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A revision of *Prioria*, including
Gossweilerodendron, *Kingiodendron*,
Oxystigma, and *Pterygopodium*
(Leguminosae - Caesalpinioideae -
Detarieae)
with emphasis on Africa

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Cover: Fruit variation in *Prioria*.

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CONTENTS

Summary	4
Generic delimitation in the <i>Crudia</i> group of the <i>Detarieae</i>	5
The genus <i>Prioria</i>	8
History of <i>Prioria</i> and the allied genera.....	8
Generic delimitation of <i>Prioria</i> s.l.....	8
Description of the genus <i>Prioria</i>	13
The African species of <i>Prioria</i>	17
Key to the African species based on flowering material.....	17
Key to the African species based on fruiting material.....	17
Key to the African species based on sterile material.....	19
Alphabetical treatment of the African species.....	21
The American species of <i>Prioria</i>	42
The Asiatic and Pacific species of <i>Prioria</i>	47
Introduction.....	47
Key to the Asiatic and Pacific species.....	48
Brief alphabetical review of the Asiatic and Pacific species.....	50
Excluded species.....	55
References	56
Index to scientific names	59

SUMMARY

The related genera *Gossweilerodendron*, *Kingiodendron*, *Oxystigma*, *Prioria*, and *Pterygopodium* are taxonomically revised. They share a great number of characters and are on that account united under the name *Prioria*. Fourteen species are recognized, seven in Africa, six in Asia and the Pacific, and one in Central America. The African species are amply described and illustrated. Separate keys are given for the African and the Asiatic and Pacific species. The distribution of all species is mapped. The place of *Prioria* in the *Detarieae* is discussed.

GENERIC DELIMITATION IN THE *CRUDIA* GROUP OF THE *DETARIEAE*

The genera treated in this paper all belong to the *Crudia* group as conceived by Cowan & Polhill (1981) in their treatment of the *Detarieae*. The following 12 genera are classified (arrangement according to Cowan & Polhill).

<i>Crudia</i> Schreber	(1789)
<i>Oxystigma</i> Harms	(1897)
<i>Kingiodendron</i> Harms	(1897)
<i>Gossweilerodendron</i> Harms	(1925)
<i>Bathiaea</i> Drake	(1902)
<i>Apaloxylon</i> Harms	(1902)
(now <i>Neoapaloxylon</i> Rauschert)	
<i>Prioria</i> Griseb.	(1860)
<i>Augouardia</i> Pellegr.	(1924)
<i>Stemonocoleus</i> Harms	(1905)
<i>Hardwickia</i> Roxb.	(1811)
<i>Guibourtia</i> J.J. Benn.	(1857)
<i>Colophospermum</i> Kirk ex J. Léon.	(1949)

The group is characterized by leaves with 1 to numerous, opposite to alternate leaflets, usually with gland dots (not in *Crudia*, *Bathiaea*, and *Augouardia*), by apetalous flowers (*Bathiaea* excepted) with small bracteoles or without bracteoles, imbricate sepals and free stamens.

In a recent paper by Breteler et al. (1997) the monotypic genera *Hardwickia* from India and *Colophospermum* from South Tropical Africa have been united under the oldest name *Hardwickia*.

In this paper it is proposed to unite the genera *Oxystigma* (incl. *Pterygopodium*), *Kingiodendron*, *Gossweilerodendron*, and *Prioria* under the latter name.

Both treatments together reduce the number of genera in the *Crudia* group from 12 to 8, which makes it more easy to overlook. The question, however, is whether the remaining genera really belong together or if some of them should be placed elsewhere.

In an unpublished paper by Breteler (1996) dealing with the preliminary classification of the genera of the *Detarieae*, 9 genera of the *Crudia* group (*Crudia*, *Augouardia*, and *Stemonocoleus* excepted) are classified in his *Hymenaea* complex together with the 5 following

genera, *Pterygopodium* (included in *Oxystigma* in Cowan & Polhill), *Pseudocopaiva* (a synonym of *Guibourtia*), *Hymenaea*, *Peltogyne* and *Daniellia*, 14 genera in total. In brief, going from Cowan & Polhill's classification to Breteler's one means: *Crudia*, *Augouardia* and *Stemonocoleus* out and *Hymenaea*, *Peltogyne* and *Daniellia* in, as shown in table 1.

Table 1. Generic classification of *Prioria* s.l. in Cowan & Polhill (1981) and Breteler (1996, ined.)

Cowan & Polhill (1981) <i>Crudia</i> group Main characters	Breteler (1996) <i>Hymenaea</i> complex Main characters
Leaflets 1 to numerous, opposite to alternate, usually glandular punctate (not in <i>Crudia</i> , <i>Bathiaea</i> and <i>Augouardia</i>); flowers spirally arranged, apetalous (<i>Bathiaea</i> excepted); bracteoles small or 0; sepals imbricate, glandular punctate (not in <i>Crudia</i>); petals when present (<i>Bathiaea</i>) glandular punctate; androecium actinomorphic or zygomorphic (<i>Augouardia</i> , <i>Stemonocoleus</i>); stamens 3-10, or more numerous, free or shortly joined.	Leaflets (1) 2 to few, sometimes many, opposite to alternate, glandular punctate (not always in <i>Guibourtia</i> , not in <i>Bathiaea</i>); flowers spirally arranged, with or without petals; bracteoles small or 0; sepals imbricate, glandular punctate; petals when present (in <i>Bathiaea</i> , <i>Daniellia</i> , <i>Hymenaea</i> , <i>Peltogyne</i>) glandular punctate; androecium actinomorphic; stamens 10 or more numerous, free or shortly united.
Genera (in alphabetical order):	Genera (in alphabetical order)
1. <i>Augouardia</i> Pellegr. (1924)	1. <i>Bathiaea</i> Drake (1902)
2. <i>Bathiaea</i> Drake (1902)	2. <i>Daniellia</i> J.J. Benn. (1857)
3. <i>Crudia</i> Schreber (1789)	3. <i>Guibourtia</i> J.J. Benn. (1857)
4. <i>Guibourtia</i> J.J. Benn. (1857)	<i>Pseudocopaiva</i> Britt. & Wilson
<i>Pseudocopaiva</i> * Britt. & Wilson (1929)	4. <i>Hardwickia</i> Roxb. (1811)
5. <i>Hardwickia</i> Roxb. (1811)	<i>Colophospermum</i> Kirk ex J. Léon. (1949)
<i>Colophospermum</i> ** Kirk ex J. Léon. (1949)	5. <i>Hymenaea</i> L. (1753)
6. <i>Neoapaloxylon</i> Rauschert (1982)	6. <i>Neoapaloxylon</i> Rauschert (1982)
<i>Apaloxylon</i> ** Drake (1902)	<i>Apaloxylon</i> Drake (1902)
7. <i>Prioria</i> Griseb. (1860)	7. <i>Peltogyne</i> Vogel (1837)
<i>Kingiodendron</i> ** Harms (1897)	8. <i>Prioria</i> Griseb. (1860)
<i>Oxystigma</i> ** Harms (1897)	<i>Kingiodendron</i> Harms (1897)
<i>Pterygopodium</i> ** Harms (1913)	<i>Oxystigma</i> Harms (1897)
<i>Gossweilerodendron</i> ** Harms (1925)	<i>Pterygopodium</i> Harms (1913)
8. <i>Stemonocoleus</i> Harms (1905)	<i>Gossweilerodendron</i> Harms (1925)

*) Added synonym. **) Italics by the author of this paper.

In both classifications there are some exceptions to the characteristics of the group, especially as regards the glandular punctuation of the leaflets and the presence of petals.

Crudia (cf. De Wit, 1949) is aberrant in its group by the lack of gland dots in the leaflets and in the sepals and by its simple racemes. In my opinion this genus is better placed near *Cynometra*, but as an advanced genus with *Hymenostegia* and *Talbotiella* as intermediates. Also the pod characters of *Crudia* fit better there. *Augouardia* and *Stemonocoleus* are closely related between each other, but on account of their strongly reduced zygomorphic androecium, these genera are better placed near genera like *Sindora*, *Sindoropsis*, *Tessmannia* and *Eurypetalum*, as in Breteler's *Detarium* complex (Breteler, 1996).

THE GENUS PRIORIA

History of *Prioria* and the allied genera

In 1860 Grisebach described from the British West Indian Islands the genus *Prioria* and based it on a single species *P. copaifera*. The genus remained monotypic till now. *Kingiodendron* and *Oxystigma* were simultaneously described by Harms in 1897. *Kingiodendron* was based on *Hardwickia pinnata* Roxb. ex DC. from India. The genus was enriched in 1907 by *K. alternifolium* (Elmer) Merr. & Rolfe from the Philippines, in 1936 by *K. micranthum* Burtt from the Solomon Islands and *K. platycarpum* Burtt from the Fiji Islands and, rather recently in 1977, by two species *K. novoguineense* Verdc. and *K. tenuicarpum* Verdc. from New Guinea.

