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REGULAR PAPER

Novitates Gabonenses 88: additions to the flora of Gabon and new records of little-known species

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Background and aims – The intensive botanical prospections carried out in Gabon since the publication of the national checklist in 2006 have resulted in c. 34 300 new specimens (amounting to 30% of all collections made in the country) and an annual increase of 25 species in average. As a result, 5175 species of vascular plants are now recorded from Gabon, of which 650 are considered endemic. However, most of the recent discoveries have not yet been published. This paper is the first of a series documenting additions to the flora of Gabon, and new records of poorly known species. It concerns specifically new records from the Lower Ogooué Ramsar site, the third largest delta of Africa, and certainly the most intact, which includes 80% of the country's wetlands and a wide variety of other habitats.
Methods – The new records presented here come essentially from fieldwork conducted in Gabon between 2008 and 2016 by the authors and colleagues. Further information comes from the study of herbarium specimens in BR, BRLU, K, LBV, MO, P and WAG. For each species, information on distribution and ecology is given, and the studied Gabonese collections listed. In case of rare or range-restricted species, collections from other countries are also listed, and a distribution map is provided, as well as an evaluation of the conservation status based on the categories and criteria of the IUCN Red List.
Key results – We report 18 additions to the flora of Gabon, including four genera new to the country (*Capparis*, *Gisekia*, *Hoffmanniella* and *Leptochloa*) and the first records of the neotropical *Justicia secunda* being naturalised in tropical Africa. New distribution records are also provided for 16 rare Gabonese endemics or near-endemics. Some species are also newly reported from Cameroon (*Cissus leemansii*, *Salacia coronata*) and Equatorial Guinea (*Cissus leemansii*, *C. louisii*, *Lychnodiscus grandifolius*, *Placodiscus resendeanus*, *Rutidea gabonensis*, *Uvaria bipindensis*). Two species, which were reported in the 2006 checklist based on misidentifications, are excluded from the Gabonese flora.

Key words – Gabon, conservation, Central Africa, Lower Guinea, Lower Ogooué Ramsar site, Mabounié.

INTRODUCTION

The Republic of Gabon, situated on the Atlantic coast of Central Africa, covers 267 667 km^2, of which c. 85% consists of evergreen forest. The country's flora is one of the richest in tropical Africa, but its knowledge is still far from complete, because large areas are not well-explored, and many taxonomic groups have not been revised recently. The *Flore du Gabon* series started in 1960, and currently covers 134 families and c. 60% of the flora, although new volumes are regularly published (e.g. van der Maesen & Sosef 2016). A

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national checklist has been published by Sosef et al. (2006) and recorded 4710 species of vascular plants for the country, of which 510 were considered as endemic.

The country is currently subject to intensive botanical exploration, with an average of more than 3000 specimens collected each year during the last fifteen years (fig. 1). Since the publication of the national checklist in 2006, 34 300 collections have been made in Gabon (30% of all collections), many of them in little-known or previously uncollected areas. Around 25 species have been added annually to the country's flora, which now includes records of 5175 species of vascular plants, 650 of which are considered endemic. A considerable amount of new information has been published, including new records for the country (Walters et al. 2011), descriptions of new species (e.g. Sosef et al. 2007, Bissiengou & Sosef 2008, Breteler 2008, Janssens et al. 2010, Ntore et al. 2010, Fischer & Lachenaud 2013, Lachenaud et al. 2013) and taxonomic revisions of several genera (e.g. Onana 2008, Goyder 2009, Breteler 2010, Sonké et al. 2012, Lachenaud & Zemagho 2015). Important contributions have also been made to the floristic study of neighbouring countries (e.g. Droissart et al. 2009, Lachenaud 2009, Lachenaud et al. 2013); as a result, some species are no longer considered endemic to Gabon, but the discovery of new endemic species amply counterbalances this trend.

At the same time, the country is facing an unprecedented phase of economic exploitation, including urbanization, mining projects, increased timber exploitation, and industrial palm plantations. All these activities represent new threats to the flora, and some rare species are becoming threatened.

This paper is the first of a series documenting the most important results of recent botanical prospections, aside from taxonomical novelties: additions to the country's flora, and new records of little-known species. These results are of crucial importance for conservation, and their publication will allow their use by various actors, e.g. in Environmental Impact Assessments respecting IFC (International Finance Corporation) standards, and in management plans of protected areas, of forestry concessions based on FSC (Forest Stewardship Council) standards, and of industrial palm plantations following RSPO (Roundtable for Sustainable Palm Oil). After publication, the conservation status evaluations will be submitted to the IUCN Red List for broad dissemination. This series will be included in the Novitates Gabonenses series, started in 1990 by Frans Breteler, and now including 88 contributions.

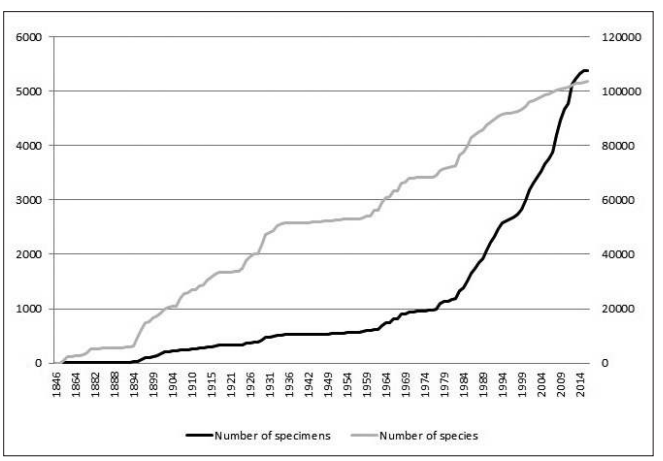

Figure 1 – Evolution of the number of specimens collected in Gabon, and of the number of species collected in the country (cumulated values). Data from the RAINBIO database (Dauby et al. 2016) and TROPICOS, controlled for duplicate citations and supplemented with recent new records.

The current paper concerns specifically new records from the Lower Ogooué Ramsar site, which according to the proposed limits will extend from Ndjolé to Port Gentil (fig. 2), covering 19 667 km^2 and harbouring around 80% of the wetlands of Gabon (Vande weghe & Stévart 2017). This area is the third largest delta of Africa and certainly the most intact. It includes a great variety of habitats, among which savannas, mangroves, floating grasslands, various types of flooded forest, lowland forest on drained soils, and even small areas of submontane forest in the hills south-east of Lake Ezanga (c. 600 m in altitude) and near Ndjolé (c. 700 m). Around 2100 species of vascular plants are recorded from the area (Vande weghe & Stévart 2017: 146), which amounts to more than a third of the Gabonese flora.

METHODS

All the new records presented in this paper derive from fieldwork conducted in Gabon between 2008 and 2015, by the authors and colleagues. Our collecting efforts were mostly concentrated in the Lower Ogooué Ramsar Site, especially in the Mabounié area (east of Lambaréné), on the great lakes of the Ogooué river system (lakes Ezanga, Onangué, Evaro, Alombié, Anengué and Azingo) and in the Ogooué delta around Port-Gentil. Additional data results from the study of other herbarium collections in BM, BR, BRLU, K, LBV, MO, P and WAG.

The genera *Chassalia* Comm. ex Poir., *Chazaliella* E.M.A.Petit & Verdc., *Hymenocoleus* Robbr. and *Psychotria* L. (Rubiaceae), which include numerous additions to the country's flora, are not treated in this publication since they are the subject of forthcoming taxonomic revisions (Lachenaud in prep.).

For each species, information on distribution and ecology is presented. When possible, all available collections of a species have been studied (these are cited as "Available specimens examined" at the end of the species account) and an assessment of the conservation status has been made, as well as a distribution map. When it was not possible to study all the material, e.g. in the case of widespread species, the conservation status is not evaluated and only the Gabonese collections are cited (as "Gabonese specimens examined"). Within each country, the collections are listed in alphabetical order by province, collector and number.

The conservation status assessments follow the categories and criteria of the IUCN Red List (IUCN 2012, 2014). The extent of occurrence (EOO) and area of occupancy (AOO) were calculated using GeoCAT (Geospatial Conservation Assessment tool; Bachman et al. 2011) with a cell size of 2 km^2. Historical records from the surroundings of Libreville and Port-Gentil were discarded for these calculations, since their

localities are often imprecise and there is a strong probability that they have been lost due to urbanisation. The number of 'locations' (as defined by IUCN 2012) was calculated with regard to the kind of threats, such that a single location may encompass several adjacent subpopulations.

RESULTS

The records presented here concern 34 species in 22 angiosperm families. Among them are 18 additions to the flora of Gabon, which are denoted with an asterisk (*). They include four genera new to the country (*Capparis*, *Gisekia*, *Hoffmanniella*, and *Leptochloa*). New records are also presented for 16 little-known species. Two species, which were reported by Sosef et al. (2006) based on misidentifications, are excluded from the Gabonese flora; these are cited in square brackets, e.g. [*Pavetta lasioclada* (K.Krause) Mildbr. ex Bremek.]. Some species are also newly reported from Cameroon (*Cissus leemansii*, *Salacia coronata*) and Equatorial Guinea (*Cissus leemansii*, *C. louisii*, *Lychnodiscus grandifolius*, *Placodiscus resendeanus*, *Rutidea gabonensis*, *Uvaria bipindensis*). The species are listed below in alphabetical order of families.

ACANTHACEAE

Justicia secunda Vahl
Fig. 3A & B

Distribution – Native to the West Indies and northern South America (Wasshausen 2006), naturalised in Gabon.

Ecology – River banks and degraded areas in its native environment; in Gabon, the species occurs on roadsides and in degraded areas, 70–380 m in elevation.

Notes – This species is frequently planted in tropical countries for ornamental and medicinal purposes, but there are apparently no published records of its occurrence in Africa away from cultivation. It is well-established in Gabon, having been found in three quite distant areas (Lake Azingo, Waka and Loango National Parks) and far away from the main cities. Although it does not appear to be seriously invasive at present, attention should be paid to its possible spread, both in Gabon and in neighbouring countries where it might have been overlooked.

Gabonese specimens examined – **Moyen-Ogooué**: Est du Lac Azingo, à 30 km au Nord-Ouest de Lambaréné, 0°28′51″S 10°10′1″E, 10 Jun. 2014, *Bidault et al.* 1578 (BR,

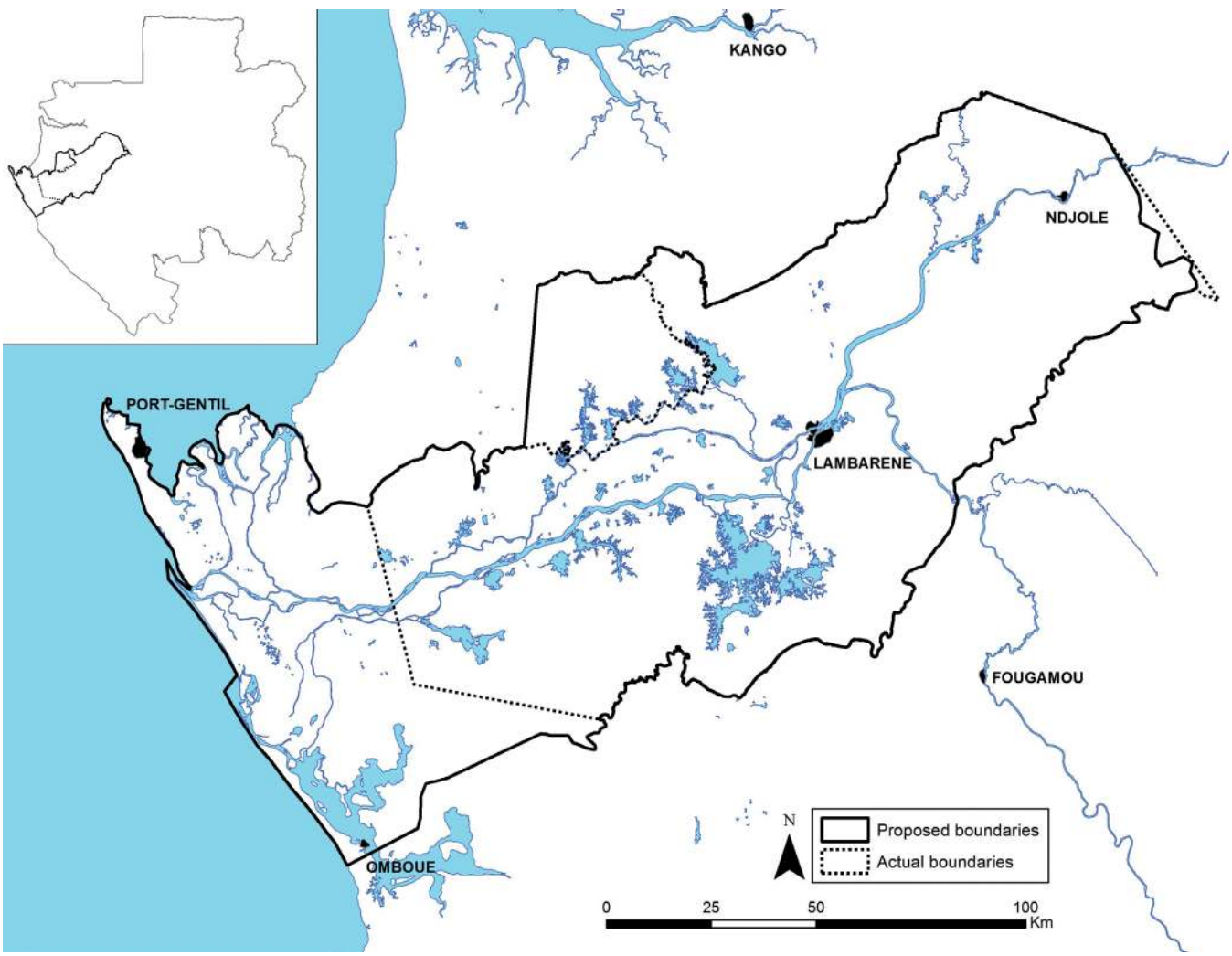

Figure 2 – Map of the Lower Ogooué Ramsar site, showing current boundaries and proposed extensions.

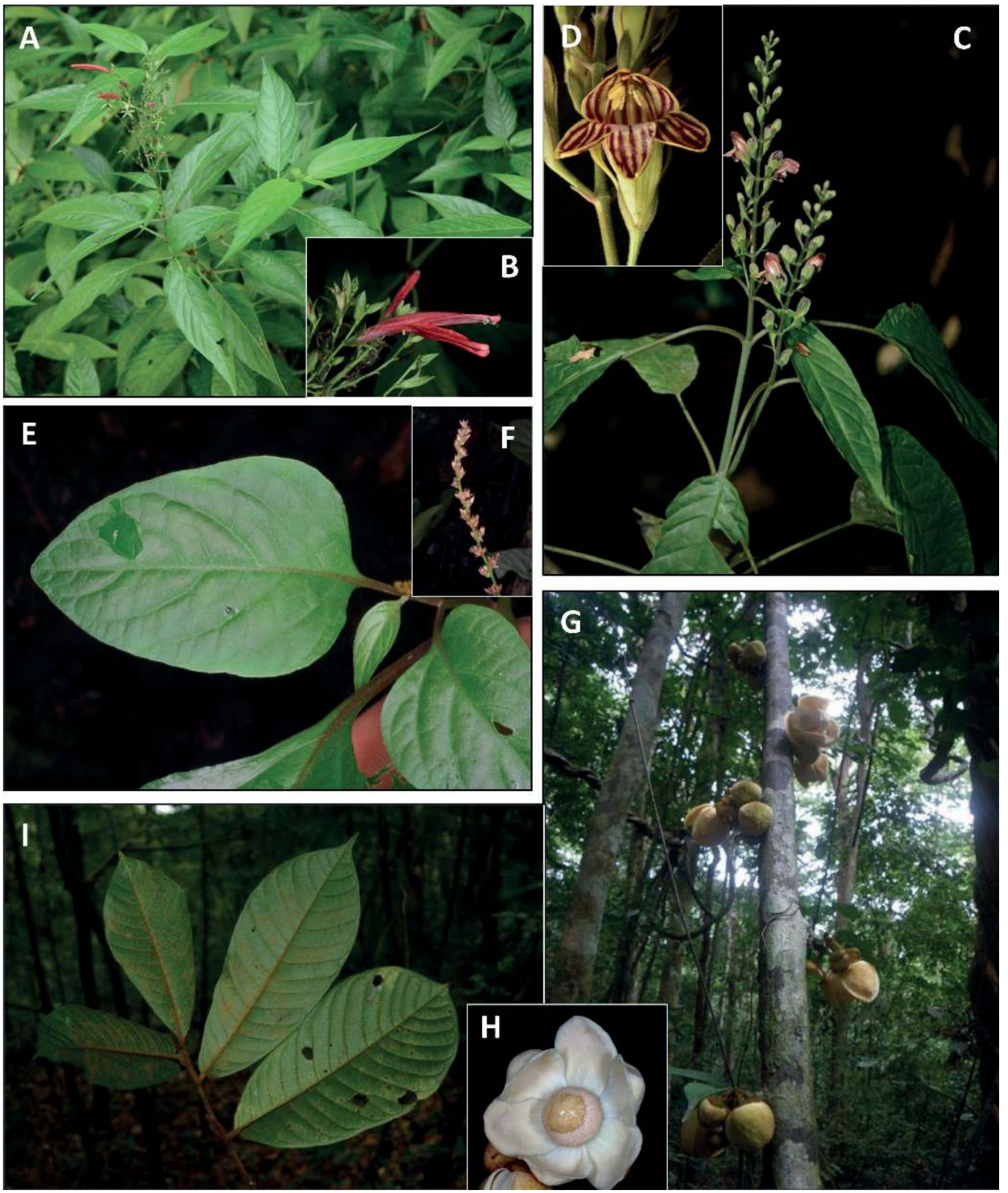

Figure 3 – Photographs illustrating a selection of species treated in the present paper. A & B, *Justicia secunda* (*Bidault et al.* 1578); C & D, *Whitfieldia letestui* (C, *Bidault et al.* 1512; D, *Bidault et al.* 426); E & F, *Celosia leptostachya* (*Diabaté et al.* 1009, Guinea); G–I, *Uvaria bipindensis* (G & H, *Lachenaud et al.* 1979; I, *Bidault et al.* 1686). Photographs: Ehoarn Bidault (A–F & I), Olivier Lachenaud (G), Ian Lafferty (H).

