17 Mar. 2015, *Damen*, THJ 671 (BG NL07-living plant, BR, LBV, WAG); Parc National de la Pongara, forêt c. 3 km au sud de la pointe Kenguéré, N0°10.8' E9°20.4', alt. 25 m, 16 Jan. 2007, *Dauby*, GV 95 (BRLU, MO); Ekouk, piste du nouveau campement, S0°10' E10°15', 30 Sept. 1983, *Floret*, JJ 1576 (MO, P, WAG); Bord du Layon N 20 à 900 m de la route Cap Esterias, forêt de la Mondah, N0°34' E9°22', 3 Dec. 1970, *Gavage*, A 7 (BR, K, WAG); Mt Bouet, N0°26' E9°28', 9 Aug. 1898, *Klaine*, T-J 162a (P, WAG); environs de Libreville, c. N0°25', E9°27', 1896, *Klaine*, T-J 400bis (BR, FHO, IFAN, P); *ibid.*, 20 Aug. 1902, *Klaine*, T-J 455a (P);



Plate 5 *Dracaena marina* Bos ex Damen, coloured old infructescence; Damen 671. — Photo: THJ Damen.

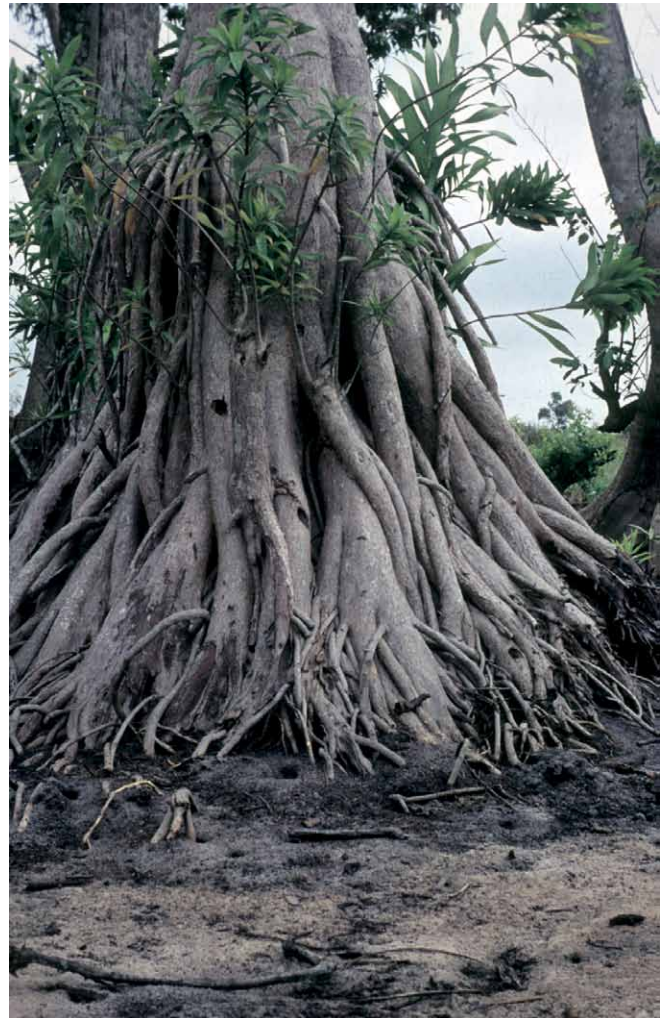
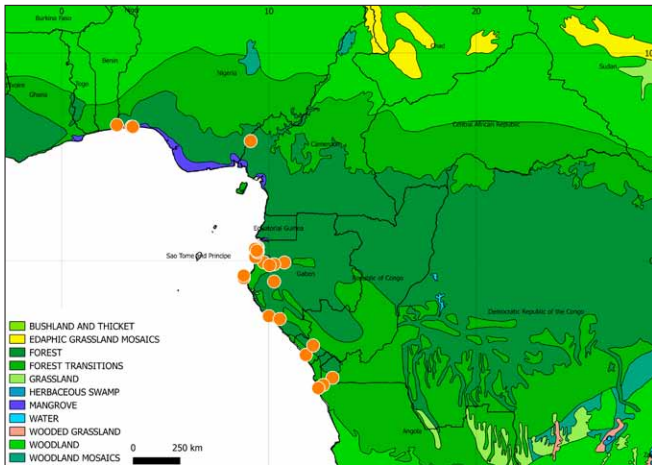


Plate 6 *Dracaena marina* Bos ex Damen, old specimen in inundated forest; Breteler & Raalte s.n. — Photo: FJ Breteler.



Map 14 Distribution of *Dracaena marina* Bos ex Damen.

Malibé-mangrove, N0°36' E9°26', 2 Oct. 1985, *Louis*, AM 1829 (LBV, WAG); bord Remboué, S0°04' E9°45', alt. 5 m, 19 Dec. 1990, *Louis*, AM 3282 (LBV, MO, WAG); au platform de forage, Remboué, S10°13', E10°02', 21 Jan. 1991, *Louis*, AM 3289 (LBV, MO, WAG); secondary forest, c. 15 km north of Libreville, N0°34' E9°21', 18 Mar. 1987, *Reitsma*, JM 3184 (LBV, MO, NY, WAG); Okala, north of Libreville, terrain de Montigny à Okala (Libreville), N0°29' E9°25', alt. 10 m, 12 Feb. 2014, *Stévant*, TOBEB 4792 (BRLU, L, LBV, MO, P, WAG); road from Libreville to Cape Esterias, c. N0°31' E9°22', alt. 20 m, 21 Jan. 1993, *Wiide*, JJFE de 10885 (MO, WAG); **Moyen-Ogooué**, Missanga, 10–20 km N of Ndjolé, c. S0°05' E10°45', 13 Nov. 1991, *Breteler*, FJ 10449 (LBV, MO, WAG); SW de Lambaréné, Lac Ezanga, c. S1°00' E10°15', 29 May 1963, *Hallé*, N 2091 (P); **Nyanga**, forestry concession of Baker, 13 km NNE of Igotchi, S2°48.07' E10°31.45', alt. 200 m, 31 Oct. 2003, *Wieringa*, JJ 5044 (LBV, WAG); **Ogooué-Maritime**, Port Gentil, c. S0°43' E8°47', 11 Sept. 1968, *Breteler*, FJ s.n. (WAG-photo); Port Gentil, savane sur sable vers Tchengué, S0°50' E8°47', 23 June 1993, *Louis*, AM 4034 (LBV, WAG). — NIGERIA, **Lagos**, Flora Austro-Nigritina, S Nigeria, Lagos (Ikoyi), c. N6°27' E3°26', 26 Apr. 1950, *Bels*, L 89 (U); Lagos, c. N6°27' E3°23', Apr. 1883, *Moloney*, CA 2 (K). — REPUBLIC OF THE CONGO, **Kouilou**, Kouilou, Tchissanga (10 km de Bas-Kouilou), c. S4°32' E11°47', 3 Jan. 1991, *Dowsett-Lemaire*, F 1500 (BR, WAG); Sounda, c. S4°05' E12°08', 7 Feb. 1987, *Foresta*, H de 1255 (P).

