

A checklist of the Rubiaceae (coffee family) of Bioko and Annobon (Equatorial Guinea, Gulf of Guinea)

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Abstract A detailed checklist of the Rubiaceae (coffee family) occurring naturally on the islands of Bioko and Annobon (Equatorial Guinea, Gulf of Guinea) is presented, based on herbarium collections deposited in the herbaria of the Royal Botanic Gardens, Kew and The Natural History Museum, London. The checklist comprises 58 genera and 147 species, including six new generic records and 26 new infrageneric records. The total number of native Rubiaceae species occurring in Bioko is 139; three entities do not have formal names and probably represent new taxa. In Annobon there are 12 native genera and 13 indigenous species of Rubiaceae. The conservation status of two endemic species is assessed using IUCN criteria and it is proposed that they are considered Vulnerable.

Key words Rubiaceae (coffee family), Bioko, Annobon, Equatorial Guinea, Gulf of Guinea, biodiversity

Introduction

The objective of the contribution presented here is to provide a contemporary checklist for the Rubiaceae (coffee family) of Bioko and Annobon, with annotated taxonomic entries, and notes on diversity and conservation.

The islands of Bioko ('Fernando Po') and Annobon are two of the four Gulf of Guinea Islands, and are part of Equatorial Guinea. The other two islands (São Tomé and Príncipe) form a separate country. Biogeographically these islands are part of the the Lower Guinea centre of endemism, within the Guineo-Congolian Domain (White, 1979).

Bioko is the larger of the four islands and the closest to the African mainland (32 km), lying on the continental shelf. It was characterized by Exell (1973) as a 'littoral' island, and shown to be floristically similar to the continent. Exell described the

other three islands as 'maritime' noting that Annobon, being the furthest from the continent, had some characteristics of oceanic islands.

Bioko has a lower percentage of endemic flowering plants compared with São Tomé, Príncipe and Annobon (i.e. the other islands in the Gulf of Guinea) but has a higher level of species diversity. Bioko is of particular importance in the context of the African flora because it is the type locality for many African taxa. For example, and not taking into account infraspecific taxa, for 41 of the 139 species of Rubiaceae present in the island, the type specimen was collected on Bioko. The reason for this bias is historical, as the first comprehensive studies of the flora of Africa were undertaken in England based on collections deposited at the Royal Botanic Gardens, Kew (K). The collections made in Bioko by Mann (in 1859–1862), Barter (in 1858) and Vogel (in 1840–1841) were among the first available for tropical Africa.

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The *Flora of West Tropical Africa* (Hutchinson & Dalziel, 1931, 1963) treated the flora of Bioko but not of Annobon. The flora of Annobon was treated by Exell (1944), and later the flora of both islands was included in a checklist by Exell (1973). There is a more recent list for Equatorial Guinea (Aedo *et al.*, 1999), but it does not convey realistic information on plant diversity, being a list of all names and not distinguishing between accepted names and synonyms. For the Rubiaceae (coffee family) of Bioko 153 taxa (excluding cultivated *Coffea*) are listed, but the real figure for the diversity of the family known at the time was 118 taxa, for example.

The history of botanical collecting in Bioko and Annobon has been recently treated in the literature (Aedo *et al.*, 2001). After identifying the numerous collections made in Bioko in the 1980s by M.F. Carvalho and J.F. Casas, it became clear that previous enumerations of Rubiaceae occurring on Bioko and Annobon were very much out of date and that a new enumeration was urgently required. The Rubiaceae of São Tomé and Príncipe having been recently revised (Figueiredo, 2005), it was decided that the revision should be extended to the remaining islands.

Material and methods

The work presented here is based on herbarium collections made in Bioko and Annobon and deposited at the Royal Botanic Gardens, Kew (K) and The Natural History Museum London (BM). Duplicates from other herbaria are cited if known, but were not seen by us. Herbarium abbreviations follow Holmgren *et al.* (1990).

Most of the data used herein is based on the collections made by Carvalho and F. Casas. Nearly all of their collections deposited at K lack collecting localities and dates. We succeeded in obtaining these data for some Carvalho specimens, from Francisco Cabezas at the Real Jardín Botánico Herbarium, in Madrid (MA). We noticed that for some collections with label data at K the data did not correspond to that obtained from MA. We assume the data acquired from MA to be correct. We did not succeed in obtaining data for most of the F. Casas collections. The collection numbers of both Carvalho and F. Casas specimens at K have an additional figure after a hyphen, which we think refers to the number of duplicates, but we are not certain about this.

Under the heading 'Representative specimens' we cite all the collections examined by us and also some collections referred to in the literature but not seen by us [marked *n.v.* for not seen (non vidi)]. The material is cited following this order: specimens examined with locality data, specimens examined without locality data, specimens not seen. Localities are given in the format they appear on the label of the specimen cited; we have not tried to modernize such spellings. We make reference to type specimens when they originate from Bioko and Annobon and include only synonyms relevant for the area. The place of publication is given for accepted names but not for synonyms. Under the heading 'Ecology' are details of habit and habitat, again obtained directly from the specimen labels. It was not our intention to give a complete summary for each

species but instead to summarize data that are available from field collections. The general distribution for each accepted taxon is given under the heading 'Distribution', and was obtained from a draft version of the *World Rubiaceae Checklist* (<http://www.kew.org/data/rubiaceae/Rubiaceae.htm>). The distribution data for the *World Rubiaceae Checklist* was obtained from literature and herbarium study (Govaerts *et al.*, in prep). The distribution of each species is given in brief narrative text and in code, following the TDWG system (Brummit, 2001) to level-3, although the codes for the Gulf of Guinea Islands have been added here to level-4.

The starting point for this checklist is the work by Exell (1973), which represents the most recent angiosperm checklist available for the Gulf of Guinea islands. To avoid repetition we have not included synonyms or literature references already cited in Exell's work. Taxa recognized as accepted by Exell but later placed into synonymy have been cited here. We have, however, included all the names of Rubiaceae for Bioko and Annobon enumerated in the more recent list for Equatorial Guinea by Aedo *et al.* (1999). This is necessary because the checklist of Aedo *et al.* does not distinguish between synonyms and accepted names (see above). The citations of basionyms and synonyms, where applicable, are given in italics under the relevant accepted name. Full synonymy for each accepted name can be found in the *World Rubiaceae Checklist* (see above).

After each genus entry references for useful taxonomic literature (e.g. keys, descriptions, distribution) have been added under the heading 'Useful taxonomic treatment'. General works have mostly not been added under this heading; useful, general floristic treatments include *Flora of West Tropical Africa* (Hutchinson & Dalziel, 1963), and *Flore du Gabon* (Hallé, 1966, 1970). A checklist by Figueiredo (2005) should be consulted for the the Gulf of Guinea islands of São Tomé and Príncipe. For widespread taxa and generic keys, the following works are useful: *Flora Zambesiaca* (Verdcourt, 1989; Bridson, 1998; Bridson & Verdcourt, 2003) and *Flora of Tropical East Africa* (Verdcourt, 1976; Bridson, 1988; Verdcourt & Bridson, 1991).

Diversity and conservation

The checklist includes 58 genera, 147 species and three unnamed entities of Rubiaceae represented in the flora of the islands of Bioko and Annobon. These numbers include six new generic records and 26 new infregeneric records, found during the course of our investigations. In addition, we have enumerated three potentially new taxa (Table 1). In Bioko, there are 56 genera, 139 indigenous species and one introduced species of Rubiaceae.

Of the seven species endemic to Bioko (Table 2), only one is represented in the recent collections examined. Most of the others have apparently been collected only once and may be rare or perhaps extinct. More data are needed to evaluate the conservation status of each of these endemic species.

Five of the seven endemics have Mildbraed collections as their type specimens. These collections were held at the

Bertiera racemosa (G. Don) K. Schum. var. *elephantina* N. Hallé
Chassalia sp. A
Corynanthe pachyceras K. Schum.
Cremaspora triflora (Thonn.) K. Schum. subsp. *triflora*
Cuviera longiflora Hiern
Diodia serrulata (P. Beauv.) G. Taylor
Euclinia longiflora Salisb.
Geophila afzelii Hiern
Lasianthus africanus Hiern
Oxyanthus pallidus Hiern
Oxyanthus speciosus DC.
Pauridiantha floribunda (K. Schum. & K. Krause) Bremek.
Pauridiantha hirtella (Benth.) Bremek.
Polysphaeria macrophylla K. Schum.
Psychotria globosa Hiern var. *globosa*
Psychotria globosa Hiern var. *ciliata* (Hiern) E.M.A. Petit
Psychotria humilis Hiern var. *maior* E.M.A. Petit
Psychotria lucens Hiern var. *lucens*
Psychotria psychotrioides (DC.) Roberty
Psydrax acutiflora (Hiern) Bridson
Psydrax kraussioides (Hiern) Bridson
Psydrax subcordata (DC.) Bridson
Rutidea glabra Hiern
Rutidea sp. A
Rytigynia umbellulata (Hiern) Robyns
Sabicea pilosa Hiern
Sabicea venosa Benth.
Sericanthe jacfelcicis (N. Hallé) Robbr.
Sherbournia zenkeri Hua
Tarenna eketensis Wernham
Tricalysia sp. A
Trichostachys aurea Hiern

Table 1 New records for Bioko and Annobon.

Lasianthus africanus Hiern (+ São Tomé and Príncipe)
Mussaenda lancifolia K. Krause
Pavetta oresitropha Bremek.
Psychotria crassicalyx K. Krause
Psychotria mollipes K. Krause
Psychotria recurva Hiern
Sabicea urbaniana Wernham

Table 2 Rubiaceae species endemic to Bioko.

Berlin-Dahlem Herbarium, Berlin (B) before it was destroyed during World War II; some duplicates exist at the Institut für Allgemeine Botanik, Hamburg (HBG).

In Annobon there are 12 native genera and 13 indigenous species of Rubiaceae (Table 3). One species is introduced. Seven species are common to Bioko. Two taxa are endemic to Annobon, two are endemic to Annobon and São Tomé and one is endemic Annobon, São Tomé and Príncipe. It is proposed that the two Annobon endemics be considered Vulnerable (IUCN, 2001) due to the small area of this island.

Bertiera annobonensis G. Taylor
Craterispermum montanum Hiern (+ São Tomé and Príncipe)
Oldenlandia corymbosa L.
Oldenlandia herbacea (L.) Roxb.
Oxyanthus unilocularis Hiern
Pauridiantha floribunda (K. Schum. & K. Krause) Bremek.
Pavetta monticola Hiern (+ São Tomé)
Pouchetia confertiflora Mildbr.
Psychotria peduncularis (Salisb.) Steyererm.
Rutidea smithii Hiern subsp. *smithii*
Rytigynia umbellulata (Hiern) Robyns
Sabicea ingrata K. Schum. var. ***insularis*** (Wernham) Joffroy (+ São Tomé)
Spermacoce exilis (L.O. Williams) C. Adams ex W.C. Burger & C.M. Taylor
Uncaria africana G. Don

Table 3 Rubiaceae from Annobon (endemics in bold).

A comparison of the floras of the islands (both between themselves and with the flora of the continent) and analyses of their relative diversity and endemism have been made by several authors and are sufficiently discussed in the literature (e.g. Exell, 1944; Exell, 1973; Figueiredo, 1994; Joffroy 2000; Stévant, 2003). An updated table with data on the Rubiaceae (Table 4) shows how the diversity and endemism of this family compares with those of the flora in general. Despite the diversity of Rubiaceae on Bioko being relatively high, endemism is only 5%. This value is similar to that obtained for the angiosperm flora of Bioko as a whole. For the 'maritime' islands (São Tomé, Príncipe and Annobon) endemism appears at a much higher rate in Rubiaceae when compared to the endemism in general.

A checklist of Rubiaceae for Bioko and Annobon

Aidia Lour.

Aidia genipiflora (DC.) Dandy in F.W. Andrews, Fl. Pl. Anglo-Egypt. Sudan 2: 424 (1952); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 278 (1999).

Randia genipaeiflora DC.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Representative specimens: **Bioko**. Malabo-Ela Nguema (Noba Uan zone), 22-V-1988, *Carvalho 3454-2* (K, MA); Malabo-Baney, along road, km 10–11, 9-VI-1988, *Carvalho 3481-4* (K, MA); Malabo-Bahia de Venus, 12-IV-1990, *Carvalho 4319-1* (K, MA); s.l., *Mann 228* (K); s.l., *F. Casas 11249-20* (K); s.l., *Barter* s.n. (K).

Ecology. Shrub or small tree; littoral forest.

Distribution. West tropical Africa. 22 IVO, SIE; 23 CMN, GGI-BI.

	Bioko	Príncipe	São Tomé	Annobon
Flora (Spermatophyta)	1105	362	784	208
Endemics (in %)	42 (4%)	44 (12%)	111 (14%)	20 (10%)
Endemic to one island (in %)	40 (95%)	21 (48%)	83 (75%)	14 (70%)
Rubiaceae	139	31	55	13
Endemic species of Rubiaceae (in %)	7 (5%)	6 (19%)	23 (42%)	5 (38%)
Rubiaceae endemic to one island (in %)	6 (85%)	2 (33%)	17 (74%)	2 (40%)

Table 4 Diversity and endemism in the islands of the Gulf of Guinea (Figueiredo, 1994; Joffroy, 2000; Stévant, 2003).

Anthospermum L.

Useful taxonomic treatment: Puff (1986).

Anthospermum asperuloides Hook.f. in J. Linn. Soc., Bot. 6: 11 (1862); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 278 (1999) – Type: Bioko, summit of Clarence Peak, XII-1860, *Mann 593* (K, holotype).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 18–19, 6-X-1988, *Carvalho 3653-8* (K, MA).

Ecology. In woodland with shrubs, amongst grass.

Distribution. East Cameroon and Bioko. 23 CMN, GGI-BI.

Argostemma Wall.

Useful taxonomic treatment: Hallé (1970).

Argostemma africana K. Schum. in Bot. Jahrb. Syst. 23: 423 (1896); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 279 (1999).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 22–23, 10-IX-1988, *Carvalho 3615* (MA, *n.v.*), *Mildbraed 6308* (*n.v.*).

Ecology. On the margins of watercourses, growing on rocks.

Distribution. West and West central tropical Africa. 22 GUI, IVO, LBR, NGA, SIE; 23 CMN, EQG, GGI-BI.

Bertiera Aubl.

Useful taxonomic treatment: Nguembou *et al.* (2003).

Bertiera annobonensis G. Taylor in Mildbr. in Notizbl. Bot. Gart. & Mus. Berl.-Dahl. 13:703 (1937); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 3(3): 102, pl.8 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973) – Types: Annobon, upper rim of north crater, 500 m, *Mildbraed 6502* (B†, syntype); S.Mina, 400 m, *Mildbraed 6760* (B†, syntype; BM, fragment, syntype).

Representative specimens: **Annobon.** Near highest part of the crater, 490 m, 26-VII-1959, *Wrigley & Melville 93* (BM, K).

Distribution. Endemic to Annobon. 23 GGI-AN.

Notes. Accepted status and distribution confirmed by recent study of *Bertiera* in Cameroon (Nguembou *et al.*, 2003).

Proposed IUCN category. Vulnerable **VU D2**. The population has a very restricted area of occupancy, of less than 20 km² (D2). The island of Annobon is ±17 km².

Bertiera breviflora Hiern in Oliv., Fl. Trop. Afr. 3: 84 (1877); Dawson *et al.* in Cable & Cheek, Pl. Mt. Cameroon: 103 (1998).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 1-V-1988, *Carvalho 3410-1* (K, MA), loc. cit., 30-VIII-1989, *Carvalho 4076-2* (K, MA).

Ecology. Shrub; forest, near watercourses.

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CMN, EQG, GAB, GGI-BI, ZAI.

Bertiera laxa Benth. in Hook., Niger Fl.: 394 (1849) var. **laxa**; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999) – Type: Bioko, s.l., *Vogel 148* (K, holotype).

Representative specimens: **Bioko.** Malabo-airport, road km 2, 17-XI-1986, *Carvalho 2716* (BM, K, MA); Malabo-Sampaca, road km 15, 6-VII-1987, *Carvalho 2978-1* (K, MA); Malabo-Luba-Bococo (Veiga y Avendano), road km 70–71, 1-IX-1988, *Carvalho 3604-5* (K, MA); Ureka beach, 15-II-1947, *Guinea 2445* (K); Ureka beach, 16-II-1947, *Guinea 2503* (K); s.l., I-1860, *Mann 200* (K); s.l., *Carvalho 2375-5* (K); s.l., *F. Casas 11403-1* (K).

