Jollydora Pierre

by F.J. Breteler & H.W. van Ziel

History of the genus

The type species of this genus was first described by Baillon (1867: 236) as Connarus duparquetianus, named after the type collector, the R. P. Duparquet. When Pierre studied this species in 1895, on the basis of flowering material collected in Old Calabar by Mann (no 2307) and fruiting material from Gabon collected by Jolly (no 111), he concluded that C. duparquetianus was to be placed in a new genus. This was named Jollydora: gift of Jolly. An interesting detail is the fact that Pierre published his new genus by means of a very detailed drawing, made by Delpy and based on the two specimens cited above. This drawing was multiplied and distributed as 'indelible autograph' e.g. to the botanical museum in Berlin (see Gilg 1896: 217). This constitutes valid publication of a monotypic new genus.

In 1896 (l.c.) Gilg published a second species which he named J. pierrei. Pierre had labelled some material from the same area as J. ellimabouro. Schellenberg (1910: 70) compared this material with the type of J. pierrei and concluded that it belonged to this species. A third species was described by Schellenberg in 1919 from the Victoria area in Cameroun and named J. glandulosa. In 1930 Mildbraed published J. pedunculosa from the same area, based on two collections made by himself. Hepper's (1958: 749) presumption that Mildbraed's species (cited by him as J. peduncula) is synonymous with J. glandulosa is confirmed. Schellenberg overlooked Mildbraed's name completely.

Since Pierre published it in 1895 the genus Jollydora has never been disputed. It is very well delimitated within the Connaraceae by its habit, its pinnate leaves, and its unicarpellate flowers producing indehiscent, 1-2-seeded fruits. Its rather isolated position was illustrated by Gilg and followed by Schellenberg in placing it in a separate subfamily the Jollydoroideae.

That it differs considerably from 'common' Connaraceae is illustrated by names given to Jollydora specimens which were published in really different families, e.g. Anthagathis by Harms (1897: 195) who placed it in the Leguminosae and Ebandoua by Pellegrin (1955: 331) who considered it to be Anacardiaceous. When material is not carefully studied it is easily mistaken for a species of the Sapindaceae.

Gilg (1896: 217) stated that Pierre had been asked to set the genus apart from the other *Connaraceae* and to classify it in the *Simaroubaceae*.

Description of the genus

Jollydora Pierre, 1895 (unprinted drawing); 1896: 1233; Gilg, 1896: 217;

1897b: 189; Schellenberg, 1910: 69; 1919: 455; 1938: 24; Hutchinson, 1964: 167. Type species: *Jollydora duparquetiana* (Baill.) Pierre.

Anthagathis Harms, 1897; 195. Type species: Anthagathis monadelphia Harms (= J. duparquetiana (Baill.) Pierre).

Ebandoua Pellegrin, 1955: 331. Type species: Ebandoua cauliflora Pellegrin (= J. duparquetiana (Baill.) Pierre).

Small, evergreen, usually unbranched treelets, up to ca 8 m high, showing the architectural model of Corner. Young parts covered with a reddish to light-brown woolly, silky or tomentose indumentum. Leaves pinnate, usually crowded at the top. Petiole somewhat thickened at base, usually shorter than rachis. Leaflets opposite to alternate, even or odd in number, the rachis as a rule terminated by a leaflet; petiolule short, somewhat thickened. Inflorescence a raceme, clustered on the stem or in the leaf-axils. Pedicel jointed. Flowers 5-merous, heterotristylous. Sepals imbricate, free, unequal, the two outer smaller. Petals imbricate, free or somewhat coherent. Stumens 10, united at base into a more or less conspicuous cup partly enclosing the ovary. Pistil 1; ovary ellipsoid, ovules nearly basally attached; stigma simple or somewhat lobed. Fruit 1-2-seeded, indehiscent. Seed with almost completely fleshy seedcoat. Endosperm absent. Cotyledons thick and almost horny, radical apical.

Distribution: 3 species in tropical Africa, from E Nigeria to Angola (Cabinda). Ecology: Rainforest, up to ca 1000 m altitude.