Oxystigma was based on *Copaifera ? mannii* Baill. from Central Africa to which Harms added *O. buchholzii* in 1899 also from Central Africa and *O. msoo* from Tanzania in 1914.

In 1913 Harms described the genus *Pterygopodium* and based it on *P. oxyphyllum* from Cameroun. The type species was only known from fruiting material, but in 1925 Harms described the flowers, which made its classification as a Caesalpinoideae possible. A second species of *Pterygopodium*, *P. balsamiferum* from Congo (Kinshasa), was added by Vermoesen in 1923. For the latter species Harms created the genus *Gossweilerodendron* in 1925.

Léonard (1950) united the genera *Pterygopodium* s.s. and *Oxystigma* and recognized two sections in the combined genus, section *Oxystigma* for most species and section *Pterygopodium* to accommodate the former type species *P. oxyphyllum*. The section *Oxystigma* was enriched by a new species *O. gilbertii* J. Léonard from Congo (Kinshasa).

A second species of *Gossweilerodendron*, *G. joveri* was published by Aubréville in 1968. The type material originates from Equatorial Guinea.

Generic delimitation of *Prioria* s.l.

The genera *Prioria*, *Kingiodendron*, *Oxystigma*, *Pterygopodium*, and *Gossweilerodendron* treated taxonomically in this revision have always been placed together in the systems that dealt

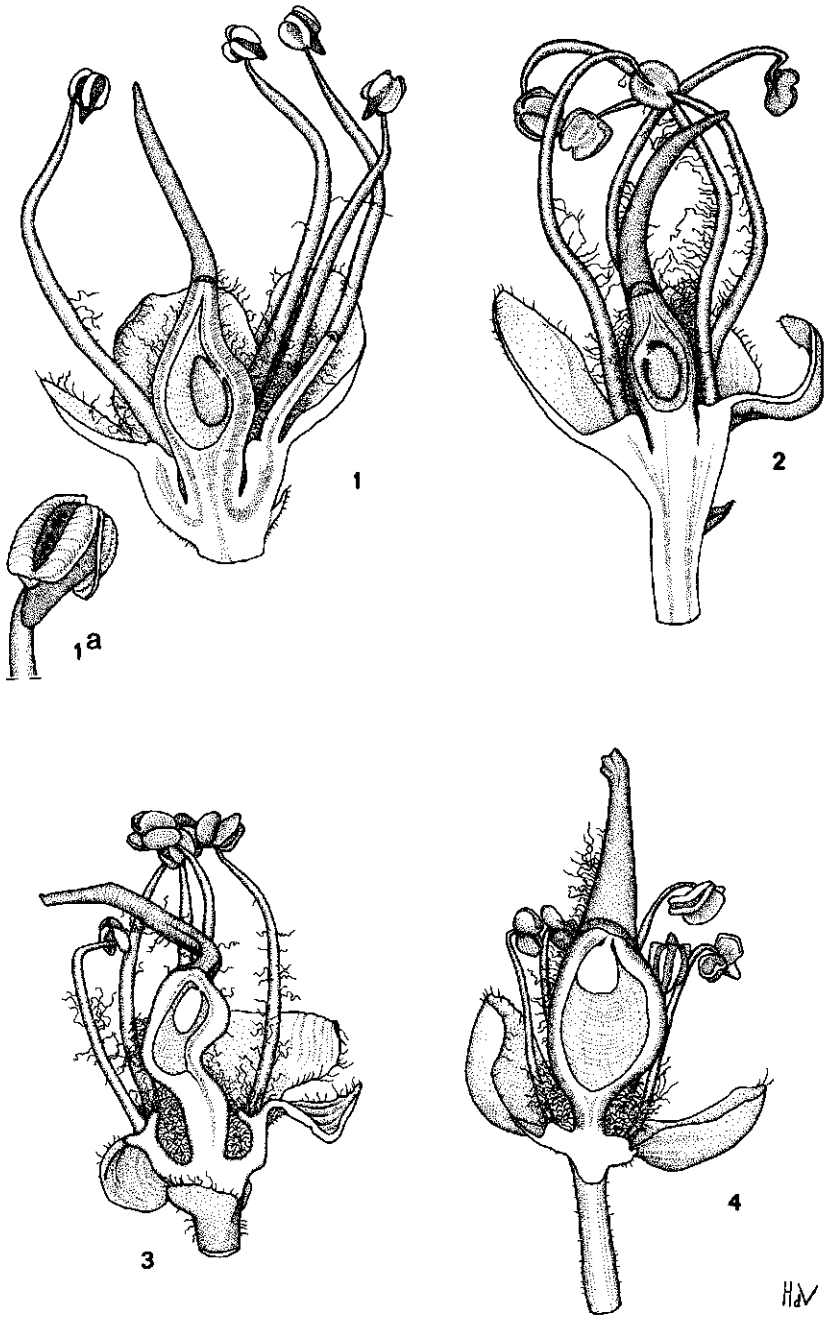


Fig. 1. *Prioria* flowers cut lengthwise, x10 : 1. *P. copaifera*; 1a. Anther, x30; 2. *P. buchholzii*; 3. *P. balsamifera*; 4. *P. pinnata* (1. Broadway 5833; 2. Harris & Fay 1921; 3. J. Louis 2430; 4. Kostermans 28130). Drawing by H. de Vries.

with *Caesalpinioideae* (Harms, 1897, 1915; Baker f., 1930; Léonard, 1957; Hutchinson, 1964, Cowan & Polhill, 1981). The apetalous condition of the flowers with 10 free stamens and the few-ovuled ovary are important common features to recognize these genera as belonging together. But the fact that these genera have so long been treated as distinct entities is a phenomenon which is difficult to comprehend. Taxonomic treatments of plant taxa restricted to a continental or smaller scale add considerably in maintaining certain taxonomic boundaries, and taxonomic works that have a wider scope, like Cowan & Polhill's are, almost necessarily, of a more superficial quality.

When I first looked at herbarium material of *Oxystigma* from Africa and *Kingiodendron* from Asia I was intrigued how Harms in 1897 simultaneously created these two genera based on material that looked so much alike. Of course the stigma in *Oxystigma* is more pointed than in *Kingiodendron*, and the first genus is from Africa and the second from Asia, but for the rest? Comparison of Harms's two generic descriptions learnt that *Kingiodendron* has 1-ovuled ovaries and *Oxystigma* 2-ovuled ones. However, I have never observed an ovary with 2 ovules in *Oxystigma*. Did Harms make a mistake when dissecting an ovary of *Oxystigma*? The type species of *Oxystigma* is described by Baillon (1866) as 1-2-ovulate. In 1914, *O. msoo* is described by Harms with 1 ovule in the ovary and in 1915, when placing Winkler's genus *Eriander* (with 1 ovule) in synonymy of *Oxystigma*, Harms stated for *Oxystigma*: "Der Fruchtknoten hat fast stets nur 1 Sa". In Baker (1930) the *Oxystigma* ovary is still 2-ovuled and Hutchinson (1964) maintained Harm's difference of 1897: *Kingiodendron* 1 ovule, *Oxystigma* 2 ovules per ovary. The same phenomenon is seen in *Prioria*. Grisebach (1860) described the ovary as 1-ovuled, but Bentham (1865) as 2-ovuled, and so do Fawcett & Rendle (1920) and again, Hutchinson (1964). Dwyer (1951) described the ovary as 1-2-ovulate. In conclusion it may be stated that, as a rule, the ovary is 1-ovuled, but that the occurrence of a 2-ovuled ovary may not be excluded.

Burt (1936) is the first author to point to the close affinity between *Kingiodendron* and *Prioria*, but he kept the genera separate mainly on account of the opposite leaflets, the connate bracteoles and the prolonged anther-connective in *Prioria*. In 1957, upon Dwyer's intention to place the *Oxystigma* species in *Prioria*, Léonard studied the differences between these two genera. For *Oxystigma* he came to the same conclusion as Burt, and essentially on the same grounds,

that it had to be kept as a distinct genus. One of the important characters for distinction, viz the protruding anther-connective in *Prioria*, however, is also very apparent in Léonard's *Oxystigma gilbertii* (Fig. 8), of which, however, the flowers were unknown when he published it. Other species in *Oxystigma* do not show a protruding connective, but in the species of the former genus *Gossweilerodendron* this character is also observed, although less prominently and not always so.