Notes — Although we have not been able to trace *Stanfield FHI47067*, Keay's description of an unidentified arborescent *Dracaena* based on this specimen leaves little doubt that it is conspecific with *D. marina*. It also matches the location of other specimens of *D. marina*.

*Dracaena marina* can be confused with *D. mannii* since it keys out as such in Bos (1984, 1992), Mwachala & Mbugua (2007) and La Croix (2010). It is easily distinguished from *D. mannii* by its flowers being less than half as long as those of *D. mannii*.

## 16. *Dracaena nitens* Welw. ex Baker — Map 15

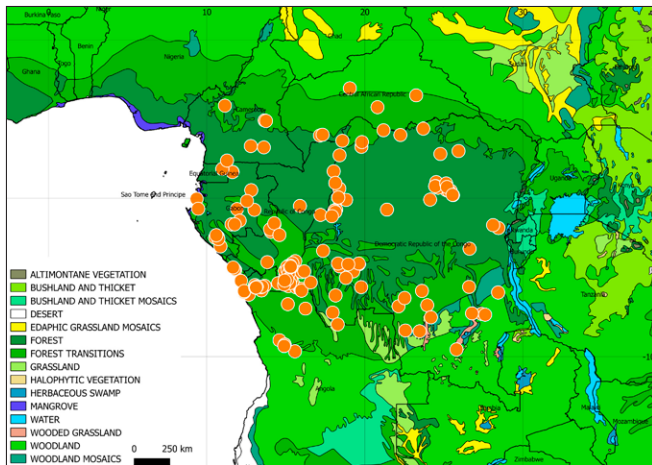
*Dracaena nitens* Welw. ex Baker (1878) 252. — Lectotype (designated here): *Welwitsch* 3743 (lecto BM [BM000911615]), Angola, Zenza do Golungo Alto, Sept. 1857.

*Dracaena reflexa* Lam. var. *buchneri* Engl. (1902) 96. — Syntypes: *Büttner* 531 (B†), Democratic Republic of the Congo, Dinga am Quango, Aug. 1885; *Buchner* 684 (B†), Democratic Republic of the Congo, Kehungula am Lovo und Mukinsh in Muata Yamvos-Reich, Nov. 1880, *syn. nov.*

Distribution — Cameroon, Equatorial Guinea, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Angola.

Notes — *Dracaena mannii*, *D. perrottetii* and *D. usambaren-sis* are very similar to *D. nitens* and according to Bos (1984) even represent synonyms of the same species. However, *D. nitens* differs from the other species in having flowers 23–37 mm long and linear to narrowly elliptic leaves of up to only 1.5 cm wide, and is reinstated here.

The protologue of *D. nitens* does not cite any specimens, but it should be a plant collected by *Welwitsch* in Golungo Alto or Pungo Andongo, bearing flowers in September. The *Welwitsch* 3743 specimen deposited in BM carries a plant description in the hand of Baker. This description is obviously used as the basis for the description in the protologue of *D. nitens*. Also, on this sheet we find the annotation 'Lectotype' written by Bos. Therefore, we here follow Bos's suggestion and have chosen this specimen as the lectotype for *D. nitens*. Although there are several other *Welwitsch* collections (at COI, G, K, LISU, P and WAG) bearing the number 3743, it is known that *Welwitsch*



Map 15 Distribution of *Dracaena nitens* Welw. ex Baker.

regularly gave plants collected on different dates and localities the same number (Albuquerque et al. 2009). Since there is no indication that the other sheets represent the same collection (actually, some bear a different date) these are disregarded as isolectotype material.

Both syntypes of *D. reflexa* var. *buchneri* could not be located at B, and are likely to have been destroyed. No duplicates could be found elsewhere, but it is still possible one may show up in, for example, LE or UC. Also, in the absence of any suitable material to serve as a neotype, we have for the moment refrained from designating one. The analysis in the protologue and the location fit within the range of *D. nitens*, which is why we consider this variety to belong to that species.

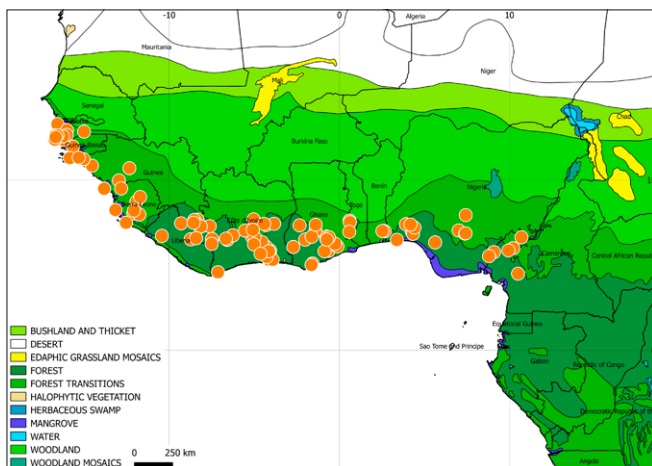
**17. *Dracaena perrottetii* Baker — Map 16**

*Dracaena perrottetii* Baker (1874) 165. — Lectotype (designated by Bos 1984): *Perrottet* 785 (lecto G [G00018458]; isolecto K, P (2 sheets), WAG-spirit), Senegal, Casamance, 5 Apr. 1829.

*Dracaena perrottetii* Baker var. *minor* Baker (1875) 529. — Type: *Heudelot* s.n. (holo K [K000255907]; iso P [P02152538, P02152539]) (erroneously cited in Bos (1984) as *Heudelot* 2838), Guinea, Rio Nunez, 1838, *syn. nov.* *Pleomele heudelotii* N.E.Br. (1914) 278. — Type: as for *D. perrottetii* var. *minor*, *syn. nov.*

Distribution — Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon.

Notes — *Dracaena nitens*, *D. mannii*, and *D. usambarensis* are very similar to *D. perrottetii* and according to Bos (1984) are even synonyms of the same species. However, *D. perrottetii*



Map 16 Distribution of *Dracaena perrottetii* Baker.

differs from the other species in having subfalcate leaves usually wider than 1.5 cm, and is reinstated here.

*Dracaena perrottetii* var. *minor* was described from a plant with smaller leaves and a simple inflorescence. Studied material shows that leaves in *D. perrottetii* are polymorphic and that both branched and unbranched inflorescences occur even on the same plant. Therefore we do not recognise such a form as a distinct taxon.

*Pleomele heudelotii* was described based on the same material as *D. perrottetii* var. *minor*.

**18. *Dracaena sanderiana* Sander ex Mast. — Plate 7; Map 17**

*Dracaena sanderiana* Sander ex Mast. (4 June 1892) 731. — Neotype (designated here): *Gard. Chron.*, ser. 3, 13: 445 (1893), f. 65 (iconotype).