Key to the species

la	Vegetative parts and sepals with aglandular hairs only; fruits obovoid-ellip-
	soid to almost globose, always shortly but distinctly stipitate (whole area)
ь	Leaflets with scattered glandular hairs along midrib both sides; sepals with
	glandular hairs, at least partly so; fruits either not stipitate or stipitate but
	then narrowly (sub)ellipsoid
2a	Sepals with a mixture of glandular and aglandular hairs; fruits narrowly
	(sub)ellipsoid, tapering both ends (Gabon) J. pierrei
ь	Sepals predominantly with glandular hairs; fruits ellipsoid, not stipitate
	(S E Nigeria, W Cameroun) J. glandulosa

Jollydora duparquetiana (Baill.)Pierre

Fig. 18, 135-137

J. duparquetiana (Baillon)Pierre, 1895 (unprinted drawing); 1896: 1233; Gilg, 1896: 218; Schellenberg, 1910: 71; 1919: 456; 1938: 26; Hepper, 1958: 749.

Basionym: Connarus duparquetianus Baillon, 1867: 236.

Type: Gabon, sin.loc., Duparquet 54 (holo: P, see note).

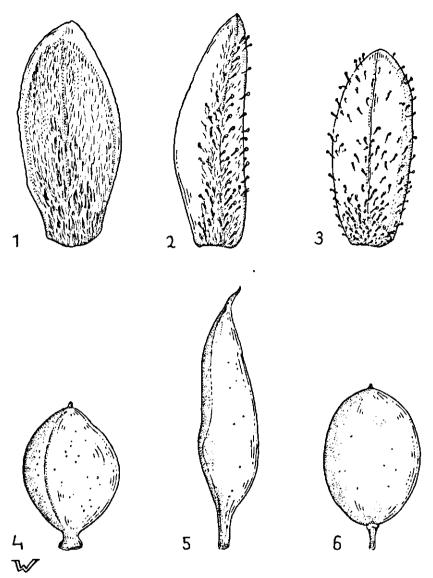


Fig. 135. Jollydora species: sepals with indumentum outside (15 \times) and fruitshape (1 \times), 1,4. J. duparquetiana; 2,5. J. pierrei; 3,6. J. glandulosa. (1. Breteler 9001; 2. Klaine 2335; 3. Letouzey 13416; 4. J.J. de Wilde 309; 5. Jolly 77; 6. Latilo FH1 30923).

- J. rufobarbata Gilg ex Schellenberg, 1910: 71. Type: Cameroun, Bipindi, Zenker 1685 (lecto: K; iso: BM, Z).
 - J. acuta Schellenberg, nomen in herb. Zenker
 - J. cinnabarina Gilg, nomen in herb. Zenker
 - J. gigantophylla Gilg, nomen in herb. Zenker

J. gilgiana Schellenberg, nomen in herb. Zenker

J. villosissima Gilg, nomen in herb. Zenker

Anthagathis monadelphia Harms, 1897: 196. Type: Gabon, Mondah forest, Breteler & J.J. de Wilde 387 (neo: WAG, see note).

Ebandoua cauliflora Pellegrin, 1955: 331. Type: Gabon, Haute Ngounié, Ebandou Dicobi, Le Testu 6307 (holo: P).