Ecology. Shrub; littoral forest and swampy areas.

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CMN, EQG, GAB, GGI-BI, ZAI.

Bertiera racemosa (G. Don) K. Schum. in Bol. Soc. Brot. 10: 127 (1892) var. **racemosa**; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Bertiera montana Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999) – Type: Bioko, s.l., 2100 m, 1860, *Mann 292* (K, holotype).

Representative specimens: **Bioko.** Between waterfall of R. Iladyi and Moca, in swamp, 1252 m, 10-XII-1986, *Carvalho 2783* (BM, K, MA); s.l., *F. Casas 11756-2* (K).

Distribution. West tropical Africa to Tanzania. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, CON, GAB, GGI-BI, RWA, ZAI; 25 TAN, UGA.

var. **elephantina** N. Hallé in Fl. Gabon 17: 55 (1970).

Representative specimens: **Bioko.** Malabo-Pico Basilé, Pico road km 3, 15-VIII-1987, *Carvalho 3052-6* (K, MA); Malabo-Pico Basilé, road km 4–5, 1-IX-1989, *Carvalho 4082-1* (K, MA).

Ecology. Shrub; secondary forest.

Distribution. Sierra Leone to West central tropical Africa. 22 GHA?, IVO?, NGA?, SIE; 23 CAB, CMN, CON, GAB, GGI-BI, GGI-PR, GGI-ST, ZAI.

Bertiera retrofracta K. Schum. in Bot. Jahrb. Syst. 23: 452 (1897); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Bertiera obversa K. Krause; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Representative specimens: **Bioko.** Malabo-Riaba, road km 15, 22-VII-1987, *Carvalho 3002-1* (K, MA).

Ecology. Shrub; forest.

Distribution. West central tropical Africa. 22 NGA; 23 CMN, EQG, GGI-BI.

Calycosiphonia Pierre ex Robbr.

Useful taxonomic treatments: Robbrecht (1981), Bridson (1988).

Calycosiphonia macrochlamys (K. Schum.) Robbr. in Bull. Jard. Bot. Belg. 51: 377 (1981); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Coffea macrochlamys K. Schum.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Representative specimens: **Bioko.** Malabo-Moca, road km 63, 13-VIII-1987, *Carvalho 3044-2* (K, MA); Moca-road ro Ureca, 14-XI-1989, *Carvalho 4166-4* (K, MA); Malabo-Lago Loreto, road km 64–65, 20-XI-1989, *Carvalho 4193-3* (K, MA); s.l., *F. Casas 11749-3* (K).

Ecology. Shrub; primary and secondary forest.

Distribution. Ghana, West central tropical Africa. 22 GHA; 23 CMN, EQG, GAB, GGI-BI, ZAI.

Chassalia Poir.

Chassalia cristata (Hiern) Bremek. in Bull. Jard. Bot. Etat. 22: 104 (1952); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road 14–15, 5-V-1987, *Carvalho 2893-5* (K, MA); Malabo-Pico Basilé, Pico road km 11–12, 8-VIII-1988, *Carvalho 3559-4* (K, MA); Moca-Lago Biao, 1570 m, 15-VII-1986, *F. Casas 10389* (K, MA); above Moka, 1460 m, 8-IX-1959, *Wrigley 578* (BM, K); s.l., *F. Casas 10211-14* (K), *11926-3* (K).

Ecology. Shrub; forest.

Distribution. Tropical Africa. 22 NGA; 23 BUR, CAF, CMN, GGI-BI, RWA, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG.

Chassalia kolly (Schumach.) Hepper in Kew Bull. 16: 330 (1962); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Psychotria benthaminana Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: Bioko, s.l., *Vogel* s.n. (K, holotype).

No further specimens known from Bioko.

Distribution. West and West central tropical Africa. 22 BEN, GHA, GUI, IVO, LBR, NGA, SIE, TOG; 23 CAF, CMN, GGI-BI.

Chassalia petitiana F. Piesschaert in Syst. Bot. 24 (3): 315 (1999) – Type: Bioko, North Pico Sta Isabel, Basilé, 800–1000 m, *Mildbraed 6433* (HBG lectotype; BR photograph & fruits).

Psilanthus epiphyticum Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999), *nom. nud.* [perhaps an error for *Psychotria epiphytica* Mildbr. [*nom. illeg.*], see Exell (1973: 376)].

No further specimens known from Bioko.

Distribution. West central tropical Africa. 23 GGI-BI, GAB, ZAI.

Chassalia pteropetala (K. Schum.) Cheek in Kew Bull. 55(4): 887 (2000).

Psychotria pteropetala K. Schum. in Bot. Jahrb. Syst. 33: 369 (1903); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Representative specimens: **Bioko.** S.l., *Mann 310a* (K).

Distribution. Cameroon and Bioko. 23 CMN, GGI-BI.

Chassalia subherbacea (Hiern) Hepper in Kew Bull. 16: 331 (1962); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Psychotria subherbacea Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999) – Type: Bioko, s.l., *Mann 1420* (K, holotype).

Representative specimens: **Bioko.** Malabo-Riaba, road km 56, 4-VIII-1987, *Carvalho 3027-2* (K, MA); Malabo-Luba, swamp area of Boloco near R. Tiburones, 3-VI-1990, *Carvalho 4377-3* (K, MA); s.l., *F. Casas 10238-2* (K), *11296-3* (K), *12071-1* (K).

Ecology. Undershrub, up to 70 cm high, with blue fruits; forest.

Distribution. West and West central tropical Africa. 22 GHA, IVO, NGA, SIE; 23 CMN, GGI-BI, ZAI.

Chassalia sp. A

Representative specimens: **Bioko.** Malabo-airport, Pico road km 7–8, 10-VIII-1987, *Carvalho 3042-2* (K, MA); Malabo-Pico Basilé, Pico road km 3–4, 10-IV-1990, *Carvalho 4316-1* (K, MA).

Ecology. A climber or climbing shrub; secondary forest.

Distribution. Bioko. 23 GGI-BI.

Notes. Similar to *C. cristata* but differing by the larger, spreading corolla, 11–15 mm long.

Chazaliella E.M.A. Petit & Verdc.

Useful taxonomic treatment: Verdcourt (1977).

Chazaliella insidens (Hiern) E.M.A. Petit & Verdc. in Kew Bull. 30: 269 (1975) subsp. **insidens**; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Psychotria insidens Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., 1860, *Mann 310* (K, syntype); Bioko, s.l., 1861, *Mann 1155* (K, syntype).

Representative specimens: Bioko. S.l., F. Casas 11396-2 (K), 11397-1 (K), 11624-1 (K).

Distribution. Nigeria, Cameroon, Bioko. 22 NGA; 23 CMN, GGI-BI.

Chazaliella sciadephora (Hiern) E.M.A. Petit & Verdc. in Kew Bull. 30: 270 (1975) var. **sciadephora**

Psychotria sciadephora Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973).

Representative specimens: Bioko. *Mildbraed 6853* (n.v.) – this specimen was not seen by Petit & Verdcourt (Verdcourt, 1975: 270).

Distribution. West tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CMN, GGI-BI.

Coffea L.

Useful taxonomic treatments: Bridson (1988); Stoffelen (1998).

Several species of *Coffea* have been recorded for Bioko but they are all cultivated. Exell (1973) recorded *C. arabica* L. and *C. liberica* Hiern under cultivation. Aedo *et al.* (1999) recorded also *C. stenophylla* G. Don, *C. canephora* A. Froehner, *C. dybowskii* De Wild. (= *C. liberica*), *C. excelsa* A. Chev. (= *C. liberica*), and *C. robusta* Linden (= *C. canephora*). Of these, we examined material of *C. liberica* [*Carvalho 2933-1* (K); *F. Casas 12091-2* (K)] and *C. canephora* [*Carvalho 3171* (K); *F. Casas 10235-11* (K)].

Corynanthe Welw.

Useful taxonomic treatment: Stoffelen, Robbrecht & Smets (1996).

Corynanthe pachyceras K. Schum. in Notizbl. Bot. Gart. Berlin-Dahlem 3: 96 (1901).

Representative specimens: Bioko. Malabo-Ela Nguema cemetery, 23-X-1989, *Carvalho 4148-1* (K, MA); Malabo-Ela Nguema cemetery, 12-III-1990, *Carvalho 4296-1* (K, MA); s.l., *Carvalho 2527-7* (K).

Ecology. Shrub or small tree, with fragrant flowers.

Distribution. West and West central tropical Africa. 22 BEN, GHA, GUI, IVO, LBR, NGA, SIE, TOG; 23 CAF, CMN, GGI-BI, CON, EQG, GAB, ZAI.

Note. ‘*Corynanthe* sp.’ as cited for Bioko by Exell (1973: 373) is based on a specimen collected by *Burchardt*, which we have not seen.

Craterispermum Benth.

Craterispermum montanum Hiern in Oliv., Fl. Trop. Afr. 3: 162 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973).

Craterispermum cerinanthum sensu Verdc. in Kew Bull. 28: 436 (1974) p.p. non Hiern (1877).

Representative specimens: Annobon. East of path to Pico Mina, 400 m, 21-VII-1959, *Melville 175* (BM); Quioveo, 500–600 m, IX-1911, *Mildbraed 6535* (B†?, BM).

Distribution. São Tomé, Príncipe and Annobon. 23 GGI-AN, GGI-PR, GGI-ST.

Note. Listed in IUCN (2004) Red List of Threatened Species as VU B1+2c, D2.

CreMASpora Benth.

Useful taxonomic treatment: Verdcourt (1981a).

CreMASpora thomsonii Hiern in Oliv., Fl. Trop. Afr. 3: 126 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973).

Representative specimens: Bioko. *Burchardt* s.n. (n.v.).

Distribution. Nigeria, Cameroon, Bioko. 22 NGA; 23 CMN, GGI-BI.

CreMASpora triflora (Thonn.) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4(4): 88 (1891) subsp. **triflora**.

Representative specimens: Bioko. Malabo-Pico Basilé, Pico road km 2–3, 29-III-1989, *Carvalho 3864-1* (K, MA); Malabo-Pico Basilé, Pico road km 3–4, 30-VIII-1990, *Carvalho 4467-2* (K, MA).

Ecology. Shrub; secondary forest.

Distribution. Cape Verde, tropical Africa. 21 CVI; 22 GHA, GNB, GUI, IVO, LBR, MLI, NGA, SEN, SIE, TOG?; 23 BUR, CAF, CMN, GGI-BI, CON?, EQG?, GAB, RWA, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM.

Cuviera Koel.

Cuviera longiflora Hiern in Oliv., Fl. Trop. Afr. 3: 157 (1877).

Representative specimens: Bioko. Gran Caldeira de Luba, along the river towards Mt Pizarro, 27-II-1990, *Carvalho 4268-1* (K); s.l., *F. Casas 12167-19* (K).

Ecology. Shrub.

Distribution. West central tropical Africa to Angola. 23 CAF, CMN, GGI-BI, GAB?, ZAI; 26 ANG.

Cuviera subuliflora Benth. in Hook., Niger Fl.: 407 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999) – Type: Bioko, s.l., *Vogel 83* (K, holotype).

Representative specimens: Bioko. S.l., XII-1859, *Mann 87* (K); s.l., *Carvalho 2283-22* (K), *2521-3* (K); *F. Casas 11544-3* (K).

Distribution. Ghana, Nigeria, Cameroon, Bioko, Gabon. 22 GHA, NGA; 23 CMN, GAB, GGI-BI.

Dictyandra Welw. ex Hook.f.

Useful taxonomic treatment: Hallé (1970).

Dictyandra arborescens Welw. ex Hook.f. in Benth. & Hook., Gen. Pl. 2: 85 (1873); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Representative specimens: **Bioko.** Malabo-Moca, road km 68–69, 27-VII-1987, *Carvalho 3015-2* (K, MA); Malabo-Lago Loreto, road km 64–65, 20-XI-1989, *Carvalho 4196-4* (K, MA); Balachá, 15-I-1947, *Guinea 1512* (K); s.l., *Carvalho 2507-1* (K), 2766-14 (K), *F. Casas 11865-1* (K).

Ecology. Shrub or small tree; forest.

Distribution. Sierra Leone to Angola. 22 BEN, GHA, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, CON, EQG, GAB, GGI-BI, ZAI; 25 UGA; 26 ANG.

Diodia L.

Diodia sarmentosa Sw., Prodr.: 30 (1788).

Diodia scandens sensu auctt. e.g. Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc.

Fl. Guinea Ecuatorial: 282 (1999), *non* Sw. (1788).

Representative specimens: **Bioko.** Musola-Moca, road km 13–14, 21-III-1989, *Carvalho 3818-6* (K, MA); Malabo-Luba-Riaba, road km 9–10 from cross to Moca and 66–67 km from Malabo, 18-VII-1990, *Carvalho 4427-1* (K, MA); at the beach, VII-1860, *Mann 403* (K); s.l., *F. Casas 11793-1* (K).

Ecology. Herb; secondary forest.

Distribution. Mexico to tropical America, tropical Africa. 22 BEN, GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE; 23 CAF, CMN, EQG, GAB, GGI-BI, ZAI; 24 ETH, SOM; 25 KEN, TAN, UGA; 26 ANG, MOZ, ZAM, ZIM; 79 MXT; 80 BLZ, GUA; 81 DOM, JAM, LEE, PUE, TRT, WIN; 82 FRG, GUY, SUR, VEN; 83 CLM, ECU, PER; 84 BZE, BZL, BZN.

Diodia serrulata (P. Beauv.) G. Taylor in Exell, Cat. Vasc. Pl. S.Tome: 220 (1944).

Representative specimens: **Bioko.** Malabo-Airport, 24-XI-1987, *Carvalho 3222-2* (K, MA).

Ecology. Herb; littoral zone.

Distribution. Mexico to Venezuela, Caribbean, tropical Africa. 22 BEN, GHA, GNB, IVO, LBR, NGA, SEN, SIE, TOG; 23 CMN, EQG, GAB, GGI-BI, GGI-ST, ZAI; 26 ANG; 79+ 80; BLZ 81, CUB, HAI, PUE, WIN; 82 VEN; 83 CLM.

Ecpoma K. Schum.

Useful taxonomic treatment: Hallé (1966).

Ecpoma gigantostipula (K. Schum.) N. Hallé in *Adansonia* n.s. 3: 173 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973).

Sabicea gigantostipula K. Schum.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Pico, 900 m, 10-XII-1952, *Boughey 192* (K); Malabo-Cupapa, road km 21–22, 9-VIII-1987, *Carvalho 3037-1* (K, MA).

Ecology. Undershrub; primary forest.

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CMN, GAB, GGI-BI, GGI-PR.

Ecpoma hierniana (Wernham) N. Hallé & F. Hallé in *Adansonia* n.s. 3: 173 (1963).

Sabicea hierniana Wernham; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973).

Representative specimens: **Bioko.** *Mildbraed 6288* (n.v.).

Distribution. Cameroon, Bioko, Gabon. 23 CMN, GGI-BI, GAB.

Euclinia Salisb.

Useful taxonomic treatment: Hallé (1970).

Euclinia longiflora Salisb., *Parad. Lond.*: t. 93, errata (1808).

Representative specimens: **Bioko.** Malabo-Riaba, road km 49, leaving Baó Grande towards Riaba, 7-VIII-1987, *Carvalho 3032-1* (K, MA), 3032-4 (K, MA); Malabo-Riaba, road km 49, 28-XI-1987, *Carvalho 3237-1* (K, MA); Malabo-Belebú Balachá-road to Ureca, after 5–6 km, 30-XI-1989, *Carvalho 4204-6* (K, MA).

Ecology. Shrub; primary and secondary forest.

Distribution. Tropical Africa. 22 GHA, GNB, GUI, IVO, LBR, NGA, SIE, TOG; 23 CMN, GAB, GGI-BI, ZAI; 24 SUD; 25 UGA; 26 ANG.

Galium L.

Galium simense Fresen., *Mus. Senckenberg* 2: 165 (1837); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999).

Galium spurium sensu Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999), *non* L. (1753).

Galium rotundifolium sensu Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999), *non* L. (1753).

Galium aparine sensu Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999), *non* L. (1753).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 20, 2050 m, 11-XI-1986, *Carvalho 2684* (BM, K); Pico Sta Isabel, 2887 m, *Guinea 2887* (K); Clarence Peak, 2100 m, 1860, *Mann 298* (K); Pico Sta Isabel, 2300–3000 m, 20-II-1969, *Sanford 5951* (K); s.l., 1800–2400 m, XII-1860, *Mann 612* (K); s.l., XII-1952, *Boughey in GC 10793* (K).

Ecology. Herb; primary forest.