*Dracaena poggei* Engl. (10 June 1892) 478. — Lectotype (designated here): *Pogge* 1434 (lecto B (B\_10\_0160840)), Democratic Republic of the Congo, am Lomami, 30 May 1882, *syn. nov.*

*Dracaena vanderystii* De Wild. (1915) 7. — Lectotype (designated here): *Vanderyst* 2003 (lecto BR (BR0000008807540)), Democratic Republic of the Congo, Lazaret S. Jules, Wombali, Aug. 1913, *syn. nov.*

Distribution — Cameroon, Gabon, Central African Republic, Republic of the Congo, Democratic Republic of the Congo, Angola.

Notes — *Dracaena sanderiana* was first exhibited by Hort. Sander in Earl's Court (1892), and published the same year with a description, but without illustration. Original material of the plant exhibited has not been traced and has probably not been conserved. One year later, *D. sanderiana* was exhibited by Hort. Sander in Ghent and an illustration was published in *Gard. Chron.*, ser. 3, vol. 13 (1893). This illustration most likely represents the same plant as originally exhibited in 1892 and is hence chosen here as the neotype.

*Dracaena sanderiana* is an important indoor ornamental plant (Morsy & Elshahawy 2016) also sold under the name *D. braunii* and 'Lucky Bamboo' (Aslam et al. 2013). According to The World

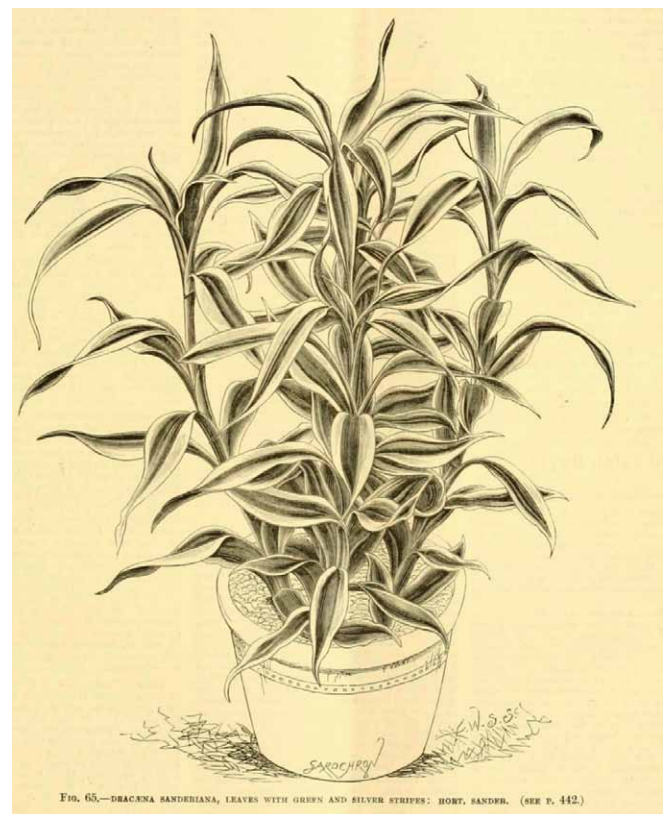
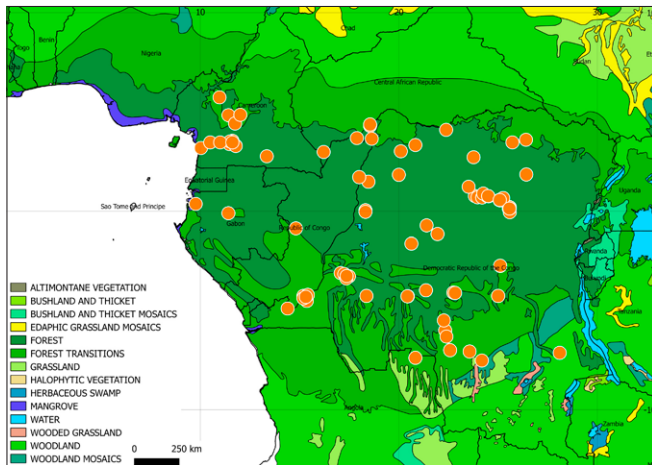


Plate 7 Iconotype *Dracaena sanderiana* Sander ex Mast. in *Gard. Chron.*, ser. 3, 13: 445 (1893), f. 65.



Map 17 Distribution of *Dracaena sanderiana* Sander ex Mast.

Checklist of *Asparagaceae* (Govaerts et al. 2017), *D. sanderiana* is a synonym of *D. braunii*, but unfortunately no reference is given to the origin of this information. We have not found any revision or flora that underlines this statement, although Baker (1898) stated that *D. sanderiana* is similar to *D. braunii*, he surely did not regard them as conspecific.

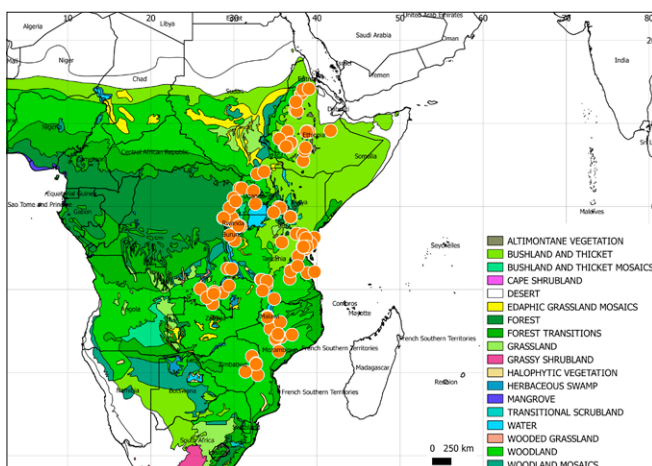
The flowers of *D. sanderiana* are 5 times longer than those of *D. braunii*, while the leaf base is not congested as in *D. braunii*. Here we treat them as distinct taxa.

The inflorescence of *D. poggei* fits well within the range of *D. sanderiana* and the type material represents nothing more than a non-variegated form of *D. sanderiana*. Reason why we do not recognise this form as a distinct taxon. Luckily, the publication of *D. sanderiana* predates that of *D. poggei* only by a few days, so that the first can be maintained for this important ornamental.

*Dracaena vanderystii* was described from a plant with comparatively narrow leaves. The inflorescence fits well within the range of *D. sanderiana* and observations in herbaria, in the field and on cultivated material all show that leaf shape within *Dracaena* is highly variable. Therefore, we do not recognise this form as a distinct taxon. In his unpublished PhD thesis, Mwachala (2005) designated the same lectotype for *D. vanderystii*, but stated it was to be found in P. This is probably a typo which is corrected here.