Small, usually unbranched treelet to ca 8 m tall and ca 5 cm diameter. Bark of stem brown-red to grey-yellow, rather smooth. Wood reddish to pale-brown. Petiole 4.5-22 cm long, yellow to red-brown, often becoming grevish, pulvinus up to 2 cm long and 12 mm thick. Rachis 7-45 cm long, 2-5 mm thick. Leaflets 5-11, papery to coriaceous, elliptic to obovate or oblong, $10-47 \times 3-13(17)$ cm. cuneate at base, up to 2.5 cm long acuminate, petiolule 3-10 mm long; midrib slightly prominent above, lateral nerves 7-18 pairs. Inflorescence cauliflorous, usually consisting of one to several, up to 7-flowered, clustered racemes, very rarely axillary, reddish tomentose; rachis up to ca 2 cm long. Pedicel articulate, with a small bract (up to 1 mm long) and two opposite bracteoles of ca 0.5 mm long, the upper part less than 1mm long. Sepals ovate-elliptic to oblong, $2-5 \times 1-3$ mm, obtuse to acute at apex, appressed-short-hairy outside, glabrous inside, *Petals* coherent in the middle, otherwise free, oblong, $5.9 \times 0.8-2$ mm. apex rounded, glabrous both sides. Stamens 10, rarely one missing, the long ones 2-5.5 or 4.5-6.3 mm long, the short ones 1-2.5 or 2.5-5.5 mm long; filaments glabrous: anthers 0.6 mm long. Pistil 1-7 mm long; ovary 0.7-1.3 mm long. pubescent; style 0-0.5, 1.5-2.5, or 2.5-5.5 mm long, glabrous or with a few hairs: stigma somewhat lobed or not. Fruit obovoid-ellipsoid to subglobose 2-4 cm long, 1-2.2 cm diameter, mucronate or not, shortly but distinctly stipitate, vellow to orange or scarlet at maturity; pericarp shining outside, 0.5-1 mm thick, glabrous or glabrescent. Seeds 1-2 per fruit; testa almost completely fleshy, except in a narrow zone on the preraphal side, 0.5-1.5 mm thick, whitish when fleshy. brown when not; cotyledons thick and almost horny, radicle minute.

Distribution: From eastern Nigeria to Angola (Cabinda).

Ecology: Primary or old secondary forest, often recorded from rather wet habitats.

Specimens examined:

Nigeria: Calabar R. (fl. March) Latilo FHI 41338 (K); Old Calabar R. (fl.fr. Febr.) Mann 2307 (K); (fl. Febr.) Mann 2309 (P) (most likely a duplicate of Mann 2307, see note); 20 km ENE of Calabar (fr. April) Van Meer 1144 (WAG); Oban (fl.) Talbot 1708 (BM).

Cameroun: Near Grand Batanga (fr. Jan.) Bos 3758 (WAG); 8 km S. of Kribi (fr. Febr.) Bos 3985 (WAG); ea 18 km Kribi-Lolodorf (fl. March) Bos 4061 (WAG); (fl. March) Bos 4122 (WAG); 28 km Kribi-Lolodorf (fl. April) Bos 4325 (WAG); 12 km Kribi-Ebolowa (fr. April) Bos 4438 (WAG); 20 km Kribi-Lolodorf (fl. Dec.) Bos 5817 (WAG); 8 km W of Bipindi (fl. Febr.) Bos 6360 (WAG); km 28 Kribi-Lolodorf (fl. March) Bos 6614 (WAG); 15 km SE of Kribi (fl. March) Bos 6644 (WAG); ca 40 km Kribi-Edea (fl. April) Bos 6730 (WAG); 40 km S of Kribi (fl. Aug.) Bos & Breteler 7276 (WAG); S Bakundu F.R. (fl. March) Brenan 9407 (BM, BR, K, P); (fl. March)

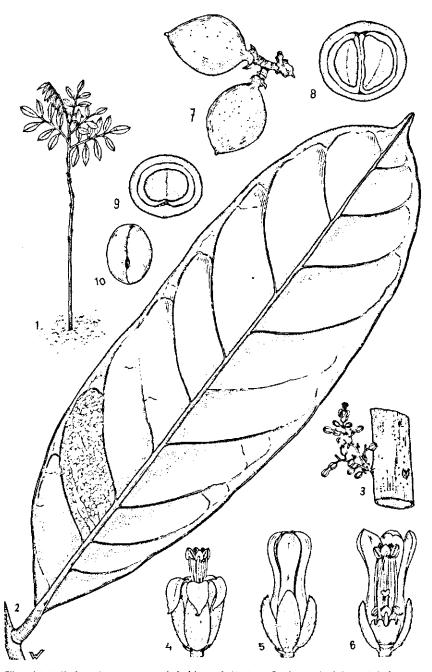


Fig. 136. Jollydora duparquetiana: 1. habit, ca 1/40; 2. leaflet beneath, $2/3 \times 3$; 3. inflorescence, $2/3 \times 3$; 4-5. flowers, 4×3 ; 6. flower, one sepal and petals removed, 4×3 ; 7. fruits, $2/3 \times 3$; 8. two-seeded fruit in transverse section, 1×3 ; 9. one-seeded fruit in transverse section, 1×3 ; 10. seed with sarcotesta, ventral side with hilum, 1×3 ; (2. Louis et al. 1256; 3. J.J. de Wilde et al. 7850; 4-6. Breteler et al. 9001; 7,8. J.J. de Wilde et al. 309; 9,10. J.J. de Wilde 8301).