The bracteoles in *Prioria copaifera* are quite distinct as compared to the bracteoles in the other species of *Prioria* s.l. in such a way that they are large and form a cupula-like structure surrounding the flower base. They are also described as being united (Bentham, 1865; Fawcett & Rendle, 1920; Burtt, 1936), but I observed that they are imbricate (not a good condition for unification) and free, and if united very scarcely so.

Differences at the generic level such as, 'fleurs subsessile', against 'fleurs nettement pédicellées' (Léonard, 1957) are of importance at the specific level. Moreover, almost sessile flowers are also seen in the former *Gossweilerodendron balsamiferum*. Another 'generic' character mentioned by Léonard (1950, 1957) is seen in the nervation of the pericarp, whether the nerves start at the basis of the fruit or laterally (*Prioria*, *Gossweilerodendron*) or start at the top of the fruit (*Oxystigma*). This difference in nervation serves as a very helpful character to distinguish f.i. between the fruits of *Prioria oxyphylla* and *P. balsamifera* (see Fig. 4), but one must admit that in both cases the nerves start at the base of the fruit and there is no fundamental difference involved whatsoever.

The number of sepals is used as another character to distinguish between *Gossweilerodendron* with 4, rarely 5 sepals and *Oxystigma* with 5, rarely 6 sepals (Léonard, 1957). In several genera of the *Detarieae* (e.g. *Cynometra*), but also in genera of the *Macrobieae* (e.g. *Monopetalanthus*) the reduction in the number of sepals from 5 to 4 (by unification of the two adaxial sepals) is a common feature, which is rarely of great importance at the generic level. Moreover, the former *Gossweilerodendron joveri* often shows flowers with 5 sepals, and the *Oxystigma msoo* flowers with 4 sepals.

The seeds have not been used in generic distinction. They are mostly lens-shaped and show a fairly large variation in size from ± 2 cm in diam. in *P. balsamifera* till ± 6 cm diam. in *P. buchholzii*. *P. joveri* has an aberrant, c. vermicular seed shape of up to 6 x 0.5 cm. The cotyledons show great variation. They may be plano-convex or

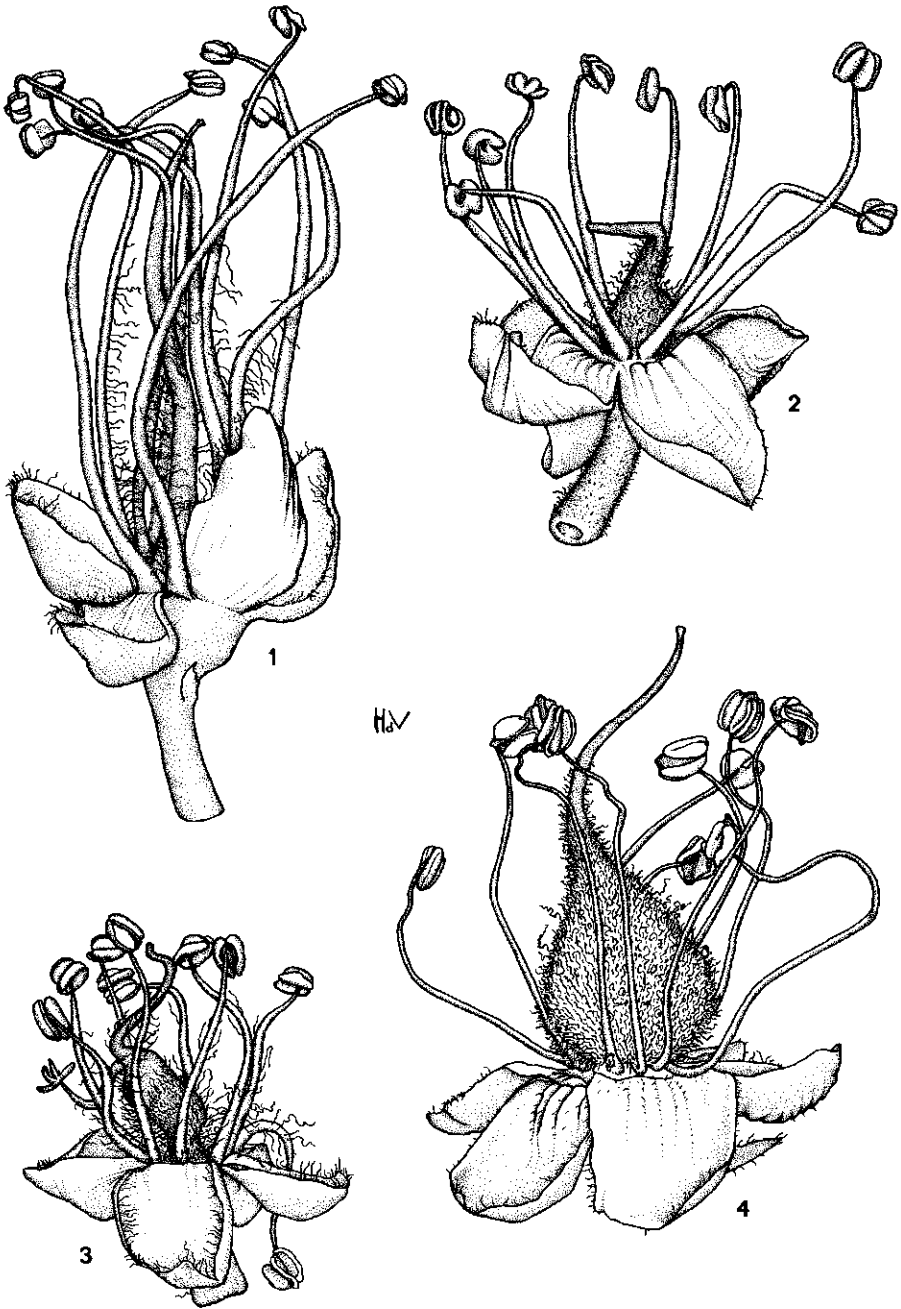


Fig. 2. Flowers of African *Prioria*, x10: 1. *P. buchholzii*; 2. *P. joveri*; 3. *P. balsamifera*; 4. *P. gilbertii* (1. Lisowski 17266; 2. Reitsma et al. 2595; 3. Donis 1524; 4. J.J. de Wilde 8375). Drawing by H. de Vries.

nearly so in *P. balsamifera*, *P. copaifera*, *P. joveri* and *P. pinnata*, or strongly runcate as in *P. alternifolia*, *P. buchholzii*, *P. gilbertii*, *P. msoo*, *P. novoguineensis*, *P. tenuicarpa* and probably also in *P. platycarpa*. In *P. mannii* and *P. oxyphylla* this character varies from grooved to slightly runcate. Of *P. micrantha* mature fruits are unknown.

Of most species the seedlings have been investigated. Their model is the same. Germination is hypogeal, a hypocotyl and epicotyl are not produced.

Based on the morphology of the leaves, inflorescences, flowers, fruits, and the seeds, as well as the seedlings, it must be concluded that the former distinct genera *Gossweilerodendron*, *Kingiodendron*, *Oxystigma*, *Prioria* and *Pterygopodium* are to be united under the name *Prioria*.

Description of the genus *Prioria*

Prioria Griseb., Fl. Brit. W. Ind.: 215 (1864); Benth. & Hook., Gen. 1: 585 (1865); Dwyer in Fl. Panama 5 (3): 27 (1951); Léonard, Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 130 (1957); Hutch. Genera 1: 255 (1964); Cowan & Polhill in Polhill & Raven (eds), Adv. Leg. Syst. 1: 131 (1981).

Type species: *P. copaifera* Griseb.

Kingiodendron Harms in Engl. & Prantl, Nat. Pflanzenf. Nachtr. 1: 194 (1897); Burtt, Kew Bull.: 461 (1936); De Wit, Bull. Bot. Gard. Buitenzorg III: 18 (1949); Hutch., Genera 1: 254 (1964); Meeuwen, Blumea 18: 46 (1970); Verdcourt, Manual New Guinea Leg.: 93 (1979); Cowan & Polhill in Polhill & Raven (eds.), Adv. Leg. Syst. 1: 131 (1981); Ding Hou in Flor. Mal. I. 12 (2): 627 (1996). Type species: *K. pinnatum* (Roxb. ex DC.) Harms = *P. pinnata* (Roxb. ex DC.) Breteler **comb. nov.**

Oxystigma Harms in Engl. & Prantl, Nat. Pflanzenf. Nachtr. 1: 195 (1897); in Engl., Bot Jahrb. 26: 264 (1899); De Wild., Bull. Jard. Bot. Brux. 7: 244 (1920); Bak. f., Leg. Trop. Africa 3: 772 (1930); Pellegr., Leg. Gabon: 130 (1948); Léonard, Bull. Inst. Colon. Belge 21: 744 (1950); Fl. Congo Belge 3: 369 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 128 (1957); Hutch., Genera 1: 254 (1964); Brenan, F.T.E.A., Leg. 2, Caesalp.: 134 (1967); Aubrév., Fl. Gabon 15 : 128 (1968); Fl. Cameroun 9 : 127 (1970); Cowan & Polhill in Polhill & Raven (eds.), Adv. Leg. Syst. 1: 131 (1981).