### 19. *Dracaena steudneri* Engl. — Map 18

*Dracaena steudneri* Engl. (1895) 143. — Type: *Steudner 477* (holo B; iso BR-photo (BR0000009888289), S (S06-4677)), Ethiopia, Dschibba, 30 Nov. 1861.



Map 18 Distribution of *Dracaena steudneri* Engl.

Distribution — Democratic Republic of the Congo, Rwanda, Burundi, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe.

Note — The only material cited in the protologue is *Steudner 477* from Dschibba, Gondar. Both Bos & Teketay (1997) and Mwachala & Mbugua (2007) cited the holotype as being destroyed in B. However, we found this specimen filed under *Dracaena deisteliana* Engl. in the herbarium in Berlin.

### 20. *Dracaena tholloniana* Hua — Map 19

*Dracaena tholloniana* Hua (1897) 662. — Type: *Thollon 91* (holo P (P00442286); iso K-fragment & drawing (K000255934), P (P00442285)), Gabon, Ogooué, N'Djolé, Jan. 1895.

*Dracaena longipetiolata* Mwachala & Eb.Fisch. (2013) 442. — Type: *Hallé & Villiers 5362* (holo P [P02058236]), Gabon, Monts de Cristal, 12 km SW de Kingué, 18 Feb. 1966, *syn. nov.*

*Dracaena monostachya* Baker var. *angolensis* Baker (1898) 447. — Lectotype (designated by Bos 1984): *Welwitsch 3745* (lecto BM [BM000911609]), Angola, Golungo Alto, Apr. 1856, *syn. nov.*

Distribution — Cameroon, Gabon, Republic of the Congo, Democratic Republic of the Congo, Angola.

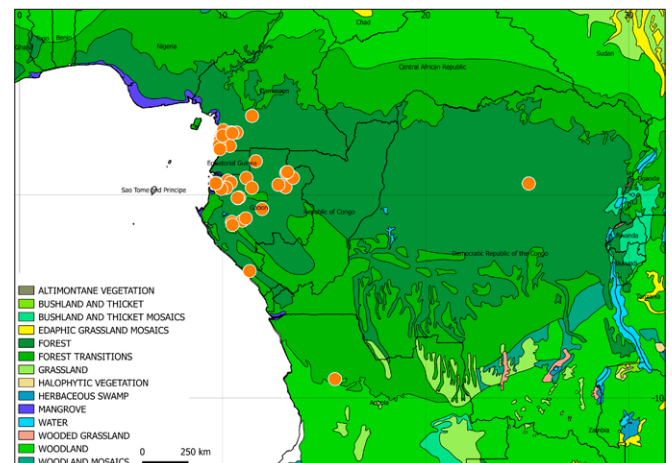
Notes — *Dracaena tholloniana* is very similar to *D. aubryana* Brongn. ex É.Morren and are synonyms according to Bos (1984). *Dracaena tholloniana* is reinstated here, because it differs from *D. aubryana* in having flowers of only 8–13 mm long, subtended by 0.5–1 mm long bracts. *Dracaena aubryana* has flowers 23–38 mm long, with bracts of 1–1.5 mm long.

The protologue of *D. tholloniana* cites *Thollon 31* as the type and states 'Ndjolé, sur le haut Ogooué, sous-bois, fl. Janvier 1895'. However, at P, *Thollon 31* represents an *Asteraceae* (*Eclipta prostrata* (L.) L.) with a different date and location. Both Bos (1992) and Mwachala & Mbugua (2007) cite *Thollon 91* as the holotype for *D. tholloniana* but give no reason for this change in number. They probably, as we, assume it was a printing error.

There are two duplicates of *Thollon 91* at P (P00442286, P00442285), the specimen with barcode P00442286 matches the locality data and collecting date mentioned in the protologue and is annotated '*Dracaena tholloniana* Hua' in Hua's handwriting.

*Dracaena longipetiolata* was described from a fruiting specimen with a long petiole. However, such long petioles are also found in specimens otherwise perfectly fitting within *D. tholloniana*, while intermediates also exist. Furthermore, the infructescence also fits within the range of *D. tholloniana*. Therefore, we do not recognise this form as a distinct taxon.

According to Bos (1984), *Dracaena monostachya* var. *angolensis* is synonym of *D. aubryana* s.lat. It was described from



Map 19 Distribution of *Dracaena tholloniana* Hua.

a plant with a short peduncle and leaves with a rounded base and long petiole. These characters fit those of *D. tholloniana*, as does the lectotype chosen earlier by Bos.

## 21. *Dracaena usambarensis* Engl. — Map 20

*Dracaena usambarensis* Engl. (1895) 144. — Neotype (designated here): *Volkens 65* (neo K-photo; isoneo BR-photo (BR0000021770135)), Tanzania, zw. Magali und dem Sigi, 24 Jan. 1893.

*Dracaena gazensis* Rendle (1911) 214. — Lectotype (designated here): *Swynnerton 80* (lecto BM (BM000911614)), Zimbabwe, near Chirinda, 10 Oct. 1905, *syn. nov.*

*Dracaena pseudoreflexa* Mildbr. (in Mildbraed & Perkins 1910) 63. — Lectotype (designated here): *Wiss. Ergebn. Deut. Zentr.-Afr. Exped., Bot.* (1907–1908) Taf. V, G–K (iconotype), *syn. nov.*

*Dracaena brachythyrsa* Peter in sched.

*Dracaena usambarensis* Engl. var. *angustifolia* Peter in sched.

Distribution — Democratic Republic of the Congo, Burundi, Kenya, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe, South Africa.

Notes — *Dracaena nitens*, *D. mannii*, and *D. perrottetii* are very similar to *D. usambarensis* and according to Bos (1984) are synonyms of the same species. However, *D. usambarensis* is easily distinguished from the others by its large flowers of 40–55 mm long and is reinstated here.

Three syntypes of *D. usambarensis* are mentioned in the protologue: one collected at Quilimane (probably a *Stuhlmann* collection), *Volkens 65* and *Volkens 1938*. We could not find this material in B and assume it was destroyed during the WWII bombing of the Berlin-Dahlem herbarium. The only material we could trace was found in K and BR and represent photos of the herbarium sheets *Volkens 65* and *Volkens 1938*. We agree with Mildbraed (Mildbraed & Perkins 1910) that *Volkens 1938* belongs to *D. afromontana* Mildbr. and should be excluded. The photos of *Volkens 65* match the description in the protologue and has been of great help in fixing the application of the name *D. usambarensis*. The photo in K is bigger and clearer than that in BR. Therefore, we have chosen the photo of *Volkens 65* in K as the neotype of *D. usambarensis*.

*Dracaena brachythyrsa* is an unpublished name written on the label mounted on *Peter 13906* deposited in B (B\_10\_0184055) and WAG (WAG.1154506).