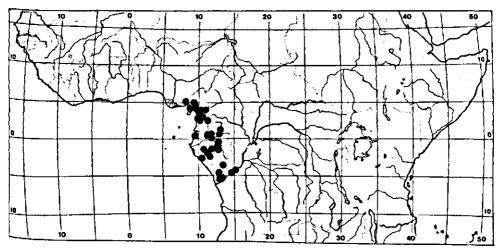


Fig. 137. Distribution of Jollydora duparquetiana

Brenan 9411 (BM, BR, K, P); 39 km E. of Douala (fl. Febr.) Breteler c.s. 2601 (C, P, WAG); 25 km Ebolowa-Kribi (fl. Dec.) J.J. de Wilde 7850 (WAG); Nkoemvone (fl. Dec.) J.J. de Wilde 8005 (WAG); 16 km Kribi-Ebolowa (fr. June) J.J. de Wilde 8301 (WAG); 50 km NW of Eséka (fl. Nov.) W. de Wilde 1254 (BR, K, P, WAG); 40 km NW of Eséka (fl. Dec.) W. de Wilde 1436 (WAG); 60 km NW of Eséka (fr. Febr.) W. de Wilde 1767 (WAG); 60 km SW of Eséka (fl. March) W. de Wilde 2139 (BR, K, MO, WAG); (fr. March) W. de Wilde 2139B (WAG); W of Limbe (Victoria) (fr. Nov.) Gentry & Thomas 52850 (WAG); Elephant Mt near Kribi (March) Huber 1052 (YA); Kumba (fl. Jan.) Keav FHI 37369 (K, P, WAG); 60 km SW of Escka (fl. March) Leeuwenberg 5039 (BR, K, P, WAG); km 11 Loum-Yabassi (fl. March) Leeuwenberg 9481 (WAG); near Bella (fr. Jan.) Letouzey 4168 (P); 50 km SE of Kribi (fr. March) Letouzey 9009 (BR, P); 40 km SE Kribi (fl. March) Letouzey 9091 (HBG, P); km 81 Kribi-Ebolowa (fl. April) Letouzey 9449 (BR, P, WAG); 20 km SW of Ambam (fl. March) Letouzey 10163 (P); 20 km N of Eséka (fr. Dec.) Letouzev 12321 (P); 35 km SW of Edea (fl. Jan.) Letouzey 12659 (P); 25 km NNE of Bipindi (fl. Jan) Letouzev 12826 (P); Baduma Forest (fr. June) Nemba & Thomas 117 (WAG); Kumba (fr. May) Olorunfemi FHI 30576 (K); Dipikar I. (fr. Dec.) Satubié 498 (P, YA); Limbe (Victoria) (fl. May) Winkler 40b (Z); Bipindi (fl.) Zenker 1685 (BM, E, G, K, P, Z, type of J. rufobarbata); (fr.) Zenker 1980 (BM, G, K); (fl.) Zenker 1995 (BM, E, G, GOET, K, L, P, Z); (fr.) Zenker 2510 (BM, BR, E, G, K, P); (fl.) Zenker 2744 (BM, E, G, K); (fl.) Zenker 3438 (BM, BR, E, G, GOET, K, L, M, MO, P); (fl.) Zenker 3754 (BM, BR, E, G, K, MO); (fl.) Zenker 3756 (BM, BR, E, G, GOET, K, MO).