Distribution. Tropical Africa. 23 BUR, CMN, GGI-BI, RWA, ZAI; 24 ETH, SUD; 25 KEN, TAN.

Galium thunbergianum Eckl. & Zeyh., *Enum. Pl. Afr. Austral.*: 369 (1837); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999).

var. **hirsutum** (Sond.) Verdc., *Kew Bull.* 30: 326 (1975).

Galium biafrae Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 282 (1999) – Type: Bioko, s.l., XII-1860, *Mann 605* (K, holotype).

Representative specimens: **Bioko.** Pico Sta Isabel, 2800–3000 m, 2-III-1947, *Guinea 2813* (K).

Distribution. Cape Verde (Fogo), mountains of Africa and Madagascar. 21 CVI; 23 CMN, GGI-BI, RWA, ZAI; 24 ETH, SUD; 25 KEN, TAN, UGA; 26 ZIM; 27 CPP, TVL; 29 MDG.

Geophila D. Don

Geophila afzelii Hiern in *Oliv., Fl. Trop. Afr.* 3: 221 (1877).

Representative specimens: **Bioko.** s.l., 14-XI-1947, *Guinea 2289* (K).

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, EQG, GAB, GGI-BI, GGI-PR, ZAI.

Geophila obvallata (Schumach.) Didr. in Vidensk. Meddel. Dansk Naturhist. Foren. Kjobenhaven 1854: 186 (1854); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999), subsp. **obvallata**.

Representative specimens: **Bioko**. S.I., 1860, *Mann 173* (K). *Distribution.* West and West central tropical Africa. 22 GHA, GNB, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, GGI-BI, ZAI.

Hallea Leroy

Hallea ledermannii (K. Krause) Verdc. in Kew. Bull. 40: 508 (1985).

Mitragyna ciliata Aubrév. & Pellegr.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Representative specimens: **Bioko**. S.I., *Vogel 138* (K); s.l., *Carvalho 2382-2* (K).

Distribution. West and West central tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 CMN, CON, EQG, GAB, GGI-BI, ZAI.

Heinsia DC.

Heinsia crinita (Afzel.) G. Taylor in Exell, Cat. Vasc. Pl. S.Tome: 209 (1944); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999) subsp. **crinita**.

Heinsia crinita (Afzel.) G. Taylor var. *crinita*; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

Representative specimens: **Bioko**. Malabo-Baney, road km 15, 13-XI-1987, *Carvalho 3191-1* (K, MA); Malabo-Cupapa, road km 20–21, 6-V-1989, *Carvalho 3949-3* (K, MA); near seashore, *Kalbreyer 12* (BM); s.l., *Barter 2064* (K); s.l., 1860, *Mann 1* (K), 1860, *Mann 402* (K); s.l., *Vogel 177* (K); s.l., *Carvalho 2078-6* (K), *2697-4* (K); s.l., *F. Casas 11283-1* (K).

Ecology. Shrub or small tree; primary forest.

Distribution. Tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, CON, EQG, GAB, GGI-BI, GGI-PR, ZAI; 24 SOM; 25 KEN, TAN; 26 ANG, MLW, MOZ, ZAM, ZIM; 27 TVL.

Hymenodictyon Wall.

Useful taxonomic treatment: Hallé (1966).

Hymenodictyon biafranum Hiern in Oliv., Fl. Trop. Afr. 3: 42 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Hymenodictyon epidendron Mildbr. ex Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Representative specimens: **Bioko**. Malabo-Riaba, km 42, *Carvalho 2067-22* (K); Moca-Mt Muasa, 19-XI-1990, *Carvalho 4562-1* (K, MA); Moka, 1400 m, 9-IX-1959, *Wrigley 581* (K); s.l., *Carvalho 2464-1* (K), *2592-9* (K); s.l., *F. Casas 10082-17* (K).

Ecology. Small tree; primary forest.

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CMN, GAB, GGI-BI, GGI-PR, GGI-ST.

Ixora L.

Useful taxonomic treatment: De Block (1998).

Ixora coccinea L., Sp. Pl. 1: 110 (1753); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 3(3): 102 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

Representative specimens: **Annobon**. Ambo, near the mission, 2-VIII-1959, *Melville 218* (BM).

Note. Cultivated.

Distribution. West and South India, Sri Lanka, Indo-China, cultivated elsewhere. 40 IND, SRL; 41 THA, VIE.

Ixora foliosa Hiern in Oliv., Fl. Trop. Afr. 3: 166 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

Representative specimens: **Bioko**. S.I., *Carvalho 2298-2* (K), *2303-6* (K); s.l., *F. Casas 11959-20* (K).

Distribution. East Nigeria, West Cameroon, Bioko. 22 NGA; 23 CMN, GGI-BI.

Ixora guineensis Benth. in Hook., Niger Fl.: 414 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Ixora breviflora Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999) – Type: Bioko, s.l., 300 m, 1860, *Mann 315* (K, holotype).

Ixora riparia Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999) – Type: Bioko, riverbank, XII-1859, *Mann 19* (K, holotype).

Representative specimens: **Bioko**. Moca-waterfalls at R. Iladyi, 6-IV-1989, *Carvalho 3875-2* (K); s.l., *F. Casas 11849-16* (K).

Ecology. Shrub; primary forest.

Distribution. West and West central tropical Africa. 22 IVO, LBR, NGA; 23 CMN, EQG, GAB, GGI-BI, ZAI.

Ixora nematopoda K. Schum. in Bot. Jahrb. Syst. 33: 357 (1903); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Ixora rosea K. Schum.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Representative specimens: **Bioko**. Malabo-Baney, road km 14–15, 23-X-1989, *Carvalho 4149-3* (K, MA); Malabo-Baney, road km 13–14, 17-VIII-1990, *Carvalho 4452-1* (K, MA); s.l., 1860, *Mann s.n.* (K).

Ecology. Shrub; primary forest.

Distribution. South-east Nigeria, West central tropical Africa. 22 NGA; 23 CMN, CON, EQG, GAB, GGI-BI.

Keetia E. Phillips

Useful taxonomic treatment: Bridson (1991).

Keetia hispida (Benth.) Bridson in Kew Bull. 41: 986 (1986), *sensu lato*.

Canthium setosum Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Representative specimens: Bioko. Malabo-Cupapa, road km 20–21, 10-XI-1987, *Carvalho 3183-7* (K, MA); Malabo-Riaba, road km 54, 17-VII-1989, *Carvalho 4024-4* (K, MA); Malabo-Belebú Balachá-road to Ureca, after 1 km, 30-XI-1989, *Carvalho 4201-2* (K, MA); s.l., *Carvalho 2637-15* (K), *2810-24* (K); s.l., *F. Casas 11751-4* (K).

Ecology. Climber or climbing shrub; primary or secondary forest.

Distribution. West tropical Africa to Angola. 22 GHA, IVO, LBR, NGA, SIE; 23 BUR, CMN, GGI-BI, ZAI; 26 ANG.

Notes. These specimens belong to a group of taxa (*K. hispida* s.l.) requiring taxonomic revision.

UNDETERMINED KEETIA SPECIMENS

Carvalho 3897-2 (K, MA) [Bioko, Malabo-Cupapa, road km 20–21, 10-IV-1989, in primary forest], and *4077-3* (K, MA) [Bioko, Malabo-Cupapa, road km 21–22, 30-VIII-1989, in primary forest], are two fruiting specimens of a climber similar to *Keetia purseglovei* Bridson (from Cameroon, Congo-Kinshasa, Uganda), but differing from that species in having pubescent instead of glabrous leaves.

Lasianthus Jack

Lasianthus africanus Hiern in Oliv., Fl. Trop. Afr. 3: 228 (1877).

Representative specimens: Bioko. S.l., *F. Casas 11834-3* (K).
Distribution. Endemic to Bioko, São Tomé and Príncipe. 23 GGI-BI, GGI-PR, GGI-ST.

Lasianthus batangensis K. Schum. in Bot. Jahrb. Syst. 28: 107 (1899).

Lasianthus aff. *mannii* Wernham; Hepper in Fl. W. Trop. Afr., ed 2, 2: 190 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

Representative specimens: Bioko. Moka, Plateau area, 1050–1200 m, 9-XII-1951, *Boughey 73* (K); Waterfall of R. Iladyi-Moca, 1252 m, 10-XII-1986, *Carvalho 2780* (BM, K, MA); Moka, Las Cascadas, 29-I-1947, *Guinea 2156* (K), *2157* (K); South of Moka, 1260 m, 21-IX-1959, *Melville 629* (BM, K); s.l., *F. Casas 11734-4* (K).

Distribution. West and West central tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 CAB, CMN, GAB, GGI-BI, ZAI.

Note. According to a manuscript by J. Jannerup (not dated, copy in the herbarium of the Royal Botanic Gardens, Kew (K)), the above cited material may eventually be described as a new species.

Massularia (K. Schum.) Hoyle

Useful taxonomic treatment: Hallé (1970).

Massularia acuminata (G. Don) Bullock ex Hoyle in Burt Davy & Hoyle, Checklist For Trees & Shrubs Brit. Emp. 3: 110 (1937); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

Randia acuminata (G. Don) Benth.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Representative specimens: Bioko. Malabo-Riaba, near Cupapa, km 21–22, 300 m, 12-IX-1989, *Carvalho 4101-4* (K, MA); Boloko, 3-I-1947, *Guinea 907* (K), *909* (K); s.l., I-1860, *Mann 211* (K) s.l., *F. Casas 11406-2* (K).

Ecology. Shrub; primary forest.

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, GAB, GGI-BI, ZAI.

Mitriostigma Hochst.

Mitriostigma barteri Hook.f. ex Hiern in Oliv., Fl. Trop. Afr. 3: 111 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999) – Types: Bioko, s.l., 1860, *Mann 234* (K, syntype); Bioko, s.l., *Barter* s.n. (K, syntype).

Representative specimens: Bioko. Malabo-Riaba, 22-VII-1987, *Carvalho 3000-2* (K, MA).

Ecology. Undershrub; primary forest.

Distribution. Cameroon and Bioko. 23 CMN. GGI-BI.

Notes. This species is not endemic to Bioko, as previously thought (Exell, 1973), as it occurs also in Cameroon (Dawson *et al.*, 1998).

Morinda L.

Morinda longiflora G. Don, Gen. Hist. 3: 545 (1834); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Representative specimens: Bioko. S.l., *Barter 2066* (K); s.l., VI-1860, *Mann 411* (K); s.l., III-1863, *Mann 2341* (K).

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, GAB, GGI-BI, ZAI.

Morinda lucida Benth. in Hook., Niger Fl.: 406 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999) – Type: Bioko, s.l., *Vogel 77* (K, syntype).

Representative specimens: Bioko. S.l., *Barter 2039* (K).

Distribution. Tropical Africa. 22 BEN, GHA, IVO, LBR, NGA, SEN, SIE, TOG; 23 CAB, CAF, CMN, CON, GAB, GGI-BI, GGI-ST, GGI-PR, ZAI; 24 SUD; 25 TAN, UGA; 26 ANG.

Morinda morindoides (Baker) Milne-Redh. in Kew Bull. 2: 31(1947); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Morinda confusa Hutch.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 284 (1999).

Representative specimens: Bioko. S.l., *Vogel 188* (K).

Distribution. West tropical Africa to Sudan and Angola. 22 GHA, GNB, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, GAB, GGI-BI, ZAI; 24 SUD; 26 ANG.

Mussaenda L.

Useful taxonomic treatment: Hallé (1966).

Mussaenda arcuata Lam. ex Poir. in Lam., *Encycl.* 4: 392 (1797); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 284 (1999).

Representative specimens: Bioko. Malabo-Pico Basilé, road km 3–4, 1000 m, 30-VII-1986, *Carvalho 2165* (BM, K, MA); Malabo-Pico Basilé, Pico road, km 2–3, 28-III-1990, *Carvalho 4304-1* (K, MA); Pico Basilé, 700 m, 4-VII-1986, *F. Casas 10178* (BM, MA); s.l., *Mann* s.n. (K); s.l., *Carvalho 2184-10* (K).

Ecology. Climber; primary and secondary forest.

Distribution. Tropical Africa, Madagascar, Mascarenes. 22 GHA, GUI, IVO, LBR, NGA, SIE, TOG; 23 BUR, CAF, CMN, EQG, GAB, GGI-BI, ZAI; 24 ETH, SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM; 29 MAU, MDG, REU.

Mussaenda elegans Schumach. & Thonn. in Schumach., *Beskr. Guin. Pl.*: 117 (1827); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 284 (1999).

Representative specimens: Bioko. road to Riaba, near bridge of Cope, 350 m, 6-VII-1986, *F. Casas 10229* (BM, K); s.l., *Carvalho 4428-2* (K).

Distribution. West tropical Africa to Uganda and Angola. 22 BEN, GHA, GNB, GUI, IVO, LBR, MLI, NGA, SIE, TOG; 23 CAB, CAF, CMN, GGI-BI, ZAI; 24 SUD; 25 UGA; 26 ANG.

Mussaenda erythrophylla Schumach. & Thonn.; Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 284 (1999).

Representative specimens: Bioko. Malabo-Cupapa, road km 18, 24-IV-1989, *Carvalho 3926-3* (K); Malabo-Cupapa, road km 20, 25-VIII-1989, *Carvalho 4067-2* (K, MA); Rilaja, 720 m, 29-VI-1986, *F. Casas 10064* (BM, K, MA).

Ecology. Climber or climbing shrub; primary and secondary forest.

Distribution. Tropical Africa; widely cultivated as an ornamental. 22 GHA, GUI, IVO, LBR, NGA, SIE, TOG; 23 BUR, CAF, CMN, EQG?, GAB, GGI-BI, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG.

Mussaenda isertiana DC., *Prodr.* 4: 371 (1830); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 285 (1999).

Representative specimens: Bioko. Malabo-Riaba, bridge of Cope, km 43, 13-IX-1986, *Carvalho 2448* (BM, K, MA); s.l., *Vogel 226* (K).

Ecology. Primary forest.

Distribution. West and West central tropical Africa. 22 BEN, GHA, IVO, NGA, SIE; 23 CMN, GGI-BI.

Mussaenda lancifolia K. Krause in *Bot. Jahrb. Syst.* 57: 28 (1920); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 285 (1999) –Type: *Mildbraed 6813* (B†, holotype).

Distribution. Endemic to Bioko. 23 GGI-BI.

Notes. The type specimen held at the Berlin Herbarium (B) was destroyed during World War II and no further collections are known.

Mussaenda polita Hiern in *Oliv., Fl. Trop. Afr.* 3: 67 (1877); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973).

Representative specimens: Bioko. Malabo-Cupapa, km 6, 40 m, 18-X-1989, *Carvalho 4144* (K).

Ecology. Woody climber; recorded in cocoa plantations.

Distribution. Nigeria to Gabon. 22 NGA; 23 CMN, EQG, GAB, GGI-BI.

Mussaenda tenuiflora Benth. in Hook., *Niger Fl.*: 392 (1849); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 285 (1999) var. **tenuiflora**; Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973) – Type: Bioko, s.l., *Vogel 67* (K, holotype).

Representative specimens: Bioko. Moka area, 1500 m, 9-XII-1951, *Boughey 89* (K); Moca-Luba, road km 4, 1520 m, 27-XI-1986, *Carvalho 2734* (BM, K, MA); Malabo-Ela Nguema (Noba Uan area), 22-V-1988, *Carvalho 3456-1* (K, MA); Malabo-Moca, road km 73–74, 8-IX-1989, *Carvalho 4091-1* (K, MA); near Bososo, 170 m, 2-VII-1986, *F. Casas 10136* (BM, K, MA); Finca Puente, 24-I-1947, *Guinea 1702* (K); Ureka beach, 14-II-1947, *Guinea 2505* (K); Moka, 1400 m, 7-IX-1959, *Wrigley 564* (BM, K); s.l., XII-1859, *Mann 60* (K); s.l., *Barter 1232* (K), *2068* (K), *3308* (K); s.l., *F. Casas 10134* (K), *11300-2* (K), *11459-6* (K), *11752-1* (K).

Ecology. Woody climber or climbing shrub; littoral areas and secondary forest.

Distribution. West tropical Africa to Angola. 22 GUI, NGA, SIE; 23 CMN, GGI-BI, ZAI; 26 ANG.

Oldenlandia L.

Oldenlandia corymbosa L., *Sp. Pl.*: 119 (1753); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 285 (1999).