BRLU, LBV, MO, P, WAG). **Ngounié**: Camp Oghobi dans le Parc National de Waka, 1°09′07″S 11°08′31″E, 30 Nov. 2007, *Boussengui-Nongo* 329 (LBV); Village Divinde, nord-ouest du Parc National de Waka, 1°02′27″S 11°09′19″E, 15 Jan. 2008, *Ngombou Mamadou & Mavitsi* 166 (K, LBV, MO). **Ogooué-Maritime**: Parc National Loango, 1°57.65′S 9°29.05′E, 19 May 2004, *Mouandza Mbembo & Ogoula* 164 (BR, LBV).

Whitfieldia letestui Benoist
Figs 3C & D, 4A

Distribution – Endemic to southwest Gabon as currently known, but to be expected in the Republic of the Congo (fig. 4A).

Ecology – A tall herb of stream banks in lowland evergreen rainforest, sometimes also on adjacent slopes, 50–100 m in elevation; occurs sparsely, not forming dense populations. Flowering is seasonal, and so far recorded only in May–June.

Notes – This species was only known from the type collected in 1915; it has now been found in a handful of localities in the south-western quarter of Gabon, and is locally common in the Mabounié area. It is easily overlooked outside the short flowering period and is therefore likely to be more widespread. The flowers are very ornamental with their characteristic brown and yellow-striated pattern (fig. 3D) and are markedly 2-lipped, which is unusual for the genus. The material available shows significant variation in leaf shape, length of the calyx lobes, and inflorescence structure (branched or simply racemose), but since the corolla characters are very constant, we recognise only one taxon.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Whitfieldia letestui* is estimated to be 14 793 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 32 km^2 (within the limits for Endangered status under the criterion B2). The species is endemic to Gabon and is known from nine specimens representing eight subpopulations. It is not found in any protected area. Four of its subpopulations occur in a mining concession and two in an oil concession, both of which undergo low human pressure such as forest clearing; another occurs in a selectively logged forest. All these activities are expected to affect the quality of its habitat. The eight subpopulations represent a total of four "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status, and *Whitfieldia letestui* is therefore assigned a preliminary status of EN B2ab(iii).

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Mabounié, 0°43′46″S 10°33′38″E, 71 m, 4 May 2012, *Bidault et al.* 426 (LBV); Mabounié, 00°45′15″S 010°33′06″E, 70 m, 9 May 2014, *Bidault et al.* 1496 (BR, BRLU, LBV, MO); Mabounié, 00°46′02″S 10°32′43″E, 53 m, 9 May 2014, *Bidault & Akouangou* 1497 (LBV); Mabounié, 00°45′56″S 010°32′33″E, 82 m, 13 May 2014, *Bidault & Akouangou* 1512 (BRLU, LBV, MO); Mabounié, 0°48′50″S 10°31′25″E, 70 m, 6 May 2012, *Dauby et al.* 2731 (LBV). **Ngounié**: Sindara, après village Matadi 7, route exploitation forestière EGG (ancien IFL), 1°02.26′S 10°42.47′E, 22 Jun. 2011, *Bissiengou et al.* 1439 (WAG). **Nyanga**: Yaouri, 30 May 1915, *Le Testu* 2066 (P, holotype; BR, IFAN, isotypes). **Ogooué-Maritime**: Toucan, c.1°47′S 9°53′E, 14 Jun. 2002, *Bourobou Bourobou et al.* 746 (LBV); Rabi-Kounga, c.1°55′S 9°55′E, 14 May 1992, *Breteler et al.* 11438 (WAG).

AMARANTACEAE

****Celosia leptostachya*** Benth.
Fig. 3E & F

Distribution – Sierra Leone, Guinea, Nigeria, Cameroon, Equatorial Guinea (Bioko), Gabon, D.R. Congo, Sao Tomé (Hauman 1951, Keay 1954, Exell 1944).

Ecology – A ruderal species in forest clearings.

Notes – Although first collected in Gabon in 1957, this species has been overlooked in the Flore du Gabon (Cavaco 1963) and in the Checklist of Gabonese Vascular Plants (Sosef et al. 2006).

Gabonese specimens examined – **Ngounié**: Mabounié, 0°45′32″S 10°33′27″E, 12 Nov. 2013, *Lachenaud et al.* 1315 (BRLU, LBV, MO). **Ogooué-Lolo**: Forêt des Abeilles, station de la Makandé, 0°41′S 11°54′E, 11 July 1993, *Lejoly* 93/2 (BRLU). **Woleu-Ntem**: 45 km SW of Médouneu, 27 July 1957, *Davies & Jeffrey* 136 (BRLU).

ANNONACEAE

****Uvaria bipindensis*** Engl.
Figs 3G–I, 4B

Distribution – Cameroon, Equatorial Guinea (Rio Muni) and Gabon (fig. 4B).

Ecology – A tall liana (up to 20–30 m high) of evergreen forest on drained soils, 0–650 m in elevation. Locally abundant in *Sacoglottis gabonensis* forest on coastal sandy soils, forming dense tangles in the undergrowth; but also found in other forest types, e.g. on inselberg summits.

Notes – This species, hitherto only known from Cameroon, is reported from Gabon and Equatorial Guinea for the first time. It is common around Lake Alombié at least, and it is surprising that such a spectacular plant is so rarely collected. Although *Uvaria* is a difficult genus, this species is relatively easy to identify by the (usually) cauliflorous inflorescences and the relatively large leaves with long and sparse fasciculate hairs (fig. 3G–I). The only collection from southwest Cameroon, *Brenan* 9445, is less pubescent than the rest but appears to be conspecific. Our collections often have much larger flowers (2–3.5 cm in diameter, with petals up to 2 × 2 cm) than reported in the original description, probably because the petals continue to grow after the flowers open. The fruits, described for the first time (from the specimen *Reitsma* 1865), consist of 8–13 orange-brown stipitate mericarps, each c. 8 × 4–5 cm, 4- to 5-ribbed and tomentose, with a thick stipe 1–1.8 cm long and 5–12 seeds arranged in two rows.

Preliminary conservation status – IUCN Red List category: Vulnerable [VU]. The extent of occurrence (EOO) of *Uvaria bipindensis* is estimated to be 60 095 km^2 (exceeding the upper limit for Vulnerable status under the criterion B1) whereas its minimal area of occupancy (AOO) is estimated

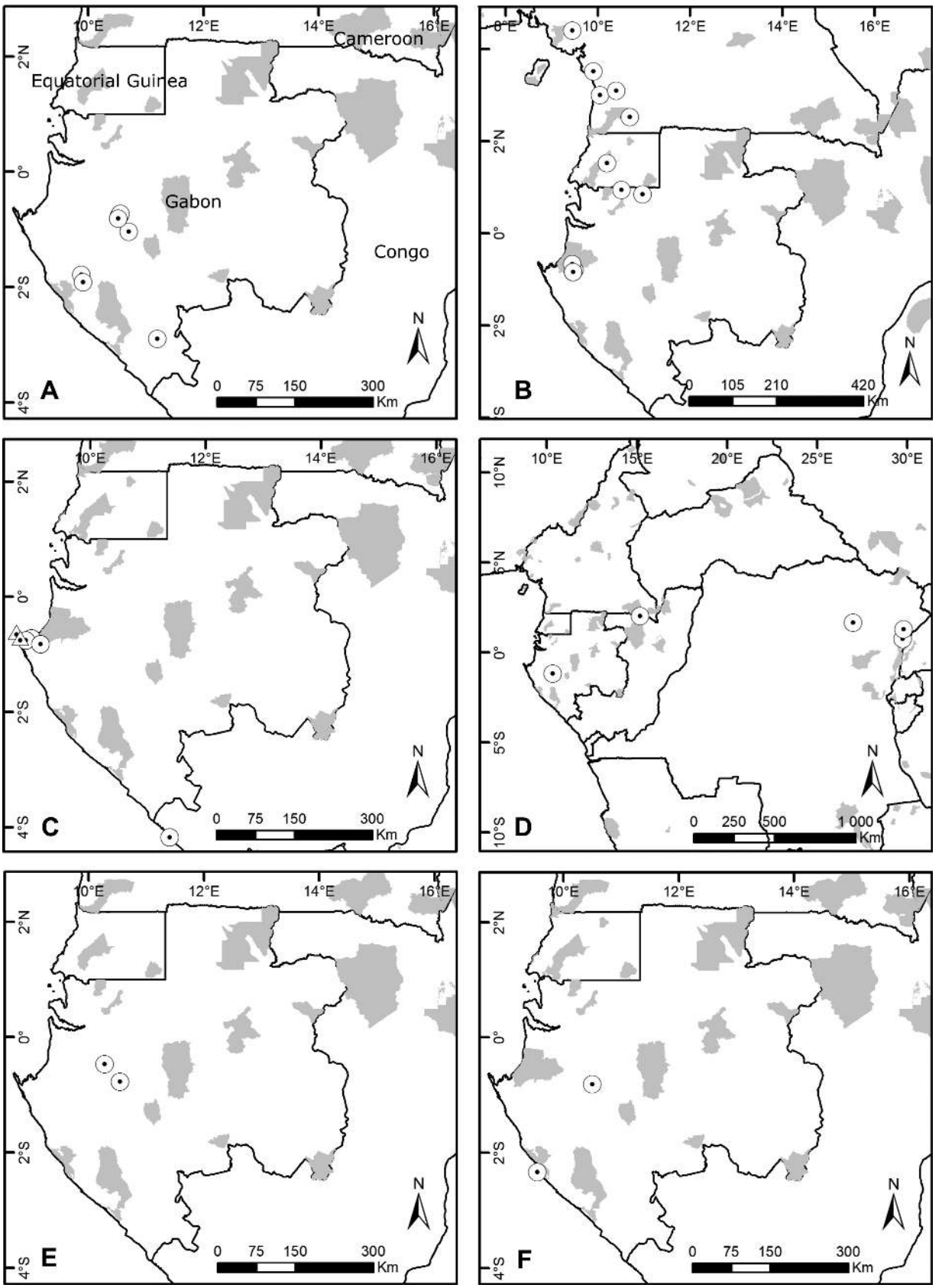

Figure 4 – Distribution of: A, *Whitfieldia letestui*; B, *Uvaria bipindensis*; C, *Brachystelma letestui*; D, *Hoffmanniella silvatica*; E, *Dacryodes ebatom*; F, *Capparis* aff. *tomentosa*. Circles represent populations believed to be still extant and triangles those which are probably extinct. National parks are in pale grey.

to be 44 km^2, within the limit for Endangered status under the criterion B2. The species is endemic to the coastal part of Atlantic Central Africa, and is known from 13 specimens representing nine subpopulations. It occurs in two protected areas, Campo-Ma'an National Park in Cameroon and Monte Alén National Park in Equatorial Guinea. The other sites are unprotected and subject to selective logging and/or forest clearing for agriculture. We expect that the ongoing loss of its habitat will induce a decline in the number of subpopulations, number of mature individuals, and thus AOO. The nine subpopulations represent a total of nine "locations" (*sensu* IUCN 2012), within the limit for Vulnerable status. *Uvaria bipindensis* is therefore assigned a preliminary status of VU B2ab(iii,iv,v).

Available specimens examined – **Gabon**: **Ogooué-Maritime**: Prefecture de M'paga, à environ 7 km au nord du lac Alombié, au sud de la réserve de Wonga Wongué, 0°50′00″S 9°27′46″E, 107 m, 11 Oct. 2014, *Bidault et al.* 1686 (BR, BRLU, LBV, MO, P, WAG); ibid., 0°47′29″S 9°29′35″E, 43 m, 16 Oct. 2014, *Bidault et al.* 1739 (LBV, MO); ibid., 0°40′03″S 9°26′59″E, 64 m, 23 Oct. 2014, *Boupoya et al.* 1107 (BR, BRLU, LBV, MO); ibid., 0°50′05″S 9°27′45″E, 83 m, 17 Oct. 2014, *Lachenaud et al.* 1979 (BR, BRLU, G, LBV, MO, P, WAG). **Woleu-Ntem**: inselberg Milobo, 0°56.47′N 10°31.04′E, 20 Oct. 2001, *Ngok Banak & Moungazi* 215 (BRLU); near Abanga river, 26 km SE of Médouneu, 0°51′N 10°58′E, 5 Feb. 1986, *J.M. & B. Reitsma* 1865 (WAG).
Equatorial Guinea: **Centro-Sur**: Sud du Parc National de Monte Alén, 29 Jan. 2002, *Senterre et al.* 2119 (BRLU).
Cameroon: **Littoral**: au SE du lac Tissongo, 35 km SW Edéa, 9 Jan. 1974, *Letouzey* 12660 (P). **South**: 20 km from Kribi, Lolodorf road, 3°00′N 10°03′E, 16 Jun. 1969, *Bos* 4794 (WAG); Campo-Ma'an area, Onoyong, 2°31′39″N 10°41′49″E, 18 Mar. 2001, *Tchouto & Elad* ONOX 53 (WAG); Bipinde, 1896, *Zenker* 1116 (BM, K, P, isotypes); ibid., 1909, *Zenker* 3886 (BM). **Southwest**: Banga, S. Bakundu F.R., 16 Mar. 1948, *Brenan* 9445 (K).

Uvariopsis dioica (Diels) Robyns & Ghesq.
Fig. 5A & B

Distribution – Nigeria, Cameroon, Equatorial Guinea (Rio Muni), Gabon, and Republic of the Congo.

Ecology – A shrub or tree up to 20 m tall, occurring in evergreen forest, often on slopes near rivers, 30–1000 m in elevation; frequently gregarious.

Notes – The discovery of this species in Gabon bridges a gap in its range between Equatorial Guinea and the Republic of the Congo. It is fairly common around lake Azingo, and also occurs in the southern part of the Ivindo National Park, according to photographs taken by J.-P. Vande weghe (Vande weghe et al. 2016: 52). It is likely to be found elsewhere in the country but is easily overlooked when not flowering.

Gabonese specimens examined – **Moyen-Ogooué**: Est du Lac Azingo, à 30 km au Nord-Ouest de Lambaréné, 0°30′32″S 10°05′08″E, 48 m, 8 Jun. 2014, *Bidault et al.* 1558 (BR, BRLU, LBV, MO, P, WAG); Au Nord-est du lac Azingo, 0°18′35″S 10°03′21″E, 96 m, 5 Jun. 2014, *Boupoya & Nzabi* 977 (BR, BRLU, LBV, MO, WAG); Piste du Lac Azingo, ± 10 km au NE du lac et 30 km au NW de Lambaréné, 0°28′41″S 10°01′59″E, 20 m, 25 Oct. 2014, *Lachenaud et al.* 2064 (BR, BRLU, LBV, MO); Near Lake Azingo, 0°29′41″S 10°03′48″E, 24 m, 2 Jun. 2014, *Stévart et al.* 4792A (BR, BRLU, LBV, MO, P, WAG).

APOCYNACEAE (incl. Asclepiadaceae)

Brachystelma letestui Pellegr.
Figs 4C, 5C & D

Distribution – Coastal areas of Gabon and the Republic of the Congo (fig. 4C).

Ecology – A low tuberous herb, growing in dry coastal savannas with sparse herbs (mostly *Melinis nerviglumis* (Franch.) Zizka, *Cyperus margaritaceus* Vahl and *Schweckia americana* L.) on sandy soils. The flowers appear in the rainy season, from November to February.

Notes – This species, previously known from two old collections around Port-Gentil (Pellegrin 1926, Lebrun et al. 1994), was rediscovered in 2016 in three different sites in the Ogooué delta, where it locally forms large populations. Although the plant is easily spotted once known, we have not seen it elsewhere along the Gabonese coast (e.g. in the Fernan Vaz, or in the Pointe Denis area south of Libreville). However, we found a recent herbarium collection from the Republic of the Congo, which represents a new record for the country; a photograph of this collection was published in Utteridge & Bramley (2014: 155) under the misapplied name *B. floribundum* Turrill.

Brachystelma letestui has remarkably ornamental flowers, which emit a strongly foetid smell, as often in the genus. The flowers are somewhat variable in colour (fig. 5C & D) and to some extent in the length of the corolla lobes, but the other characters of the species (e.g. corona shape, inflorescence structure, and leaf shape) are very constant. The vegetative parts consist of a flattened discoid tuber, buried 5–10 cm below the ground surface, and emitting creeping stems (which are not erect, contrary to the description in Lebrun et al. 1994). The fruits are paired fusiform follicles, long-attenuate at apex, 5.2–9.7 × 0.7–0.9 cm, with numerous plumose seeds.

Masinde (2007: 66–69) included the West African *B. constrictum* J.B.Hall (Hall 1966; see also Newton 1978) and *B. medusanthemum* J.P.Lebrun & Stork (Lebrun & Stork 1984, 1989) in synonymy of the mostly East African *B. johnstonii* N.E.Br., and suggested that *B. letestui* is probably conspecific as well. We consider these taxa sufficiently distinct to remain separate (table 1). While *B. medusanthemum* should probably be considered as a subspecies of *B. johnstonii*, both *B. constrictum* and *B. letestui* are undoubtedly worth specific rank. The latter species is probably closer to *B. floribundum* Turrill of south-eastern Africa, which differs in its entirely glabrous corolla, shorter pedicels, and usually pubescent outer corona (Masinde 2007).

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Brachystelma letestui* is estimated to be 4580 km^2 and its minimal area of occupancy (AOO) to be 16 km^2; both values are within the limit for Endangered status under criteria B1

Table 1 – **Distinguishing characters between *Brachystelma letestui* and related species.**
Diagnostic characters are in bold. The measurements for *B. medusanthemum* are partly taken from Lebrun & Stork (1984) since the type material was not seen.