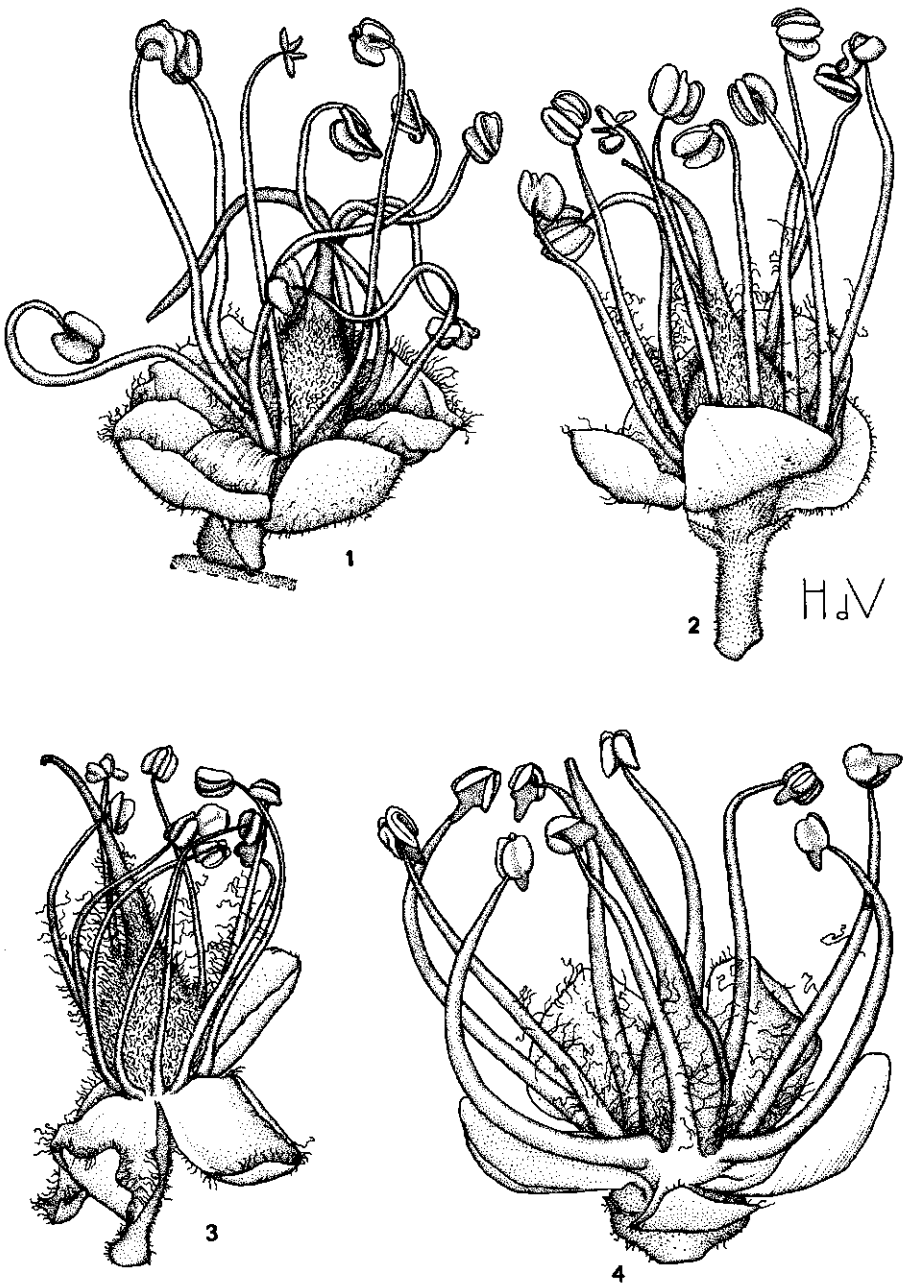


Fig. 3. Flowers of African and American *Prioria*, x10: 1. *P. mannii*; 2. *P. msoo*; 3. *P. oxyphylla*; 4. *P. copaifera* (1. Doumenge 307; 2. Lewis 3; 3. Davio 50; 4. Broadway 5833). Drawing by H. de Vries.

Type species: *O. mannii* (Baill.) Harms = *P. mannii* (Baill.) Breteler **comb. nov.**

Eriander Winkler, in Engl. Bot. Jahrb. 41: 277 (1908). Type species *E. engleri* Winkler = *P. mannii* (Baill.) Breteler **comb. nov.**

Pterygopodium Harms, in Engl. Bot. Jahrb. 49: 439 (1913); Notizbl. Bot. Gart. Berlin 9 (86): 455 (1925); Bak. f. Leg. Trop. Africa 3: 775 (1930); Pellegr., Leg. Gabon: 127 (1948); Léonard, Bull. Inst. Colon. Belge 21: 744 (1950); Aubrév., Fl. Gabon 15: 142 (1968); Fl. Cameroun, 9: 142 (1970). Type species: *P. oxyphyllum* Harms = *Prioria oxyphylla* (Harms) Breteler **comb. nov.**

Gossweilerodendron Harms, Notizbl. Bot. Gart. Berlin 9 (86): 457 (1925); Bak. f. Leg. Trop. Africa 3: 774 (1930); Pellegr., Leg. Gabon: 132 (1948); Léonard, Fl. Congo Belge 3: 375 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 133 (1957); Hutch., Genera 1: 254 (1964); Aubrév., in Fl. Gabon 15: 147 (1968); Fl. Cameroun 9: 146 (1970); Cowan & Polhill in Polhill & Raven (eds.), Adv. in Leg. Syst. 1: 131 (1981). Type species: *G. balsamiferum* (Verm.) Harms = *P. balsamifera* (Verm.) Breteler **comb. nov.**

Medium to large unarmed evergreen trees. Slashed sapwood exuding a greenish to yellowish resin. Stipules small, very early caducous. Leaves alternate, pari- or imparipinnate, leaflets alternate or opposite, pellucid gland-dotted, gland dots distinct or obscured in thick leaves, usually glabrous, rachis stipellate or not, petiolules twisted or not. Inflorescence an axillary, rarely (sub) terminal, compound raceme or spike, rarely simple, shortly peduncled, hairy or glabrous; bracts small, early caducous or not; bracteoles small, mostly inserted at the base of calyx, free, rarely not so, usually persistent. Flowers white. Hypanthium short, distinct or not. Sepals 4-5 (-6), imbricate, concave, translucent dots present, distinct or not. Petals absent. Stamens 10, rarely less, rarely more, \pm free; filaments pubescent below, mainly on the inside; anthers versatile opening by slits lengthwise. Disk distinct or not. Ovary shortly stipitate or not, pubescent; ovule one (rarely two?), attached apically or slightly laterally; style slender, the basal part usually hairy as ovary; stigma minute (in species from Africa and America) or more enlarged or even shortly lobed (Asiatic species). Fruits 1-seeded, indehiscent, stipitate or not, with or without a proximal wing; pericarp (and wing) with reticulate or longitudinal veins running from the base to apex of fruit. Seed small to large, cotyledons plano-convex to

ruminate. Seedlings hypogeous; epicotyl absent; primary stem with some cataphylls or scars of it, first leaves alternate.

Distribution: 13 species, 7 in Africa (mainly Central Africa), 1 in Central America, 6 in Asia and the Pacific.

Ecology: Wet evergreen forest, from coastal swamp forest or riverine forest to (sub) montane forest. Alt. 0-1250 m.

Notes: The stipules are so early caducous that they have notably not been observed in the type species *P. copaifera* nor in the African species *P. balsamifera*, *P. gilbertii*, *P. joveri*, and *P. msou*.

The difference in the stigma between *P. copaifera* and the African species (Fig. 2, 3) on the one hand and the Asiatic and Pacific species (Fig. 14) on the other hand, may be related to the difference in flower biology: bisexual flowers in the first group, polygamous or unisexual flowers in the second.