Representative specimens: Bioko. Malabo-airport, Mirupurura River, 20 m, 24-VI-1986, *Carvalho 2021* (K, MA); Sta Isabel, 1962, *Swarbrick 2925* (K); s.l., *Milne* s.n. (K); s.l., *Vogel 201* (K); s.l., *F. Casas 11421-3* (K). **Annobon.** Lower region, up to 150 m, 15-II-1933, *Exell 881* (BM); North-west of island, 150 m, 11-VII-1959, *Melville 121* (BM, K); northwest cape, *Mildbraed 6647* (n.v.); north, *Mildbraed 6714* (n.v.).

Distribution. Africa, tropical and subtropical Asia; introduced elsewhere. 20 EGY, MOR; 21 CVI; 22 BEN, GAM, GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE, TOG; 23 BUR, CAF, CMN, CON, GGI-AN, GGI-BI, GGI-ST, GGI-PR, RWA, ZAI; 24 ETH, SOC, SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM; 27 BOT, TVL; 29 MAU, REU; 35 SAU; 36 CHC, CHH, CHS; 38 OGA, TAI; 40 ASS, EHM, IND, LDV, MDV, NEP, SRL, WHM; 41 AND, MYA, NCB, THA, VIE; 42 BOR, JAW, MLY, PHI?, SUL, SUM; 43 NWG.

Oldenlandia herbacea (L.) Roxb., *Hort. Bengal.*: 11 (1814); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 3(3): 103 (1963); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 374 (1973).

Representative specimens: Annobon. North-west of island, 150 m, 11-VII-1959, *Wrigley 11* (BM, K).

Distribution. Africa (incl. Annobon), India, Sri Lanka; widely introduced. 21 CVI; 22 BEN, GAM, GHA, GNB, GUI, IVO,

LBR, NGA, SEN, SIE, TOG; 23 BUR, CAF, CMN, GGI-AN, GGI-ST, RWA, ZAI; 24 ETH, SOC, SOM; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM; 27 BOT, CPP, CPV, LES, NAM, NAT, OFS, SWZ, TVL; 29 MAU, MDG, REU; 40 ASS, BAN, IND, SRL.

Oldenlandia lancifolia (Schumach.) DC., Prodr. 4: 425 (1830); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Representative specimens: **Bioko.** Malabo-Sampaca, road km 3, 27-X-1986, *Carvalho 2633* (K, MA); Malabo-Bombe-Mueri, road km 56–57, 20-IX-1990, *Carvalho 4495-1* (K, MA); Malabo-Moca, 18-XI-1990, *Carvalho 4553-1* (K, MA); Moka, 1200–1350 m, 31-I-1933, *Exell 822a* (BM); below Moka, 1300 m, 21-IX-1959, *Wrigley 635* (BM, K); s.l., *F. Casas 11971-2* (K).

Ecology. Herb; recorded in plantations and by watercourses.

Distribution. Tropical Africa, South Africa; naturalized in tropical America. 22 GHA, IVO, LBR, NGA, SIE, TOG; 23 BUR, CAF, CMN, EQG, GAB, GGI-BI, GGI-ST, GGI-PR, RWA, ZAI; 24 ETH, SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM; 27 BOT, NAM, TVL; 29 ALD, MDG.

Otomeria Benth.

Otomeria cameronica (Bremek.) Hepper in Kew Bull. 14: 253 (1960); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Representative specimens: **Bioko.** Moka, 1200 m, 6-XII-1951, *Boughey 2* (K); Moca-Lago Biao, 1470 m, 15-VII-1986, *F. Casas 10358* (BM, K, MA); Moca-Luba, road km 2, 1500 m, 27-XI-1986, *Carvalho 2732* (BM, K, MA); Malabo-Moka, road kms 73–74, 8-IX-1989, *Carvalho 4090-2* (K, MA); Moka, 1400 m, 26-IX-1959, *Melville 679* (K); s.l., *F. Casas 11452-2* (K), *11609-5* (K), *11759-2* (K), *12120-6* (K).

Ecology. Forest and roadsides.

Distribution. West and West central tropical Africa. 22 GHA, IVO, NGA, SIE, TOG; 23 CMN, EQG, GGI-BI, GGI-PR.

Oxyanthus DC.

Useful taxonomic treatments: Bridson (1979); Sonké (1999).

Oxyanthus formosus Planch. in Hook., Ic. Pl. 8: t.785-6 (1848); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Oxyanthus breviflorus Benth.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999) – Type: Bioko, s.l., *Vogel 209* (K, holotype).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 22, 20-IV-1987, *Carvalho 3842-1* (K, MA); s.l., IV-1860, *Mann 390* (K).

Ecology. Shrub; primary forest.

Distribution. West tropical Africa to Uganda. 22 BEN, GHA, GUI, IVO, LBR, MLI, NGA, SIE, TOG; 23 CAB, CMN, CON, GAB, GGI-BI, ZAI; 24 SUD?; 25 UGA.

Oxyanthus gracilis Hiern in Oliv., Fl. Trop. Afr. 3: 109 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Representative specimens: **Bioko.** Malabo-airport, km 2–3, 10-X-1986, *Carvalho 2554* (K); Malabo-Cupapa, road km 21–22, 24-IV-1989, *Carvalho 3927-16* (K, MA).

Ecology. Shrub; primary forest and swamp forest.

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CAB, CAF, CMN, CON, GAB, GGI-BI, ZAI.

Oxyanthus montanus Sonké in Bull. Jard. Bot. Nat. Belg. 63: 397 (1994); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999) – Type: Bioko, Moka, 1400 m, 5-IX-1959, *Wrigley 559* (K, holotype; BM, K isotypes).

Oxyanthus sp. A; Hepper in Fl. W. Trop. Afr., ed. 2, 2: 129 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Representative specimens: **Bioko.** Road to Pico Basilé, km 18, 2000 m, 11-XI-1986, *Carvalho 2862-5* (K, MA); Malabo-Moca, road km 68, 13-VIII-1987, *Carvalho 3047-2* (K, MA); Moca-Lago Biao, 1550 m, 15-VII-1986, *F. Casas 10382* (BM, K, MA); estate of D. Marcelino Puente, 20-I-1947, *Guinea 1695* (K).

Ecology. Shrub; primary forest.

Distribution. Cameroon, Bioko. 23 CMN, GGI-BI.

Oxyanthus pallidus Hiern, Cat. Afr. Pl. 1: 465 (1898).

Representative specimens: **Bioko.** Malabo-Pico Basilé, km 13, 1-VIII-1986, *Carvalho 2187* (K, MA); s.l., *F. Casas 12151-1* (K).

Ecology. Primary forest.

Distribution. Sierra Leone to Angola. 22 GHA, IVO, LBR, SIE; 23 CAF, CMN, CON, GAB, GGI-BI, ZAI; 26 ANG.

Oxyanthus speciosus DC. in Ann. Mus. Nat. Hist. Nat. 9: 218 (1807).

Representative specimens: **Bioko.** Malabo-Luba-Riaba, road km 65–66, 12-XII-1988, *Carvalho 3775-4* (K, MA); s.l., *F. Casas 11922-14* (K).

Ecology. Tree; forest.

Distribution. Tropical Africa. 22 GAM, GHA, GNB, GUI, IVO, LBR, NGA, SIE; 23 BUR, CAB, CAF, CMN, CON, EQG?, GAB, GGI-BI, GGI-ST, GGI-PR, ZAI; 24 ETH; 25 TAN, UGA; 26 ANG.

Note. *Oxyanthus speciosus* is divided into a number of subspecies (Bridson, 1979; Sonké, 1999). Bridson (1979) discusses the possibility of a distinct taxon for São Tomé *Oxyanthus*, and the same may be true for Bioko. In this treatment we have placed the material examined under *O. speciosus* because we cannot comment on its taxonomic placement within this species.

Oxyanthus unilocularis Hiern in Oliv., Fl. Trop. Afr. 3:110 (1877); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999) *p.p. excl. spec. Wrigley*.

Representative specimens: **Bioko.** S.l., *F. Casas 11375-2* (K). **Annobon.** Forest of Sta Cruz, 50 m, *Newton* (LISU, *n.v.*).

Distribution. Tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 BUR, CAB, CAF, CMN, CON, EQG?, GAB, GGI-AN, GGI-BI, ZAI; 24 SUD; 25 UGA; 26 ANG.

Parapentas Bremek.

Useful taxonomic treatment: Verdcourt (1953b).

Parapentas setigera (Hiern) Verdc. in Bull. Jard. Bot. Etat 23: 57 (1953); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Virecta setigera Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999) – Type: Bioko, s.l., *Barter 2048* (K, syntype); Bioko, s.l., I-1860, *Mann 215* (K, syntype); Sierra Leone, *Mann 874* (K, syntype).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 20–21, 12-VIII-1988, *Carvalho 3572-2* (K, MA); s.l., *F. Casas 11853-1* (K).

Ecology. Herb; roadsides.

Distribution. Tropical West and central Africa to Malawi. 22 GHA, IVO, LBR, NGA, SIE; 23 CMN, EQG, GAB, GGI-BI, ZAI; 26 MLW.

Pauridiantha Hook.f.

Useful taxonomic treatment: Bremekamp (1940).

Pauridiantha canthiiflora Hook.f. in Benth. & Hook., Gen. Pl. 2: 70 (1873); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Urophyllum canthiiflorum (Hook.f.) Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999).

Representative specimens: **Bioko.** *Mann 167* (K, n.v.).

Distribution. West central tropical Africa. 22 NGA; 23 CMN, EQG, GAB, GGI-BI.

Pauridiantha floribunda (K. Schum. & K. Krause) Bremek. in Bot. Jahrb. Syst. 71: 216 (1940); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973).

Urophyllum annobonense Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999) *nom. nud.*

Representative specimens: **Bioko.** S.l., *F. Casas 11763-5* (K). **Annobon.** Summit of Quioveo, 600–650 m, *Mildbraed 6574* (n.v.), *6678* (n.v.).

Distribution. South Nigeria to Gabon, Gulf of Guinea Islands. 22 NGA; 23 CAF, CMN, EQG, GAB, GGI-AN, GGI-BI, GGI-PR, GGI-ST.

Pauridiantha hirtella (Benth.) Bremek. in Bot. Jahrb. Syst. 71: 216 (1940); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973).

Representative specimens: **Bioko.** Malabo-Luba, road km 37–38, between Finca Fernandina and beach Arena Blanca, 15-VII-1990, *Carvalho 4420-3* (K, MA).

Ecology. Shrub; primary coastal forest.

Distribution. Guinea-Bissau to Cameroon, Bioko. 22 GHA, GNB, IVO, LBR, NGA, SIE; 23 CMN, GGI-BI.

Pauridiantha paucinervis (Hiern) Bremek. in Bot. Jahrb. Syst. 71: 212 (1940); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Urophyllum paucinerve Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999) – Type: Bioko, s.l., *Mann 577* (K, holotype).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 14, 5-V-1987, *Carvalho 2894-5* (K, MA); Malabo-Moca, near waterfalls, 6-XII-1987, *Carvalho 3262-13* (K, MA); Moca-road to Riaba, 15-XI-1989, *Carvalho 4183-2* (K, MA); Moka region, Mioko springs, 1370 m, 1-II-1933, *Exell 844* (BM); Finca Puente, 21-I-1947, *Guinea 1791* (K); Las Cascadas, 29-I-1947, *Guinea 2172* (K); Moka, 1400 m, 19-IX-1959, *Melville 618* (K); s.l., *F. Casas 10361-4a* (K), *11804-18* (K), *11880-4* (K).

Ecology. Shrub; primary and secondary forest.

Distribution. Tropical Africa, Madagascar. 22 NGA; 23 BUR, CMN, GGI-BI, RWA, ZAI; 25 KEN, TAN, UGA; 26 MLW, ZAM; 29 MDG.

Pauridiantha rubens (Benth.) Bremek. in Bot. Jahrb. Syst. 71: 215 (1940); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Urophyllum rubens Benth.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999) – Type: Bioko, s.l., *Vogel 48* (K, holotype).

Representative specimens: **Bioko.** Malabo-Sampaca, road km 6, 10-VIII-1987, *Carvalho 3039-4* (K, MA); Malabo-Sampaca, road km 6, 6-XI-1987, *Carvalho 3178-2* (K, MA); Malabo-Luba-Riaba, at km 58–59 from Malabo, 1-VI-1990, *Carvalho 4371-1* (K, MA); s.l., *F. Casas 11603-4* (K), *12000-4* (K); s.l., s.c., s.n. (BM).

Ecology. Shrub; secondary forest and wasteland.

Distribution. West central tropical Africa. 23 CAF, CMN, CON, GAB, GGI-BI, GGI-ST, ZAI.

Pavetta L.

Useful taxonomic treatment: Bremekamp (1934).

Pavetta bidentata Hiern in Oliv., Fl. Trop. Afr. 3: 170 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Bioko, s.l., 300 m, IV-1860, *Mann 395* (K, holotype & isotype).

No further specimens known from Bioko.

Distribution. South Nigeria, Bioko, Cameroon, Congo-Kinshasa. 22 NGA; 23 CMN, GGI-BI, ZAI.

Pavetta brachycalyx Hiern in Oliv., Fl. Trop. Afr. 3: 169 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 22-XI-1987, *Carvalho 3203-1* (K, MA); Malabo-Cupapa, road km 20–21, 3-IX-1989, *Carvalho 4084-1* (K, MA); s.l., *F. Casas 11280-5* (K).

Ecology. Shrub; primary forest.

Distribution. Cameroon (Mt Cameroon), Bioko. 23 CMN, GGI-BI.

Pavetta hispida Hiern in Oliv., Fl. Trop. Afr. 3: 175 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Bioko, s.l., I-1860, *Mann 227* (K, holotype).

No further specimens known from Bioko.

Distribution. South Nigeria, Cameroon, Bioko, Cabinda. 22 NGA; 23 CAB, CMN, GAB, GGI-BI.

Pavetta hookeriana Hiern in Oliv., Fl. Trop. Afr. 3: 176 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999).

Pavetta exellii Bremek.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Bioko, Moka, 1200–1500 m, 29-I-1933, *Exell 787* (BM, holotype).

Representative specimens: **Bioko.** Moka, 1200–1500 m, 29-I-1933, *Exell 790* (BM); s.l., *Carvalho 2678-3* (K); s.l., *F. Casas 10392-20* (K), *11821-5* (K).

Distribution. Nigeria, Annobon, Bioko, Cameroon (mountains). 22 NGA; 23 CMN, GGI-AN, GGI-BI.

Pavetta monticola Hiern in Oliv., Fl. Trop. Afr. 3: 170 (1877); G. Taylor in Exell, Cat. Vasc. Pl. São Tomé: 206 (1944); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973).

Pavetta dermatophylla Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Annobon, above S. Pedro, *Mildbraed 6749* (B†, holotype; HBG, isotype).

Pavetta annobonensis Bremek.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Annobon, summit of Quioveo, ± 650 m, *Mildbraed 6676* (B†, holotype; HBG, isotype).

Representative specimens: **Annobon.** Palé-Alturas de Mol, margin of R. A. Bobo, 12-IX-1987, *Carvalho 3101-3* (K, MA); s.l., *Burton s.n.* (K); north crater, 300–400 m, *Mildbraed 6508* (HBG, *n.v.*).

Distribution. **Endemic to Annobon and São Tomé.** 23 GGI-AN, GGI-ST.

Notes. According to Bremekamp (1939) *P. dermatophylla* is very similar to *P. monticola* Hiern from São Tomé, differing on the basis of its larger leaves, shorter (and glabrous inside) calyx lobes and shorter corolla lobes. Taylor (in Exell, 1944) considered these two species to be conspecific. He also placed *Mildbraed 6676* (later to be the type specimen of *P. annobonensis*) under *P. monticola*, believing that all the material from Annobon was conspecific with *P. monticola* from São Tomé. We agree with Taylor.

Pavetta neurocarpa Benth. in Hook., Niger Fl.: 414 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Bioko, s.l., *Vogel 157* (K, holotype).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 9-VIII-1987, *Carvalho 3038-1* (K, MA); Malabo-Cupapa, road km 21–22, 15-III-1989, *Carvalho 3812-1* (K, MA); s.l., *F. Casas 11641-3* (K).

Ecology. Undershrub; primary forest.

Distribution. Bioko, Cameroon, South-east Nigeria. 22 NGA; 23 CMN, GGI-BI.

Pavetta oresitropha Bremek. in Repert. Spec. Nov. Regni Veg. 37: 73 (1934); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: *Mildbraed 7100* (B†, holotype; HBG, isotype).

Representative specimens: **Bioko.** *Mildbraed 7135* (*n.v.*).

Distribution. **Endemic to Bioko.** 23 GGI-BI.

Notes. This species appears to be closely related to *P. owariensis* and *P. hookeriana* (see Hutchinson & Dalziel, 1963, p. 140).