	B. constrictum	***B. johnstonii***	***B. letestui***	***B. medusanthemum***
Stems and underside of leaves	**glabrous**	pubescent	pubescent	pubescent
Inflorescence position	**axillary**	terminal	terminal	terminal
Number of flowers	**1**	4–7	**14–32**	7–10
Pedicel length	5–6.5 mm	2–5 mm	**15–20 mm**	2–10 mm
Length of corolla lobes	8–15 mm	**(25–)55–90 mm**	(7–)12–14 mm	25–35 mm
Indumentum of corolla lobes (inside)	villose at base with hairs c. 0.5 mm long	**entirely long-villose (hairs 1–2 mm long)**	entirely puberulous	puberulous at base, with slightly longer hairs (c. 0.5 mm) on the margin
Outer corona lobes	truncate	deltoid, minute	**subulate, well-developed**	deltoid, minute
Distribution	Ghana	Uganda, Kenya, Central African Republic	Gabon, Republic of Congo	Senegal, Mali

and B2, respectively. The species is endemic to the coastal part of Atlantic Central Africa, and is known from six specimens, representing four extant subpopulations; a fifth one that occurred around Port-Gentil, in Gabon, is presumably extinct due to urbanisation and oil exploitation. The species does not occur in any protected area; the three extant subpopulations in Gabon are not subject to immediate threat, but the one in Congo could be threatened by human activities, as located within 2 km off a main road, and not included into a protected area. We can therefore project a decline in the extent of quality of the habitat, number of subpopulations and mature individuals, and thus AOO and EOO. The four subpopulations represent a total of four "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status, and *Brachystelma letestui* is therefore assigned a preliminary status of EN B1ab(i,ii,iii,iv,v)+B2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Ogooué-Maritime**: Au sud de la Pointe Fétiche, 0°43′25.2″S 8°58′46.4″E, 15 Nov. 2016, *Bidault et al.* 2630 (BR, BRLU, G, K, LBV, MO, P, WAG); en face de Port-Gentil, vers la pointe Ozomboua, 0°45′42.8″S 8°52′41.8″E, 20 Nov. 2016, *Bidault et al.* 2735 (BR, BRLU, LBV, MO, P, WAG); Cap Lopez, 23 Feb. 1894, *Dybowski* 166 (P); Rivière de Kendié, rive ouest, en aval de Mbilapé, 23 Nov. 2016, *Lachenaud et al.* 2283 (BR, BRLU, LBV, MO, P, WAG); Cap Lopez, Feb. 1912, *Le Testu* 2352 (P, holotype; BM, isotype); Port Gentil, s.d., *Pobéguin* s.n. (P).
Republic of the Congo: **Kouilou**: Tchilonga, 4°10′43.2″S 11°22′35.0″E, 2 Dec. 2011, *Kami et al.* 1336 (BR).

ASTERACEAE

****Hoffmanniella silvatica*** Schlechter ex Lawalrée
Figs 4D, 5G & H

Distribution – Southeast Cameroon, Gabon and D.R. Congo (Ituri region) (fig. 4D).

Ecology – A herb of wet places in forest, 75–1100 m in altitude. The Gabonese collection was made along a forest track, in half-shade.

Notes – This monospecific genus is new to the Gabonese flora. Before its discovery in Gabon, it was only known from a handful of collections in south-eastern Cameroon and eastern D.R. Congo (Lawalrée 1943, Lisowski 1991). *Hoffmanniella silvatica* is clearly a rare plant, but is also easy to overlook, which makes it difficult to say whether the gaps in its range are real. The characteristic involucre with a single pair of foliaceous bracts, and the heads with only 4–6 pale yellow flowers (fig. 5G & H) make the genus easy to recognise among Central African Asteraceae.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Hoffmanniella silvatica* is estimated to be 398 483 km^2 (far exceeding the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) to be 20 km^2 (within the limit for Endangered status under the criterion B2). The species is widespread in Central Africa but appears to be very rare. It is known from five specimens representing five subpopulations. Forests where it occurs are subject to logging, and probably to deforestation for agriculture in the eastern part of D.R. Congo, thus affecting the quality of its habitat. We project that the ongoing loss of its habitat will also induce a decline in the number of subpopulations and mature individuals, and thus AOO and EOO. The five subpopulations represent a total of five "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status. *Hoffmanniella silvatica* is therefore assigned a preliminary status of EN B2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Ngounié**: Collines au SE du Lac Ezanga, 1°10′55″S 10°19′27″E, 21 Nov. 2013, *Lachenaud et al.* 1500 (BR, BRLU, LBV, MO, P, WAG).
Cameroon: **East**: Dja-Fluhs, Sep. 1899, *Schlechter* 12775 (BR, holotype; P, isotype).

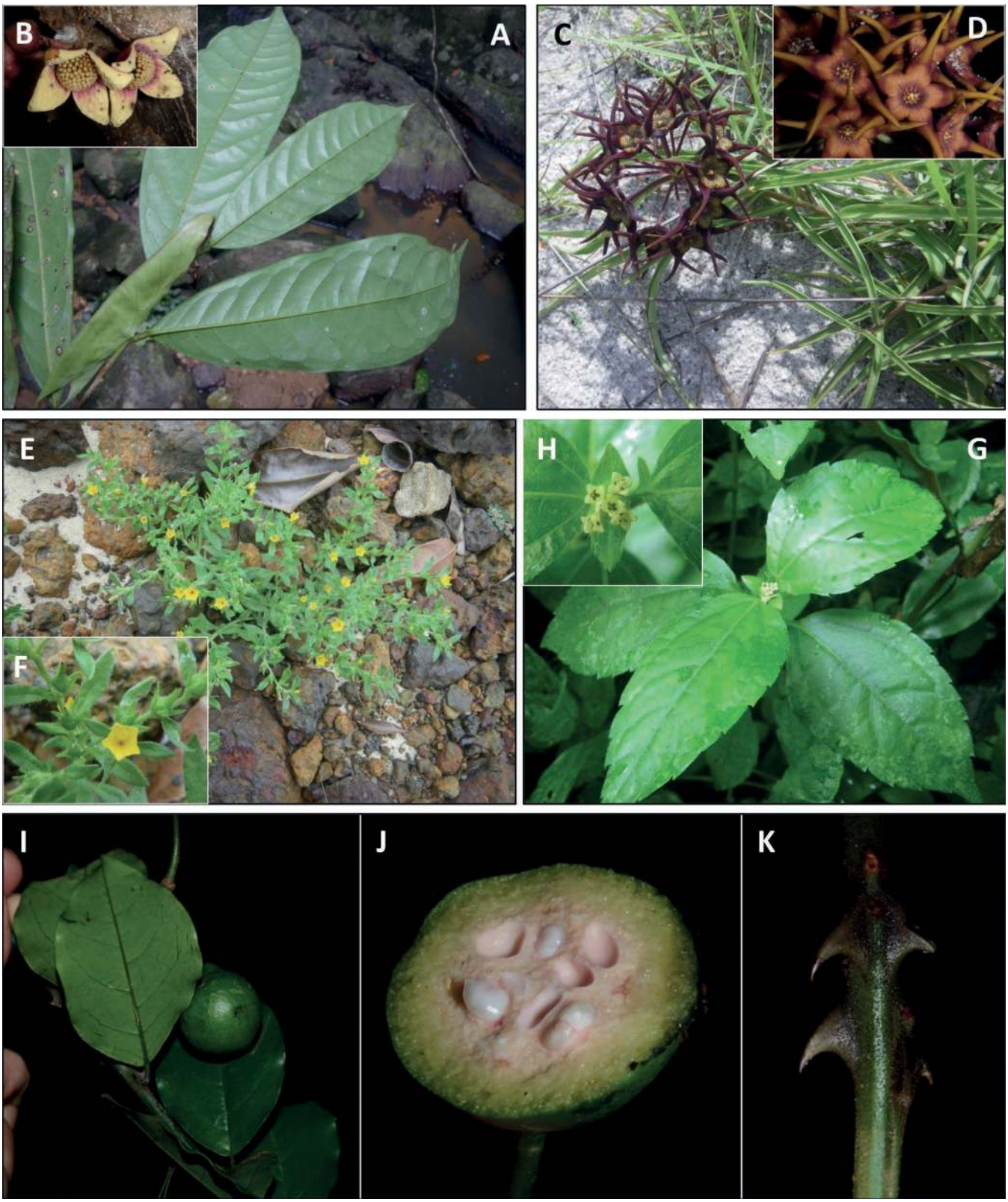

Figure 5 – Photographs illustrating a selection of species treated in the present paper. A & B, *Uvariopsis dioica* (A, *Lachenaud et al.* 2064; B, *Bidault et al.* 1558); C & D, *Brachystelma letestui* (C, *Lachenaud et al.* 2283; D, *Bidault et al.* 2735); E & F, *Heliotropium baclei* var. *rostratum* (*Lachenaud et al.* 2024); G & H, *Hoffmanniella sylvatica* (*Lachenaud et al.* 1500)*;* I–K, *Capparis* aff. *tomentosa* (*Bidault et al.* 1245). Photographs: Olivier Lachenaud (A, C, E–H), Ehoarn Bidault (B, D, I–K).

D.R. Congo: **Nord-Kivu**: Lesse, 27 Mar. 1914, *Bequaert* 3238 (BR); **Orientale**: Epakala (Bomili), 25 Dec. 1913, *Bequaert* 1626 (BR); Mont Hoyo, 12 Apr. 1973, *Lisowski* 17531 (BR).

BORAGINACEAE

Heliotropium baclei DC. & A.DC. **var. *rostratum*** I.M.Johnston
Fig. 5E & F

Distribution – Mali, Central African Republic, D.R. Congo, Ethiopia, Tanzania, Malawi, Zambia, Zimbabwe, Angola, Namibia, Botswana (Verdcourt 1991) and Gabon. Another variety, var. *baclei*, occurs in West Africa (Senegal to Mali).

Ecology – A low herb, growing in ephemeral vegetation along river banks and lake shores.

Notes – Easily recognisable by the yellow flowers and rostrate fruits (fig. 5E & F). The other variety, var. *baclei*, has fruits with a shorter beak, and the corolla white with a yellow centre. These two varieties should probably be treated as separate species.

Gabonese specimens examined – **Moyen-Ogooué**: Lac Onangué, 0°58′54.5″S 10°04′03.1″E, 22 Oct. 2014, *Lachenaud et al.* 2024 (BR, BRLU, G, LBV, MO, P, WAG).

BURSERACEAE

Dacryodes ebatom Aubrév. & Pellegr.
Fig. 4E

Distribution – Endemic to Gabon, restricted to the Lambaréné area (fig. 4E).

Ecology – A small tree (up to 30 cm in diameter) of swamp forest, locally forming dense populations.

Notes – This apparently rare species was only known from the type collection (Aubréville 1962, Onana 2008) before its recent rediscovery in the Mabounié region. The flowers are still unknown; only the fruits have been collected so far and differ from other *Dacryodes* spp. by the peculiar shape of the endocarp (Aubréville 1962: pl. XIV, 9–10). The habit is apparently quite variable: the type specimen is recorded as a tree with a diameter of 30 cm, but one of our collections was a small tree 4 m high and already fertile.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Dacryodes ebatom* is estimated to be 1369 km^2 (within the 5000 km^2 upper limit for Endangered status under the criterion B1) and its minimal area of occupancy (AOO) to be 8 km^2 (within the limit for Critically Endangered status under the criterion B2). The species is endemic to Central Gabon. It is known from three specimens representing two subpopulations. None of these is protected, and one is in a mining concession undergoing low human pressure such as forest clearing; this is expected to affect the extent and quality of its habitat and the number of mature individuals. The two subpopulations represent a total of two "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status. *Dacryodes ebatom* is therefore assigned a preliminary status of EN B1ab(iii,v)+2ab(iii,v).

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Akoré, 15 Jan. 1954, *Guillery* SRFG 1280 (P, holotype; LBV, isotype); Zone de Mabounié, à 45 km au sud-ouest de Lambaréné, rive nord de la rivière Ngounié, 0°46′14″S 10°32′44″E, 14 May 2014, *Bidault & Akouangou* 1515 (LBV, MO); ibid., 0°46′15″S 10°32′45″E, 11 Nov. 2013, *Stévart et al.* 4772 (BR, BRLU, LBV, MO, P, WAG).

CAPPARACEAE

Capparis* aff. *tomentosa Lam.
Figs 4F & 5I–K

Distribution – *Capparis tomentosa* is widespread in dry regions from Senegal to South Africa, and in the Mascarene islands. Two collections from western Gabon (fig. 4F) possibly belong to this species.

Ecology – A tall lianescent shrub of seasonally flooded forest, where locally abundant.

Notes – *Capparis* is a new genus for the Gabonese flora. The two collections so far made in the country lack flowers; in fruit and vegetative characters (e.g. paired axillary spines, coriaceous leaves with obscure tertiary venation) they resemble *C. tomentosa* but are much less pubescent than usual for this species. Their ecology is also unusual, since *C. tomentosa* occurs in drier areas; its nearest records are in northern Cameroon and southern D.R. Congo, several hundred kilometers away from the Gabonese localities. Flowering material would thus be required to confirm the identity of the Gabonese plants. The latter may also be mistaken for *C. erythrocarpos* Isert but differ by the smooth globose fruits (those of *C. erythrocarpos* are ridged and fusiform) and the simple (not stellate) indumentum of the twigs.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Mabounié, rive sud de la Ngounié, 0°48′48″S 10°30′11″E, 12 Nov. 2013, *Bidault et al.* 1245 (BRLU, LBV, MO). **Ogooué-Maritime**: Rabi-Kounga, along Ngové (Iguéla) lagune at Odimba, 2°20′S 9°33′E, 8 Mar. 1990, *Louis* 3215 (WAG).

CELASTRACEAE

Pristimera mouilensis (N.Hallé) N.Hallé
Fig. 6A

Distribution – Endemic to Gabon, apparently restricted to the Ngounié valley (fig. 6A).

Ecology – A tall liana of mature forest on drained soils.

Notes – A rare species, previously known only from the type collection (Hallé 1986, Sosef et al. 2006) and recently rediscovered in the Mabounié region.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Pristimera mouilensis* cannot be estimated since the species is only known from two specimens. Its minimal area of occupancy (AOO) is estimated to be 8 km^2 (within the limits for Critically Endangered status under the criterion B2). The species is endemic to Gabon and is known from two specimens representing two subpopulations. None of these is protected: one is threatened (if not already lost) by urbanisation, the other is in a mining concession undergoing low human

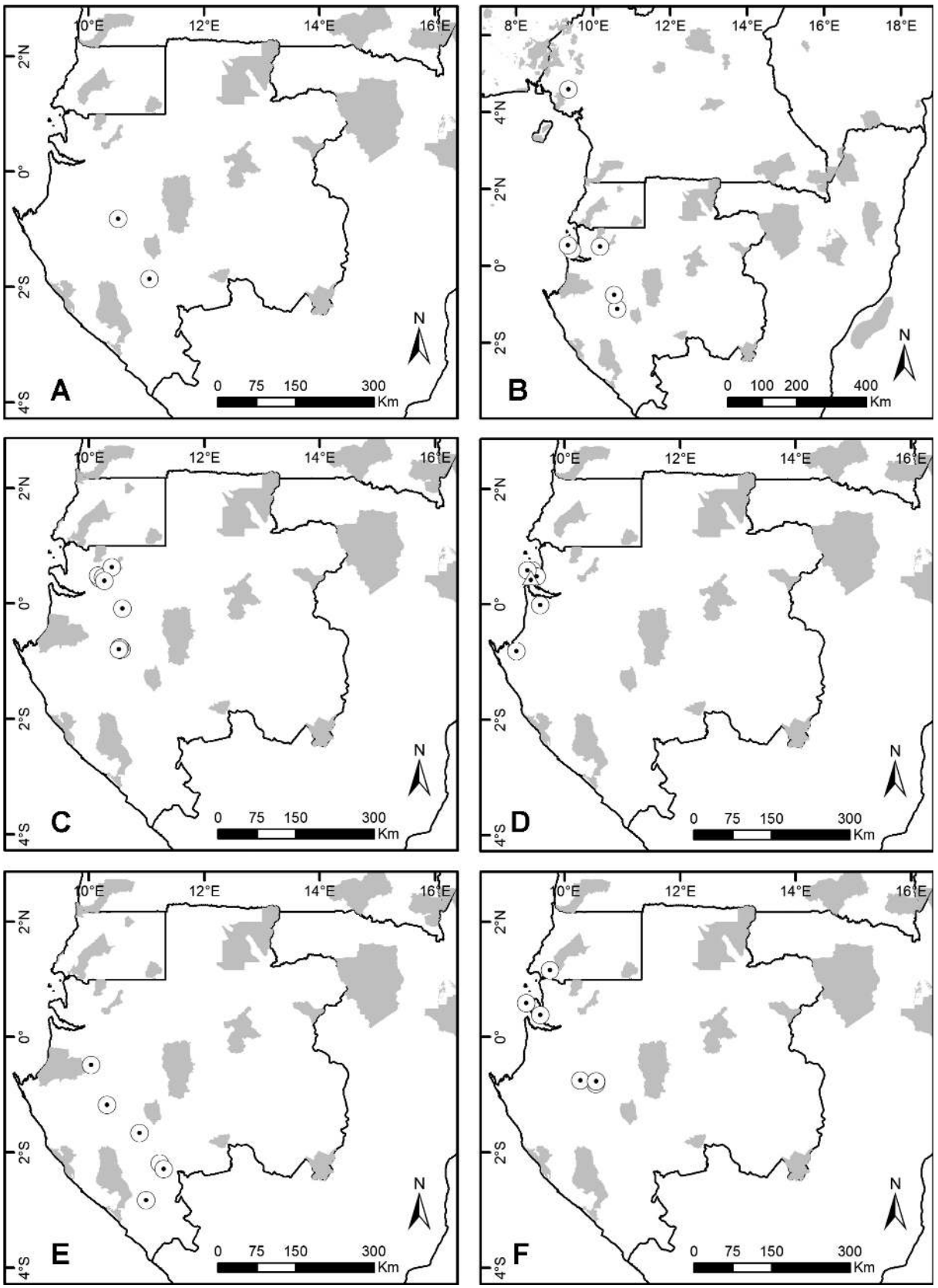

Figure 6 – Distribution of: A, *Pristimera mouilensis*; B, *Salacia coronata*; C, *Salacia diplasia*; D, *Simirestis klaineana*; E, *Macaranga letestui*; F, *Scaphopetalum mannii*. Circles represent populations believed to be still extant and triangles those which are probably extinct. National parks are in pale grey.