THE AFRICAN SPECIES OF PRIORIA

Key to the African species based on flowering material

1. a. Peduncle and rhachis of the inflorescence glabrous; pedicels glabrous; bracts, bracteoles and sepals glabrous or with hairs on the margin only**P. buchholzii**
- b. Peduncle and rhachis of the inflorescence hairy (hairs may be very short); pedicels hairy; bracts and bracteoles as well as sepals hairy, at least on their margins2
2. a. Bracts longer than the pedicels of full grown flower buds; anther connective firm, often prolonged beyond the thecae3
- b. Bracts shorter than the pedicel of full grown flower buds; anther connective not protruding beyond the thecae4
3. a. Sepals glabrous inside; leaflets alternate.....**P. balsamifera**
- b. Sepals hairy inside; leaflets usually opposite.....**P. gilbertii**
4. a. Sepals glabrous inside5
- b. Sepals hairy inside6
5. a. Leaflets 1-3 (-4), 8-45 x 3.5-17 cm, with (8-) 9-12 pairs of main lateral nerves.....**P. mannii**
- b. Leaflets 3-4, (4-) 7-10 x (1.5-) 2-4 cm, with 25-40 pairs of main lateral nerves**P. joveri**
6. a. Sepals densely hairy inside. Kenya, Tanzania**P. msoo**
- b. Sepals sparsely hairy inside, at least the inner ones. Central Africa.....**P. oxyphylla**

Key to the African species based on fruiting material

1. a. Fruits with a long wing, much longer than the seed cavity2
- b. Fruits unwinged, or wing short, at most as long as the seed cavity4
2. a. Fruit strongly curved in distal end (fig. 4(4)) tapering to a narrow top, the seed cavity 4-6 x 0.5 cm; leaflets with 24-40 main nerves on each side of the midrib.....**P. joveri**

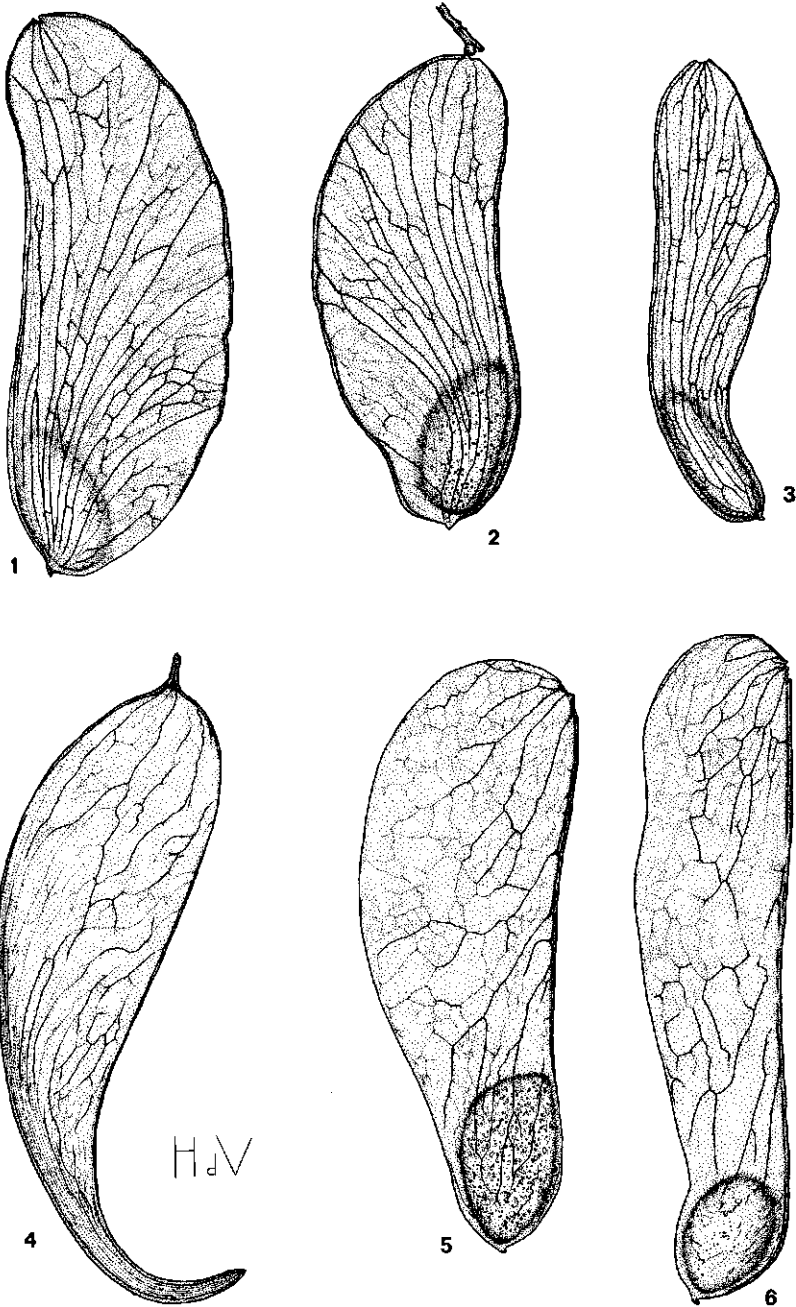


Fig. 4. Fruits of African *Pteris*, x2/3: 1-3. *P. oxyphylla*; 4. *P. joveri*; 5-6. *P. balsamifera* (1-2. Breteler & Jongkind 10599; 3. Wilks 2563; 4. Normand s.n.; 5. Wilks 1540; 6. Breteler et al. 8683). Drawing by H. de Vries.

- b. Fruit not or only slightly curved at distal end, the seed cavity 2-3 (-4) x (1-) 2 cm; leaflets with at most 15 main lateral nerves on each side of the midrib3
- 3. a. Leaf rhachis (sub)terete; lateral nerves faint, in dry leaflets impressed on both surfaces; longitudinal nerves in fruit wing many, distinct**P. oxyphylla**
- b. Leaf rhachis distinctly grooved above; lateral nerves distinct, in dry leaflets prominent on both surfaces; longitudinal nerves in fruit wing absent, only reticulate nervation distinct.....
.....**P. balsamifera**
- 4. a. Fruits shortly winged or not, the pericarp with prominent longitudinal nerves5
- b. Fruits never winged, the pericarp either smooth and glossy or rugose and dull, but not with prominent longitudinal nerves ...6
- 5. a. Leaflets usually opposite; main lateral nerves very faint, impressed both sides. Central Africa.....**P. gilbertii**
- b. Leaflets alternate; main lateral nerves faint, slightly prominent both sides. Kenya, Tanzania**P. msou**
- 6. a. Fruits rugose and dull; leaflets 1-3 (-4), 8-45 x 3.5-17 cm.....
.....**P. mannii**
- b. Fruits smooth and usually glossy; leaflets (1-) 3-4 (-6), (5-) 7-11 (-27) x 1.5-7 (-10) cm.....**P. buchholzii**

Key to the African species based on sterile material

- 1. a. Leaflets with 25-40 pairs of main lateral nerves.....**P. joveri**
- b. Leaflets with at most 15 pairs of main lateral nerves2
- 2. a. Leaf rhachis distinctly grooved above.....**P. balsamifera**
- b. Leaf rhachis (sub)terete.....3
- 3. a. Riverine species or species from fresh water swamp near Atlantic coast4
- b. Dry land species, not riverine5
- 4. a. Leaflets 1-3 (-4), 8-45 x 3.5-17 cm; species from fresh water

- swamp near Atlantic coast.....**P. mannii**
- b. Leaflets (1-) 3-4 (-6), (5-) 7-11 (-27) x 1.5-7 (-10) cm,
riverine species.....**P. buchholzii**
5. a. Species from East Africa (Kenya, Tanzania).....**P. msoo**
b. Species from Cental Africa.....6
6. a. Leaflets 2-6, usually (sub)opposite, rhachis 1-7 cm long.....
.....**P. gilbertii**
b. Leaflets (4-) 6-8 (-10), alternate, rhachis (4-) 6-11 cm long.....
.....**P. oxyphylla**