Pavetta owariensis P. Beauv., Fl. Oware 1: 87 (1806); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) var. **owariensis**.

Pavetta corymbosa sensu Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973), *non* (DC.) F.N. Williams (1907).

Pavetta nitida sensu auctt. Hutch. & Dalziel, Fl. W. Trop. Afr., ed 1, 2: 91 (1931); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999), *non* (Schumach. & Thonn.) Hutch. & Dalziel (1931).

Representative specimens: **Bioko.** Musola, 10-I-1947, *Guinea 1164* (K), *1218* (K), *12129* (K); s.l., I-1860, *Mann 195* (K); s.l., *Vogel 114* (K).

Distribution. West and West central tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 CAB, CMN, CON, EQG, GAB, GGI-BI, ZAI.

var. **glaucescens** (Hiern) S.D. Manning in Ann. Miss. Bot. Gard. 83: 136 (1996).

Pavetta glaucescens Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 286 (1999) – Type: Bioko, s.l., 1862, *Mann s.n.* (K, holotype).

Representative specimens: **Bioko.** Malabo-Pico Basilé, Pico road km 9, 21-VII-1988, *Carvalho 3546-1* (K, MA); Roché-Caldeira de Luba, 23-III-1989, *Carvalho 3844-2* (K, MA); Malabo-Baney, road km 15, 13-IV-1989, *Carvalho 3903-2* (K, MA); Malabo-Cupapa, road km 15, 22-IV-1989, *Carvalho 3924-1* (K, MA).

Ecology. Shrub; primary forest.

Distribution. South-east Nigeria, West central tropical Africa. 22 NGA; 23 CAB, CMN, CON, EQG, GAB, GGI-BI.

Pavetta rigida Hiern in Oliv., Fl. Trop. Afr. 3: 178 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 375 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: Bioko, s.l., I-1860, *Mann 183* (K, holotype).

Representative specimens: **Bioko.** Roché-Caldeira de Luba, 23-III-1989, *Carvalho 3830-1* (K, MA); Gran Caldeira de Luba, 26-II-1990, *Carvalho 4264-1* (K, MA).

Ecology. Shrub; primary forest.

Distribution. Nigeria, Bioko, Cameroon. 22 NGA; 23 CMN, GGI-BI.

UNDETERMINED PAVETTA SPECIMENS

Carvalho 3018-1 (K, MA) [Bioko, Malabo-Moca, road km 67, 27-VII-1987]; *Carvalho 3770-10* (K, MA) [Bioko, Malabo-Luba-Riaba, road km 61, 10-X-1988]; *F. Casas 12139-1* (K). A group of specimens resembling *Pavetta monticola* Hiern, from São Tomé and Annobon.

Carvalho 3215-2 (K, MA) [Bioko, Malabo-Baney, road km 14, 23-XI-1987], a fruiting undershrub.

Wrigley 71 (BM, K) [Annobon, Pico Surcado, 300 m, 21-VII-1959].

Pentas Benth.

Useful taxonomic treatment: Verdcourt (1953c).

Pentas schimperiana (A. Rich.) Vatke in *Linnaea* 40: 192 (1876) subsp. **occidentalis** (Hook.f.) Verdc. in *Bull. Jard. Bot. Etat* 23: 266 (1923); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 375 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 287 (1999).

Vignaldia occidentalis Hook.f.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 293 (1999).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 8, 1200 m, 7-VIII-1986, *Carvalho 2232* (BM, K, MA); Malabo-Pico Basilé, road km 14–15, 30-VI-1987, *Carvalho 2963-3* (K, MA); Pico Basilé, 2680 m, 3-VII-1986, *F. Casas 10161* (BM, K); outer slope of Lago Biao, 1800 m, 24-IX-1959, *Melville 674* (BM, K); Pico, *Guinea 2724* (K); s.l., 2600 m, *Mann s.n.* (K); Pico Sta Isabel, 2300–3000 m, 20-II-1969, *Sanford 5929* (K); s.l., *Carvalho 2587-8* (K); s.l., *F. Casas 12211-1* (K).

Ecology. Undershrub; primary forest and roadsides.

Distribution. West central tropical Africa. 23 CMN, GGI-BI, GGI-ST, RWA, ZAI.

Pleiocoryne Rauschert

Pleiocoryne fernandensis (Hiern) Rauschert in *Taxon* 31: 561 (1982).

Polycoryne fernandensis (Hiern) Keay; Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 375 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 287 (1999).

Gardenia fernandensis Hiern; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 282 (1999) – Type: Bioko, s.l., XII-1859, *Mann 22* (K, holotype).

No further specimens known from Bioko.

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE, TOG; 23 CAB, CMN, GAB, GGI-BI, ZAI.

Polysphaeria Hook.f.

Useful taxonomic treatment: Verdcourt (1981b).

Polysphaeria macrophylla K. Schum. in *Bot. Jahrb. Syst.* 33: 349 (1903).

Representative specimens: **Bioko.** Malabo-Luba, Boloco swamp area, near R. Tiburones, 3-VI-1990, *Carvalho 4375-6* (K, MA).

Ecology. Shrub; primary forest.

Distribution. Liberia to Cameroon and Bioko. 22 GHA, LBR, NGA; 23 CMN, GGI-BI.

Pouchetia A. Rich. ex DC.

Useful taxonomic treatment: Hallé (1970).

Pouchetia confertiflora Mildbr. in *Notizbl. Bot. Gart. & Mus. Berl.-Dahl.* 13: 703 (1937); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 375 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 287 (1999).

Representative specimens: **Annobon.** Palé-Lago A Pot, 28-IX-1997, *Carvalho 3152-4* (K, MA); near S. Pedro, 90 m, 21-VII-1959, *Wrigley 72* (BM); West slope of Quioveo, ± 200 m, *Mildbraed 6594* (n.v.); forest above S. Pedro, *Mildbraed 6761* (n.v.).

Ecology. Shrub; primary forest.

Distribution. **Endemic to Annobon.** 23 GGI-AN.

Notes. The *Carvalho* and *Wrigley* collections are tentatively placed here. The genus *Pouchetia* is currently under revision by E. Robbrecht (1990, ms. in herb. BR), who has suggested that specimens from S. Tomé, Príncipe and Annobon might belong to another taxon.

Proposed IUCN category. **VU D2.** As currently circumscribed this species is considered Vulnerable, due to its restricted area of occupancy of less than 20 km² (D2).

Pouchetia parviflora Benth. in *Hook., Niger Fl.*: 395 (1849); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 375 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 287 (1999). Type: Bioko, s.l., *Vogel* (K, holotype).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 8–9, 30-XI-1987, *Carvalho 3246-1* (K, MA); Malabo-Riaba, km 45–46, 22-XI-1988, *Carvalho 3728-25* (K, MA); s.l., *Barter 2065* (K, n.v.); s.l., *Vogel 183* (K, n.v.), 252 (K, n.v.).

Ecology. Shrub; secondary forest and plantations.

Distribution. West tropical Africa, Gulf of Guinea Isl. 22 BEN, GUI, NGA, SIE; 23 GGI-BI.

Notes. In the publication of this species (Hooker & Bentham, 1849) the collection ‘Fernando Po, *Vogel*’ is cited. The type of *P. parviflora* is one of the *Vogel* specimens cited above. As we have not been able to see these specimens we are unable to specify a holotype.

Preussiodora Keay

Useful taxonomic treatment: Hallé (1970).

Preussiodora sulphurea (K. Schum.) Keay in *Bull. Jard. Bot. Etat* 28: 32 (1958); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 376 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 287 (1999).

Randia exserta K. Schum.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 289 (1999).

Randia sulphurea K. Schum.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Representative specimens: **Bioko.** Malabo-Luba, road km 33, 12-VII-1987, *Carvalho 2980-1* (K, MA); Malabo-Baney, km 22–23, 2-VI-1988, *Carvalho 3471-1* (K, MA); Malabo-Luba, in Boloco swamp area, near R. Tiburones, 3-VI-1990, *Carvalho 4376-1* (K, MA); s.l., 1860, *Mann 288* (K); s.l., *Carvalho 2342-17* (K).

Ecology. Shrub; primary and secondary forest.

Distribution. Nigeria, Bioko, Cameroon, Gabon, Congo-Kinshasa. 22 NGA; 23 CMN, GAB, GGI, ZAI.

Psilanthus Hook.f.

Useful taxonomic treatment: Stoffelen (1998).

Psilanthus mannii Hook.f., Ic. Pl. 12: t. 1129 (1873); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: Bioko, s.l., 1860, *Mann 266* (K, holotype).

Heinsia jasminiflora sensu Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999), *non* DC. (1830).

Heinsia pulchella sensu Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999), *non* (G. Don) K. Schum. (1891).

No further specimens known from Bioko.

Distribution. West tropical Africa to Angola. 22 GHA, IVO, NGA, SIE; 23 CAF, CMN, GAB, GGI-BI, ZAI; 26 ANG.

Psychotria L.

Useful taxonomic treatments: Petit (1964, 1966); Alves, Figueiredo & Davis (2005).

Psychotria bifaria Hiern in Oliv., Fl. Trop. Afr. 3: 198 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: Bioko, s.l., VI-1860, *Mann 419* (K, holotype; P, isotype).

No further specimens known from Bioko.

Distribution. Bioko, Cameroon, Gabon. 23 CMN, GAB, GGI-BI.

Psychotria brachyantha Hiern in Oliv., Fl. Trop. Afr. 3: 196 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999) – Type: Bioko, s.l., *Mann 1423* (K, holotype).

No further specimens known from Bioko.

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO; 23 CMN, GGI-BI, ZAI.

Psychotria calva Hiern in Oliv., Fl. Trop. Afr. 3: 199 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., *Vogel 190* (K, holotype).

Bioko. Malabo-Bahia de Venus (Mongola), 9-V-1988, *Carvalho 3429-1* (K, MA); Ureca-road to waterfall of R. Eolá, along coast, 3-III-1990, *Carvalho 4293-3* (K, MA); S. Carlos, 31-XII-1946, *Guinea 731* (K); s.l., 27-XII-1946, *Guinea 238* (K); s.l., *F. Casas 11253-2* (K).

Ecology. Shrub; primary forest.

Distribution. West and West central tropical Africa. 22 BEN, GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE, TOG; 23 CAF, CMN, CON, GAB, GGI-BI, ZAI.

Psychotria camptopus Verdc. in Kew Bull. 30: 259 (1975).

Camptopus mannii Hook.f. – Type: Bioko, s.l., 600 m, *Mann 312* (K, holotype).

Cephaelis mannii (Hook.f.) Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Uragoga mannii (Hook.f.) Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999).

Representative specimens: **Bioko.** Malabo-Pico Basilé, Pico road km 11–12, 10-VIII-1988, *Carvalho 3563-3* (K, MA); Gran Caldeira de Luba, 26-II-1990, *Carvalho 4258-1* (K, MA); Pico Sta Isabel, 900–2300 m, 21-II-1969, *Sanford 5985* (K), s.l., *F. Casas 11753-20* (K).

Ecology. Shrub; primary and secondary forest and in plantations.

Distribution. Cameroon, Bioko. 23 CMN, GGI-BI.

Psychotria crassicalyx K. Krause in Bot. Jahrb. Syst. 57: 46 (1920); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, North Pico Sta Isabel, above Basilé, *Mildbraed 7124* (B†, holotype).

Distribution. **Endemic to Bioko.** 23 GGI-BI.

Notes. The type specimen of *P. crassicalyx* was destroyed at Berlin Herbarium (B) and no further collections are known.

Psychotria fernandopoensis E.M.A. Petit in Bull. Jard. Bot. Etat 33: 382 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., I-1860, *Mann 223* (K, holotype).

Grumilea sphaerocarpa Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Psychotria sphaerocarpa (Hiern) Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999), *non* Wall. (1820).

No further specimens known from Bioko.

Distribution. Liberia, Ivory Coast, Bioko, Gabon. 22 IVO, LBR; 23 GAB, GGI-BI.

Psychotria globosa Hiern in Oliv., Fl. Trop. Afr. 3: 208 (1877) var. **globosa**

Representative specimens: **Bioko.** Malabo-Cupapa, km 22–23, 17-IV-1989, *Carvalho 3913-6* (K, MA).

Ecology. Undershrub; primary forest.

Distribution. Nigeria, Cameroon. 22 NGA; 23 CMN, GGI-BI.

var. **ciliata** (Hiern) E.M.A. Petit in Bull. Jard. Bot. Etat 34: 160 (1964).

Representative specimens: **Bioko.** Malabo-Cupapa, km 22–23, 18-V-1988, *Carvalho 3451-2* (K, MA); Malabo-Cupapa, km 22–23, 20-IV-1989, *Carvalho 3917-4* (K, MA); s.l., *F. Casas 11404-1* (K).

Ecology. Undershrub; primary forest.

Distribution. Nigeria, tropical West central Africa, to Angola. 22 NGA; 23 CAB, CMN, GAB, GGI-BI, ZAI; 26 ANG.

Psychotria humilis Hiern in Oliv., Fl. Trop. Afr. 3: 198 (1877) var. **cornuta** (Hiern) E.M.A. Petit in Bull. Jard. Bot. Etat 36: 182 (1966); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., *Mann 1429* (K, holotype; P, isotype).

Psychotria cornuta Hiern; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999).

No further specimens known.

Distribution. Ivory Coast, Bioko. 22 IVO; 23 GGI-BI.

var. **maior** E.M.A. Petit in Bull. Jard. Bot. Etat 36: 181 (1966).

Representative specimens: **Bioko.** Malabo-Pico Basilé, Pico road km 13–14, 30-VIII-1990, *Carvalho 4463-1* (K, MA); s.l., *Carvalho 2467-1* (K); s.l., *F. Casas 11446-1* (K), *12144-2A* (K).

Ecology. Undershrub; secondary forest.

Distribution. Nigeria & Bioko. 22 NGA 23 GGI-BI.

Psychotria latistipula Benth. in Hook., Niger Fl.: 419 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., *Vogel* s.n. (K, holotype).

Representative specimens: **Bioko.** Malabo-Luba, praia Manuel Rodrigues, 19-VIII-1986, *Carvalho 2336* (BM, K, MA); Malabo-Sampaca, road km 15, 6-VII-1987, *Carvalho 2977-1* (K, MA); path to Pico Basilé, 680 m, 10-VII-1986, *F. Casas 10308* (BM, K, MA); Bokoko, 3-I-1947, *Guinea 840* (K); s.l., XII-1859, *Mann 40* (K, P); s.l., IV-1862, *Mann 1425* (K, P). s.l., *Barter* s.n. (K); s.l., *Carvalho 2163-4* (K); s.l., *F. Casas 11639-1* (K).

Ecology. Shrub; secondary forest, roadsides, and coastal areas.

Distribution. Tropical West and West central Africa. 22 NGA, TOG; 23 CAF, CMN, GAB, GGI-BI.

Psychotria leptophylla Hiern in Oliv., Fl. Trop. Afr. 3: 200 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, s.l., *Vogel 167* (K, holotype).

Psychotria setacea Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Representative specimens: **Bioko.** Basilé, 550 m, 17-IX-1986, *Carvalho 2472* (K, MA); Malabo-Riaba, road km 15, 22-VII-1987, *Carvalho 2997-1* (K, MA); Malabo-Cupapa, road km 22–23, 21-V-1989, *Carvalho 3975-1* (K, MA); s.l., 27-XI-1947, *Guinea 2618* (K); s.l., *F. Casas 10227-11* (K), *11292-1* (K), *12145-1* (K).

Ecology. Undershrub; primary and secondary forest.

Distribution. West and West central tropical Africa. 22 IVO, NGA; 23 CMN, GGI-BI, ZAI.

Psychotria lucens Hiern in Oliv., Fl. Trop. Afr. 3: 211 (1877) var. **lucens**.

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 6-XI-1987, *Carvalho 3176-1* (K, MA); Malabo-Baney, road km 14, 23-XI-1987, *Carvalho 3214-1* (K, MA); Moca-Cupapa, km 20–21, 360 m, 6-V-1989, *Carvalho 3951-3* (K, MA); Malabo-Cupapa, road km 22–23, 27-VII-1989, *Carvalho 4039-4* (K, MA); Malabo-Cupapa, road km 22–23, 15-X-1989, *Carvalho 4141-4* (K, MA).

Ecology. Shrub; primary forest.

Distribution. Nigeria, tropical West central Africa. 22 NGA; 23 CMN, GGI-BI, GGI-ST, GGI-PR.

Psychotria martinetuegi Cheek in Kew Bull. 57 (2): 377 (2002).

Psychotria malchairi sensu auctt. Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999), *non* De Wild. (1924).