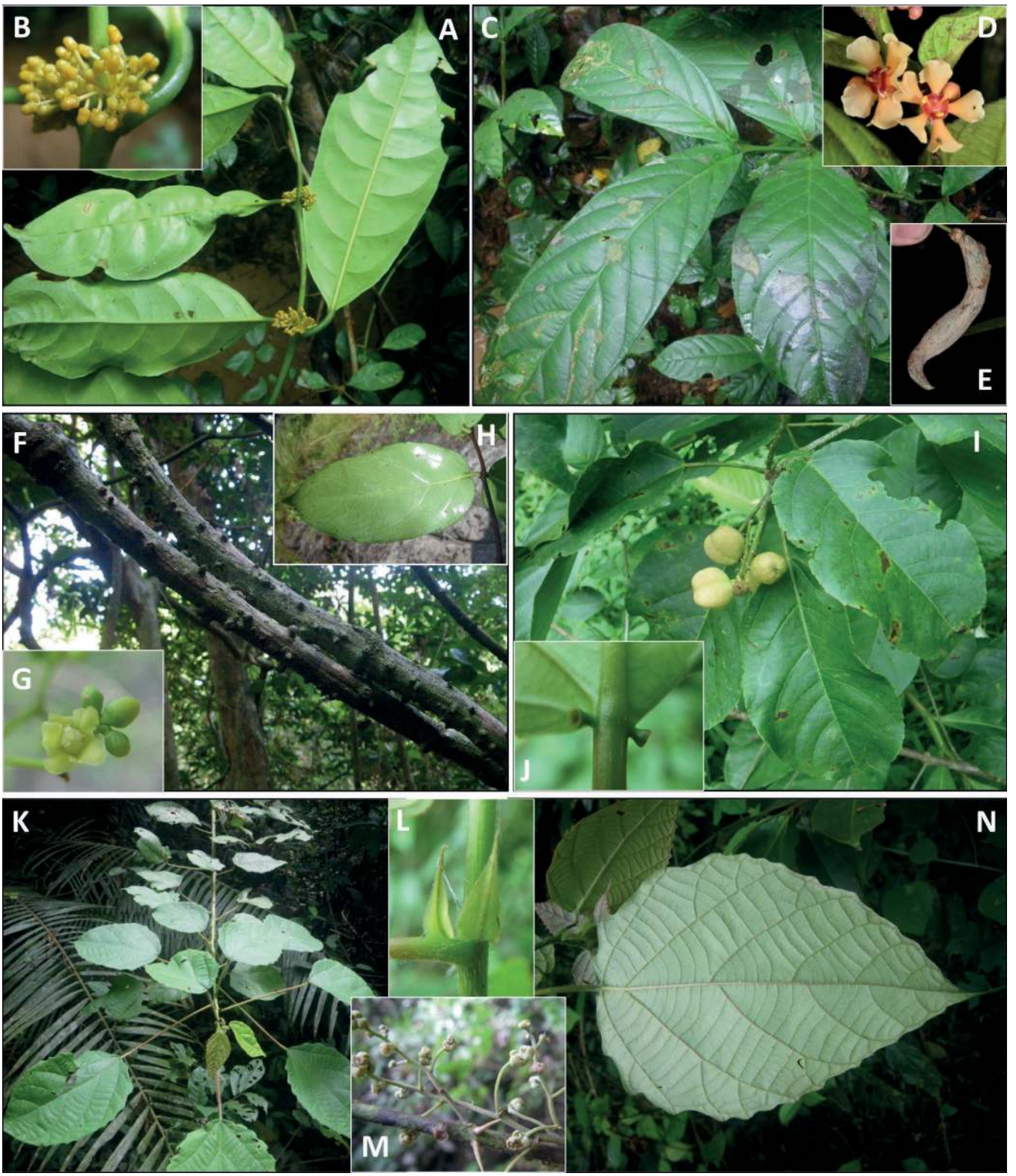

Figure 7 – Photographs illustrating a selection of species treated in the present paper. A & B, *Salacia coronata* (*Lachenaud et al.* 1461); C–E, *Salacia diplasia* (C, *Lachenaud et al.* 1369; D & E, *Bidault et al.* 1044); F–H, *Simirestis klaineana* (F, *Lachenaud et al.* 1197; G, *Lachenaud et al.* 2587; H, *Lachenaud et al.* 2344); I & J, *Croton brieyi* (*Lachenaud et al.* 1342); K–N, *Macaranga letestui* (K & M, *Lachenaud et al.* 2457; L & N, *Lachenaud et al.* 1526). Photographs: Olivier Lachenaud (A–C, F–N), Ehoarn Bidault (D & E).

pressure such as forest clearing. A decline in the quality of the habitat, number of mature individuals, number of subpopulations, and AOO can therefore be predicted. The two subpopulations represent thus two "locations" (*sensu* IUCN 2012), which falls within the limit for Endangered status. *Pristimera mouilensis* is therefore assigned a preliminary status of EN B2ab(ii,iii,iv,v).

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Mabounié, east side of the Ngounié river, road to the camp, 0°48′59″S 10°31′12″E, 17 Oct. 2012, *Stévart et al.* 4678 (BRLU, LBV, MO, P, WAG). **Ngounié**: Mouila, 14 Dec. 1924, *Le Testu* 5136 (BR, isotype).

Salacia coronata N.Hallé
Figs 6B, 7A & B

Distribution – Cameroon and Gabon (fig. 6B).

Ecology – A small woody liana of forest edges; one collection was made in a rocky forest ravine near a small waterfall, the habitat data for the others is not very detailed.

Notes – This rare species was only known from two old Gabonese collections (Hallé 1986; Sosef et al. 2006). Five specimens are now known from Gabon, and one from western Cameroon, which constitutes a new country record and an important range extension.

The fruits, previously unknown, are subglobose and very warty, orange at maturity, c. 2 cm in diameter, with abundant resinous threads in the pericarp (*Breteler et al.* 14292). In the flowering stage, *S. coronata* superficially resembles the much more common *S. dusenii* Loes. but differs in particular by the presence of resinous threads in the leaves.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Salacia coronata* is estimated to be 32 537 km^2 (exceeding the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 20 km^2 (within the limits for Endangered status under the criterion B2). The species is endemic to the coastal part of Atlantic Central Africa and is known from six specimens representing five extant subpopulations (a sixth one, in the surroundings of Libreville, probably no longer exists). Only one of these occurs in a protected area, the Raponda-Walker Arboretum in Gabon; one is in a mining concession undergoing low human pressure such as forest clearing, the others are subject to logging and clearing for agriculture, including industrial agriculture (such as palm plantations) in western Cameroon. We project that the ongoing loss of its habitat will also induce a decline in the number of subpopulations and mature individuals, and thus the AOO and EOO. The five subpopulations represent five "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status, and *Salacia coronata* is therefore assigned a preliminary status of EN B2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Estuaire**: Mondah forest, c. 21 km NNW of Libreville, c. 0°32′N 9°21′E, 5 Dec. 1991, *Breteler & Jongkind* 10858 (BR); Between Kouamé and Mela, on Médouneu road, c.0°30′N 10°11′E, 14 Oct. 1997, *Breteler et al.* 14292 (BRLU); 24 km E de Libreville, 19 May 1897, *Klaine* 917 (P). **Moyen-Ogooué**: Mabounié, vallon près de l'héliport, 0°45′27″S 10°33′01″E, 18 Nov. 2013, *Lachenaud et al.* 1461 (BR, BRLU, LBV, MO, WAG). **Ngounié**: Fouramwanga, 19 Feb. 1927, *Le Testu* 6397 (P, holotype; BR, P, isotypes).
Cameroon: **Southwest**: Small Ekombe, 4°36′N 9°22′E, 23 Oct. 1986, *Nemba & Thomas* 276 (BR).

Salacia diplasia N.Hallé
Figs 6C & 7C–E

Distribution – Only known from northwest Gabon (fig. 6C), but to be expected in Equatorial Guinea.

Ecology – A small shrub, restricted to rocky banks of small rivulets in forest ravines, where it locally forms dense stands.

Notes – This species was only known from two specimens, both from the Crystal Mountains (Hallé 1986). Several other collections were recently made in this region, and also in the Mabounié area, which represents a significant range extension to the south.

Preliminary conservation status – IUCN Red List category: Vulnerable [VU]. The extent of occurrence (EOO) of *Salacia diplasia* is estimated to be 3459 km^2, and its minimal area of occupancy (AOO) to be 40 km^2; both values are within the limit for Endangered status under criteria B1 and B2, respectively. The species is endemic to Gabon and is restricted to rocky banks of small rivulets in forest ravines. It is known from eleven specimens representing ten subpopulations. One of these occurs in a protected area, the Crystal Mountains National Park; the other ones are unprotected and threatened by logging, mining, and dam projects. We project that the ongoing loss of its habitat will also induce a decline in the number of mature individuals, number of subpopulations, and thus AOO and EOO. The ten subpopulations represent a total of six "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status. *Salacia diplasia* is therefore assigned a preliminary status of VU B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Estuaire**: Région des Monts de Cristal, 0°23′30″N 10°16′11″E, 20 July 2017, *Boupoya et al.* 1428 (BR, BRLU, LBV, MO); Zone d'exploitation de Lonmin, au Nord de Andok Foula, 0°26′33″N 10°11′21″E, 16 July 2009, *Dauby et al.* 2004 (BRLU); Monts de Cristal, rivière Essia, 10 km S. Méla, 2 Feb. 1968, *N. Hallé & Villiers* 4867 (P); Monts de Cristal, Mbe N.P., S of Mont Mbilan, 0°26.8′N 10°14.8′E, 8 Feb. 2005, *Leal et al.* 224. **Moyen-Ogooué**: Mabounié, 0°45′57″S 10°32′33″E, 3 Feb. 2013, *Bidault et al.* 1044 (BRLU, LBV, MO, P, WAG); Mabounié, 0°45′56″S 10°32′33″E, 13 May 2014, *Bidault & Akouangou* 1510 (BR, BRLU, LBV, MO, WAG); Mabounié, 0°47′44″S 10°34′15″E, 16 Jun. 2014, *Bidault & Akouangou* 1614 (BRLU, LBV, MO, WAG); Abanga. Chantier CEFA, 4 Jun. 1963, *N. Hallé* 2204 (P, holotype; P, WAG, isotypes); Mabounié, 0°47′54″S 10°31′31″E, 14 Nov. 2013, *Lachenaud et al.* 1369 (BRLU, LBV, MO); Mabounié, point de chute d'eau, 0°48′24″S 10°32′15″E, 14 Oct. 2012, *Sonké & Ikabanga* 6018 (LBV, MO). **Woleu-Ntem**: Tchimbélé, 0°37.70′N 10°24.22′E, 16 Nov. 2002, *Ngok Banak* 1035 (LBV).

Simirestis klaineana N.Hallé
Figs 6D & 7F–H

Distribution – Endemic to Coastal Gabon (though to be expected in Equatorial Guinea), occurring around Libreville and in the Ogooué river delta (fig. 6D).

Ecology – A tall woody climber, growing in coastal forests on sandy soils, often (but not always) close to the edge of the mangroves. Flowering is seasonal and so far recorded only in December–January.

Notes – This uncommon species, previously considered as endemic to the Libreville region (Lachenaud et al. 2013) was recently discovered further south in the Ogooué delta. Two other supposed "Libreville endemics", *Psychotria klainei* Schnell and *P. wieringae* O.Lachenaud, were also found in the same region, which indicates a floristic affinity between the two areas. *Simirestis klaineana* is easily recognisable in the field, even in the vegetative state, by the presence of large bumps on the older stems (fig. 7H).

Preliminary conservation status – IUCN Red List category: Endangered [EN]. *Simirestis klaineana* was recently assessed as CR D (Stévart & Walters 2016) but the subsequent discovery of new populations calls for a reevaluation of its status. Its extent of occurrence (EOO) is estimated to be 3159 km^2, and its area of occupancy (AOO) to be 24 km^2; both values fall within the threshold for Endangered status under criteria B1 and B2, respectively. The species is endemic to coastal Gabon; it is known from 14 specimens representing six extant subpopulations (one of which, at 0°35′41.5″N 9°26′44.5″S, consists of a single individual and was not collected). Two of these occur in protected areas, the Raponda Walker Arboretum and Akanda National Park. Most of its subpopulations occur in the surroundings of Libreville, where continued urbanisation results in significant loss of forest habitat, so a decline in the quality of the habitat, number of subpopulations, number of mature individuals, AOO and EOO can be predicted. The six subpopulations represent a total of six "locations" (*sensu* IUCN 2012), within the threshold for Vulnerable under criterion B. However, based on population size, estimated to be between 50 and 250 mature individuals, the species is assigned a new status of EN D.

Available specimens examined – **Gabon**: **Estuaire**: Road Libreville - Cape Esterias, Mondah forest, débarcadère de Malibé, c.0°30′N 9°23′E, 31 Jan. 1993, *J.J.F.E. de Wilde & van der Maesen* 11017 (WAG); 8 km N de Libreville, 30 Jan. 1961, *N. Hallé* 956 (P); Cap Estérias, 22 Feb. 1968, *N. Hallé & Villiers* 5449 (P); Libreville, Feb. 1896, *Klaine* s.n. (P); environs de Libreville, 13 Dec. 1899, *Klaine* 1729 (P, WAG); ibid., 18 Dec. 1900, *Klaine* 2051 (P); ibid., 9 Jan. 1901, *Klaine* 2103 (P); rivière Mondah, 31 Dec. 1901, *Klaine* 2633bis (P, holotype & isotype); environs de Libreville, 29 Jan. 1902, *Klaine* 2687 (P); ibid., 8 Jan. 1903, *Klaine* 3199 (P); Forêt Classée de la Mondah, à l'est de la savane incluse, 0°35′17″N 9°21′27″E, 5 March 2011, *Lachenaud et al.* 1197 (BR, LBV, MO); Rive gauche de l'Igombiné en face de Foulenzem Makok, 0°00′31″S 9°35′00″E, 8 March 2011, *Lachenaud et al.* 1228 (BR, LBV, MO); Débarcadère d'Oveng, à l'est de Libreville, 0°28′54.2″N 9°31′03.4″E, 19 Dec. 2016, *Lachenaud & Akouangou* 2587 (BR, BRLU, LBV, MO, P, WAG). **Ogooué-Maritime**: Rivière de Kendié, rive est, en aval de Mbilapé, 0°48′35.0″S 9°10′09.5″E, 25 Nov. 2016, *Lachenaud et al.* 2344 (BR, BRLU, LBV, MO, P, WAG).

EUPHORBIACEAE

****Croton brieyi*** De Wild.
Fig. 7I & J

Distribution – Gabon, Republic of the Congo, Angola (Cabinda) and D.R. Congo (Mayumbe).

Ecology – A small tree of young secondary forest; locally frequent along roads.

Notes – This species is locally frequent in western Gabon, but surprisingly, there are apparently no published records from the country (e.g. Sosef et al. 2006) even though some Gabonese collections were identified long ago by the late Jean Léonard. The tree is called Asogomon or Asourémon in Fang (*Chevalier* 26703).

Gabonese specimens examined – **Estuaire**: environs de Libreville, 16 Jan. 1901, *Klaine* 2395 (P); village de Mboro, sur le Haut-Ramboué, 13 Oct. 1912, *Chevalier* 26703 (P). **Moyen-Ogooué**: Mabounié, 0°44′16″S 10°36′01″E, 17 Oct. 2012, *Bidault et al.* 924 (BRLU, LBV, MO, P, WAG); environs du village de Ebimanghâ, sur le lac Ayem, 22 Aug. 1912, *Chevalier* 26619 (P, WAG). **Ngounié**: Dikaki Chantier, Bindolo R. basin, NW of Fougamou, c. 1°15′S 10°29′E, 20 Sep. 1997, *Breteler et al.* 14001 (P, WAG); Mabounié, 0°46′28″S 10°33′49″E, 13 Nov. 2013, *Lachenaud et al.* 1342 (BR, BRLU, LBV, MO, P, WAG).

Macaranga letestui Pellegr.
Figs 6E & 7K–N

Distribution – Endemic to western Gabon (fig. 6E), but might occur in adjacent Republic of the Congo.

Ecology – A scrambling shrub of forest edges, especially along roads, on forest-savanna borders, and in treefall gaps.

Notes – This species, previously known only from the type collected in 1908, has now been found in five additional sites; in most of them it is not rare, or even common. It is likely to be more widespread and has probably been overlooked due to its similarity with other scrambling *Macaranga* species, e.g. *M. gabunica* Prain, *M. klaineana* Pierre, *M. pierreana* Prain and *M. poggei* Pax, from which it differs by the presence of long patent hairs on the twigs and the relatively large, tardily caducous stipules. Only the male flowers are known; female flowers and fruits have never been collected. The species is called Minu-ma-mbanu in Bapunu (*Walker* s.n.).

Preliminary conservation status – IUCN Red List category: Least Concern [LC]. The extent of occurrence (EOO) of *Macaranga letestui* is estimated to be 7865 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1), whereas its area of occupancy (AOO) is estimated to be 24 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to Gabon and is known from six specimens, representing six subpopulations. None of these subpopulations is protected, but since the species favours degraded habitats such as roadsides, it is

likely to benefit from small-scale forest clearing, and there is no evidence of an immediate threat. *Macaranga letestui* is therefore assigned a preliminary statut of LC.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Piste du Lac Azingo, à ± 10 km au NE du lac, 0°28′49.1″S 10°02′34.4″E, 25 Oct. 2014, *Lachenaud et al.* 2054 (BR, BRLU, LBV, MO, WAG). **Ngounié**: Collines au SE du Lac Ezanga, 1°10′44″S 10°19′17″E, 21 Nov. 2013, *Lachenaud et al.* 1526 (BR, BRLU, LBV, MO, P, WAG); galerie de la Dola, rive ouest, à l'est de Nangha, 2°11′14.8″S 11°13′56.0″E, 5 Dec. 2016, *Lachenaud et al.* 2457 (BR, BRLU, LBV, MO, P, WAG); galerie de la Dola, rive ouest, au nord de Ferra, 2°17′21.5″S 11°18′03.3″E, 9 Dec. 2016, *Lachenaud et al.* 2552 (BRLU, LBV, WAG); St Martin, Nov. 1938, *Walker* s.n. (P). **Nyanga**: Tchibanga, 4 Dec. 1908, *Le Testu* 1498 (P, holotype; BR, isotype).

GENTIANACEAE

Sebaea baumiana (Gilg) Boutique
Fig. 8A–C

Distribution – D.R. Congo, Angola, Zambia (Boutique 1972, Paiva & Nogueira 1990) and Gabon. To be expected in the Republic of the Congo.

Ecology – An annual herb of humid savannas.

Notes – The discovery of this species in Gabon represents an important range extension northwards, the closest known localities being in southwestern D.R. Congo. This small plant is easily overlooked and is likely to be more widespread than records suggest.

Gabonese specimen examined – **Ogooué-Maritime**: Lagune de Fernan Vaz, Toungounamba, 1°34′12.0″S 9°22′08.2″E, 18 Nov. 2016, *Bidault et al.* 2681 (BRLU, LBV, MO).

MALVACEAE s. lat.

Scaphopetalum mannii Mast.
Figs 6F & 8D–G

Distribution – Equatorial Guinea (Rio Muni) and Gabon (fig. 6F).

Ecology – A litter-gathering shrub of wet areas in forest undergrowth, locally forming very dense stands along rivulets.