The protologue of *D. gazensis* cites two syntypes with different locality data and collecting date, but with one collection number *Swynnerton 80* and so a lectotype has to be assigned. Bos recognised this and annotated the BM specimen BM000911614 as lectotype but never formalized his choice. We agree with Bos that the BM specimen with both leaves and an inflorescence is most suited to serve as the lectotype. The other duplicate in BM, with different date, and the specimens in Z and K that carry

a different number, *Swynnerton 80a*, are disregarded. We also disregard the specimen *Swynnerton 80b* from SRGH mentioned in Flora Zambesiaca as the holotype for *D. gazensis* (La Croix 2010), although we did not see material of this specimen.

*Dracaena gazensis* was described from a plant with the same inflorescence type, flower length and leaf shape as *D. usambarensis*. In the protologue, Rendle only compared *D. gazensis* with *D. deremensis* Engl.; he probably had not seen any material of *D. usambarensis* when describing his new species.

The protologue of *D. pseudoreflexa* cites two syntypes, *Mildbraed 2813* and *Mildbraed 2175*. Both specimens are probably lost at B during WWII and we could only trace photos of *Mildbraed 2813* in K and BR. The drawing in the protologue is the only original material left and has enough detail to fix the application of this name; therefore we have chosen this drawing as a lectotype for *D. pseudoreflexa*.

Mwachala & Mbugua (2007) cites a specimen *Mildbraed 2813* deposited in B as the holotype of *D. pseudoreflexa*, hence ignoring the syntype *Mildbraed 2175*. We have not been able to trace *Mildbraed 2813* in B.

*Dracaena pseudoreflexa* was described from a plant with smaller leaves than the typical *D. usambarensis*. Leaf shape within *D. usambarensis* is highly variable and intermediates also exist (Damen, pers. obs.). We do not recognise this form as a distinct taxon. Mildbraed also mentioned that the tube length equals the lobes in the flower of *D. usambarensis* compared to the lobes being shorter than the tube in *D. pseudoreflexa*. The protologue of *D. usambarensis* has no information about the length of the lobes and we only found specimens with lobes shorter than the tube.

*Dracaena usambarensis* var. *angustifolia* is an unpublished name written on the label mounted on *Peter 18536* deposited in B, BR [BR0000025334135] and WAG [WAG.1154504] [WAG.1154505].

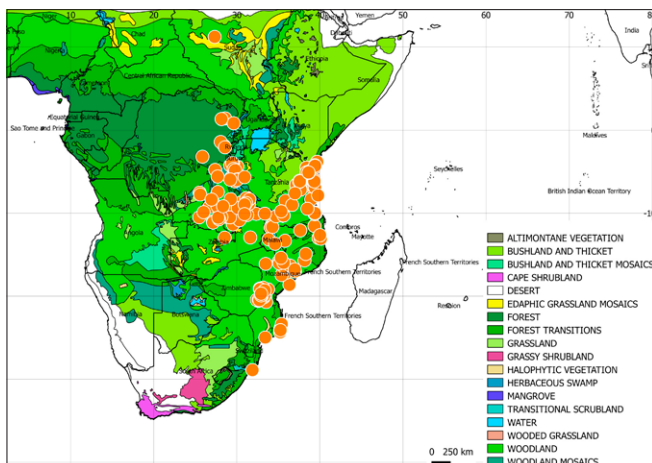
## 22. *Dracaena viridiflora* Engl. & K.Krause — Map 21

*Dracaena viridiflora* Engl. & K.Krause (1910) 153. — Type: *Zenker 3223* (holo B (B\_10\_0160837); iso BM, BR, G, K, MICH, WU), Cameroon, Bipindihof, July 1904.

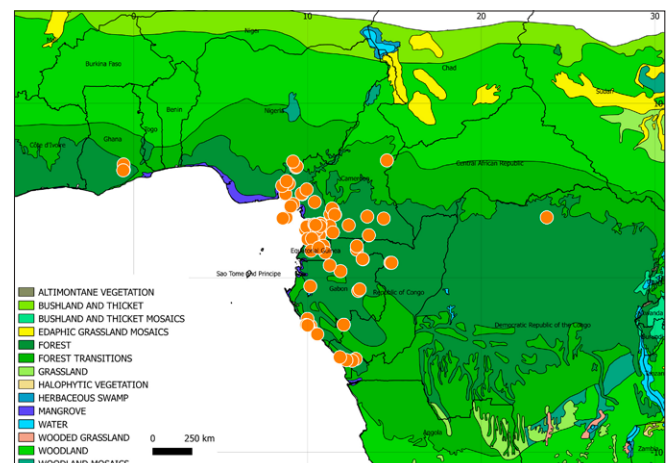
*Dracaena letestui* Pellegr. (1930) 571. — Type: *Le Testu 1376* (holo P (P00442292); iso BR, P (2 sheets) (P00442291, P00442290), WAG), Gabon, Boumé-Boumé, 28 Aug. 1908, *syn. nov.*

*Dracaena mildbraedii* K.Krause (1914) 447. — Type: *Mildbraed 4976* (holo B (B\_10\_0160841); iso HBG (HBG-513964)), Cameroon, Bezirk Molundu, zwischen Jukaduma (Posten Plehn) und Assobam, 14°36'–14°10'Ö.L. 3°24'N.B., 17 Apr. 1911, *syn. nov.*

*Dracaena ledermannii* Engl. & K.Krause (1910) 152. — Neotype (designated here): *Ledermann 6119* (neo B (B 10 0715949)), Cameroon, zwischen Boëck und Bare, 14 Nov. 1909, *syn. nov.*



Map 20 Distribution of *Dracaena usambarensis* Engl.



Map 21 Distribution of *Dracaena viridiflora* Engl. & K.Krause.

Distribution — Ghana, Nigeria, Cameroon, Equatorial Guinea, Gabon, Republic of the Congo, Democratic Republic of the Congo, Angola (Cabinda).