Representative specimens: **Bioko.** Roché-Caldeira de Luba, 23-III-1989, *Carvalho 3843-1* (K, MA); s.l., 900 m, 24-IX-1959, *Melville 658* (BM, K).

Ecology. Shrub; primary forest.

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CMN, EQG, GGI-BI.

Psychotria mollipes K. Krause in Bot. Jahrb. Syst. 57: 45 (1920); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 288 (1999) – Type: Bioko, N Pico Sta Isabel, above Basilé, *Mildbraed 6360* (B[†], holotype).

No further specimens known from Bioko.

Distribution. **Endemic to Bioko.** 23 GGI-BI.

Notes. The type specimen held at the Berlin Herbarium (B) was destroyed; no further collections are known.

Psychotria peduncularis (Salisb.) Steyererm. in Mem. New York Bot. Gard. 23: 546 (1972).

Cephaelis peduncularis Salisb.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4: 373 (1973).

Uragoga peduncularis (Salisb.) K. Schum.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999).

Uragoga membranifolia Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999), *nom. nud.*

Representative specimens: **Annobon.** S.l., *Wrigley & Melville 64* (K); north crater, *Mildbraed 6500* (*n.v.*).

Distribution. Tropical Africa. 22 GAM, GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE, TOG; 23 BUR, CAF, CMN, EQG, GAB, GGI-AN, GGI-ST, GGI-PR, RWA, ZAI; 24 ETH, SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM.

var. **hypsochila** (K. Schum. & K. Krause) Verdc. in Kew Bull. 30: 257 (1975).

Cephaelis peduncularis Salisb. var. *hypsochila* (K. Schum. & K. Krause) Hepper; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 281 (1999).

Representative specimens: **Bioko.** Pico, 1500 m, 10-XII-1951, *Boughey 179* (K); Malabo-Pico Basilé, road to Pico, km 3, 16-IV-1987, *Carvalho 2836-3* (K, MA); Malabo-Cupapa, km 22–23, 21-V-1989, *Carvalho 3980-4* (K, MA); s.l., *Barter* s.n. (K); s.l., I-1860, *Mann 222* (K); s.l., 1950 m, 14-IX-1959, *Melville 497* (BM, K); s.l., *F. Casas 10210-11* (K), *11925-3* (K).

Ecology. Shrub; primary forest.

Distribution. Tropical West and West central Africa. 22 GHA, GUI, IVO, LBR, NGA; 23 CMN, GGI-BI.

Psychotria psychotrioides (DC.) Roberty in Bull. Inst. Franç. Afrique Noire 16: 62 (1954).

Representative specimens: **Bioko.** Malabo-Lago Loreto, road km 64–65, 20-XI-1989, *Carvalho 4195-2* (K, MA); Malabo-Luba-Riaba, road from crossroads to Moca and kms 58–59 from Malabo, 1-VI-1990, *Carvalho 4372-3* (K, MA).

Distribution. West tropical Africa to Sudan. 22 BEN, GHA, GNB, GUI, IVO, LBR, MLI, NGA, SEN, SIE; 23 CAF, CMN, EQG, GGI-BI, ZAI; 24 SUD.

Psychotria recurva Hiern in Oliv., Fl. Trop. Afr. 3: 206 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999) – Type: Bioko, s.l., *Mann 1430* (K, holotype; P, isotype).

Representative specimens: **Bioko.** Bokoko, 14 km North Punta de Sangre, *Mildbraed 6825* (HBG, n.v.).

Distribution. **Endemic to Bioko.** 23 GGI-BI.

Psychotria subobliqua Hiern in Oliv., Fl. Trop. Afr. 3: 206 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289(1999) – Type: Bioko, s.l., 1862, *Mann 1421* (K, holotype).

Representative specimens: **Bioko.** Malabo-Riaba, road km 55, 25-VII-1987, *Carvalho 3006-1* (K, MA); Malabo-Cupapa, road km 15, 22-XI-1987, *Carvalho 3199-1* (K, MA).

Ecology. Undershrub; primary forest.

Distribution. West and West central tropical Africa. 22 GHA, IVO, NGA; 23 CMN, CON, EQG, GAB, GGI-BI, GGI-ST, GGI-PR, ZAI.

Psychotria subpunctata Hiern in Oliv., Fl. Trop. Afr. 3: 201 (1877); Petit in Bull. Jard. Bot. Etat 36: 104 (1966); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Representative specimens: **Bioko.** Clarence Peak, *Mildbraed 6383* (HBG, n.v.).

Distribution. West central tropical Africa. 23 EQG, GAB, GGI-BI, ZAI.

Psychotria venosa (Hiern) E.M.A. Petit in Bull. Jard. Bot. Etat 33: 382 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Grumilea venosa Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999) – Type: Bioko, s.l., 1860, *Mann 254* (K, lectotype).

Representative specimens: **Bioko.** Malabo-Luba, km 15, *Carvalho 2219-3* (K); Malabo-Luba-Moca, road km 71–72, 23-VI-1990, *Carvalho 4402-1* (K, MA); Baney, 250 m, 2-VII-1986, *F. Casas 10128-8* (K, MA); near Moca, 1410 m, 6-VII-1986, *F. Casas 10252-6* (K, MA); on the beach, XII-1859, *Mann 31* (K); Moka, 1390 m, 21-IX-1959, *Melville 645* (K); s.l., 1862, *Mann 1440* (K); s.l., *F. Casas 11468-5* (K), *11750-2* (K), *11886-3* (K).

Ecology. Small tree; forest and roadsides.

Distribution. Nigeria, tropical West central Africa. 22 NGA; 23 CAF, CMN, CON, GAB, GGI-BI, GGI-ST, GGI-PR, ZAI. *Note on Psychotria.* *Psychotria* sp. as recorded for Bioko by Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973), and based on *Mildbraed 7042* (*Grumilea* sp.) was not examined by us.

UNDETERMINED PSYCHOTRIA SPECIMENS

Carvalho 3218-5 (K, MA) [Bioko, Malabo-Baney, road km 14, 23-XI-1987, in forest], a fruiting undershrub. *F. Casas 11904-1* (K) [Bioko], a flowering specimen.

Psydrax Gaertn.

Useful taxonomic treatment: Bridson (1985).

Psydrax acutiflora (Hiern) Bridson in Kew Bull. 40: 722 (1985).

Representative specimens: **Bioko.** Malabo-Moca, between Moca and waterfalls, 6-XII-1987, *Carvalho 3259-1* (K, MA); Malabo-Moca, road km 70, 8-IX-1989, *Carvalho 4089-1* (K, MA); s.l., *F. Casas 10426-9* (K), *11701-14* (K), *11811-1* (K).

Ecology. Climber or climbing shrub; forest.

Distribution. Ivory Coast to Tanzania. 22 IVO, NGA; 23 BUR, CAB, CAF, CMN, CON, GAB, GGI-BI, GGI-ST, ZAI; 24 SUD; 25 TAN, UGA; 26 MOZ.

Psydrax dunlapii (Hutch. & Dalziel) Bridson in Kew Bull. 40: 699 (1985); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 289 (1999).

Canthium dunlapii Hutch. & Dalziel; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Representative specimens: **Bioko.** Malabo-Moca, road km 70, *Carvalho 3014-1* (K, MA); Moka, 1200–1350 m, 1-II-1933, *Exell 851* (BM); Moka, 1200–1800 m, 30-I-1933, *Exell 310* (BM); above Moka, 1500 m, 8-IX-1959, *Wrigley 572* (BM, K); s.l., *F. Casas 10394-19* (K), *10399-5* (K), *11881-3* (K), *11934-5* (K).

Ecology. Shrub; forest.

Distribution. Nigeria, Cameroon, Bioko. 22 NGA; 23 CMN, GGI-BI.

Psydrax kraussioides (Hiern) Bridson in Kew Bull. 40: 723 (1985).

Representative specimens: **Bioko.** Malabo, islets in front of Malabo quay, 13-IX-1990, *Carvalho 4484-4* (K, MA); Riaba-Moca, 1330 m, 6-VII-1986, *F. Casas 10247-13* (K, MA).

Ecology. Climbing shrub.

Distribution. Tropical Africa. 22 GHA, GUI, IVO, LBR, NGA, SIE; 23 BUR, CAF, CMN, GGI-BI, ZAI; 25 TAN; 26 ANG, MLW, MOZ, ZAM, ZIM.

Psydrax subcordata (DC.) Bridson in Kew Bull. 40: 698 (1985).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 19–20, 4-XI-1987, *Carvalho 3168-3* (K, MA); Malabo-Cupapa, road km 11–12, 30-VI-1988, *Carvalho 3504-1* (K, MA); s.l., *Carvalho 2281-18* (K), *2446-3* (K); s.l., *F. Casas 11571-8* (K), *11697-4* (K).

Ecology. Shrub; secondary forest.

Distribution. Tropical Africa. 22 GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE, TOG; 23 CAB, CAF, CMN, CON, GGI-BI, GGI-ST, RWA, ZAI; 24 SUD; 25 UGA; 26 ANG, ZAM.

Rothmannia Thunb.

Useful taxonomic treatment: Hallé (1970).

Rothmannia lateriflora (K. Schum.) Keay in Bull. Jard. Bot. Etat 28: 52 (1958).

Gardenia nigrificans Wernham; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 373 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Distribution. West central tropical Africa. 23 CAB, CAF, CMN, EQG, GAB, GGI-BI, ZAI.

Notes. Recorded for Bioko by Guinea (1946) but without specimen citations.

Rothmannia longiflora Salisb., *Parad. Lond.*: t. 65 (1807); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Randia maculata DC.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 289 (1999).

Representative specimens: **Bioko.** Malabo-Basupu, road km 14, 1-VIII-1987, *Carvalho 3025-1* (K, MA); Malabo-Cupapa, road km 21–22, 12-IX-1989, *Carvalho 4100-1* (K, MA); s.l., I-1860, *Mann 178* (K); s.l., *Carvalho 2555-2* (K).

Ecology. Shrub; primary or secondary forest.

Distribution. Tropical Africa. 22 BEN, BKN, GAM, GHA, GNB, GNB, GUI, IVO, LBR, NGA, SIE, TOG; 23 BUR, CAF, CMN, GAB, GGI-BI, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG, MLW.

Rothmannia macrocarpa (Hiern) Keay in *Bull. Jard. Bot. Etat* 28: 55 (1958); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973).

Randia myrmecophylla De Wild.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Distribution. West central tropical Africa. 23 CAF, CMN, EQG, GAB, GGI-BI, ZAI.

Notes. Recorded for Bioko by Guinea (1946) but without specimen citations.

Rothmannia octomera (Hook.) Fagerl. in *Ark. Bot.* 30A(7): 39 (1943); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Gardenia octomera Hook. – Type: Bioko, s.l., *Mann* s.n. (K, holotype).

Randia octomera (Hook.) Hook.f.; Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Representative specimens: **Bioko.** Malabo-Riaba, road km 15, 22-VII-1987, *Carvalho 2996-1* (K, MA); Malabo-Cupapa, road km 15, 22-IV-1989, *Carvalho 3925-4* (K, MA).

Ecology. Shrub; primary forest.

Distribution. Nigeria to Angola. 22 NGA; 23 CAF, CMN, CON, GAB, GGI-BI, ZAI; 26 ANG.

Rothmannia whitfieldii (Lindl.) Dandy in *Andrews, Fl. Pl. Anglo-Egypt. Sudan* 2: 461 (1952); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 5-V-1988, *Carvalho 3421-1* (K, MA); Malabo-Cupapa, road km 21–22, 30-VI-1989, *Carvalho 3996-3* (K, MA).

Ecology. Shrub; primary forest.

Distribution. Tropical Africa. 22 GHA, GNB, GUI, IVO, LBR, MLI, NGA, SEN, SIE; 23 BUR, CAF, CMN, EQG, GAB, GGI-BI, ZAI; 24 SUD; 25 TAN, UGA; 26 ANG, MLW, ZAM, ZIM.

Rutidea DC.

Useful taxonomic treatment: Bridson (1978).

Rutidea decorticata Hiern in *Oliv., Fl. Trop. Afr.* 3: 190 (1877); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973); Bridson in *Kew Bull.* 33: 273 (1978); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Representative specimens: **Bioko.** Malabo-Cupapa, near Cupapa, km 23, 15-XI-1986, *Carvalho 2696* (BM, K, MA); Malabo-Cupapa, road km 20–21, 24-IV-1988, *Carvalho 3393-1* (K, MA); Roché-Caldeira de Luba, 23-III-1989, *Carvalho 3839-9* (K, MA); Malabo-Cupapa, road km 21–22, 5-X-1989, *Carvalho 4129-1* (K, MA).

Ecology. Woody climber; primary forest.

Distribution. South Nigeria, West central tropical Africa. 22 NGA; 23 CAF, CMN, CON, GAB, GGI-BI, ZAI.

Rutidea glabra Hiern in *Oliv., Fl. Trop. Afr.* 3: 190 (1877).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 3, 15-VIII-1987, *Carvalho 3053-1* (K, MA); Malabo-Cupapa, road km 21–22, 27-IV-1988, *Carvalho 3404-3* (K, MA); Malabo-Cupapa, road km 22–23, 20-IV-1989, *Carvalho 3918-1* (K, MA).

Ecology. Climber or climbing shrub; primary or secondary forest.

Distribution. South Nigeria, Cameroon, Bioko, Congo, Gabon. 22 NGA; 23 CMN, CON, GAB, GGI-BI.

Rutidea smithii Hiern in *Oliv., Fl. Trop. Afr.* 3: 189 (1877) subsp. **smithii**; Bridson in *Kew Bull.* 33: 270 (1978); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Rutidea smithii Hiern var. *welwitschii* Scott Elliot; Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 3–4, 28-X-1986, *Carvalho 2645* (BM, K, MA); Roché-Caldeira de Luba, 23-III-1989, *Carvalho 3829-4* (K, MA); Moka, 1460 m, 8-IX-1959, *Wrigley 570* (BM, K); s.l., *F. Casas 11616-1* (K). **Annobon.** North-west of S. Pedro, 400 m, 21-VIII-1959, *Melville 307* (BM); north crater, 300 m, *Mildbraed 6542* (n.v.).

Ecology. Climbing shrub; primary and secondary forest.

Distribution. Tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, CON, GAB, GGI-AN, GGI-BI, GGI-ST, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG, ZAM.

Rutidea sp. A; Bridson in *Kew Bull.* 33: 261 (1978); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999).

Rutidea syringoides sensu auctt. Hepper in *Fl. W. Trop. Afr.*, ed. 2, 2: 146 (1963); Exell in *Bull. Brit. Mus. (Nat. Hist.) Bot.* 4(8): 377 (1973); Aedo *et al.*, *Bases Doc. Fl. Guinea Ecuatorial*: 290 (1999), *non* (Webb) Bremek. (1934).

Representative specimens: **Bioko.** Malabo-Baney, road km 14, 23-XI-1987, *Carvalho 3217-1* (K, MA); Malabo-Luba-Riaba, road km 72–73, 12-XII-1988, *Carvalho 3777-1* (K, MA); Musola, 10-I-1947, *Guinea 1143* (K); s.l., *Carvalho 2465-9* (K).

Ecology. Climber; primary and secondary forest.

Distribution. Bioko. GGI-BI.

Rytigynia Blume

Rytigynia umbellulata (Hiern) Robyns in *Bull. Jard. Bot. Etat* 11: 184 (1928).

Vangueria concolor Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999).

Rytigynia concolor (Hiern) Robyns; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973).

Representative specimens: **Bioko.** Moca-waterfall of R. Iladyi, path towards Ureca, 8-IV-1989, *Carvalho 3883-3* (K, MA); s.l., *F. Casas 11832-1* (K). **Annobon.** Palé-Alturas de Mol, R. A Bobo, 26-IX-1987, *Carvalho 3143-1* (K, MA); s.l., *Burton* (cited by Hiern but not found by Exell, *n.v.*).

Ecology. Shrub; primary forest and savanna.

Distribution. Tropical Africa to Botswana. 22 GHA, GNB, GUI, IVO, LBR?, NGA, SEN?, SIE; 23 CAF, CMN, GAB, GGI-AN, GGI-BI, GGI-ST, GGI-PR, ZAI; 24 SUD; 25 KEN, TAN, UGA; 26 ANG, MLW, MOZ, ZAM, ZIM; 27 BOT, CPV.

Notes. A sterile specimen from Annobon [Ambo, 45 m, 7-VIII-1959, *Wrigley 242* (BM)] is possibly a *Rytigynia*.

Sabicea Aubl.