Notes – This species is unique among Gabonese *Scaphopetalum* by the litter-collecting habit and large oblanceolate leaves (fig. 8D). It was known only from the type specimen collected in the XIXth century in Equatorial Guinea but proved to be locally abundant in the Mondah forest near Libreville, and in the Mabounié region east of Lambaréné. Rather surprisingly, we have not found it elsewhere in Gabon, though apparently suitable habitats are widespread in the country.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Scaphopetalum mannii* is estimated to be 10 078 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 28 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to Atlantic Central Africa and is known from 11 specimens representing eight subpopulations. Only one of these occurs in a protected area (the Raponda-Walker Arboretum near Libreville); four are in a mining concession subject to low human pressure such as forest clearing, one in a forestry concession subject to logging, and one in an area severely threatened by urbanization and agriculture. We can therefore infer a decline in the quality of the habitat, number of subpopulations and mature individuals, and thus EOO and AOO. The eight subpopulations represent a total of five "locations" (*sensu* IUCN 2012), which falls within the limit for Endangered status. *Scaphopetalum mannii* is thus assigned a preliminary status of EN B2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Estuaire**: 17 km E. of Libreville, S. of Bikelé village, 7 Dec. 1983, *A.M. Louis et al.* 1202 (WAG); road from Libreville to Cap Esterias, just past entrance of Forêt de Mondah, 22 Nov. 2011, *Maas et al.* 10436 (WAG). **Moyen-Ogooué**: Zone de Mabounié, à 45 km au sud-ouest de Lambaréné, rive nord de la rivière Ngounié, 0°45′50″S 10°33′05″E, 54 m, 23 Oct. 2012, *Bidault et al.* 963 (BRLU, LBV, MO, P, WAG); Mabounié, 0°45′52″S 10°33′05″E, 35 m, 1 Feb. 2013, *Bidault et al.* 1017 (LBV, MO); Mabounié, 0°48′27″S 10°32′17″E, 41 m, 5 Feb. 2013, *Bidault et al.* 1059 (LBV, MO); Mabounié, 0°46′04″S 10°33′04″E, 16 Nov. 2013, *Bidault et al.* 1330 (BR, BRLU, LBV, MO, P, WAG); Au Sud de Lambaréné, entre 5 et 10 km depuis la ville, entre l'Ogooué et la route de Fougamou, 0°45′04″S 10°16′22″E, 11 April 2015, *Bidault et al.* 1912 (BRLU, LBV, MO); Mabounié, Golgotha, 0°45′55″S 10°33′04″E, 16 Nov. 2013, *Lachenaud et al.* 1422 (BR, BRLU, LBV, MO, P, WAG); Mabounié, 0°47′00″S 10°32′38″E, 73 m, 13 Oct. 2012, *Sonké & Ikabanga* 6012 (LBV, MO); ibid., *Sonké & Ikabanga* 6016 (LBV, MO).
Equatorial Guinea: **Litoral**: Mt. John, Kongui river, Sept. 1862, *Mann* 1837 (K, holotype).

MARANTACEAE

Thaumatococcus flavus A.C.Ley
Figs 8H–J & 9A

Distribution – Endemic to northwest Gabon (fig. 9A).

Ecology – A tall herb (erect leaves c. 3 m long) growing along streams in forest; our collection was made in a sunny area near a small waterfall.

Notes – A recently described species, so far only known from the Crystal Mountains (Ley & Classen-Bockhoff 2012); a new collection from the Mabounié area represents a significant range extension to the south. It is easily recognised by the yellow flowers, and dark wine-red angular fruits with slightly verrucose surface (fig. 8I–J). We have not traced the specimens *Ley & Nguema* 201, 202 and 218, all from Tchimbélé, cited in the original description.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Thaumatococcus flavus* is estimated to be 7984 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 20 km^2 (within the limits for Endangered status

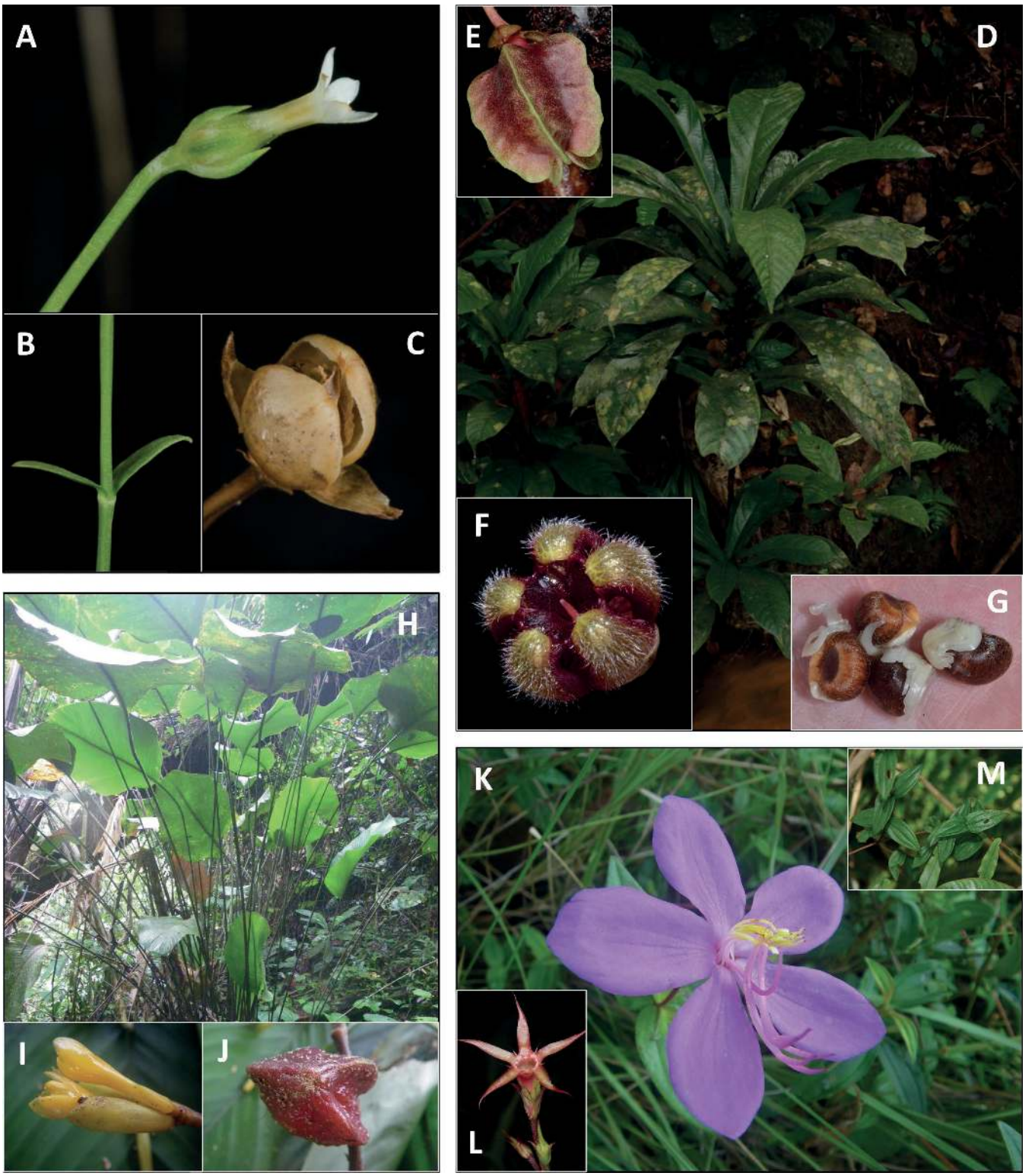

Figure 8 – Photographs illustrating a selection of species treated in the present paper. A–C, *Sebaea baumiana* (*Bidault et al.* 2681); D–G, *Scaphopetalum mannii* (D, F & G, *Bidault et al.* 1017; E, *Bidault et al.* 1330); H–J, *Thaumatococcus flavus* (*Lachenaud et al.* 1463); K–M, *Guyonia arenaria* (K & M, *Bidault et al.* 2778; L, *Lachenaud et al.* 2285). Photographs: Ehoarn Bidault (A–G, L–M), Olivier Lachenaud (H–K).

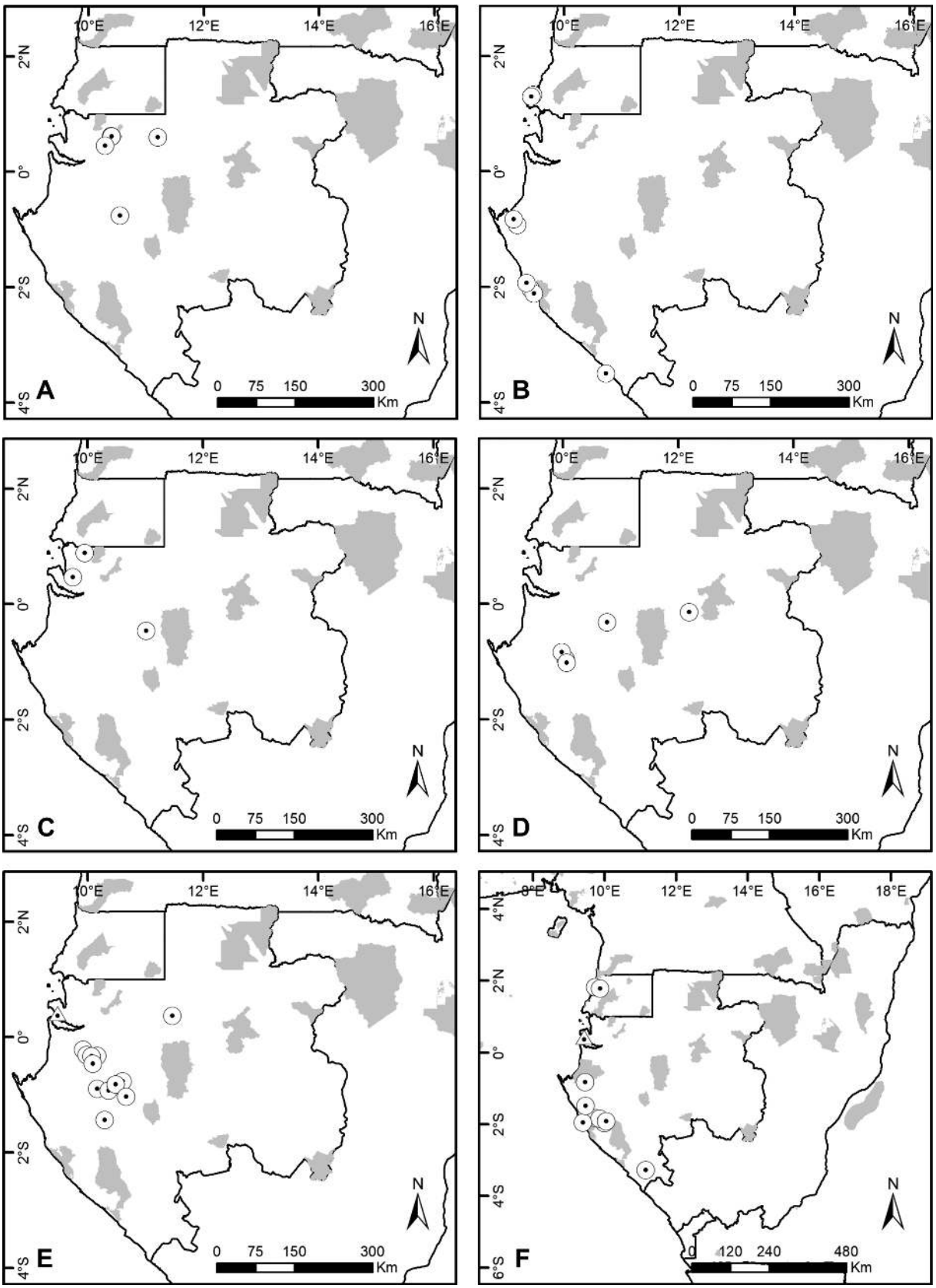

Figure 9 – Distribution of: A, *Thaumatococcus flavus*; B, *Guyonia arenaria*; C, *Tristemma vestitum*; D, *Strombosia fleuryana*; E, *Drypetes verrucosa*; F, *Rutidea gabonensis*. Circles represent populations believed to be still extant and triangles those which are probably extinct. National parks are in pale grey.

under the criterion B2). The species is endemic to Gabon and is known from seven specimens representing four subpopulations. One of these is in a mining concession, undergoing low human pressure such as forest clearing; the other sites are exposed to selective logging. A decline in the quality of the habitat and number of mature individuals can therefore be predicted. The four subpopulations represent a total of four "locations" (*sensu* IUCN 2012), which falls within the limit for Endangered status. *Thaumatococcus flavus* is therefore assigned a preliminary status of EN B2ab(iii,v).

Available specimens examined (see Notes above) – **Gabon**: **Moyen-Ogooué**: Mabounié, vallon près de l'héliport, 0°45′27.1″S 10°33′01.3″E, 18 Nov. 2013, *Lachenaud et al.* 1463 (BR, BRLU, LBV, MO, WAG). **Woleu-Ntem**: Tchimbélé, 0°36.8′N 10°24.1′E, 14 Nov. 2004, *Ley* 56 (WAG, holotype); Mikongo, 0°35.815′N 11°12.413′E, 19 Nov. 2008, *Ley* 457 (BRLU); Kinguélé, near upper barrage, 0°27.457′N 10°17.391′E, *Ley* 577 (BRLU).

MELASTOMATACEAE

Guyonia arenaria (Jacq.-Fél.) Veranso-Libalah & R.D.Stone
Figs 8K–M & 9B

Synonyms: *Heterotis arenaria* Jacq.-Fél.; *Heterotis obamae* Lejoly & Lisowski; *Guyonia obamae* (Lejoly & Lisowski) Veranso-Libalah & R.D.Stone

Distribution – Coastal regions of Gabon and Equatorial Guinea (Rio Muni) (Fig. 9B); to be expected also in the Republic of the Congo.

Ecology – A herb restricted to forest-savanna edges on humid coastal sands, usually growing in half-shade; locally frequent in this habitat.

Notes – This uncommon species was first described as *Heterotis arenaria* by Jacques-Félix (1988) from a single specimen collected in the extreme south of Gabon, and later as *H. obamae* by Lejoly & Lisowski (1999) from Equatorial Guinea. Parmentier & Geerinck (2003) recognised the two species as identical, an observation overlooked by subsequent authors (Sosef et al. 2006, Harris et al. 2012, Veranso-Libalah et al. 2017). The species is now recorded from six localities along the coast of southern Gabon, and two in Equatorial Guinea. It is not known whether the apparent gap in its range, with no records from northern Gabon, is a chorological reality. Although the flowers are very ornamental (fig. 8K), they are quite fugacious, and resemble those of other Melastomataceae, so the species may have been overlooked.

Preliminary conservation status – IUCN Red List category: Near Threatened [NT]. The extent of occurrence (EOO) of *Guyonia arenaria* is estimated to be 34 996 km^2 (exceeding the upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 32 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to the coastal part of Atlantic Central Africa and occurs in forest-savanna edges on humid coastal sands. It is known from nine specimens, representing eight subpopulations; five of which occur in protected areas (the Ndote Reserve in Equatorial Guinea and Loango National Park in Gabon). There is currently no evidence of a particular threat to its habitat; however, in view of its small number of "locations" (five, *sensu* IUCN 2012), it could become threatened quickly, and is thus assigned a preliminary statut of NT.

Available specimens examined – **Gabon**: **Nyanga**: Mayumba-peninsular, about 15 km S of Mayumba, 18 Feb. 1983, *J.J.F.E. de Wilde et al.* 629 (WAG, holotype of *G. arenaria*). **Ogooué-Maritime**: Au sud de Kendié, 0°55′22″S 9°11′28.2″E, 24 Nov. 2016, *Bidault et al.* 2778 (BR, BRLU, LBV, MO, P, WAG); Loango National Park, road from Iguela to Tassi, c. 20 km S of Iguela, 2°02′11″S 9°25′26″E, 25 Apr. 2005, *Harris et al.* 8229 (E, WAG); Loango National Park, Tassi-sud, 2°07′02″S 9°28′50″E, 20 May 2005, *Harris et al.* 8749 (E); Rivière de Kendié, rive ouest, en aval de Mbilapé, 23 Nov. 2016, *Lachenaud et al.* 2285 (BR, BRLU, LBV, MO); Parc National Loango, 1°55.88′S 9°20.98′E, 25 May 2004, *Mouandza Mbembo et al.* 171 (LBV, WAG).
Equatorial Guinea: **Litoral**: Espigon/pradera de Baga, Réserve de Ndote, 1°20′N 9°28′E, 28 Aug. 1997, *Eneme & Lejoly* 132 (BRLU); Etembue, 1°18′N 9°26′E, 11 Aug. 1998, *Lejoly & Elad* 98/112 (BRLU, holotype and isotype of *Heterotis obamae*); Ndote Sud, près du village Etembwe, 6 Sep. 1997, *Lisowski* M-527 (BRLU).

****Melastomastrum autranianum*** (Cogn.) A.Fern. & R.Fern. **var. *autranianum***

Distribution – Gabon, Republic of the Congo, D.R. Congo. Another variety, var. *latibracteatum* (De Wild.) Jacq.-Fél., occurs in D.R. Congo (Jacques-Félix 1975).

Ecology – A sub-shrubby herb of marshy habitats, in savanna or in secondary forest.

Notes – A common and widespread species in the Congo basin, but surprisingly rare in Gabon. Cited from the country by Sosef et al. (2006) based on a single doubtfully identified specimen; the identity of this collection is here confirmed, and a second one was recently made in the lower Ogooué basin, which is an important range extension westwards.

Gabonese specimens examined – **Haut-Ogooué**: Falls in the Djoumou river, c. 7 km SE of Franceville, 1°41′S 13°40′E, 6 Dec. 1989, *J.J. de Wilde et al.* 9924 (BR). **Ogooué-Maritime**: sud de la réserve de Wonga Wongué, 0°41′50″S 9°28′49″E, 25 Oct. 2014, *Boupoya et al.* 1130 (BRLU, LBV).

Tristemma vestitum Jacq.-Fél.
Fig. 9C

Distribution – Only known from northwest Gabon (fig. 9C), but to be expected in Equatorial Guinea.

Ecology – A ± shrubby herb (up to 1.5 m), occurring in old secondary forest and in wet areas near streams.

Notes – A rare species, previously known only from the type specimen collected east of Libreville (Jacques-Félix 1986); three further collections have been found and extend its range to the middle Ogooué valley. *Tristemma vestitum* differs from its Central African congeners by the hypanthium which is densely hairy all over (rather than glabrous or with hairs forming distinct rows); it is also unusual in the

1-flowered inflorescences. The flowers, originally described as 7-merous, are more commonly 6-merous. The specimen *Reitsma* 2773, cited with doubt under *T. vestitum* by Sosef et al. (2006), actually represents *T. demeusei* De Wild.