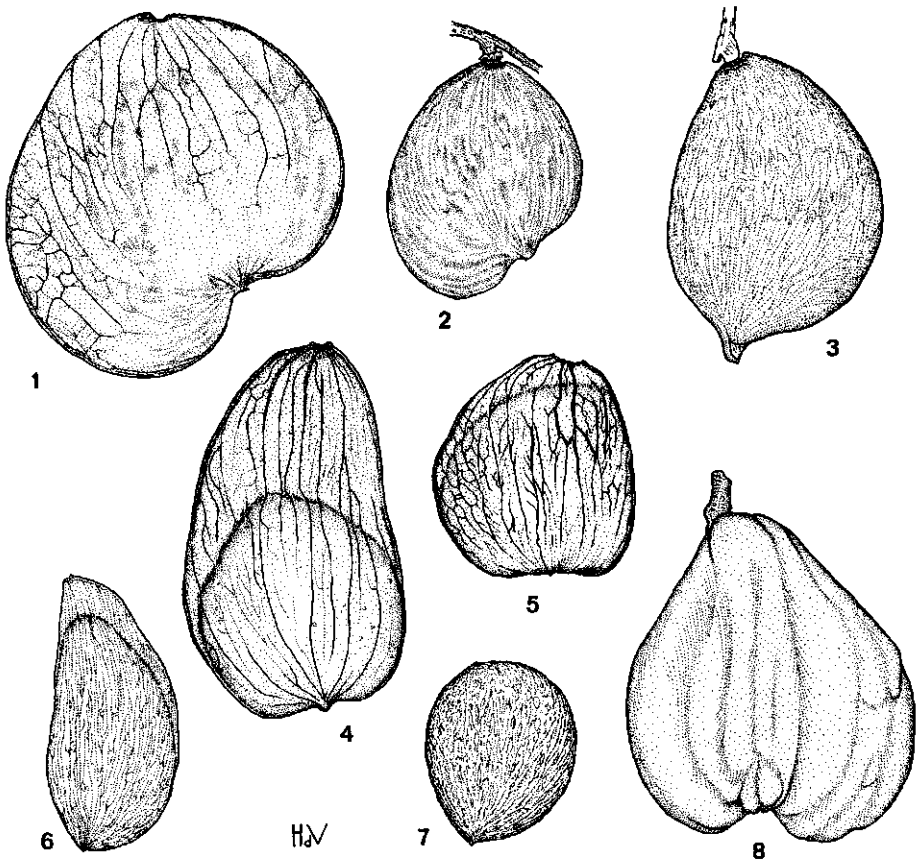


Fig. 5. Fruits of African *Prioria*, x2/3: 1-3. *P. buchholzii*; 4-5. *P. msoo*; 6-7. *P. gilbertii*; 8. *P. mannii* (1. Lisowski 52385; 2. Breteler et al. 8950; 3. Wieringa 2866; 4. Ruffo & Kmari 2253; 5. Faden c.s. 72/225; 6. Laurent 1645; 7. Evrard 2181; 8. Thomas 2353). Drawing by H. de Vries.

Alphabetical treatment of the African species

***Prioria balsamifera* (Vermoesen) Breteler comb. nov. Fig. 1(3), 2(3), 4(5-6), 6.**

Basionym: *Pterygopodium balsamiferum* Vermoesen, Man. Ess. For. Congo Belge: 233 (1923). Type: Congo (Kinshasa), Temvo, Vermoesen 1681 (lecto-, BR; iso-, K, P), see note.

Gossweilerodendron balsamiferum (Vermoesen) Harms, Notizbl. Bot. Gart. Berlin 9 (86): 457 (1925); Bak. f., Leg. Trop. Africa 3: 775 (1930); Pellegr. Leg. Gabon: 132 (1948); Léonard, Fl. Congo Belge 3: 375 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 133 (1957); Keay in Hutch. & Dalz., F.W.T.A. ed. 2, 1: 466 (1958); De Saint Aubin, Forêt du Gabon: 68 (1963); Keay, Onochie, & Stanfield, Nigerian Trees: 31 (1964); Aubréville, Fl. du Gabon 15: 148 (1968); Fl. du Cameroun 9: 147 (1970); Keay, Trees of Nigeria: 208 (1989).

Large tree up to 55 m tall and c. 100 cm DBH, with cylindrical bole. Branches glabrous. Stipules very early caducous, not seen. Leaves (4-) 6-8 (-9) foliolate (see note), glabrous or rarely with a few sparse minute hairs on rhachis and petiolules; petiole subterete, grooved mainly in distal part, 10-20 (-30) mm long; rhachis grooved above, 4.5-7 (-8) cm long, with a 4-5 mm long, subulate, dehiscent apex; stipellae present, minute (max. 0.3 x 0.2 mm), usually caducous; leaflets alternate; petiolule usually twisted, 1-3 (-4) mm long; lamina thinly coriaceous, obliquely obovate-elliptic to ovate-elliptic, (1.5-) 2 (-3) times as long as wide, (2.5-) 5-7 (-9) x (1.5-) 2-3 (-3.5) cm, rounded to obtuse, sometimes cuneate at base, tapering to an obtuse or rounded, sometimes emarginate apex, hardly or not acuminate; midrib usually slightly curved, plane or impressed above, prominent beneath, the main laterals 9-13 pairs, (2-) 3-6 mm apart, prominent both sides as well as tertiary nervation; marginal nerve distinct; lower surface dull, epidermis with a fine honeycomb structure; glands distinct when present, beneath only, mainly in lower half on both sides of the midrib. Inflorescence up to 12 cm long, tomentellous, the branches up to 7 cm long, the peduncle 0-1 cm long; bracts early caducous, concave, elliptic, 0.5-1 x 0.5 mm, puberulous; bracteoles inserted at the top of the pedicel, c. appressed, ovate-triangular, 0.5 x 0.5 mm, with lobulate-ciliate

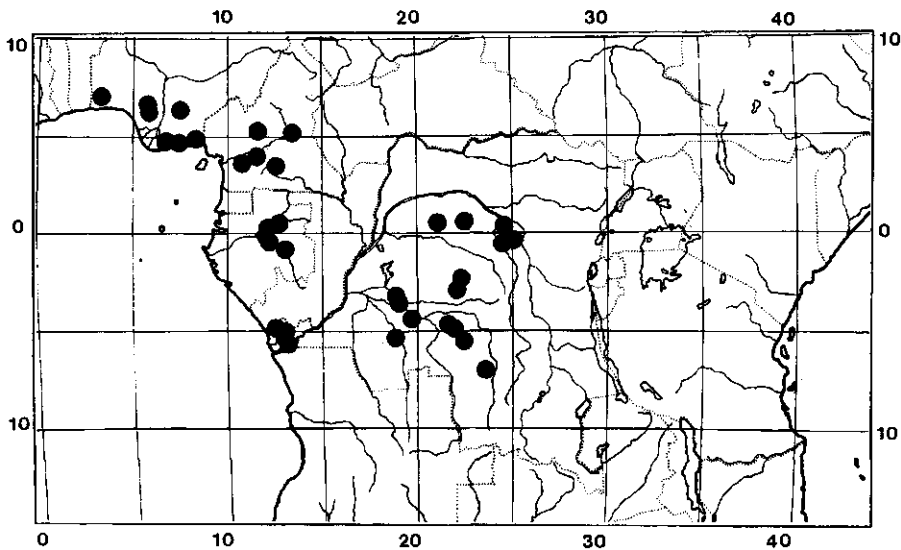


Fig. 6. Distribution of *P. balsamifera* (Verm.) Bret.

margin. *Pedice*l up to 0.5 mm long, glabrous; sepals 4 (-5), \pm spreading, elliptic, 1-2 x 1-1.5 mm, concave, margin ciliate; hypanthium usually distinct, \pm puberulous; stamens 3-4 mm long, suberect, filaments hairy below; anthers 0.3-0.4 mm long, the connective sometimes protruding beyond the thecae; pistil 3.5-4 mm long with 1 mm long stipe, hairy as well as lower part of style. *Fruit* obliquely ovate with a long, proximal, reticulately and prominently veined wing, and narrowly (1-2 mm wide) winged around seed in distal end, apiculate, glabrous, (7-) 12-15 x (2-) 3-4.5 cm, 0.5-0.8 cm thick, wing (5-) 9-12.5 cm long, the seed cavity 2-4 x 1-2 cm, outside with numerous distinct, prominent resin pockets; seed shallowly grooved; cotyledons plano-convex. *Seedling* glabrous; primary stem 15-19 cm long with some cataphylls or scars of it; first leaf 4- or 6- foliolate, small stipellae present.

Distribution: From southern Nigeria to Cabinda and Congo (Kinshasa).

Ecology: Tropical rain forest, up to c. 600 m altitude.

Specimens examined: NIGERIA: Benin, fr. June, *Barbe Baker s.n.* (K); Degema, fr. Jan., *Chesters 25* (K); Onitsha-Udi, fl. Jan.-Febr., *Chesters 201* (FHO); Benin, Ehor, ster., *Chizea FHI 19002* (FHO); Sakpoba F.R., ster., *Daramola 74* (K); Sapoba, fr. April, *Dept. Director of Forests 40,41* (FHO); Calabar, ster., *Eze*

FHI 40351 (FHO, K); Sapoba, fr., *Kennedy* 248 (FHO); fl., 326 (BM, FHO); fl., 327 (FHO, K) fl., fr. Jan.-Mar., 554 (BM, BR, K, P); fl., 1677 (BM, BR, FHO, K); Imo R., fl., *Kennedy* 2557 (FHO); Abeokuta, ster., *Onochie* FHI 3433 (FHO); 24 miles NE Benin, fl. Febr., *Onochie* FHI 31173 (K); Sapoba F.R., ster., Dec., *White* 8069 (FHO).