Gabon: Libreville (fr.) Autran (Heckel) 15 (P); 25 km NW Libreville (fr. Aug.) Breteler & de Wilde 387 (WAG, type of Anthagathis monadelphia); near La Lara (fl. Sept.) Breteler & de Wilde 443 (WAG); (fr. Sept.) Breteler & de Wilde 447 (WAG); 34 km Mouila-Yeno (fr. Sept.) Breteler c.s. 8121 (LBV, WAG); 5-10 km W of Koumémayong (fl. April) Breteler c.s. 9001 (LBV, WAG); 9003 (LBV, WAG); 15 km N of Doussala (fr. March) de Wilde & Jongkind 9462 (WAG); Cap Estérias (fr. Jan.) J.J. de Wilde c.s. 309 (LBV, WAG); sin.loc. (fl.) Duparquet 54 (P, type, see note); Bélinga (fr. March) Florence 688 (P); Makokou (fr. March) N. Hallé 1503 (P); 1504 (P); (fl.) N. Hallé 2647 (P); Bélinga (fr. June) N. Hallé 3934 (P); 4054 (P); N. Hallé & Le Thomas 173 (P); 7 km SW Makokou (fr. April) Hladik 2067 (P); Mondah Forest (fr. Feb.) INEF s.n. (P); Libreville (fr. April) Jolly 111 (P); (fr. May) Klaine 186-2 (P); (fl. Sept.) Klaine 359 (P); (fr. June) Klaine 470 (P); (fl. Aug.) Klaine 532 (P); (fr. Feb.) Klaine 716 bis (P); SE Sindara (fl. Sept.) Leeuwenberg & Persoon 13633 (LBV, WAG); Ebandou Dicobi (fl. Sept.) Le Testu 6307 (BM, BR, P, type of Ebandoua cauliflora); Matoro (fl. Oct.) Le Testu 7495 (BM, P); Lastoursville (fl. Oct.) Le Testu 7519 bis (BM, BR, P); Coumamala (fl.fr. Sept.) Le Testu 8342 (BM, P); 8343

(BM, P); Oveng (fr. Nov.) Louis c.s. 395 (LBV, WAG); 20 km N of Lastoursville (fr. Nov.) Louis c.s. 805 (WAG); 32 km SE Sindara (fr. Dec.) Louis c.s. 1256 (LBV, WAG); 1332 (LBV, WAG); Oveng (fr. May) Reitsma c.s. 901 (LBV, WAG); (fl. May) Reitsma c.s. 903 (LBV, WAG); 30 km SW of Doussala (fl. Aug.) Reitsma 1430 (WAG); 40 km NW of Oveng (fl. Sept.) Reitsma 1514 (WAG); 30 km SW of Doussala (fr. Febr.) Reitsma 1961 (WAG); 25 km WSW of Mitzic (fr. Nov.) Reitsma 2577 (WAG); Sibang (fl. June) Soyaux 10 (K, Z); Sibang (fr. July) Thomas & Wilks 6344 (WAG); 32 km SE of Sindara (fr. Feb.) Wilks 1224 (WAG).

Congo: Moufouma (fr. Aug.) Farron 4293 (P); Djoumouna (fl.Oct.) Farron 4662 (P); (fl. Nov.) F. Hallé 1480 (P); Mantaba (fr. Sept.) Koechlin 3121 (P); Banza N'Dounga (Sept.) Koechlin 5274 (P); sin.loc. (fl.) Sita 2629 (P).

Zaire: Lusanga Sundi (fr. Sept.) Donis 1452 (BR); Luki (fr. March) Donis 1754 (BR); (fr. May) Wagemans 1521 (BR); (fr. Aug.) Wagemans 1621 (BR); Gimbi (fr. Feb.) Wagemans 2203 (BR). Angola: Belize (fr.) Gossweiler 8011 (BM, LISU).

Notes: Baillon (1867: 236) cites Duparquet 55 as the type. This is an error. By personal communication of N. Hallé and J.C. Jolinon from the Paris herbarium attention was drawn to a note attached to Mann 2309 (P,see below). This note from the hand of Pierre proves that no 55 is a misprint and should read no 54. Schellenberg (1938: 26) cites both numbers 54 and 55! Duparquet 54 is also cited (l.c.: 58) by him under Manotes griffoniana.