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Tristemma vestitum* is estimated to be 4476 km^2 and its minimal area of occupancy (AOO) to be 12 km^2; both values are within the limit for Endangered status under criteria B1 and B2, respectively. The species is endemic to Gabon, and is known from four specimens representing three subpopulations. One of these (near Libreville) is presumably highly threatened by logging, agriculture and urbanisation; another is in a logging concession, undergoing low human pressure. A decline in the quality of the habitat, number of subpopulations, number of mature individuals, and thus AOO and EOO, is therefore expected. The three subpopulations represent a total of three "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status, and *Tristemma vestitum* is thus assigned a preliminary status of EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v).

Available specimens examined – **Gabon**: **Estuaire**: 5 km au NW de Mebba, 0°28′N 9°45′E, 25 Sept. 1983, *Floret et al.* 1453 (P, holotype; WAG, isotype); Ekorado village, Mitemboni river, 0°53′16″N 9°57′09″E, 26 Apr. 2001, *Walters et al.* 555 (BR). **Moyen-Ogooué**: Mboumi, 16 Feb. 2000, *Champluvier* 6169 (BR); région de Ndjolé, concession Bordamur, Mboumi Camp, 0°27′26″S 11°01′16″E, 24 Feb. 2009, *Stévart et al.* 3015 (BR).

MOLLUGINACEAE

****Gisekia pharnaceoides*** L.

Distribution – Widespread from Senegal to South Africa, and also in tropical Asia.

Ecology – A herb of savannas and ruderal habitats, particularly in coastal areas.

Notes – A new genus for Gabon; the absence of previous records is surprising, considering its occurrence in most tropical African countries.

Gabonese specimens examined – **Estuaire**: Libreville, no date, *Baudon* 216 (BR). **Ogooué-Maritime**: Ozouri, 1°00′16.6″S 8°52′41.6″E, 16 Nov. 2016, *Bidault et al.* 2636 (BR, BRLU, LBV, MO, P, WAG).

OLACACEAE

Strombosia fleuryana Breteler
Figs 9D & 10A–C

Distribution – Endemic to Gabon, where restricted to the central part of the Ogooué basin, along the Ogooué R. itself, the lower course of the Ivindo R., and associated lakes (fig. 9D).

Ecology – A shrub, 2–4 m high, restricted to seasonally flooded forests, which form a narrow belt on the edges of lakes and rivers in the Ogooué basin. These forests consist mostly of exclusive tree species, the dominant ones being *Dactyladenia chevalieri* (De Wild.) Prance & F.White, *Morelia senegalensis* A.Rich. ex DC., *Martretia quadricornis* Beille, *Scytopetalum klaineanum* Pierre ex Engl., and *Cynometra mannii* Oliv. *Strombosia fleuryana* is locally frequent in this habitat, but always occurs as isolated plants; it flowers profusely in October and produces fruits in the same month.

Notes – A recently described species (Breteler 2007) previously known only from the type collection. It has now been found at several locations along Lake Onangué, where it is relatively frequent, and in the lower Ivindo basin, which is an important range extension to the east. The fruits, collected for the first time (*Bidault et al.* 2167; Fig. 10C) are red, ellipsoid, c. 15 × 10 mm when dry.

Preliminary conservation status – IUCN Red List category: Near Threatened [NT]. The extent of occurrence (EOO) of *Strombosia fleuryana* is estimated to be 6545 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 20 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to Gabon and is restricted to seasonally flooded forests. It is known from five specimens, representing five subpopulations. Although it is not found in any protected area, its habitat is inappropriate for agriculture and settlements, and we have no evidence of any current threat. However, in view of its limited number of "locations" (four, *sensu* IUCN 2012), it could become threatened quickly, and is thus assigned a preliminary statut of NT.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Lac Onangué, 0°57′17″S 10°02′58″E, 22 Oct. 2014, *Bidault et al.* 1817 (BR, BRLU, G, LBV, MO, P, WAG); Environs de N'Gomo, sur l'Ogooué, 4 Sep. 1912, *Fleury in Chevalier* 26445 (P, holotype); km 5, route Ndjolé vers Ayem, c.0°19′S 10°46′E, 13 Oct. 1983, *Floret et al.* 1932 (WAG); Lac Onangué, 1°00′53.5″S 10°04′13.6″E, 23 Oct. 2014, *Lachenaud et al.* 2035 (BR, BRLU, G, LBV, MO, P, WAG). **Ogooué-Ivindo**: Concession forestière Rougier-Ivindo, bord du fleuve, 0°08′29″S 12°11′46″E, 26 Oct. 2015, *Bidault et al.* 2167 (BR, BRLU, LBV, MO, P, WAG).

POACEAE

****Leptochloa coerulescens*** Steud.
Fig. 10D–F

Distribution – Widespread in tropical Africa from Senegal to Ethiopia, Zambia and Angola (van der Zon 1992).

Ecology – A characteristic species of floating grasslands along major watercourses, forming extensive, often monospecific stands.

Notes – A new genus for Gabon. *L. coerulescens* is one of the commonest species of aquatic habitats in some parts of the Ogooué delta, and the absence of any previous records from the country (e.g. Sosef et al. 2006) is thus extremely surprising.

Gabonese specimens examined – **Moyen-Ogooué**: Lac Onangué, 0°57′15″S 10°04′43″E, 22 Oct. 2014, *Bidault et al.* 1806 (BR, BRLU, LBV, MO, P, WAG). **Ogooué-Maritime**: environs du village Olamba, îlot entre deux bras des lacs, 0°56′31″S 10°04′46″E, 10 Aug. 2011, *Boupoya et al.* 471 & 474 (both BRLU, LBV, MO); Environs de Mpaga,

0°50′30″S 9°23′26″E, 20 Oct. 2014, *Boupoya et al.* 1089 (BRLU, LBV).

PUTRANJIVACEAE

Drypetes verrucosa Hutch.
Figs 9E & 10G–J

Distribution – Endemic to northwest and west-central Gabon (Fig. 9E).

Ecology – A medium-sized tree of mature forest on drained soils; usually occurring as isolated trees, rarely in large populations. Flowering is seasonal and has been recorded only in late October - early November (rainy season); fruits have been collected in October, December, February and April.

Notes – This species was only known from a handful of collections (Sosef et al. 2006) but proves to be relatively widespread in western Gabon, although uncommon. The tree is very conspicuous in the field, due to the deeply fluted bole marked with transverse rings, and the relatively large flowers borne in cushions on the trunk; the pectinate stipules and the leaves with strongly asymmetrical base also make recognition easy.

Preliminary conservation status – IUCN Red List category: Vulnerable [VU]. The extent of occurrence (EOO) of *Drypetes verrucosa* is estimated to be 14 203 km^2 (under the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) whereas its minimal area of occupancy (AOO) is estimated to be 48 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to Gabon and occurs at low density in mature lowland forest. It is known from 16 specimens representing 11 subpopulations, none of which is protected. The subpopulation around Libreville is only known from old collections and may no longer exist. Most of the others occur in areas subject to logging, and two are in a mining concession (with a currently low level of human impact). We project that the ongoing loss of habitat will induce a decline in the number of mature individuals. The 11 subpopulations represent a total of nine "locations" (*sensu* IUCN 2012), exceeding the upper limit for Endangered status, but falling within the limit for Vulnerable status. *Drypetes verrucosa* is therefore assigned a preliminary status of VU B1ab(iii,v)+B2ab(iii,v).

Available specimens examined – **Gabon**: **Estuaire**: Sibang, 23 Oct. 1901 & 29 Oct. 1902, *Klaine* 2382 (BR, P, syntypes); environs de Libreville, 19 Feb. 1902, *Klaine* 2482 (P, syntype); environs de Libreville, 26 Dec. 1901, *Klaine* 2589 (P, syntype). **Moyen-Ogooué**: Mabounié, 0°45′41″S 10°36′24″E, 4 Feb. 2013, *Bidault et al.* 1054 (BRLU, LBV, MO, P, WAG); Route menant au lac Azingo, 0°27′48″S 10°05′17″E, 26 Oct. 2014, *Bidault et al.* 1861 (LBV, MO); Au Sud de Lambaréné, 0°55′20″S 10°21′45″E, 15 Apr. 2015, *Bidault et al.* 1940 (BR, BRLU, LBV, MO, P, WAG); Au Nord-est du lac Azingo, 0°19′38″S 10°03′54″E, 4 Jun. 2014, *Boupoya et al.* 944 (BRLU, LBV); idem, 0°18′40″S 09°59′05″E, 6 Jun. 2014, *Boupoya et al.* 982B (BRLU, LBV); idem, 0°12′57″S 9°55′31″E, 10 Jun. 2014, *Boupoya et al.* 1015 (BRLU, LBV); idem, 0°19′32″S 10°09′52″E, 11 Jun. 2014, *Boupoya et al.* 1023B (BRLU, LBV); Mabounié, 0°49′11″S 10°29′13″E, 14 Oct. 2012, *IRD Plot* 331 (BRLU); same locality and date, *IRD Plot* 332 (BRLU); Lac Azingo, 0°29′47″S 10°03′50″E, 6 Jun. 2014, *IRD Plot* 940 (BRLU, LBV); Lambaréné, along the Ogooué river, 0°53′33″S 10°09′59″E, 15 Oct. 2012, *Sonké et al.* 6041 (MO). **Ngounié**: Sindara, 10 Nov. 1918, *Le Testu* 2291 (BR). **Ogooué-Ivindo**: La Lara, 27 Oct. 1933, *Le Testu* 9349 (BR).

RUBIACEAE

[***Pavetta lasioclada*** (K.Krause) Mildbr. ex Bremek.]

This species occurs in dry forests from Sierra Leone to the Central African Republic (Manning 1996) and is unlikely to be found in Gabon. A previous record from the country (Sosef et al. 2006) is based on *Reitsma* 2644, a misidentified collection of *P. viridiloba* var. *viridiloba* (see that species).

****Pavetta viridiloba*** K.Krause **var. *viridiloba***
Fig. 10K–M

Distribution – Cameroon, Equatorial Guinea (Rio Muni), Gabon, D.R. Congo. The other variety, var. *meurillonii* S.D.Manning, occurs in western Cameroon and is only known from the type.

Ecology – A shrub occurring in mature or degraded *terra firme* forest, locally abundant in the undergrowth.

Notes – Probably the most abundant species of the genus in Gabon, but often confused with related taxa, particularly *P. puberula* Hiern; it was included in the synonymy of the latter by Bremekamp (1934), but Manning (1996) showed they are distinct. This explains its absence from the checklist of Sosef et al. (2006), where four specimens (*Stone et al.* 3134; *J.J. de Wilde et al.* 8968, 9147, 9436) were cited as *P. puberula*, one (*A.M. Louis et al.* 592) as *P. corymbosa* (DC.) F.N.Williams, and one (*Reitsma* 2644) as *P. lasioclada*. The latter species is not present in Gabon (see above). The occurrence of *P. corymbosa* in the country also seems doubtful, but we have not seen the other collections cited.

Gabonese specimens examined – **Estuaire**: road from Libreville to Cap Estérias, just past entrance of Forêt de Mondah, 0°35.7′N 9°20.2′E, 22 Nov. 2011, *Maas et al.* 10449 (WAG). **Moyen-Ogooué**: Mabounié, 0°46′18″S 10°35′43″E, 1 May 2012, *Bidault et al.* 360 (BRLU); ibid., 0°43′16″S 10°36′03″E, 14 May 2012, *Bidault et al.* 570 (BRLU); ibid., 0°44′26″S 10°33′40″E, 9 Oct. 2012, *Bidault et al.* 715 (BRLU); ibid., 0°43′41″S 10°33′39″E, 11 Oct. 2012, *Bidault et al.* 757 (BRLU); ibid., 0°44′13″S 10°35′54″E, 16 Oct. 2012, *Bidault et al.* 903 (BRLU); ibid., 0°45′55″S 10°33′32″E, 17 Oct. 2012, *Bidault et al.* 925 (BRLU); ibid., 0°45′13″S 10°32′22″E, 10 Oct. 2012, *Sonké & Ikabanga* 5947 (BRLU); ibid., 0°43′37″S 10°33′31″E, 11 Oct. 2012, *Sonké & Ikabanga* 5958 (BRLU) & 5961 (BRLU); ibid., 0°49′58″S 10°33′30″E, 12 Oct. 2012, *Sonké & Ikabanga* 5981 (BRLU); ibid., 0°45′57″S 10°35′46″E, 18 Oct. 2012, *Sonké & Ikabanga* 6114 (BRLU); ibid., 23 Oct. 2012, *Sonké & Ikabanga* 6133 (BRLU); ibid., 0°48′14″S 10°30′06″E, 25 Oct. 2012, *Sonké & Ikabanga* 6161 (BRLU); ibid., 0°44′27″S 10°35′30″E, 3 May 2012, *Stévart et al.* 4143 (BRLU); ibid., 0°43′35″S 10°33′27″E, *Stévart et al.* 4220 (BRLU). **Ngounié**: Collines au SE du Lac Ezanga, 1°09′46″S 10°20′20″E, 23 Nov. 2013, *Lachenaud et al.* 1557 (BR, BRLU, LBV, MO,

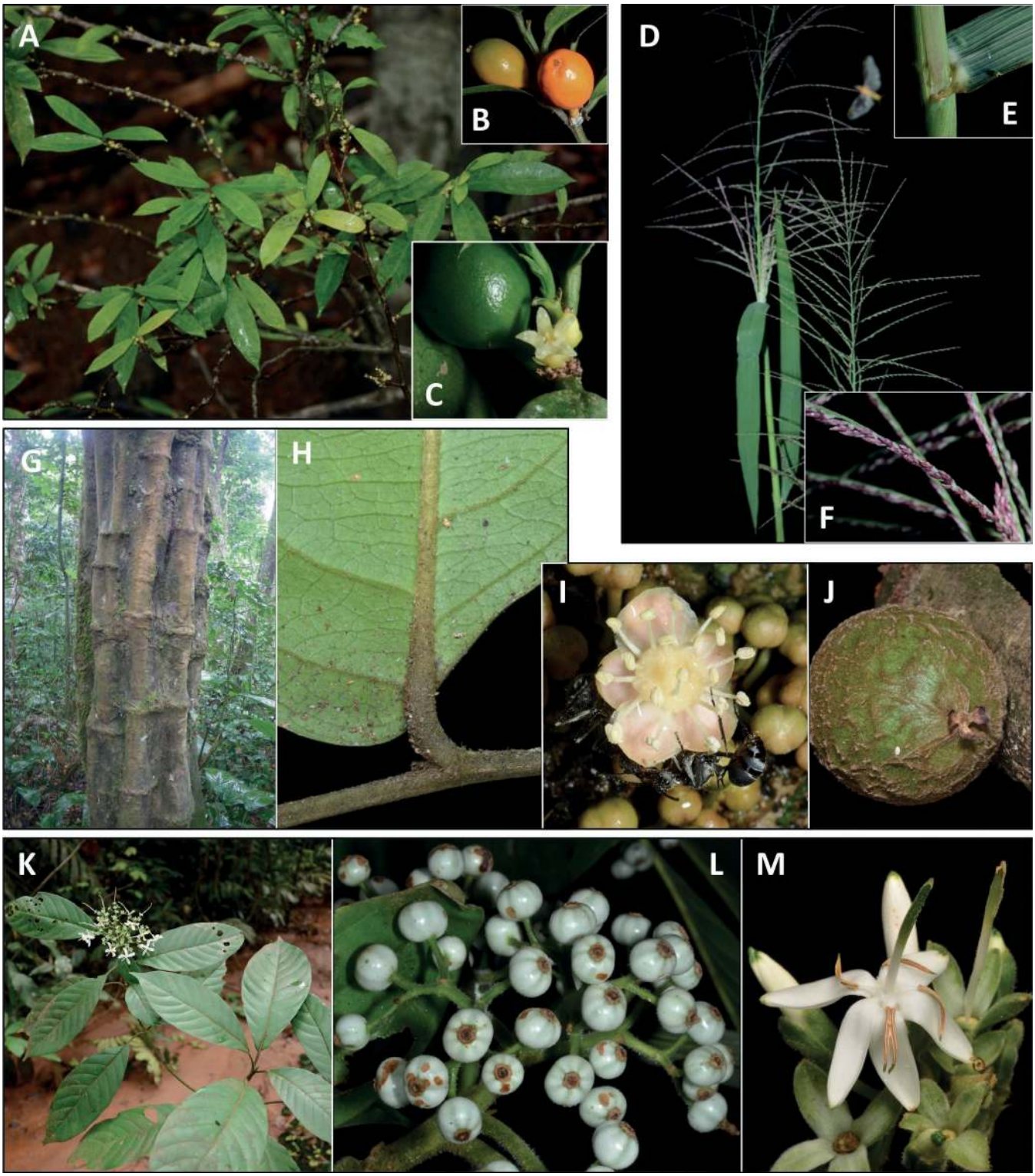

Figure 10 – Photographs illustrating a selection of species treated in the present paper. A–C, *Strombosia fleuryana* (A, *Bidault et al.* 1817; B & C, *Bidault et al.* 2167); D–F, *Leptochloa coerulescens* (*Bidault et al.* 1806); G–J, *Drypetes verrucosa* (G, Mabounié, Gabon, plant not collected; H & J, *Bidault et al.* 1054; I, *Bidault et al.* 1861); K–M, *Pavetta viridiloba* var. *viridiloba* (K, *Bidault et al.* 1440; L, *Bidault et al.* 903; M, *Bidault et al.* 512). Photographs: Ehoarn Bidault (A–F, H–M), Olivier Lachenaud (G).

WAG). **Ogooué-Ivindo**: near Achouka, 10 Nov. 1983, 0°06′S 11°46′E, *A.M. Louis et al.* 592 (WAG); chantier SOFORGA, Lopé reserve, 0°30′S 11°33′E, 28 Nov. 1986, *J.M. & B. Reitsma* 2644 (WAG); Réserve de Lopé-Okanda, ca. 6.6 km NW of Offoue river, 0°07′12″S 11°43′22″E, 30 Oct. 2000, *Stone et al.* 3134 (WAG); Makokou, Ipassa reserve, 0°30.245′N 12°47.714′E, 7 Nov. 2015, *Wieringa et al.* 8236 & 8236a (both WAG). **Ogooué-Maritime**: Région du Lac Alombié, ± 9 km NW de Mpaga, 0°49′42″S 9°26′03″E, 19 Oct. 2014, *Lachenaud et al.* 2011 (BR, BRLU, LBV, MO); Parc National de Loango, near Tassi, 2°02.6′S 9°24.9′E, 7 Nov. 2011, *Maas et al.* 10142 (WAG); Doudou Mountains, 53 km SW of Doussala, 26 Nov. 1986, *J.J. de Wilde et al.* 8968 (WAG); about 22 km along a track in a N direction from Doussala, 2°12′S 10°36′E, 4 Dec. 1986, *J.J. de Wilde et al.* 9147 (WAG); about 35 km NW of Doussala, 18 Mar. 1988, *J.J. de Wilde & Jongkind* 9436 (WAG).