CAMEROUN: near Eséka, fl. Febr., *Letouzey* 572 (P); 40 km NW Linté, seedl. Sept., *Letouzey* 8014 (P); Melong II, fl. Jan., *Makon* SRFK 1835 (P); km 26 Yaoundé-Mbalmayo, fl. May, *Mpom* 372 (P); near Deng Deng, fl. b. April, *Nana* 58 (P).

GABON: 20-40 km NNE Koumaméyong, seedl. April, *Breteler et al.* 8651 (BR, WAG); near Djidji, fr. April, *Breteler et al.* 8683 (BR, WAG); Makande, 65 km S of Booué, fr. Jan., 14806 (LBV, WAG); 30 km E Lastoursville, fl. b. Nov., *Breteler & Jongkind* 10585 (WAG); 10601 (WAG); Makokou, ster., *De Saint Aubin* SRFK 1943 (LBV, P); Booué, ster., *Sebire* CTFT 2033 (LBV); 28 km NE Lastoursville, fr. Aug., *Wieringa & van de Poll* 1481 (WAG); 45 km E Lastoursville, ster., *Wieringa et al.* 3233 (WAG); 20-25 km N Koumaméyong, ster., *Wilks* 1484 (WAG); fr. May, 1540 (WAG).

CONGO (Kinshasa): Pompombe, fr. Aug., *Cauwe* SF 99 (BR); Kiyaka, fr. Oct., *Devred* 2737 (BR, K); Luki, fl. Nov., *Donis* 1524 (BR, K); Bumba, fr. May, *Dubois* 683 (BR); Befale, fl., *Dubois* 782 (BR, K); Djolu, fr. Febr., *Evrard* 5740 (BR, K); Buana, fr. Aug., *Flamigny* 9003 (BR, K); Mwene Ditu, fr. July, *Germain* 7943 (BR); Tshela, fr. seedl. April, *Ghesquière* 3 (BR); Trioli-Sundi, fr. seedl. April, *Ghesquière* 4 (BR); Kangu, ster., *Ghesquière* 5 (BR); Kele Luzi, fr. Jan., *Gilbert* 603 (BR, K); Yangambi, fl. Febr., *Gilbert* 925 (BR, P); sin. loc., fr., *Gilbert* 8308, 8317, 9243, 9245, 9625 (BR); Kakenge, fr. June, *Gillardin* 267 (BR, K); fr. Nov., 283 (BR); Sokombe, fl. Febr., *Jacques* 1 (BR, K); Bamba Bishasha, fl. fr. May, *Lefevre* 5 (BR); 23 km N Kisangani, fr. March, *Lisowski* 17119 (BR, WAG); 78 km Kisangani-Opala, ster., *Lisowski* 18432 (BR); Yangambi, fl. b. Nov., *Louis* 744 (BR); fl. Aug., 2430 (BM, BR, FHO); fl. b. Aug., 2460 (BR); fr. Oct., 2754 (BR, FHO); fl. Nov., 2873 (BR, P); fr. Febr., 3256 (BM, BR, K); fl. Nov., 6579 (BR, K); 6651 (BM, BR, K); ster., 8042 (BR, K); fr. March, 8486 (BR); fl. Aug., 10818 (BR, K, P); fr. July, 16935 (BR, FHO); Sankuru, ster., *Luja s.n.* (BR); Luki, ster., *Mahieu* 9 (BR); Kikwit, ster., *Masens* 944 (BR, WAG); Yangambi, fr. Febr., *Maudoux* 564 (BR, K); ster., 673 (BR); fr. March, 879 (BR); fl. April, 925 (BR); fr. June, 988

(BR); 995 (BR); fr. Febr., 1234 (BR); Livuti, ster., *Nannan* 181 (BR); 182 (BR); Kikwit, fl. June, *Renier* 7 (BR); Booke, ster., *Robin* 34 (BR); Yangambi-Gaze, fr. Dec., *Robijns* 1472 (BR); Minkudu valley, fr. Febr., *Toussaint* 214 (BM, BR, FHO, P); N'kula valley, seedl. May, *Toussaint* 376 (BR); Kisangani, fr. March, *van der Meiren* 59 (BM, BR, K, P); Ipamu, fr. April, *Vanderyst s.n.* (BR); Temvo, fr. Febr., *Vermoesen* 1681 (BR, K, P, type); ster., 1708, 1952, 1955, 1961 (BR).

ANGOLA: Maiombe, sin loc., fl. fr., *Gossweiler* 240 (K); fr. Jan., 6192 (BM); Buco Zau, fl. fr., *Gossweiler* 7249 (BM, K); fl. Nov., 7258 (BM, K).

CULTA: Congo (Kinshasa), Luki, seedl. *Hombert* 359 (BR); *Wagemans* 1322, 1485 (BR).

Notes: Vermoesen did not cite any collection when he published the basionym of *Prioria balsamifera*. In the Meise herbarium (BR) there are 5 specimens of this species collected by Vermoesen of which no. 1681 bears fruits whereas the other 4 specimens are sterile. Léonard (1957) cited the fruiting specimen as the holotype. This is not correct, it should be designated lectotype.

The author described the leaves as "à six à neuf folioles alternes (plus rarement moins ou plus (de trois à onze)". Leaves with more than 9 or with less than 4 leaflets have not been observed in the material examined for this description of the species.

***Prioria buchholzii* (Harms) Breteler comb. nov. Fig. 1(2), 2(1), 5(1-3), 7.**

Basionym: *Oxystigma buchholzii* Harms, Engl. Bot Jahrb. 26: 264 (1899); in Engl. & Prantl., Nat. Pflanzenf. Nachtr. 1: 195 (1897), nomen; De Wild., Bull. Jard. Bot. Brux. 7: 245 (1920); Bak. f., Leg. Trop. Africa 3: 773 (1930); Pellegr., Leg. Gabon: 131 (1948); Léonard, Bull. Inst. Colon. Belge 21: 748 (1950); Fl. Congo Belge 3: 370 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 129 (1957); Aubréville, Fl. Gabon 15: 131 (1968); Fl. Cameroun 9: 130 (1970). Type: Cameroun, Limbareni, June 1875, *Buchholz s.n.* (holo-, B†). Neotype: Cameroun, Nyong R., between Ndoctima Nyong and Dikobe, *Letouzey* 12886 (holo-, P; iso-, K, WAG), see note.

Oxystigma mafuta De Wild., Bull. Jard. Bot. Brux. 7: 245 (1920);

Ann. Soc. Scient. Brux. 44: 63 (1924); Bak. f., Leg. Trop. Africa 3: 773 (1930). Type: Congo (Kinshasa), Malela, *Verschueren 2* (holo-, BR).

Oxystigma dewevrei De Wild., Ann. Soc. Scient. Brux. 44: 62 (1924); Bak. f. Leg. Trop. Africa 3: 773 (1930); Pellegr., Leg. Gabon: 130 (1948); De Saint Aubin, Forêt du Gabon: 70 (1963). Type: Congo (Kinshasa), Wangata, *Dewèvre 667* (lecto-, BR), see note.

Tree, rarely a shrub, up to c. 30 m tall and 1.8 m DBH. Trunk often with a distinctly enlarged base. Branches glabrous. *Stipules* very early caducous, ovate-triangular to narrowly oblong, somewhat plicate, up to c. 10 x 1.5-2 mm, with a few hairs on margin. *Leaves* (1-) 3-4 (-6)-foliolate, glabrous; petiole subterete, 0.5-4 cm long; rhachis subterete, (0.5-) 2-4 (-6) cm long with a filiform, dehiscent top of up to 4 mm long; petiolule 3-8 (-9) mm long; leaflets coriaceous, usually alternate, the uppermost pair opposite or not, elliptic, obliquely so or not, sometimes ovate or oblong, (5-) 7-11 (-27) x 1.5-7 (-10) cm, (1.5-) 2-3 (-4) times as long as wide, cuneate to rounded or even obtuse at base, acuminate at top, the acumen up to 1 (-1.5) cm long, rounded apically; midrib plane or slightly impressed above, prominent beneath, main lateral nerves (7-) 9-11 (-12) pairs, rather indistinct especially so beneath, slightly impressed above; often minutely papillate and therefore dull beneath; glands present or not, a few isolated on lower surface only; stipellae very early caducous or not, minute. *Inflorescence* glabrous, up to 15 cm long, branches up to 9 cm long, peduncle up to 2 cm long, bracteate; flower bracts ovate-triangular up to 0.5 x 0.3 mm, flat or concave, glabrous or with a very few hairs on margin; bracteoles inserted at top of pedicel or lower, minute, subappressed, subcircular to subtriangular in outline, $\pm 0.2 \times 0.2$ mm, glabrous. *Pedicel* glabrous, 1-2 mm long; sepals 5, concave, \pm spreading at anthesis, ovate-elliptic to obovate, up to 2 x 2 mm, completely glabrous or with a hairy margin; stamen 10, suberect, 5-7 mm long; filaments hairy in lower part, especially on the inside; anthers c. 0.5 mm long, connective not protruding; pistil suberect, 3.5-5 mm long; ovary 0.5-1 mm long, hairy as well as lower part of style; stigma minute. *Fruit* circular to obcordate-obovate in outline, obliquely so or not, laterally compressed, 3-7 cm in diam., 1-1.5 cm thick, usually pointed at top, glabrous, usually \pm smooth, sometimes proximally winged in immature stage. Seed \pm lenticular, up to 6 cm in diam. and

1 cm thick, cotyledons strongly ruminant. *Seedling* glabrous; primary stem up to 35 cm long till the first, bifoliolate leaf.