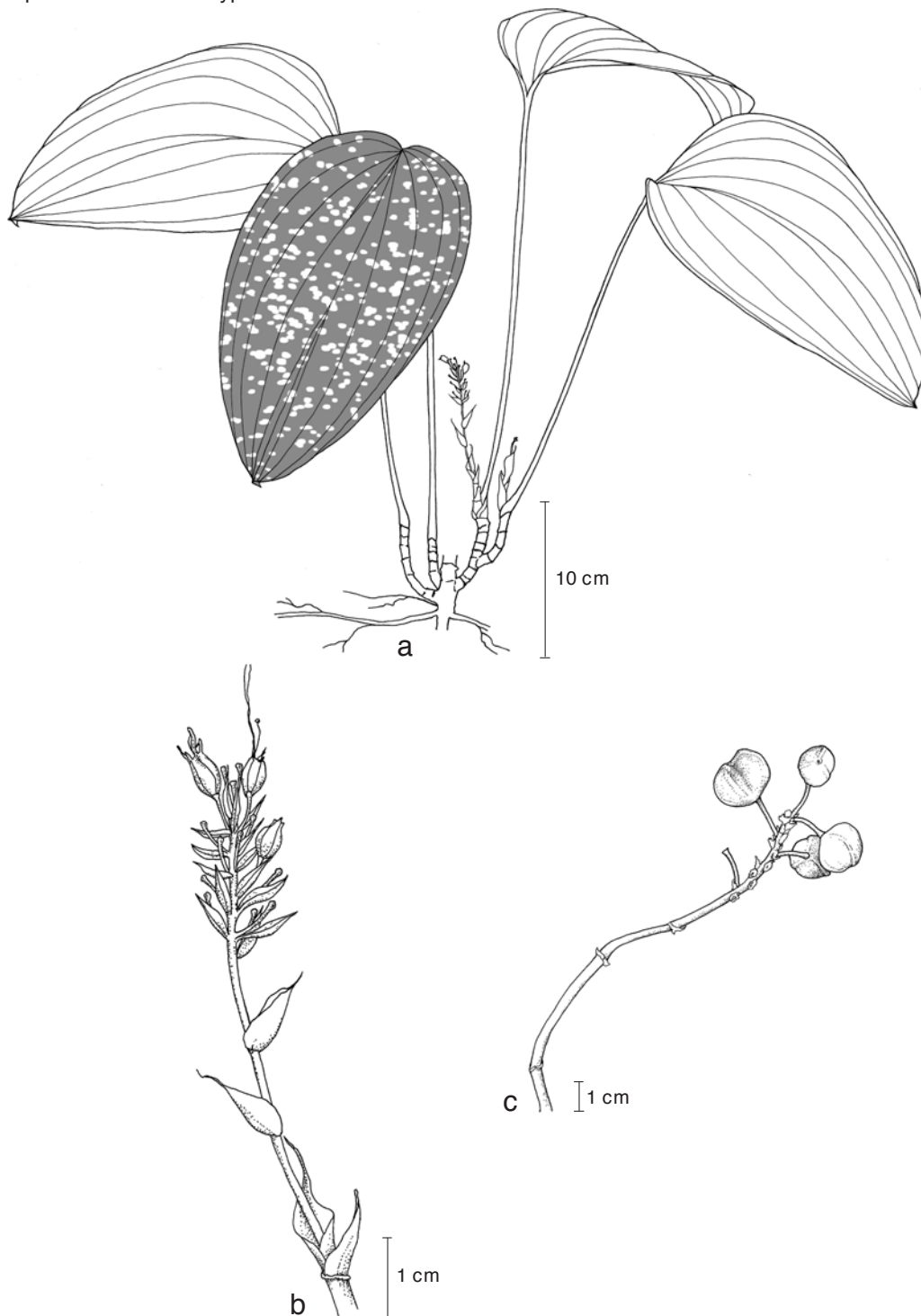
Notes — Both *D. letestui* and *D. mildbraedii* were described from plants with long linear leaves. From observations in the herbarium and during fieldwork, we have observed leaves of *D. viridiflora* to be extremely variable even on the same plant. Therefore, we do not recognise these forms as distinct taxa.

The type specimen of *D. ledermannii*, *Ledermann 1483*, the only specimen cited in the protologue, was probably lost at B during WWII. However, B also holds the specimen *Ledermann 6119*, which is annotated by Krause (S. Bollendorff & P. Hiepko, pers. comm.) as *D. ledermannii* and fits the description provided in the protologue. We have identified it as belonging to *D. viridiflora* and chosen that specimen as the neotype for *D. ledermannii*.

**23. *Dracaena wakaensis* Damen & Quiroz, sp. nov.** — Fig. 4; Plate 8; Map 22

*Dracaena wakaensis* is very similar to *Dracaena phanerophlebia* Baker and *D. phrynioides*. The inflorescence is less densely capitate, while the seeds in *D. wakaensis* are regularly ellipsoid and not lobed as those of *D. phanerophlebia*, nor horned as in *D. phrynioides*. When sterile, it differs from both in its shorter stem and smaller leaves. It resembles *Dracaena praetermissa* Bos from West Africa and has the same raceme shape, but the fruits of the latter are horned, and the peduncle is scabrid. — Type: *Quiroz-Villarreal et al. 1782* (holo WAG (WAG.1924698); iso LBV), Gabon, Ngounié Prov., Département de Tsamba-Magotsi, District d'Ikobey, Tranquille, S1°03.33' E11°04.15', alt. 751 m, 11 Oct. 2012.

*Etymology.* The type was collected by Ms DK (Diana) Quiroz-Villarreal, at the edge of Parc National de Waka.



**Fig. 4** *Dracaena wakaensis* Damen & Quiroz. a. Habit; b. old inflorescence; c. flower; d. infructescence (a–b: *Quiroz-Villarreal 1782*; c: *Louis, AM 2749*). — Drawing by Kinga Berdysz.



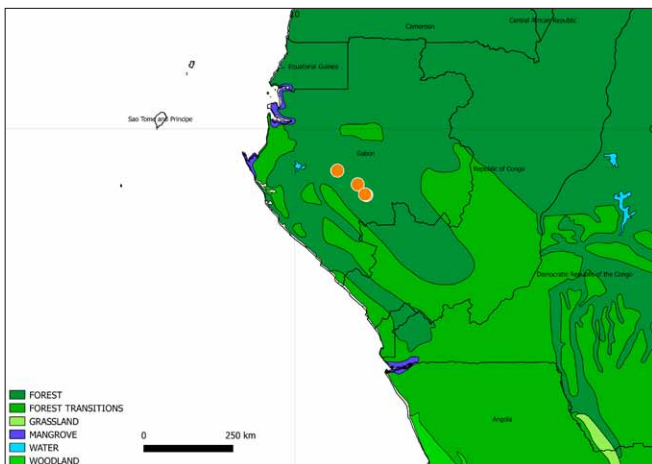


**Plate 8** *Dracaena wakaensis* Damen & Quiroz, showing leaf variegation; *Damen 610*. — Photo: THJ Damen.

Subshrub of up to c. 70 cm high, single-stemmed; stem usually unbranched, prostrate, to c. 5 cm high. *Leaves* up to 4, in a rosette; pseudopetiole erect, slender, up to 52 cm long, terete, dark green, margin involute, abruptly extended into a short c. 1 cm long dark green to violet sheathing base, clasping the stem for more than its circumference; lamina ovate to broadly ovate, to 23 by 11 cm, coriaceous, plicate, above glossy and uniformly dark green, below paler green, both surfaces variegated with transversely orientated greenish yellow to white round to oval dots, midrib inconspicuous, with up to c. 8 parallel nerves impressed above and prominent below, remaining nerves and venation inconspicuous, but conspicuous in herbarium specimens, base rounded, leaf tip declinate, broadly cuspidate, mucro c. 4 mm long. *Inflorescence* terminal, erect; peduncle smooth, c. 7 cm long; raceme c. 3 cm long; bracts up to 6, early caducous, broadly triangular to cymbiform, 10 by 8 mm, with aristate tip of up to 6 mm long, scarios, distally decreasing in size, sheathing at the base of the inflorescence to amplexicaul at its apex. *Flower*: pedicel up to 5.5 mm long, articulated near the apex; old dried flower 20 mm long, colour unknown, tube 6 mm long; filaments and anthers not seen; ovary ovoid, up to 4 by 2 mm, style not seen. *Fruits* depressed globose, up to 15 by 20 mm, shallowly 1–3-lobed, bright orange-red. *Seeds* ellipsoid, c. 7.5 by 5 mm, with a smooth testa.