The Paris specimen of the Mann collection referred to as Mann 2309 should most likely read Mann 2307. The figure 7 on the original label of this Mann duplicate can be mistaken for a 9 as did Delpy when he made the detailed drawing, based on Mann 2307 and Jolly 111, on which this genus was founded.

Harms (1897: 196) did not cite a specimen when publishing Anthagathis monadelphia, but cited Gabon as its origin. Not any material could be traced which might possibly be accepted as type of this monotypic genus. Therefore a neotype has been designated.

Jollydora glandulosa Schellenb.

Fig. 135, 138

J. glandulosa Schellenberg, 1919: 455; 1938: 25; Hepper, 1958: 749.

Type: Cameroun, between Joh. Albrechtshöhe and Ediki, Winkler 1042 (holo: B†; lecto: Z).

J. pedunculosa Mildbraed, 1930: 971. Type: Cameroun, 15-35 km NE of Limbe (Victoria), Likomba Pflanzung, Mildbraed 10607 (lecto: K).

J. peduncula Mildbraed, nomen on Mildbraed 10607.

Treelet up to ca 5 m tall, usually unbrached. Petiole 15-18 cm long, up to 10 mm thick at base, rachis 10-45 cm long. Leaflets up to 13, opposite to subopposite, papyraceous, oblong to obovate-elliptic, 8-43 × 2.5-10.5 cm, up to 1.5 cm long acuminate, cuneate at base; petiolule 4-10 cm long; midrib prominent both sides, lateral nerves 6-13 on each side. Inflorescence of clustered racemes, axillary or just below the leaves; each raceme up to 9 mm long, 1-3 flowered, with mixture of appressed and red glandular hairs. Pedicel jointed, 0.5-7 mm long. Bracts and bracteoles up to 0.7 mm long. Sepals ovate-triangular or

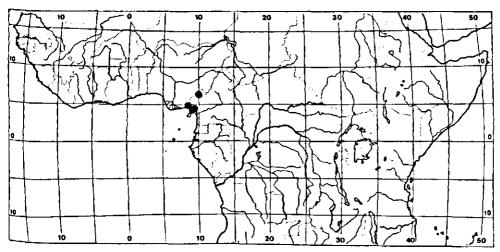


Fig. 138. Distribution of Jollydora glandulosa

oblong, $2-6 \times 1.5-3$ mm, rounded to acute at apex, outside with appressed aglandular and red glandular hairs, glabrous inside. *Petals* coherent in the middle, otherwise free, oblong, $9-11 \times 1.2-1.5$ mm, top rounded, glabrous both sides. *Stamens* 10, the long ones 5-6.5 or up to 10 mm long, the short ones 1.5-3 or 5-6.5 mm long; filaments glabrous, anthers ca 0.6 mm long. *Pistil* 1, 4.5 or 10 mm long; ovary ca 1.5 mm long, pubescent, hairs ca 2.5 mm long; style glabrous; stigma distinct, subentire. *Fruit* 1(-2?)seeded, ovoid-ellipsoid, up to 4×2.5 cm, yellow, glabrous or glabrescent. *Seeds* ovoid-ellipsoid, 15-18 \times 10-13 mm.

Distribution: SE Nigeria, W Cameroun.

Ecology: Rain forest.

Specimens examined:

Nigeria: Obudu, Boshi-Okwangwo F.R. (fr. May) Latilo FHI 30923 (K).

Cameroun: Near Obang, 18 km S of Wum (fl. Dec.) Letouzey 13416 (P); 15-35 km NE of Limbe (Victoria)(fl.Nov.) Mildbraed 10607 (K, type of J. pedunculosa); between Joh. Albrechtshöhe and Ediki (fl. Dec.) Winkler 1042 (Z, type).