Rutidea gabonensis Bridson
Fig. 9F

Distribution – Coastal areas of Equatorial Guinea (Rio Muni) and Gabon (fig. 9F).

Ecology – A small liana (up to 3 m high) of coastal evergreen forests, especially in relatively dry thickets along savanna boundaries; from near sea level to 275 m in altitude.

Notes – This species, previously known only from two old collections in the Libreville region (Bridson 1978; Sosef et al. 2006), proves to be more widespread and locally frequent in the littoral area of Gabon. It also occurs in Equatorial Guinea, which is a new record for the country, and may be expected in the Republic of the Congo. The species is somewhat variable in vegetative characters: the leaves vary from almost flat (the usual condition) to strongly bullate (*Breteler et al.* 14413, *Wieringa & Nzabi* 2838) and tuft domatia may be present or not in the main vein axils. In other respects, e.g. indumentum, flowers and inflorescences, the material is quite homogeneous.

Preliminary conservation status – IUCN Red List category: Vulnerable [VU]. The extent of occurrence (EOO) of *Rutidea gabonensis* is estimated to be 48 751 km^2 (above the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) whereas its minimal area of occupancy (AOO) is estimated to be 40 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to the coastal part of Atlantic Central Africa and is known from 12 specimens, representing eight extant subpopulations (a ninth one, around Libreville, is only known from old collections and may no longer exist). Among these, only one occurs in a protected area; most of the others are exposed to logging, and forest clearing for agriculture or oil exploitation. We project that the ongoing loss of its habitat will induce a decline in the number of mature individuals. The eight subpopulations represent a total of eight "locations" (*sensu* IUCN 2012), falling within the limit for Vulnerable status. *Rutidea gabonensis* is therefore assigned a preliminary status of VU B2ab(iii,v).

Available specimens examined – **Gabon**: **Estuaire**: Environs de Libreville, 14 Sep. 1899, *Klaine* 1670 (P, holotype & isotypes); environs de Libreville, 8 Mar. 1900, *Klaine* 1783 (P). **Nyanga**: on a road to the south from Moignigni village (on road Tchibanga – Moulengui Binza), 3°16.5′S 11°09.0′E, 26 Oct. 2009, *Bissiengou et al.* 546 (BR). **Ogooué-Maritime**: Nord-est du Fernan Vaz dans la lagune Assewé et dans les collines derrière Ikengué, 1°29'23"S 9°28'47"E, 7 Aug. 2017, *Boupoya & Kaparidi* 1536 (BRLU, LBV, MO); Rabi area, road from Divangi to Niungo, c. 1°58′S 10°00′E, 18 May 1992, *Breteler et al.* 11511 (BR, WAG); road Rabi to Ndougou, c. 1°50′S 9°46′E, 13 July 1998, *Breteler et al.* 14413 (BR, WAG); Concession de Rabi-Shell, entre le site de Rabi et le site de Toucan, 1°50′23″S 9°52′16″E, 23 Jan. 2010, *Dauby et al.* 2099 (BRLU); Région du Lac Alombié, ± 10 km au nord de Mpaga, 0°49′07″S 9°27′30″E, 14 Oct. 2014, *Lachenaud et al.* 1924 (BR, BRLU, G, LBV, MO, P, WAG); Parc National Loango, le long de la rive opposée en face de N'tchonimbeni, 23 Aug. 2004, *Mouandza Mbembo & Mbanou* 230 (WAG); Rabi area, NE Divangui, 2 Oct. 1994, *Wieringa & Nzabi* 2838 (WAG).
Equatorial Guinea: **Litoral**: Bata–Bome, 29 Nov. 1999, *Carvalho* 4959 (BRLU); Au sud de Bata, près du fleuve Ekuka, 20 Sep. 1997, *Lisowski* M-1210 (BRLU).

SAPINDACEAE

[***Allophyllus hirtellus*** (Hook.f.) Radlk.]

This species, occurring in Nigeria, western Cameroon, and Equatorial Guinea (Bioko), has been wrongly reported from Gabon by Sosef et al. (2006); the only collection cited, *Breteler* 5742, proves to represent *Klaineanthus gabonii* Pierre (Euphorbiaceae). The two species, although completely unrelated, are confusingly similar in the absence of fruits; *K. gabonii* can be separated from *A. hirtellus* by the absence of petals, the leaf midrib impressed (not prominent) above, and the entire leaf margin (except sometimes on saplings) while it is always clearly dentate in *A. hirtellus*.

****Lychnodiscus grandifolius*** Radlk.
Figs 11A–C & 12A

Distribution – Cameroon, Equatorial Guinea (Rio Muni) and Gabon (fig. 12A).

Ecology – A shrub or small tree of young secondary forest, especially in gaps, roadsides, and along savanna boundaries; from near sea level to 680 m in altitude.

Notes – This species was only known from Cameroon (Fouilloy & Hallé 1973) and is here reported from Gabon and Equatorial Guinea for the first time; material from the latter country is sterile, but the identification makes no doubt. In Gabon, it is apparently restricted to the lower and middle Ogooué basin, between Lake Alombié and Booué, where it is locally common. Surprisingly, all Gabonese collections but one were made after 2012, although the plant is unlikely to be overlooked, being very ornamental in fruit (fig. 11A & B). In the vegetative state, it can be recognised by the presence of scattered glands on the underside of the leaflets (fig. 11C), which is unique among Gabonese Sapindaceae. Adult trees have pinnate leaves, but those of seedlings are entire; transitional forms are sometimes seen on older saplings. The leaves frequently bear curious hairy conical galls, somewhat reminiscent of *Dissotis* fruits (Melastomataceae).

Collections from the western Cameroon highlands, previously identified as *L. grandifolius* (e.g. Cheek et al. 2004: 399) appear to represent two new taxa. The first of these, from Bali Ngemba F.R. (*Cheek* 10503; *Ghogue* 1080) differs from *L. grandifolius* by the longer indumentum of the leaflets, inflorescences and ovaries, the absence of leaf glands, and the larger flowers. The second taxon, from Mt Manenguba, is only represented by a poor fruiting specimen (*D.W. Thomas* 3110) which differs from *L. grandifolius* by the larger size and dark brown indumentum of the fruits.

Preliminary conservation status – IUCN Red List category: Least Concern [LC]. The extent of occurrence (EOO) of *Lychnodiscus grandifolius* is estimated to be 243 779 km^2 (far exceeding the 20 000 km^2 upper limit for Vulnerable status under the criterion B1), whereas its area of occupancy (AOO) is estimated to be 96 km^2 (within the limit for Endangered status under the criterion B2). The species occurs in Atlantic Central Africa and is known from 33 specimens representing 16 subpopulations. It is found mostly in degraded habitats, e.g. along roads and in forest clearings, and so is likely to benefit from small-scale forest clearing. Since there is no evidence of an immediate threat, it is assigned a preliminary statut of LC.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Zone de Mabounié, à 45 km au sud-ouest de Lambaréné, rive nord de la rivière Ngounié, 0°44′46″S 10°33′36″E, 10 Nov. 2013, *Bidault et al.* 1206 (BR, BRLU, LBV, MO, WAG); Mabounié, 0°47′06″S 10°29′48″E, 13 Nov. 2013, *Bidault et al.* 1274 (BR, BRLU, LBV, MO, P, WAG); Mabounié, 0°44′59″S 10°33′29″E, 11 May 2012, *Dauby et al.* 2819 (BRLU); Mabounié, 0°44′11″S 10°33′33″E, 67 m, 28 Oct. 2012, *Dauby et al.* 2992 (BRLU, LBV, MO); Mabounié, 0°44′33″S 10°33′41″E, 102 m, 1 May 2012, *IRD Plot* 22 (BRLU); Mabounié, 00°43′53″S 010°35′34″E, 18 Oct. 2012, *IRD Plot* 364 (BRLU); Concession Maurel & Prom près du Lac Ezanga, 1°05′56″S 10°15′27″E, 22 Nov. 2013, *Lachenaud et al.* 1530 (BRLU, LBV, MO); Lac Evaro, 0°52′22″S 10°08′03″E, 26 Nov. 2013, *Lachenaud et al.* 1629 (LBV, MO). **Ngounié**: Mabounié, 0°46′36″S 10°34′06″E, 86 m, 19 Oct. 2012, *IRD Plot* 372 (BRLU); Mabounié, 0°45′57″S 10°35′46″E, 165 m, 23 Oct. 2012, *Sonké et al.* 6126 (LBV, MO). **Ogooué-Ivindo**: bac de l'Ogooué, 19 Aug. 1983, *Sita* 4974 (LBV). **Ogooué-Maritime**: Région du Lac Alombié, ± 10 km au N de Mpaga, 0°49′07.0″S 9°27′30.2″E, 14 Oct. 2014, *Lachenaud et al.* 1923 (BR, BRLU, G, LBV, MO, P, WAG); Préfecture de M'paga, nord du lac Alombié, 0°48′06″S 9°26′06″E, 22 Oct. 2014, *Zébazé et al.* 407 (BRLU, LBV, MO).
Cameroon: **Centre**: c. 5 km S. of Badjob, c. 60 km SSW. of Eseka, 16 Jun. 1964, *W.J.J.O. de Wilde & de Wilde-Duyfjes* 2693 (BR, K, P, WAG); au sud du Nyong, entre Badjob-Likouk et la colline Bogué, 6 Jul. 1966, *Letouzey* 7365 (P). **East**: Road from Yanda II towards the NE, about 50 km NW. of Bertoua, 23 May 1961, *Breteler* 1416 (BR, K, P, WAG); bez. Molundu, 22 Apr. 1911, *Mildbraed* 5021 (P); subdivision Bertoua, sur la route de Deng-Deng, 15 Jun. 1955, *Nana* 117 (BR); 3 km S de Mbouma, 27 Jun. 1997, *Sonké* 1887 (BR). **Littoral**: Douala/Edea forest, 1979, *D.W. Thomas* 100 (K). **South**: 6 km from Kribi, Ebolowa road, 2°54′N 9°57′E, 22 Nov. 1968, *Bos* 3359 (BR, K, P, WAG); 12.5 km from Kribi, Ebolowa road, 2°52′N 9°59′E, 15 Dec. 1969, *Bos* 5849 (BR, WAG); 20 km SE. of Kribi, SE. of Mt. Elephant, c. 2°45′N 10°02′E, 23 Jul. 1970, *Bos* 7118 (BR, WAG); Station du Cacaoyer de N'koemvone, 2°49′N 11°08′E, 4 Apr. 1975, *J.J.F.E. de Wilde* 8143 (BR, K, P, WAG); ibid., 16 May 1975, *J.J.F.E. de Wilde* 8237 (BR, K, P, WAG); c. 15 km S. of Ebolowa, 29 Feb. 1964, *W.J.J.O. de Wilde & de Wilde-Duyfjes* 2019 (BR, K, P, WAG); Bipindi, 1904, *Zenker* 3116 (BR, K, P, WAG, isosyntypes); ibid., 1904, *Zenker* 3249 (K); ibid., 1908, *Zenker* 3524 (BR, K, P, isosyntypes); ibid., 1913, *Zenker* 4637 (BR, K). **Southwest**: Mabeta-Moliwe, 14 Apr. 1992, *Sunderland* 1221 (K); NE corner of Korup National Park, near Baro, 5°16′N 9°11′E, 24–28 Mar. 1984, *D.W. Thomas* 3343 (WAG).
EQUATORIAL GUINEA: **Litoral**: Ayamiken (Reserva de Rio Campo), 3 km au N du village, 2°07′N 10°02′E, 17 Jan. 1997, *Lejoly* 97/T3 (BRLU).

Placodiscus resendeanus Exell & Mendonça
Figs 11D–F & 12B

Distribution – Equatorial Guinea, Gabon, Angola (Cabinda) and D.R. Congo (fig. 12B); probably also in the Republic of the Congo.

Ecology – A small tree of mature or secondary forest, on drained soils or sometimes along rivers, up to c. 600 m in altitude. The plant flowers in the rainy season from October to December and produces fruits from December to February.

Notes – This small, usually single-stemmed tree produces attractive red flowers on the trunk (fig. 11D). It can be separated from other Gabonese *Placodiscus* by the larger leaves with very thick leaflets and more or less flattened rhachis, and the shorter inflorescences. Hitherto known only from the Mayombe range in Angola (Cabinda) and D.R. Congo, it proves to be relatively widespread in Gabon (where most of the collections have been made in the last ten years). It is also newly reported from Equatorial Guinea; the only specimen from this country is sterile, but its identification makes little doubt.

Preliminary conservation status – IUCN Red List category: Least Concern [LC]. The extent of occurrence (EOO) of *Placodiscus resendeanus* is estimated to be 188 080 km^2 (far exceeding the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) whereas its minimal area of occupancy (AOO) is estimated to be 64 km^2, within the limit for Endangered status under the criterion B2. The species is endemic to Atlantic Central Africa and is known from 24 specimens representing 14 subpopulations, two of which occur in protected areas (Monte Alén National Park in Equatorial Guinea and Luki Biosphere Reserve in D.R. Congo); the other subpopulations are unprotected and exposed to logging, although for most of them the current level of threat is limited. The 14 subpopulations represent a total of twelve "locations" (*sensu* IUCN 2012), which exceeds the limit for Vulnerable status. In addition, given the extension of its habitat and the fact that many records are recent, the species is probably more widespread than collections suggest. Accordingly, it is assigned a preliminary status of LC.

Available specimens examined – **Gabon**: **Estuaire**: Concession SEEF, rive Est du Komo, 0°26′58″N 10°39′09″E, 3

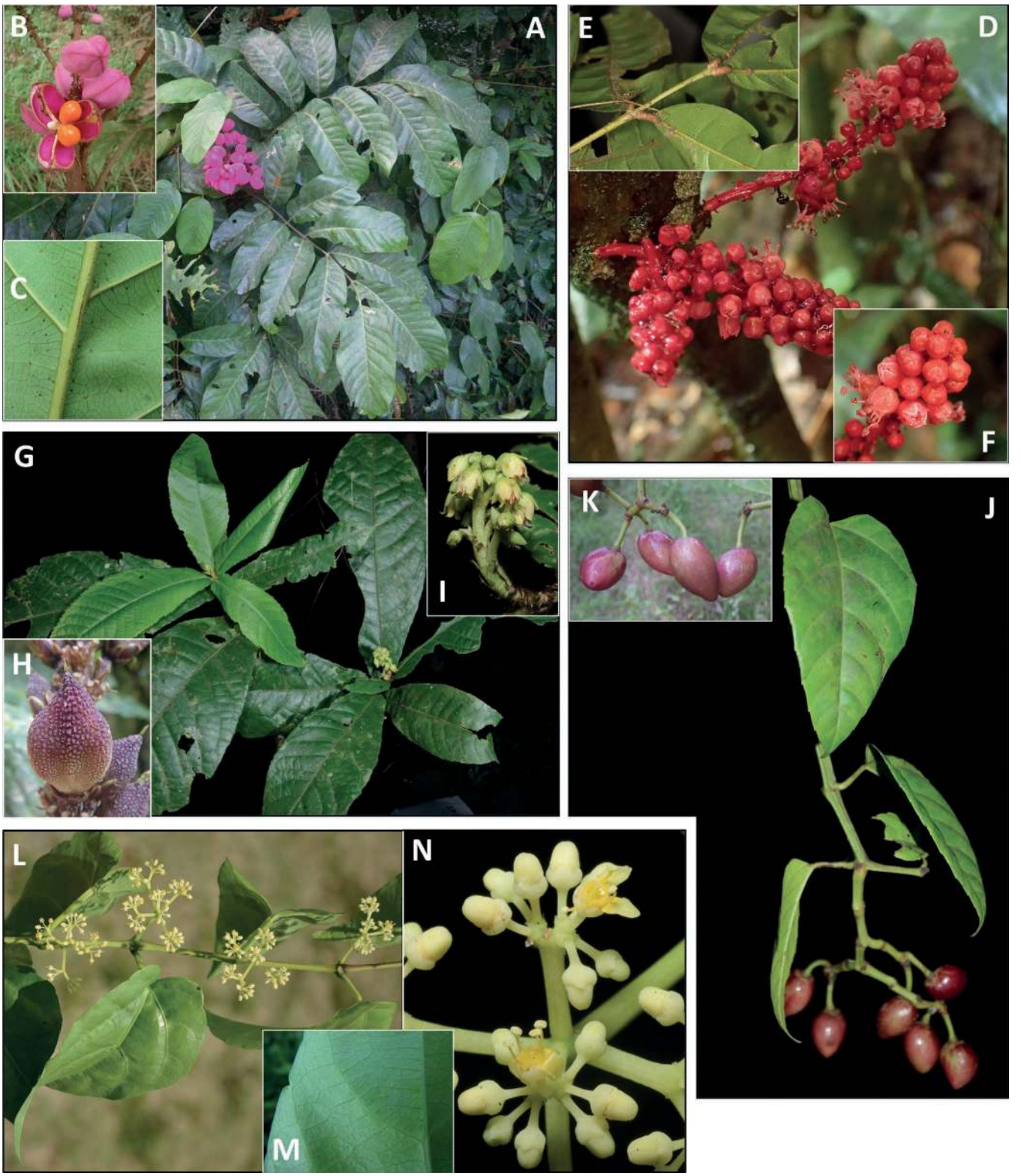

Figure 11 – Photographs illustrating a selection of species treated in the present paper. A–C, *Lychnodiscus grandifolius* (A, Mabounié, Gabon, plant not collected; B, *Lachenaud et al.* 1530; C, *Lachenaud et al.* 1923); D–F, *Placodiscus resendeanus* (*Texier & Akouangou* 165); G–I, *Rinorea curtirama* (G & I, *Bidault et al.* 2260; H, *Lachenaud et al.* 1491); J–K, *Cissus louisii* (*Lachenaud et al.* 1406); L–N, *Cissus leemansii* (*Bidault et al.* 1839). Photographs: Olivier Lachenaud (A–C, H, K, M), Nicolas Texier (D–F), Ehoarn Bidault (G, I, J, L, N).