*Distribution* — Endemic to Gabon, only known from the Ngounié province.

*Ecology* — Growing in old secondary forest and on relatively dry forested slope near waterfall; at 700–950 m altitude. Occasionally forming a population covering several square meters.



**Map 22** Distribution of *Dracaena wakaensis* Damen & Quiroz.

Flowering period unknown, but old inflorescence in September; fruiting in February.

*Uses* — Numerous bunches planted at 1 by 1 m by village women ‘pour faire faro’ (fide *Hallé & Cours Darne 5982*); the most important plant of Boo women initiation rites (fide *Quiroz-Villarreal et al. 1782*).

*Vernacular name* — Endo (Babongo) (fide *Quiroz-Villarreal et al. 1782*).

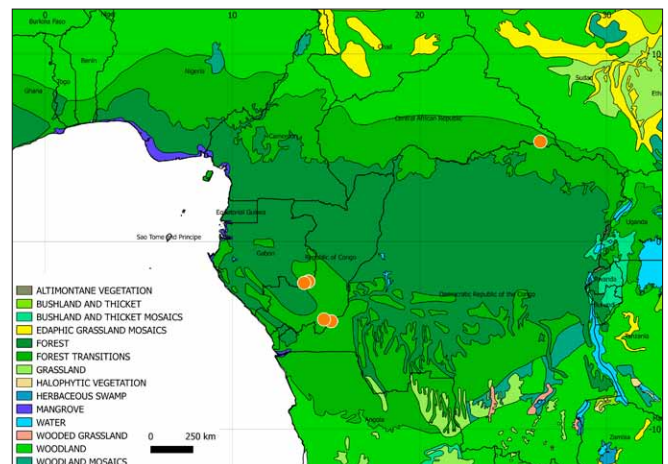
*Other specimens examined*. GABON, **Ngounié**, piste de Massima à Moumba, env. d’Etéké, c. S1°24’ E11°35’, alt. 700–800 m, 17 May 1963, *Hallé, N 5982 (P)*; route Mimongo-Mbigou à 5 km du village Ibagu vers Mbigou, vers montagne Ngangilé, S1°40’ E11°48’, alt. 950 m, 13 Feb. 1988, *Louis, AM 2749 (LBV, WAG)*; missionary station at Mouyanama, c. 15 km on the road Mimongo - Mbigou (60 km along the road from Mbigou), waterfall at c. 45 min. walking distance above the mission compound, c. S1°39’ E11°46’, alt. 700 m, 9 Feb. 1983, *Wilde (WALK-B), JJFE de 481 (WAG)*; culta in ‘greenhouse’ WAG (leg. *Quiroz-Villarreal, DK, 1782*, 11 Oct. 2012, département de Tsamba-Magotsi, district d’Ikobey, Tranquille, S1°03.33’ E11°04.15’, alt. 751 m), Nov. 2012, *Damen, THJ 610 (WAG)*.

**24. *Dracaena waltersiae* Damen, sp. nov.** — Plate 9, 10; Map 23

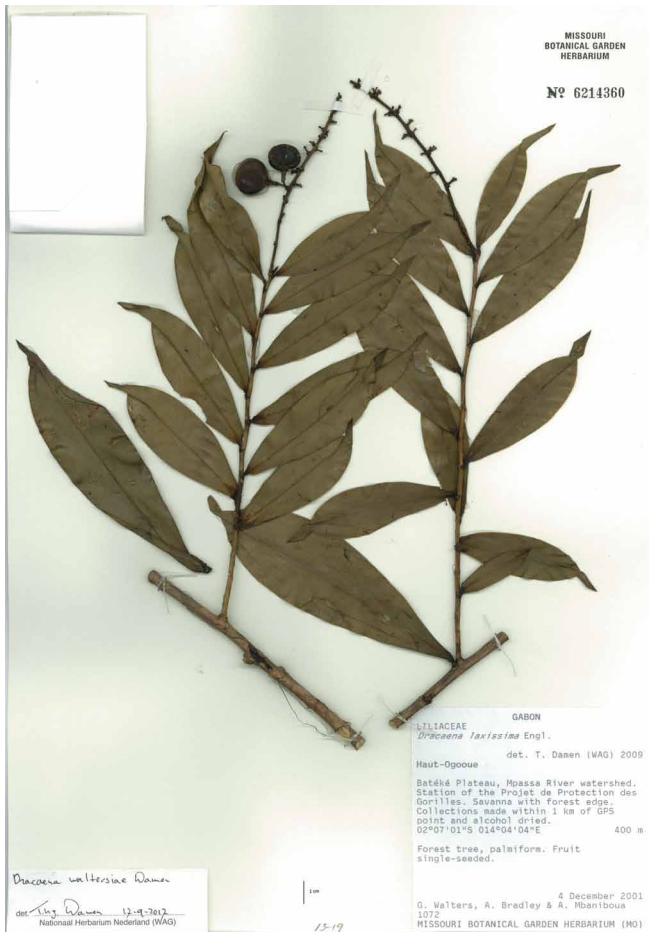
*Dracaena waltersiae* is similar to *D. laxissima*, but it differs from that species in having petioles of only 2–3 mm long, a racemose inflorescence, flowers of 27–28 mm long with pedicel of only 6–9 mm. In *D. laxissima* the petiole is 5–12 mm, the inflorescence is paniculate, flowers are 16–20 mm long and have a slender pedicel of 11–21 mm. — *Type*: *Walters & Niangadouma 1271* (holo MO; iso LBV (LBV0002600), WAG (WAG0102272)), Gabon, Haut-Ogooué Prov., Plateaux Batéké National Park, Mpassa River drainage, Kalahari Sands, Projet Protection des Gorilles, ‘Okeli Forest’ trail M, S2°08’ E14°04’, alt. 420 m, 3 Mar. 2003.

*Etymology*. *Dracaena waltersiae* honours Mrs Gretchen Walters who has collected the type and brought the plant to my attention. With her work, notably that on the Plateaux Batéké, she has made a substantial contribution to our knowledge of the flora of Gabon.