Notes: The characters of the type specimen of this species were already discussed by Schellenberg in 1910 (p. 70). At that moment he classified it with some doubt as J. pierrei, because of insufficient knowledge of the flowers of J. pierrei. In 1919 (l.c.) this doubt had disappeared as result of a misuse of the conformity in leaf indumentum between J. duparquetiana (Zenker 2744 & 3756) and J. pierrei (Jolly 77, Soyaux 186). The leaf indumentum being the same in the two J. pierrei specimens and in Zenker 2744, the latter is no longer considered to represent J. duparquetiana but J. pierrei. This Zenker material has an aglandular calyx, so J. pierrei has a calyx without glands. As a result J. glandulosa can be distinguished from J. pierrei by its glandular calyx.

A character which might be useful to distinguish sterile material of this species from J. duparquetiana and J. pierrei is found in the angle between the midrib and its main laterals. This angle is 45° in J. glandulosa and usually 50° - 70° in the other two species.

Jollydora pierrei Gilg

Fig. 135, 139

Jollydora pierrei Gilg, 1896: 218; Schellenberg, 1910: 69; 1919: 456; 1938: 26, p.p. (except material from Cameroun, see note under J. glandulosa).

Type: Gabon, Sibang, Soyaux 186 (holo: B†); neotype: Gabon, near Libreville, Klaine 1596 (P).

J. ellimabouro Pierre, nomen in herb. Klaine 390; Gilg, 1896: 218 (as J. elimaboura); Schellenberg, 1910: 70.

Treelet up to 5 m tall, usually unbranched. *Petiole* 7-13 cm long, rachis 4-9 cm long. *Leaflets* 3-7, opposite or alternate, papyraceous, narrowly (obovate-) elliptic, $11-22 \times 3.5-8$ cm, cuneate at base, rather abruptly acuminate apically, acumen 5-15(20) mm long, slender; midrib and the 10-16 main laterals on each side prominent both sides as well as the tertiary, reticulate venation; petiolule 3-8 mm long. *Inflorescence* of clustered racemes, cauliflorous; raceme ca 7-flowered, up to 1.5 cm long. *Pedicel* jointed; bracts and bracteoles 0.5-1 mm long, tomentose. *Sepals* elliptic to ovate-triangular, 2-4.5 \times 1-1.5 mm, rounded to acute at top, outside with appressed and erect glandular hairs, glabrous inside. *Petals* usually partly coherent, free at base and apically, oblong, 7-9 \times 0.8 mm, top rounded, glabrous both sides. *Stamens* 10, the long ones 5-6.5 or 5-8 mm long, the short ones ca 1.5 mm or 3-5 mm long; filaments glabrous; anthers

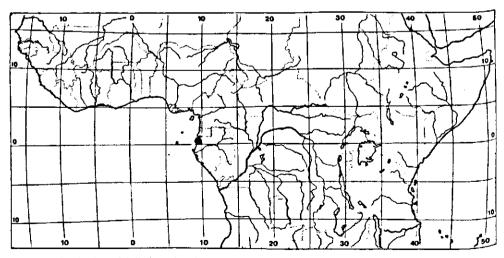


Fig. 139. Distribution of Jollydora pierrei

0.6 mm long. Pistil 1.2-8 mm long; ovary ca 1 mm long, woolly; style 1 or 7 mm long, with a few hairs; stigma lobed. Fruit narrowly ellipsoid, tapering both ends, 4.5-6 cm long (up to 9 cm long in Schellenberg 1938: 28), 0.9-1.7 cm diam., 1(-2) seeded. Pericarp smooth, glossy, glabrous or glabrescent. Seed narrowly ellipsoid, 2-3 cm long, 6-10 mm diam.

Distribution: Gabon, only collected near Libreville.

Ecology: Rain forest.

Specimens examined:

Gabon: Libreville (fr. Febr.) Jolly 77 (P); near Libreville (fl. Oct.) Klaine 390 (P); (fl.fr. July) Klaine 1596 (P,type); (fl. July) Klaine 1903 (P); (fl. July) Klaine 2335 (P); (fr. Dec.) Klaine 2564 (P); (fr. May) Klaine 2884 (P).

Note: Schellenberg (1938: 26) described the fruits as being up to 9 cm long and Gilg (1896: 218), the author of this species, as up to 8 cm long. This is much longer than measured in the material examined for this revision. The specimen seen by both these authors and not examined now is *Jolly 186*, the type, which was lost in Berlin.