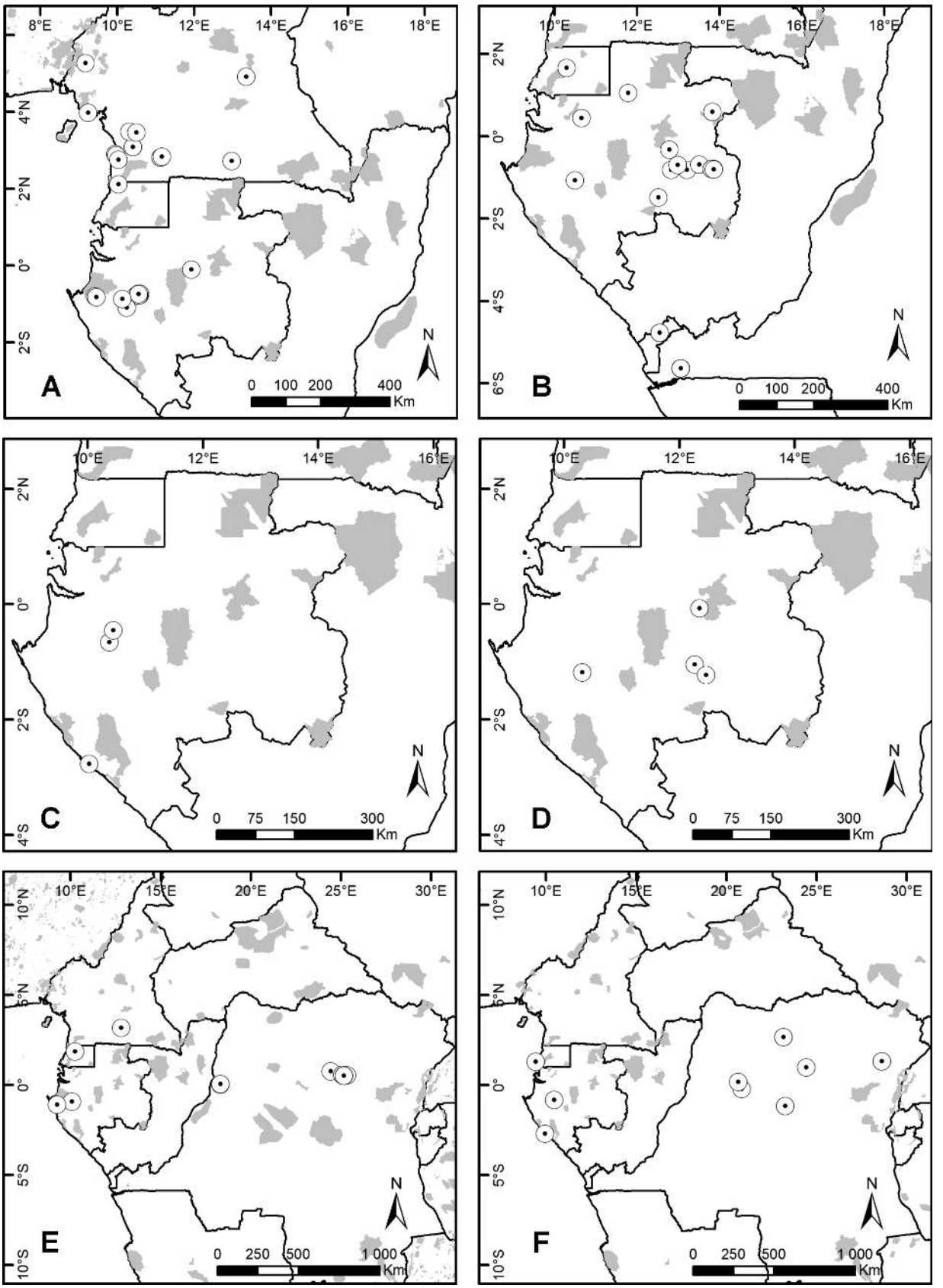

Figure 12 – Distribution of: A, *Lychnodiscus grandifolius*; B, *Placodiscus resendeanus*; C, *Neolemonniera ogouensis*; D, *Rinorea curtirama*; E, *Cissus leemansii*; F, *Cissus louisii*. Circles represent populations believed to be still extant. National parks are in pale grey.

Nov. 2017, *Bidault et al.* 3507 (BR, BRLU, LBV, MO, P, WAG). **Haut-Ogooué**: Département de la Sébé-Bricolo, village Ayanabo, 0°47′30″S 13°48′37″E, 21 Nov. 2017, *Ikabanga et al.* 773 (BR, BRLU, LBV, MO, P, USTM, WAG); ibid., 0°48′02″S 13°52′14″E, 22 Nov. 2017, *Ikabanga & Alini* 796 (BRLU, LBV, MO); 12 km on the road Alanga to Aboumi, 0°47′41.4″S 13°51′68″E, 2 Feb. 2008, *Wieringa et al.* 6352 (BR, LBV). **Ngounié**: 50 km SE of Lambaréné, 1°04′S 10°30′E, 2 Oct. 1968, *Breteler* 5783 (BR). **Ogooué-Ivindo**: Mwagna National Park and peripheric area, north-east of national park around the Mabekwe camp, 0°35'49"N 13°49'57"E, 506 m, 19 Jan. 2018, *Texier et al.* 1892 (BRLU, LBV, MO). **Ogooué-Lolo**: Lastoursville, concession forestière CEB, 0°48′52″S 13°13′14″E, 7 Dec. 2012, *Ikabanga & Haurez* 377 (BRLU); NE of Lastoursville, Concession CEB, NW of Bambidi, 0°41′14″N 13°30′34″E, 18 Nov. 2015, *Texier & Akouangou* 165 (BRLU); Logging concession SIAEFG, 30 km N of Pana, Monts Birougou Ramsar area, 10 Dec. 2017, *Texier et al.* 1596 (BRLU, LBV, MO); 1.5 km E of Lastoursville railway bridge, 0°49′S 12°50′E, 25 Nov. 1998, *van der Maesen et al.* 5828 (BR, LBV); c. 35 km ENE of Lastoursville, 7 km on forestry road from Bambidie to Mbelata, 0°41.7′S 12°59.2′E, 23 Jan. 2008, *Wieringa et al.* 6109 (LBV); c.55 km N of Lastoursville, 0°19.4′S 12°47.2′E, 28 Jan. 2008, *Wieringa et al.* 6244 (LBV). **Woleu-Ntem**: 40 km North-east of Mitzic, forestry road in Bordamur forest exploitation, 1°3′24.4″N 11°47′26.9″E, 8 November 2009, *Bissiengou et al.* 790 (WAG).

Equatorial Guinea: **Centro-Sur**: Parc National de Monte Alén, entre le transect dit de Monte Alén et la Cabaña Bong, 1°39′29.8″N 10°17′35.4″E, 6 Mar. 2002, *Senterre & Obiang* 2589 (BRLU).

Angola: **Cabinda**: Buco Zau, 19 Oct. 1916, *Gossweiler* 6765 (COI); fazenda Aloyra, Buco Zau, 2 Dec. 1916, *Gossweiler* 6855 (COI); morro de Buco Zau, Nov. 1918, *Gossweiler* 7280 (COI, isotype).

D.R. Congo: **Kongo Central**: Luki, 17 Oct. 1947, *Donis* 1495 (BR); ibid., 28 Dec. 1947, *Donis* 1663 (BR); ibid., 7 Dec. 1948, *Donis* 2214 (BR); ibid., 8 Nov. 1848, *Maudoux* 100 (BR); ibid., 16 Dec. 1947, *Toussaint* 76 (BR); ibid., 18 Dec. 1947, *Toussaint* 81 (BR); ibid., s.d., *Wagemans* 250 (BR).

SAPOTACEAE

Neolemonniera ogoouensis (Pierre ex Dubard) Heine
Fig. 12C

Distribution – Endemic to southwest and west-central Gabon (fig. 12C).

Ecology – A shrub of periodically flooded forest.

Notes – This species, previously known only from the XIXth century type collection, is now recorded from three localities. It appears to be very rare; no other sites were found, although we specifically looked for it in the Lambaréné region where seasonally flooded forests are extensive. The fruits, collected for the first time (although not fully mature) are asymmetrical, acuminate, c. 4.5 × 1.2 cm, and apparently 1-seeded (*Sonké et al.* 6072).

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Neolemonniera ogoouensis* is estimated to be 437 km^2, and its minimal area of occupancy (AOO) to be 12 km^2; both values fall within the limit for Endangered status under criteria B1 and B2, respectively. The species is endemic to Gabon and is known from three specimens representing three subpopulations. None of these are protected; one occurs in an oil concession undergoing low human pressure such as forest clearing, thus affecting the quality of its habitat, and another is in the immediate vicinity of a mining concession. These three subpopulations represent a total of three "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status. *Neolemonniera ogoouensis* is thus assigned a preliminary status of EN B1ab(iii)+2ab(iii).

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Samkita, May 1899, *Thollon* 146 (P, holotype). **Ngounié**: along stream Ngounié, 0°39′22″S 10°22′56″E, 17 Oct. 2012, *Sonké et al.* 6072 (LBV, MO). **Ogooué-Maritime**: Gamba, edge of lake Yenzi, 2°46′S 10°02′E, 18 Dec. 1993, *Haegens* 163 (LBV).

VIOLACEAE

Rinorea curtirama Achoundong & Bos
Figs 11 G–I & 12D

Distribution – Endemic to central Gabon (Fig. 12D).

Ecology – A shrub, growing in the undergrowth of mature forest on drained soils.

Notes – A recently described species, hitherto known only from two collections in the Ogooué-Lolo province (Achoundong & Bos 1999, Sosef et al. 2006). Two other sites have been discovered, one in the lower Ivindo basin, the other in the hills south-east of Lake Ezanga, which represents a major range extension westwards. Although the genus *Rinorea* is notoriously difficult, *R. curtirama* is easily separated from other Gabonese species by the dense spike-like inflorescences, and the fruits covered with short triangular asperities (fig. 11I).

Preliminary conservation status – IUCN Red List category: Endangered [EN]. The extent of occurrence (EOO) of *Rinorea curtirama* is estimated to be 15 282 km^2 (within the 20 000 km^2 upper limit for Vulnerable status under the criterion B1) and its minimal area of occupancy (AOO) is estimated to be 16 km^2 (within the limit for Endangered status under the criterion B2). The species is endemic to Gabon and is known from four specimens representing four subpopulations. It is not found in any protected area; the forests where it occurs are subject to logging and small-scale forest clearing for agriculture, thus affecting the quality of the habitat and number of mature individuals. The four subpopulations represent a total of four "locations" (*sensu* IUCN 2012), falling within the limit for Endangered status. *Rinorea curtirama* is therefore assigned a preliminary status of EN B2ab(iii,v).

Available specimens examined – **Gabon**: **Ngounié**: Collines au SE du Lac Ezanga, 1°10′51″S 10°19′21″E, 21 Nov. 2013, *Lachenaud et al.* 1491 (BR, BRLU, LBV, MO, P, WAG). **Ogooué-Ivindo**: Concession forestière Rougier-Ivindo, 00°04′21″S 012°21′09″E, 28 Oct. 2015, *Bidault et al.*

Table 2 – **Distinguishing characters between *Cissus louisii* and *C. prunifera*.**

	C. louisii	*C. prunifera*
Leaves	all similar and ovate, obtuse to truncate at base	dimorphic, lower ones deeply cordiform, upper ones ovate
Stipules	not longer than broad, 3.5–4.5 mm	longer than broad, 5–15 mm
Corolla outside	glabrous	puberulous
Fruits	23–24 × 16–18 mm in life (18–20 × 10–11 mm when dry)	50 × 35 mm in life (35–40 × 20–25 mm when dry)

2260 (BR, BRLU, LBV, MO, P). **Ogooué-Lolo**: c. 20km W of Koulamoutou, 8 Dec. 1993, *F.J. & B.J.M. Breteler* 12561 (WAG, holotype); région de Lastoursville, Moughombéfala, Jul. 1930, *Le Testu* 8191 (P).

VITACEAE

Cissus leemansii Dewit
Figs 11L–N & 12E

Distribution – Equatorial Guinea (Rio Muni), Gabon and D.R. Congo east to around Kisangani (fig. 12E).

Ecology – A twining liana of open habitats: river banks, secondary forest, fringing forest on inselbergs, and sometimes even on house walls in D.R. Congo; up to 660 m in altitude.

Notes – This species was only known from central D.R. Congo (Dewit 1960a, 1960b). Its discovery in Cameroon, Equatorial Guinea and Gabon therefore represents a considerable range extension westwards. In Gabon, we found it to be locally frequent along river banks in the Ogooué basin; it is likely to be more widespread and may have been overlooked due to its similarity with other *Cissus*.

Preliminary conservation status – IUCN Red List category: Least Concern [LC]. The extent of occurrence (EOO) of *Cissus leemansii* is estimated to be 433 033 km² (far exceeding the 20 000 km² upper limit for Vulnerable status under the criterion B1), whereas its area of occupancy (AOO) is estimated to be 40 km² (within the limit for Endangered status under the criterion B2). The species is relatively widespread in Central Africa and is known from 19 specimens representing nine subpopulations. Being a plant of open, sometimes even ruderal habitats, it is likely to benefit from small-scale forest clearing. Since there is no evidence of an immediate threat, it is assigned a preliminary statut of LC.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Lac Onangué, 0°56′09″S 10°04′59″E, 24 Oct. 2014, *Bidault et al.* 1839 (BR, BRLU, LBV, MO, P, WAG). **Ogooué-Maritime**: Le long de l'Ogooué, à l'Ouest du Lac Anengué, 1°05′20.9″S 9°14′55″E, 21 Nov. 2016, *Bidault et al.* 2757 (BR, BRLU, LBV, MO, P, WAG).
Cameroon: **East**: inselberg de Boua Mir, à 6h de marche du village de Somalomo, réserve de faune du Dja, 3°10.715′N 12°48.209′E, 17 Jun. 2002, *Parmentier* 3893 (BRLU).
Equatorial Guinea: **Centro-Sur**: Bata - Niefang - Mogom: estrada km 6 de Niefang a Mogom, 5 Sept. 1994, *Carvalho* 5671 (BRLU).
D.R. Congo: **Equateur**: Eala, 1936, *Leemans* 379 (BR, holotype; P, isotype); Jardin Botanique d'Eala, 16 Oct. 1945, *J. Léonard* 194 (BR); Mongo, 25 Sept. 1935, *J. Louis* 162 (BR, P). **Orientale**: Maléké, 15 km E de Kisangani, 0°32′N 25°21′E, 29 Nov. 1981, *Lejoly* 81/416 (BR); Yangambi, 12 Aug. 1958, *A. Léonard* 1077 (BR); Kisangani, 12 Jan. 1973, *Lisowski* 16212 (BR); Kisangani, 4 May 1975, *Lisowski* 40391 (BR); environs de Kisangani, bord de l'île Kongolo sur la Lindi, 14 Mar. 1976, *Lisowski* 42121 (BR); Kisangani, 26 May 1977, *Lisowski* 45636 (BR); Kisangani, 15 Oct. 1977, *Lisowski* 46562 (BR); Kisangani, 20 Aug. 1981, *Ndjele* 646 & 652 (BR); Kisangani, 23 Oct. 1982, *Pauwels* 6533 (BR); vers beach Sorgheri, z. Makiso - Kisangani, 11 Jul. 1983, *Pauwels* 6692 (BR); Kisangani, 1 Jan. 1984, *Pauwels* 6735 (BR).

Cissus louisii Dewit
Figs 11J & K, 12F

Distribution – Equatorial Guinea (Rio Muni), Gabon, and northern D.R. Congo (fig. 12F).

Ecology – A climbing liana of forest edges, occurring mostly in riparian or flooded forest, but sometimes also on drained soils.

Notes – An uncommon species, previously known only from central D.R. Congo (Dewit 1960b). Its discovery in Gabon and Equatorial Guinea represents a major range extension westwards. The fruits, collected for the first time (fig. 11J & K), are ovoid, dark wine red, 23–24 ×16–18 mm in life, with a thick and hard pericarp. *Cissus louisii* closely resembles the Gabonese endemic *C. prunifera* Desc. in most of its characters, e.g. very thick leaves with lax reticulation, rectangular stems with the narrower faces concave, and large ovoid fruits with more or less pointed apex; the two species can be separated by the characters summarised in table 2.

Preliminary conservation status – IUCN Red List category: Least Concern (LC). The extent of occurrence (EOO) of *Cissus louisii* is estimated to be 790 146 km² (far exceeding the 20 000 km² upper limit for Vulnerable status under the criterion B1), whereas its area of occupancy (AOO) is estimated to be 36 km² (within the limit for Endangered status under the criterion B2). The species is relatively widespread in Central Africa, but uncommon; it is known from 12 specimens representing nine subpopulations. Two of these occur in protected areas (Ndote Reserve in Equatorial Guinea and Okapi Wildlife Reserve in the D.R. of Congo). The other sites are unprotected, and undergo low human pressure such as forest clearing for mining and agriculture. However, since *Cissus louisii* is a forest edge species, it is likely to benefit from small-scale forest clearing, and we do not anticipate a significant decrease of its EOO, AOO, number of subpopu-

lations or number of mature individuals. It is therefore assigned a preliminary status of Least Concern.

Available specimens examined – **Gabon**: **Moyen-Ogooué**: Mabounié, à l'ouest de la Ngounié, 0°50′13″S 10°27′27″E, 15 Nov. 2013, *Lachenaud et al.* 1406 (BRLU, LBV, MO). **Ogooué-Maritime**: Gamba, c. 2°42′S 9°56′E, 26 Jul. 1998, *Breteler et al.* 14499 (BR, WAG).
Equatorial Guinea: **Litoral**: Etembue (Réserve de Ndote), 1°17′N 9°25′E, 18 Aug. 1997, *Eneme & Lejoly* 69 (BRLU).
D.R. Congo: **Equateur**: région d'Ikela, Apr. 1939, *L. Dubois* 1006 (BR, WAG); riv. Tshuapa, en amont de Boende, 2 Apr. 1958, *Evrard* 3902 (BR); Piste Bomandja, source Ikelemba, 12 Jun. 1958, *Evrard* 4227 (BR); Ikela, Jun. 1952, *Germain* 7389 (BR). **Orientale**: Mobwasa, May 1913, *de Giorgi* 916 (BR); Ituri Forest, Lenda, 7 Sep. 1994, *Ewango* 498 (WAG); Mobwasa, Jun. 1913, *Lemaire* 350 (BR); Ituri Forest, Lenda, 16 Sep. 1994, *Liengola* 36 (WAG); Yambao, 25 km NW Yangambi, 21 Apr. 1938, *J. Louis* 8959 (BR, holotype).

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