Sabicea calycina Benth. in Hook., Niger Fl.: 399 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 290 (1999). Type: Bioko, Clarence Peak, *Vogel 35* (K, holotype).

Representative specimens: **Bioko.** Malabo-Luba, road km 40, 27-VII-1986, *Carvalho 2115* (BM, K, MA); Musola, 9-I-1947, *Guinea 973* (K); Las Corteras, 28-I-1947, *Guinea 2072* (K); s.l., *Barter s.n.* (K); s.l., XII-1859, *Mann 53* (K); s.l., *F. Casas 10073-7* (K), *11351-2* (K), *11410-2* (K), *11532-3* (K), *11604-2* (K), *11649-5* (K), *12054-3* (K).

Distribution. Sierra Leone to Uganda. 22 GHA, IVO, LBR, NGA, SIE, TOG; 23 CAF, CMN, GAB, GGI-BI, ZAI; 25 UGA.

Sabicea capitellata Benth. in Hook., Niger Fl.: 398 (1849); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999). Type: Bioko, s.l., *Vogel 88* (K, holotype).

Representative specimens: **Bioko.** Malabo-Rebola, km 4–5, *Carvalho 2804-5* (K); Malabo-Cupapa, road km 21–22, 22-XI-1987, *Carvalho 3201-2* (K, MA); Moca-Ureca, 2.5 km from Moca, 14-XI-1989, *Carvalho 4171-6* (K, MA); s.l., XII-1860, *Mann 41* (K).

Ecology. Liana; primary and secondary forest.

Distribution. South-east Nigeria to West central tropical Africa. 22 NGA; 23 CMN, CON, GAB, GGI-BI.

Sabicea ingrata K. Schum. in Henriq. in Bol. Soc. Brot. 10: 126 (1893) var. *insularis* (Wernham) Joffroy in Syst. Geogr. Pl. 71: 389, fig. 2 (2001).

Sabicea annobonensis Mildbr., *nom. nud.*; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 290 (1999).

Sabicea insularis (Wernham) G. Taylor; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Annobon.** Pico del Centro, 1-VIII-1959, *Melville 211* (BM, K); Quioveo, 500–600 m, *Mildbraed 6534* (HBH, *n.v.*), *6653* (HBG, *n.v.*)

Distribution. **Endemic to Annobon and São Tomé.** 23 GGI-AN, GGI-ST.

Sabicea pilosa Hiern in Oliv., Fl. Trop. Afr. 3: 76 (1877).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 22–23, 12-V-1988, *Carvalho 3437-3* (K, MA).

Ecology. Climber; primary forest.

Distribution. Ivory Coast, West central tropical Africa. 22 IVO; 23 CMN, EQG, GAB, GGI-BI.

Sabicea schaeferi Wernham, Monogr. Sabicea: 59 (1914); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Moka, 30-I-1947, *Guinea 2241* (K); South outer side of Lago Biao, 1200 m, 24-IX-1959, *Wrigley 656* (K); s.l., *Wrigley & Melville s.n.* (BM); s.l., *Carvalho 2796-3* (K); s.l., *F. Casas 11943-5* (K).

Distribution. Cameroon, Bioko. 23 CMN GGI-BI.

Sabicea urbaniana Wernham, Monogr. Sabicea: 28 (1914); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999) – Type: Bioko, San Carlos-Moka, 6–1200 m, 1911, *Mildbraed 7041* (BM, photograph; HBG).

Representative specimens: **Bioko.** S.l., *F. Casas 11524-3* (K).

Distribution. **Endemic to Bioko.** 23 GGI-BI.

Sabicea urceolata Hepper in Kew Bull. 13: 293 (1958); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Ureca-Path to Belebú Balachá, ± 3 km from Ureca, 2-III-1990, *Carvalho 4287-1* (K, MA); Musola, 9-I-1947, *Guinea 1053* (K).

Ecology. Climber.

Distribution. Nigeria, Bioko. 22 NGA; 23 GGI-BI.

Sabicea venosa Benth. in Hook., Niger Fl.: 399 (1849).

Representative specimens: **Bioko.** Malabo-Pico Basilé, Pico road km 8–9, 26-IV-1987, *Carvalho 2859-2* (K, MA); Malabo-Luba-Riaba, 4–5 km from crossroads towards Moca, 62–63 km from Malabo, 30-VII-1990, *Carvalho 4436-4* (K, MA); near Moca, 1410 m, 6-VII-1986, *F. Casas 10251* (BM, K, MA); s.l., *Carvalho 2199-6* (K); s.l., *F. Casas 10198-3* (K).

Ecology. Climber; primary and secondary forest.

Distribution. West tropical Africa to Zambia. 22 GHA, GNB, IVO, LBR, SEN, SIE; 23 BUR, CAF, CMN, CON, GAB, GGI-BI, ZAI; 26 ANG, ZAM.

Sacosperma G. Taylor

Useful taxonomic treatment: Hallé (1966).

Sacosperma paniculatum (Benth.) G. Taylor in Exell, Cat. Vasc. Pl. S. Tome: 218 (1944); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Peltospermum paniculatum Benth. – Type: Bioko, s.l., *Vogel s.n.* (K, holotype).

Oldenlandia peltospermum Hiern; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 285 (1999).

Representative specimens: **Bioko.** Malabo-Riaba, near Bariobe km 38, 15-XI-1986, *Carvalho 2704* (BM, K); Malabo-Sampaca, road km 3-4, 8-VII-1989, *Carvalho 2975-2* (K, MA); Malabo-Luba, road km 37-38, 10-VII-1990, *Carvalho 4418-1* (K, MA); s.l., *Barter 2059* (K); s.l., XII-1959, *Mann 58* (K); s.l., *Vogel 74* (K); s.l., *Carvalho 2215-14* (K).

Ecology. Woody climber; forest, plantations, and littoral zone.

Distribution. West and West central tropical Africa to North Angola. 22 BEN?, GHA, GNB, GUI, IVO, LBR, NGA, SEN, SIE, TOG; 23 CAF, CMN, CON, EQG, GAB, GGI-BI, GGI-ST, ZAI; 26 ANG.

Sarcocephalus Sabine

Useful taxonomic treatment: Ridsdale (1975).

Sarcocephalus latifolius (Sm.) E.A. Bruce in Kew Bull. 2: 31 (1947).

Nauclea latifolia Sm.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 374 (1973).

'*Sarcocephalus sculentus-afzelius*' of Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Malabo-Ela Nguema, 25-IV-1988, *Carvalho 3400-1* (K, MA); Malabo-Cupapa, road km 19, 1-I-1990, *Carvalho 4385-2* (K, MA); Luba-Moeri, near Bombe, 265 m, 13-VII-1986, *F. Casas 10342* (BM, K, MA).

Ecology. Small tree; forest and plantations, also littoral vegetation.

Distribution. Senegal to Kenya. 22 BEN, BKN, GAM, GHA, GNB, GUI, IVO, LBR, MLI, MTN, NGA, SEN, SIE, TOG; 23 CAB, CAF, CMN, CON, GAB, GGI-BI, ZAI; 24 ETH, SUD; 25 KEN, UGA.

Schumanniphyton Harms

Useful taxonomic treatment: Hallé (1970).

Schumanniphyton magnificum (K. Schum.) Harms in Engl. & Prantl, Nat. Pflanzenfam., Nachtr. 1: 313 (1897); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973).

Representative specimens: **Bioko.** *Mildbraed 6350* (n.v.), 6936 (n.v.).

Distribution. Nigeria to West central tropical Africa. 22 NGA; 23 CAF, CMN, GAB, GGI-BI ZAI.

Sericanthe Robbr.

Useful taxonomic treatment: Robbrecht (1978).

Sericanthe jacfelicis (N. Hallé) Robbr. in Bull. Jard. Bot. Belg. 48: 46 (1978).

Representative specimens: **Bioko.** Moca-Ureca, 14-XI-1989, *Carvalho 4169-1* (K, MA).

Ecology. Small tree; secondary forest.

Distribution. Cameroon, Congo, Bioko. 23 CMN, CON, GGI-BI.

Sherbournia G. Don

Useful taxonomic treatments: Hua (1901); Hallé (1970).

Sherbournia zenkeri Hua in Bull. Soc. Hist. Nat. Autun 14: 394 (1901).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 23-24, 14-III-1989, *Carvalho 3808-5* (K, MA).

Ecology. Climber; primary forest.

Distribution. Nigeria, West central tropical Africa. 22 NGA; 23 CMN, GGI-BI, ZAI.

Spermacoce L.

Spermacoce exilis (L.O. Williams) C. Adams ex W.C. Burger & C.M. Taylor in Fieldiana, botany, n.s. 33: 316, f. 5 (1993).

Spermacoce mauritiana Gideon; Verdcourt in Fl. Trop. East Afr. Rub.: 927 (1991).

Borreria ocyroides sensu auctt. Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999), *non* (Burm. f.) DC. (1830).

Representative specimens: **Bioko.** Pico, 520 m, 10-XII-1951, *Boughy 186* (K); Malabo, in wasteland, 22-VII-1986, *Carvalho 2057* (BM, K, MA). **Annobon.** On the way to the crater lake, 120 m, 15-II-1933, *Exell 903* (BM); Pico de Fogo, 400 m, 25-VII-1959, *Melville 196* (BM, K).

Distribution. Tropical America, widely introduced elsewhere. 79 MXS, MXT; 80 BLZ, COS, NIC, PAN; 81 CUB, DOM, JAM, TRT, WIN; 82 FRG, GUY, SUR, VEN; 83 BOL, CLM, ECU, PER; 84 BZC, BZE, BZN; 85 AGE, AGW, PAR.

Spermacoce princeae (K. Schum.) Verdc. in Kew Bull. 30: 307 (1975).

Borreria princeae K. Schum.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

var. **pubescens** (Hepper) Verdc. in Kew Bull. 30: 307 (1975).

Borreria princeae K. Schum. var. *pubescens* Hepper; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999) – Type: Bioko, Moka, 1200 m, 6-XII-1951, *Boughy 32* (K, holotype).

Representative specimens: **Bioko.** Malabo-Luba-Moca, road km 71, 7-IX-1986, *Carvalho 2424* (BM, K, MA); Moka, 1400 m, *Melville 404* (BM, K), s.l., *F. Casas 11481-1* (K).

Distribution. Cameroon to Uganda. 23 CMN, GGI-BI; 25 KEN, TAN, UGA.

Spermacoce ruelliae DC., Prodr. 4: 554 (1830).

Borreria scabra (Schumach.) K. Schum.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 372 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Borreria monticola Mildbr. ex Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 280 (1999).

Representative specimens: **Bioko.** *Mildbraed 7071* (n.v.); *Tessmann 2818* (n.v.).

Distribution. Tropical Africa. 22 BEN, BKN, GAM, GHA, GNB, GUI, IVO, MLI, NGA, SEN, SIE, TOG; 23 CAF, CMN, CON, GGI-BI, ZAI; 24 CHA, SUD; 25 UGA; 26 ANG.

Notes. *Borreria monticola* was considered a synonym of *B. ruelliae* by Hutchinson & Dalziel (1931), and later *B. ruelliae* was considered a synonym of *B. scabra* by the same authors (Hutchinson & Dalziel, 1963). Mildbraed (1922) cited the collections *Mildbraed 7071* and *Tessmann 2818* for *B. monticola*. The collection *Mildbraed 7071* was cited by Hutchinson &

Dalziel (1931) but later Hutchinson & Dalziel (1963) cited only *Melville 404*, probably in error as they also cited the same collection under *B. princeae* (= *Spermacoce princeae*).

Stipularia Haw.

Useful taxonomic treatment: Hallé (1966).

Stipularia africana P. Beauv., Fl. Oware 2: 26 (1807); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Sabicea africana (P. Beauv.) Hepper; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973).

Distribution. West tropical Africa to Zambia. 22 GHA, IVO, LBR, NGA, SIE; 23 CMN, GAB, GGI-BI, ZAI; 26 ANG, ZAM.

Note. Recorded by Guinea (1951) for Bioko but without specimen citations.

Tarenna Gaertn.

Useful taxonomic treatment: Hallé (1970).

Tarenna bipindensis (K. Schum. ex Hutch. & Dalziel) Bremek. in Repert. Spec. Nov. Regni Veg. 37: 7, 208 (1934); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Ixora bipindensis K. Schum. ex Hutch. & Dalziel; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Representative specimens: **Bioko.** S.l., I-1860, *Mann 212* (K).

Distribution. West and West central tropical Africa. 22 GHA, GUI, IVO, NGA, SIE; 23 CMN, GAB, GGI-BI.

Tarenna conferta (Benth.) Hiern in Oliv., Fl. Trop. Afr. 3: 90 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Malabo-airport, Bahia de Venus, km 6, 9-X-1986, *Carvalho 2552* (K, MA); Malabo-airport, Punta Europa, 24-XI-1987, *Carvalho 3227-3* (K, MA); s.l., I-1860, *Mann 207* (K); s.l., *Carvalho 2257-5* (K); s.l., *F. Casas 11277-8* (K), *11542-6* (K), *11612-5* (K).

Ecology. Shrub; coastal forest and dunes.

Distribution. West and West central tropical Africa. 22 IVO, NGA; 23 BUR, CAF, CMN, GAB, GGI-BI, ZAI.

Tarenna eketensis Wernham in J. Bot. 52: 4 (1914).

Representative specimens: **Bioko.** Malabo-Cupapa, road km 22–23, 31-V-1988, *Carvalho 3467-3* (K, MA); Malabo-Cupapa, road km 21–22, 30-VI-1989, *Carvalho 3993-5* (K, MA); s.l., *F. Casas 11843-3* (K).

Ecology. Climber; primary forest.

Distribution. West tropical Africa to Zambia. 22 GHA, IVO, LBR, NGA; 23 CAF, CMN, EQG, GAB, GGI-BI, GGI-ST, ZAI; 26 ZAM.

Tarenna grandiflora (Benth.) Hiern in Oliv., Fl. Trop. Afr. 3: 91 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 377 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Stylcoryne grandiflora Benth. – Type: Bioko, s.l., *Vogel 262* (K, holotype).

Representative specimens: **Bioko.** s.l., *Barter s.n.* (K); s.l., XII-1859, *Mann 25* (K); s.l., *Carvalho 2340-6* (K).

Distribution. Nigeria, Bioko, Cameroon, Congo. 22 NGA; 23 CMN, CON, GGI-BI.

UNDETERMINED TARENNA SPECIMENS

F. Casas 11982-3 (K) [Bioko, s.l.].

Carvalho 3202-1 (K, MA) [Bioko, Malabo-Cupapa, road km 20–21, 22-XI-1987]; *Carvalho 4014-5* (K, MA) [Bioko, Malabo-Luba, road km 27, 8-VII-1989]; *Carvalho 2812-5* (K) [Bioko, s.l.]. These three specimens are of the same entity.

Tricalysia A. Rich.

Useful taxonomic treatments: Robbrecht (1979, 1982, 1983, 1987).

Tricalysia biafrana Hiern in Oliv., Fl. Trop. Afr. 3: 122 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 291 (1999).

Representative specimens: **Bioko.** Malabo-Luba, km 36–37, between Patio M. Isabel Cristina and Playa Arena Blanca, 8-XII-1989, *Carvalho 4228-2* (K, MA); Malabo-coast at Porto Velho, 2-VIII-1990, *Carvalho 4439-3* (K, MA); s.l., *Guinea 2420* (K); s.l., *F. Casas 11666-4* (K).

Ecology. Shrub; primary coastal forest.

Distribution. West and West central tropical Africa. 22 GHA, IVO, LBR, NGA; 23 CAB, CAF, CMN, CON, GGI-BI, ZAI.

Tricalysia oligoneura K. Schum. in Bot. Jahrb. Syst. 23: 448 (1896); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973).

Representative specimens: **Bioko.** Malabo-Rebola, road km 9–10, 28-VIII-1989, *Carvalho 4075-10* (K, MA); s.l., *Carvalho 2322-13* (K).

Ecology. Shrub; recorded in plantations.

Distribution. West central tropical Africa to Nigeria. 22 NGA; 23 CAF, CMN, GGI-BI, ZAI.

Note. Exell (1973) listed *Tricalysia oligoneura* as a doubtful record for Bioko.

Tricalysia pallens Hiern in Oliv., Fl. Trop. Afr. 3: 121 (1877); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999) – Type: Bioko, s.l., 1860, *Mann s.n.* (K, holotype).