Lianescent shrub or tree of up to 10 m high; bark grey and slightly longitudinally fissured, without resin; branches with internodes of (0.4–)1.5–3(–4) cm. *Leaves* evenly distributed along the branches, distichously arranged; pseudopetiole c. 2–3 mm long, distinctly darker than the lamina, scariosly winged, its base widened and clasping the stem for 0.5–0.7 times its circumference; lamina subfalcate, elliptic to oblanceolate, up to 14 by 3 cm, apex acute to acuminate, mucro 1 mm long, base attenuate, thinly coriaceous, midrib impressed above, prominent beneath, secondary nerves not evident above, prominent beneath. *Inflorescence* terminal or subaxillary, racemose, to c. 30 cm long, occasionally with a few branches; peduncle smooth, fluorescent orange, with fascicles of up to c. 4 flowers, each fascicle subtended by a small triangular, scarios, caducous, brown bract, of up to 4 mm long. *Flower*:



**Map 23** Distribution of *Dracaena waltersiae* Damen.



**Plate 9** *Dracaena waltersiae* Damen, scan of herbarium sheet showing infructescence and leaf arrangement; Walters 1072.



**Plate 10** *Dracaena waltersiae* Damen, scan of holotype showing inflorescence; Walters 1271.

pedicel 6–9 mm long, articulating at c. 1 mm from the apex, green-white, purplish near the apex; floral bracts inconspicuous, triangular, up to c. 1 mm long, scarious; perianth c. 27–28 mm long, with a pleasant odour, lobes 16–17 by 1.5 mm; stamens inserted near the throat, up to 4 mm shorter than the lobes, filaments filiform, anthers c. 2 by 1 mm; style exerted for up to 1 mm, stigma capitate, c. 0.9 mm diam. *Fruits* 1–3-seeded, depressed globose, c. 16 by 20 mm (in herbarium), red-brown; receptacle 3 by 2 mm. *Seeds* not seen.

**Distribution** — Gabon, Central African Republic, Republic of the Congo.

**Ecology** — Edge savanna with forest, flooded forest, gallery forest, dry forest on white sand, Kalahari Sands, 50 m from edge of forest. *Palisota* and *Memecylon* in closed understory; at 400–620 m altitude. Flowering in March and April.

**Other specimens examined.** CENTRAL AFRICAN REPUBLIC, **Haut-Mbomou**, region d'Obo, PK 57, route de Zémio, c. N5°20' E26°27', 31 Dec. 1963, *Descoings*, *BM 12233* (MPU, P); *ibid.*, 31 Dec. 1963, *Descoings*, *BM 12238* (P). — GABON, **Haut-Ogooué**, Parc National des Plateaux Batéké, forêt proche du Bai Jobo (1.5 km), S2°13' E13°50', 6 June 2005, *Niangadouma*, *R 536* (MO); Batéké Plateau, Mpassa River watershed, station of the Projet de Protection des Gorilles, S2°08' E14°04', alt. 400 m, 4 Dec. 2001, *Walters*, *GM 1072* (MO, WAG); Plateaux Batéké National Park, Mpassa River drainage, S2°07.3' E14°04.1', alt. 460 m, 27 Feb. 2003, *Walters*, *GM 1138* (MO, WAG); *ibid.*, S2°07.3' E14°04.1', alt. 460 m, 27 Feb. 2003, *Walters*, *GM 1147* (LBV, MO, WAG). — REPUBLIC OF THE CONGO, **Pool**, Pays Batéké, de Brazzaville à St. Joseph du Koué [= Kibouendé], S4°09' E14°54', 29 July 1912, *Chevalier*, *AJB 27333* (P); environs de Brazzaville, c. S4°15' E15°17', 10 Feb. 1971, *Makany*, *L 1686* (P).

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greenhouse of Burgers' Zoo, Arnhem, The Netherlands who cultivate the enormous *Dracaena* collection, invaluable to really understand the genus *Dracaena*. We thank the people working in the former WAG herbarium for all their help and discussions, special thanks to Frans Breteler, Wilbert Hettterscheid, Carel Jongkind and Jan Wieringa who served as a mentor to THJD and helped to solve the *Dracaena* mystery. THJD is much indebted to Erik Simons for his help and mental support, the Alberta Mennega Stichting, the Moabi Foundation and Hugo de Vries Fonds for additional funding for both field trips to Gabon (2013 and 2015). In this country, we gratefully appreciated the help of Raoul Niangadouma and Pulchérie Bissienou from the LBV Herbarium in Libreville and the hospitality offered by WCS Gabon, IPHAMETRA, CENAREST and ANPN.

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## INDEX OF EXSICCATAE

Note: Initials are only added when there is more than one person with that surname in the list. Collections without number are delete from the list.

aca = <i>D. acaulis</i>	glo = <i>D. glomerata</i>	per = <i>D. perrottetii</i>
acu = <i>D. acutissima</i>	gol = <i>D. goldieana</i>	san = <i>D. sanderiana</i>
bic = <i>D. bicolor</i>	hae = <i>D. haemanthoides</i>	ste = <i>D. steudneri</i>
bra = <i>D. braunii</i>	laf = <i>D. laxissima</i> forma <i>aureilicia</i>	tho = <i>D. tholloniana</i>
bus = <i>D. bushii</i>	lax = <i>D. laxissima</i> forma <i>laxissima</i>	usa = <i>D. usambarensis</i>
cam = <i>D. camerooniana</i>	man = <i>D. mannii</i>	vir = <i>D. viridiflora</i>
cer = <i>D. cerasifera</i>	mar = <i>D. marina</i>	wak = <i>D. wakaensis</i>
con = <i>D. congoensis</i>	nit = <i>D. nitens</i>	wal = <i>D. waltersiae</i>

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*letestui* Pellegr. 22  
*litoralis* Mwachala & Eb.Fisch. 4  
*longipetiolata* Mwachala & Eb.Fisch. 20  
*mannii* Baker 14  
*marina* Bos ex Damen 15  
*mildbraedii* K.Krause 22  
*monostachya* Baker var. *angolensis* Baker 20  
*nitens* Welw. ex Baker 16  
*oddonii* De Wild. 6  
*perrottetii* Baker 17  
 var. *minor* Baker 17  
*poggei* Engl. 18  
*pseudoreflexa* Mildbr. 21  
*reflexa* Lam. var. *buchneri* Engl. 16

### *Dracaena* (cont.)

*rubroaurantiaca* De Wild. 1  
*sanderiana* Sander ex Mast. 18  
*silvatica* Hua 6  
*soyauxiana* Baker 9  
*steudneri* Engl. 19  
*talbotii* Rendle 3  
*tessmannii* Engl. & K.Krause 14  
*tholloniana* Hua 20  
*thomensis* Dandy 12  
*usambarensis* Engl. 21  
 var. *angustifolia* Peter 21  
 var. *longifolia* De Wild. 14  
*vanderystii* De Wild. 18  
*viridiflora* Engl. & K.Krause 22  
***wakaensis*** Damen & Quiroz 23  
***waltersiae*** Damen 24  
 Lucky Bamboo 18  
*Pleomele heudelotii* N.E.Br. 17  
*Sansevieria longifolia* Welw. 1