Representative specimens: **Bioko.** Malabo-Pico Basilé, road km 10–11, 18-V-1987, *Carvalho 2914-2* (K, MA); Malabo-Pico Basilé, road km 5–6, 11-VII-1988, *Carvalho 3530-2* (K, MA); Malabo-Pico Basilé, road km 6, 5-XII-1988, *Carvalho 3756-18* (K, MA); Moca-Ureca, 14-XI-1989, *Carvalho 4170-1* (K, MA); Moca-Lago Biao, 1570 m, 15-VII-1986, *F. Casas 10391* (BM, K); Moka, 1400 m, 1-IX-1959, *Wrigley 523* (BM, K); s.l., *Carvalho 2738-5* (K), *2784-18* (K), *F. Casas 11799-2* (K), *11815-1* (K), *12154-1* (K).

Ecology. Shrub; primary and secondary forest.

Distribution. Tropical Africa. 22 GHA, IVO, LBR, NGA; 23 CAF, CMN, CON, EQG, GAB, GGI-BI, ZAI; 25 KEN, TAN; 26 ANG, MLW, MOZ, ZAM, ZIM.

Tricalysia pangolina N. Hallé in Fl. Gabon 17: 295 (1970).
Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 25-IV-1988, *Carvalho 3395-1* (K, MA); Malabo-Cupapa, road km 22–23, 26-III-1989, *Carvalho 3854-3* (K, MA); s.l., *F. Casas 11393-2* (K).
Ecology. Shrub; primary forest.
Distribution. Cameroon, Congo, Gabon. 23 CMN, CON, GAB, GGI-BI.

Tricalysia sp. A

Representative specimens: **Bioko.** Malabo-Cupapa, road km 21–22, 9-VIII-1987, *Carvalho 3034-5* (K, MA); Malabo-Cupapa, road km 21–22, 30-VI-1989, *Carvalho 3994-6* (K, MA); Malabo-Cupapa, road km 20–21, 27-VIII-1989, *Carvalho 4073-2* (K, MA).
Distribution. Bioko. 23 GGI-BI.
Note. This entity closely resembles *T. gossweileri* S. Moore (occurring in tropical West Africa, from Cameroon to Angola) but with longer inflorescences and longer pedicels.

UNDETERMINED TRICALYSIA SPECIMENS

Carvalho 3495-1 (K, MA) [Bioko, Malabo-Cupapa, road km 22–23, 26-VI-1988, in forest], a shrub.

Trichostachys Hook.f.

Trichostachys aurea Hiern in Oliv., Fl. Trop. Afr. 3: 227 (1877).
Representative specimens: **Bioko.** Malabo-Cupapa, road km 22–23, 30-X-1988, *Carvalho 3666-3* (K, MA).
Ecology. Undershrub; primary forest.
Distribution. West and West central tropical Africa. 22 GHA, IVO, LBR, NGA, SIE; 23 CMN, GAB, GGI-BI, GGI-PR.

Uncaria Schreb.

Useful taxonomic treatment: Ridsdale (1978).

Uncaria africana G. Don, Gen. Hist. 3: 471 (1834); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 3(3): 102 (1963); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999).
Representative specimens: **Annobon.** Pico Sulcado, 570 m, 11-VIII-1959, *Wrigley 304* (BM).
Distribution. West tropical Africa to Tanzania (incl. Zanzibar), Comoros, Madagascar. 22 GHA, GNB, GUI, IVO, LBR, NGA, SIE; 23 CAF, CMN, CON, EQG, GAB, GGI-AN, GGI-ST, ZAI; 24 ETH; 25 KEN, TAN, UGA; 26 ANG; 29 COM, MDG.

Vangueriella Verdc.

Useful taxonomic treatment: Verdcourt (1987).

Vangueriella chlorantha (K. Schum.) Verdc. in Kew Bull. 42: 193 (1987).

Vangueriopsis chlorantha (K. Schum.) Robyns; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999).

Distribution. Nigeria, West central tropical Africa. 22 NGA; 23 CMN, EQG, GAB, GGI-BI.

Notes. Recorded for Bioko by Guinea (1968) but without any specimens cited.

Virectaria Bremek.

Useful taxonomic treatment: Verdcourt (1953a).

Virectaria major (K. Schum.) Verdc. in Bull. Jard. Bot. Etat 23: 42 (1953) subsp. **major**

Virectaria major (K. Schum.) Verdc. var. *major*; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999).

Representative specimens: **Bioko.** Moka, 1200 m, 6-XII-1951, *Boughey 33* (K); Malabo-Luba, road km 4, 1520 m, 27-XI-1986, *Carvalho 2735-26* (K, MA); Moka, 1200–1500 m, 28-I-1933, *Exell 758* (BM); Moka road, 23-I-1947, *Guinea 1923* (K); near Biao, 1980 m, 10-IX-1959, *Melville 465* (K); near Pico Biao, 1820 m, *Wrigley 585* (K); s.l., *Casas 11478-2* (K), *11885-3* (K), *11935-3* (K).

Ecology. Shrub; primary forest.

Distribution. Tropical Africa. 22 IVO, LBR, NGA, SIE, TOG; 23 BUR, CAF, CMN, GGI-BI, RWA, ZAI; 25 TAN, UGA; 26 ZAM.

Virectaria procumbens (Sm.) Bremek. in Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk, Tweede Sect. 48(2): 21 (1952); Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 378 (1973); Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 293 (1999).

Representative specimens: **Bioko.** Musola, 10-I-1947, *Guinea 1095* (K).

Distribution. West and West central tropical Africa. 22 GHA, GNB, GUI, IVO, LBR, NGA, SIE; 23 CAB, CAF, CMN, CON, EQG, GAB, GGI-BI, ZAI.

Excluded names and species records

Aidia acuminata (G. Don) Bullock ex Hoyle as cited by Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 278 (1999).

Note. This is probably a mistake for *Massularia acuminata*.
 ? *Heinsia epidendron* Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 283 (1999).

Note. This is probably an error for *Hymenodictyon epidendron* Mildbr. ex Hutch. & Dalziel (= *H. biafranum* Hiern); see Exell (1973: 374).

Psilanthus bicarinatus Mildbr.; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 287 (1999), *nom. nud.*

Note. The use of this name is probably an error for *Psychotria bicarinata* Mildbr. (= *P. recurva* Hiern); see Exell (1973: 376).

Psychotria erythropus K. Schum.; Exell in Bull. Brit. Mus. (Nat. Hist.) Bot. 4(8): 376 (1973).

Note. Recorded for Bioko by Exell (1973: 376) based on the specimen *Mildbraed 6327*, which is a *Chassalia* according to Petit (1964).

Uragoga nutans K. Krause; Aedo *et al.*, Bases Doc. Fl. Guinea Ecuatorial: 292 (1999).

Note. This is either *Psychotria camptopus* or *P. peduncularis*, according to Exell (1973, p. 378).

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Exsiccatae

Barter s.n. *Aidia genipiflora*; s.n. *Mitriostigma barberi*; s.n. *Tarenna grandiflora*; s.n. *Sabicea calycina*; s.n. *Psychotria latistipula*; s.n. *Psychotria peduncularis* var. *hypsochila*; 1232 *Mussaenda tenuiflora* var. *tenuiflora*; 2039 *Morinda lucida*; 2048 *Parapentas setigera*; 2059 *Sacosperma paniculatum*; 2064 *Heinsia crinita*; 2065 *Pouchetia parviflora*; 2066 *Morinda longiflora*; 2068 *Mussaenda tenuiflora* var. *tenuiflora*; 3308 *Mussaenda tenuiflora* var. *tenuiflora*.

Boughey 2 *Otomeria cameronica*; 32 *Spermaceoe princeae* var. *pubescens*; 33 *Virectaria major* subsp. *major*; 73 *Lasianthus batanguensis*; 89 *Mussaenda tenuiflora* var. *tenuiflora*; 179 *Psychotria peduncularis* var. *hypsochila*; 186 *Spermaceoe mauritiana*; 192 *Ecpoma gigantistipula*.

Burchardt s.n. *Cremaspora thomsonii*.

Burton s.n. *Pavetta monticola*.

Carvalho 2021 *Oldenlandia corymbosa*; 2057 *Spermaceoe mauritiana*; 2067–22 *Hymenodictyon biafranum*; 2078–6 *Heinsia crinita*; 2115 *Sabicea calycina*; 2163–4 *Psychotria latistipula*; 2165 *Mussaenda arcuata*; 2184–10 *Mussaenda arcuata*; 2187 *Oxyanthus pallidus*; 2199–6 *Sabicea venosa*; 2215–14 *Sacosperma paniculatum*; 2219–3 *Psychotria venosa*; 2232 *Pentas schimperiana* subsp. *occidentalis*; 2257–5 *Tarenna conferta*; 2281–18 *Psydrax subcordata*; 2283–22 *Cuviera subuliflora*; 2298–2 *Ixora foliosa*; 2303–6 *Ixora foliosa*; 2322–13 *Tricalysia oligoneura*; 2336 *Psychotria latistipula*; 2340–6 *Tarenna grandiflora*; 2342–17 *Preussiodora sulphurea*; 2375–5 *Bertiera laxa* var. *laxa*; 2382–2 *Hallea ledermannii*; 2424 *Spermaceoe princeae* var. *pubescens*; 2446–3 *Psydrax subcordata*; 2448 *Mussaenda isertiana*; 2464–1 *Hymenodictyon biafranum*; 2465–9 *Rutidea* sp. A; 2467–1 *Psychotria humilis* var. *maior*; 2472 *Psychotria leptophylla*; 2507–1 *Dictyandra arborescens*; 2521–3 *Cuviera subuliflora*; 2527–7 *Corynanthe pachyceras*; 2552 *Tarenna conferta*; 2554 *Oxyanthus gracilis*; 2555–2 *Rothmannia longiflora*; 2587–8 *Pentas schimperiana* subsp. *occidentalis*; 2592–9 *Hymenodictyon biafranum*; 2633 *Oldenlandia lancifolia*; 2637–15 *Keetia hispida* s.l.;

2645 *Rutidea smithii* subsp. *smithii*; 2678–3 *Pavetta hookeriana*; 2684 *Galium simense*; 2696 *Rutidea decorticata*; 2697–4 *Heinsia crinita*; 2704 *Sacosperma paniculatum*; 2716 *Bertiera laxa* var. *laxa*; 2732 *Otomeria cameronica*; 2734 *Mussaenda tenuiflora* var. *tenuiflora*; 2735–26 *Virectaria major* subsp. *major*; 2738–5 *Tricalysia pallens*; 2766–14 *Dictyandra arborescens*; 2780 *Lasianthus batanguensis*; 2783 *Bertiera racemosa* var. *racemosa*; 2784–18 *Tricalysia pallens*; 2796–3 *Sabicea schaeferi*; 2804–5 *Sabicea capitellata*; 2810–24 *Keetia hispida* s.l.; 2812–5 *Tarenna* sp.; 2836–3 *Psychotria peduncularis* var. *hypsochila*; 2859–2 *Sabicea venosa*; 2862–5 *Oxyanthus montanus*; 2893–5 *Chassalia cristata*; 2894–5 *Pauridiantha paucinervis*; 2914–2 *Tricalysia pallens*; 2933–1 *Coffea liberica*; 2963–3 *Pentas schimperiana* subsp. *occidentalis*; 2975–2 *Sacosperma paniculatum*; 2977–1 *Psychotria latistipula*; 2978–1 *Bertiera laxa* var. *laxa*; 2980–1 *Preussiodora sulphurea*; 2996–1 *Rothmannia octomera*; 2997–1 *Psychotria leptophylla*; 3000–2 *Mitriostigma barberi*; 3002–1 *Bertiera retrofracta*; 3006–1 *Psychotria subobliqua*; 3014–1 *Psydrax dunlapii*; 3015–2 *Dictyandra arborescens*; 3018–1 *Pavetta* sp.; 3025–1 *Rothmannia longiflora*; 3027–2 *Chassalia subherbacea*; 3032–1 *Euclinia longiflora*; 3032–4 *Euclinia longiflora*; 3034–5 *Tricalysia* sp.A; 3037–1 *Ecpoma gigantistipula*; 3038–1 *Pavetta neurocarpa*; 3039–4 *Pauridiantha rubens*; 3042–2 *Chassalia* sp. A; 3044–2 *Calycosiphonia macrochlamys*; 3047–2 *Oxyanthus montanus*; 3052–6 *Bertiera racemosa* var. *elephantina*; 3053–1 *Rutidea glabra*; 3101–3 *Pavetta monticola*; 3143–1 *Rytigynia umbellulata*; 3152–4 *Pouchetia confertiflora*; 3168–3 *Psydrax subcordata*; 3171 *Coffea canephora*; 3176–1 *Psychotria lucens* var. *lucens*; 3178–2 *Pauridiantha rubens*; 3183–7 *Keetia hispida* s.l.; 3191–1 *Heinsia crinita*; 3199–1 *Psychotria subobliqua*; 3201–2 *Sabicea capitellata*; 3202–1 *Tarenna* sp.; 3214–1 *Psychotria lucens* var. *lucens*; 3215–2 *Pavetta* sp.; 3217–1 *Rutidea* sp. A; 3218–5 *Psychotria* sp.; 3222–2 *Diodia serrulata*; 3227–3 *Tarenna conferta*; 3230–1 *Pavetta brachycalyx*; 3237–1 *Euclinia longiflora*; 3246–1 *Pouchetia parviflora*; 3259–1 *Psydrax acutiflora*; 3262–13 *Pauridiantha paucinervis*; 3393–1 *Rutidea decorticata*; 3395–1 *Tricalysia pangolina*; 3400–1 *Sarcocephalus latifolius*; 3404–3 *Rutidea glabra*; 3410–1 *Bertiera breviflora*; 3421–1 *Rothmannia whitfieldii*; 3429–1 *Psychotria calva*; 3437–3 *Sabicea pilosa*; 3451–2 *Psychotria globosa* var. *ciliata*; 3454–2 *Aidia genipiflora*; 3456–1 *Mussaenda tenuiflora* var. *tenuiflora*; 3467–3 *Tarenna eketensis*; 3471–1

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Mann s.n. Ixora nematopoda; s.n. Mussaenda arcuata; s.n. Pavetta owariensis var. glaucescens; s.n. Pentas schimperiana subsp. occidentalis; s.n. Rothmannia octomera; s.n. Tricalysia pallens; 1 Heinsia crinita; 19 Ixora guineensis; 22 Pleiocoryne fernandensis; 25 Tarenna grandiflora; 31 Psychotria venosa; 40 Psychotria latistipula; 41 Sabicea capitellata; 53 Sabicea calycina; 58 Sacosperma paniculatum; 60 Mussaenda tenuiflora var. tenuiflora; 87 Cuviera subuliflora; 167 Pauridiantha canthiiflora; 173 Geophila obvallata; 178 Rothmannia longiflora; 183 Pavetta rigida; 195 Pavetta owariensis var. owariensis; 200 Bertiera laxa var. laxa; 207 Tarenna conferta; 211 Massularia acuminata; 212 Tarenna bipindensis; 215 Parapentas setigera; 222

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Mildbraed 6288 *Ecpoma hierniana*; 6308 *Argostemma africanum*; 6350 *Schumanniphyton magnificum*; 6360 *Psychotria mollipes*; 6383 *Psychotria subpunctata*; 6433 *Chassalia petitiana*; 6500 *Psychotria peduncularis*; 6502 *Bertiera annobonensis*; 6508 *Pavetta monticola*; 6534 *Sabicea ingrata* var. *insularis*; 6535 *Craterispermum montanum*; 6542 *Rutidea smithii* subsp. *smithii*; 6574 *Pauridiantha floribunda*; 6594 *Pouchetia confertiflora*; 6647 *Oldenlandia corymbosa*; 6653 *Sabicea ingrata* var. *insularis*; 6676 *Pavetta monticola*; 6678 *Pauridiantha floribunda*; 6714 *Oldenlandia corymbosa*; 6749 *Pavetta monticola*; 6760 *Bertiera annobonensis*; 6761 *Pouchetia confertiflora*; 6813 *Mussaenda lancifolia*; 6825 *Psychotria recurva*; 6853 *Chazaliella sciadephora* var. *sciadephora*; 6936 *Schumanniphyton magnificum*; 7041 *Sabicea urbaniana*; 7042 *Psychotria* sp.; 7071 *Spermacoce ruelliae*; 7100 *Pavetta oresitropha*; 7124 *Psychotria crassicalyx*; 7135 *Pavetta oresitropha*.

Milne s.n. *Oldenlandia corymbosa*.

Newton s.n. *Oxyanthus speciosus*.

Sanford 5929 *Pentas schimperiana* subsp. *occidentalis*; 5951 *Galium simense*; 5985 *Psychotria camptopus*.

Swarbrick 2925 *Oldenlandia corymbosa*.

Tessmann 2818 *Spermacoce ruelliae*.

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