Distribution: From Cameroun to Congo (Kinshasa) and Angola.

Ecology: Along rivers.

Specimens examined: CAMEROUN: Ndu, fl. Febr., *Bates 1553* (BM); Bitye, fl., *Bates 1701* (K); Somalomo, fl. Nov., *Bena SRFK 1609* (P); Sangha R., Ndakan, fr. April, *Harris & Fay 559* (WAG); West Kiloua Isl., fl. Febr., *Harris & Fay 1921* (BR, WAG); Edjune on Dja R., ster., *Letouzey 3797* (P); Lokomo R. near Yokadouma-Moloundou Rd., fl. March, *Letouzey 10479* (P, WAG); 10 km NE Mintom II, ster., *Letouzey 11729* (K, P); near Zoulabot II, fr. Febr., *Letouzey 11916* (K, P); 100 km Yokadouma-Moloundou Rd., fr. March, *Letouzey 12152* (BR, K, P, WAG); Nyong R., between Ndoctima Nyong and Dikobe, fl. Febr., *Letouzey 12886* (K, P, WAG, type).

EQUATORIAL GUINEA: Mintschimitum, fl. Jan., *Tessmann 105* (K).

GABON: Mvoug R., N of Ovan, fr. April, *Breteler et al. 8950* (BR, P, WAG); Rabi-Kounga, fl. fr. Oct., *Breteler & Jongkind 10195* (WAG); Port Gentil, ster., *De Saint Aubin CTFT 2047* (LBV, P); Tchibanga, ster. Jan., *De Saint Aubin CTFT 2102* (P); Minkébé, Nsing valley, ster. Febr., *Dibata E2* (WAG); Ntoun, ster. Jan., *Gauchotte 82* (LBV, P); Ogooué, fl., *Leroy s.n.* (P); Poudi, fl. April, *Le Testu 1322* (BM, BR, P); Sindara, fl. fr. June, *Le Testu 2204* (BM, BR, P); Lastoursville, fl. March, *Le Testu 7042* (P), *7103* (BM, BR, P); Ramba, fl. July, *Le Testu 8176* (BM, BR, FHO, P); Meyo, fl. March, *Le Testu 9029* (BM, P); Nkan, Cocobeach Distr., ster. Nov., *Morel 22* (LBV, P); *22 bis* (P); Minkébé, Nsye valley, fl. March, *Moungazi AM 45* (WAG); near Lambaréné, ster., *Normand s.n.* (P, WAG); Remboué, fr. Aug., *Sebire & Estasse SRF 388* (LBV, P); ster., *Sebire SRF 451* (LBV); Minkébé, 90 km N of Makokou, fr. Febr., *Wieringa 540* (WAG); Echira, fr. Oct., *Wieringa 2866* (WAG); Minkébé, Sing Valley, fr. Jan., *Wilks A1* (WAG); fr. Febr., *Wilks W3* (WAG); ster., *Wilks Z18* (WAG).

CONGO (Brazzaville): Sangha R., fr. May, *Baudon s.n.* (P); Odzala, Lekoli R., fr. Jan., *Champluvier 5338* (BR, WAG); *5358* (BR); Kouilou, ster. Nov., *Dowsett-Lemaire 1376* (BR); fl. Jan. 1506 (BR); Odzala, Lekoli R., fr. Febr., *Dowsett-Lemaire 1633* (BR); Dimonika, ster. June, *Normand 1321* (P); Kouilou, ster. March, *Sargos 62* (P); Mayombe, ster. June, *Sargos 159* (P); Dive-

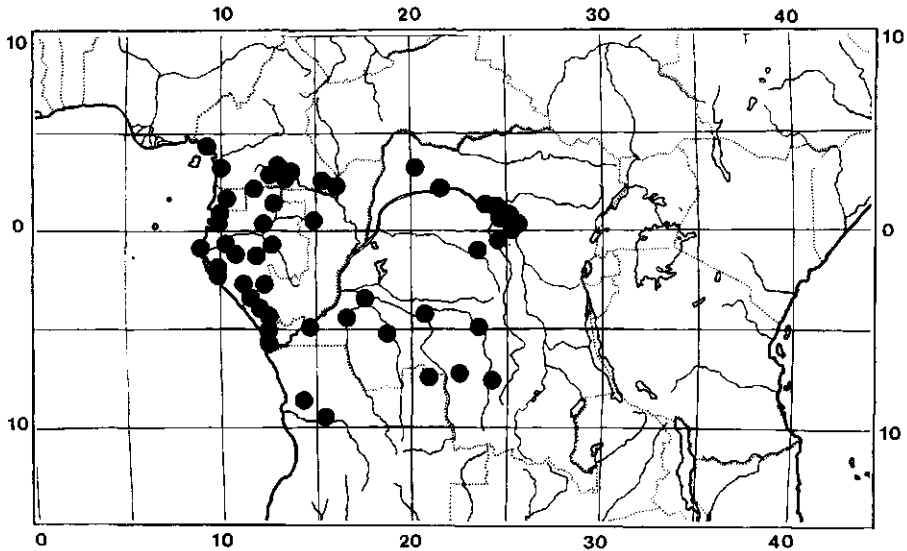


Fig. 7. Distribution of *P. buchholzii* (Harms.) Bret.

nié, fl. July, *Sita 4838* (BR, WAG).

CONGO (Kinshasa): Tutuku I., fr. June, *Bamps 962* (BR, K, WAG); Malela, fr. July, *Bequaert 7951* (BR); Yambuya, fl. Dec., *Bequaert 1361* (BR); Kisangani, fr. Febr., *Bequaert 6908* (BR); 5 km E of Kisangani, fl. Dec., *Bokdam 3470* (WAG); Tutuku I., fr. July, *Bolema 1199* (BR); Lusambo, fl., *Casier 138* (BR); Kisangulu, fr. July, *Breyne 584* (BR); Inkisi, fr. Sept., *Callens 2868* (BR); Wangata, fl. fr., *Dewèvre 667* (BR, type of *Oxystigma dewevrei*); Yangambi, fr. Febr., *Donis 3558* (BR); Ikela, fr. April, *Dubois 1029* (BR); Bongo, fr. July, *Evrard 1471* (BR); fl. Sept., *1759* (BR); Opala, fl. June, *Germain 5103* (K, BR); Ikela, fl. June, *Germain 7387* (BR); Yangambi, fl., *Gilbert 922* (BR, WAG); fr. Oct., *1392* (BR); Yangambi, fr. March, *Gutzwiller 557* (BR); Kaniama, fl. Dec., *Herman 2080* (BR); fl. Febr., *2215* (BR); fl. June, *2346* (BR); Yangambi, fl., *Homes 187* (WAG); Peza, fr. Jan., *E. & M. Laurent s.n.* (BR); Limbutu, fl. March, *M. Laurent 1008* (BR); ster. Febr., *1666* (BR); Yangambi, fl. fr. juv., April, *Lejoly 5065* (BR, WAG); between Bawombi and Batiako, fr. Nov., *Lejoly 82/156* (BR); Luisa, fl. May, *Liben 3315* (BR, K); 20 km NW Kisangani, fr. Febr., *Lisowski 16815* (BR, WAG); Wanie-Rukula, fl. March, *Lisowski 17266* (BR; WAG); Bengamisa, fr. May, *Lisowski 40151* (BR, WAG); Yangambi, fr. April, *Lisowski 52385* (BR, WAG);

Kisangani, fr. Nov., *Lisowski* 86473 (BR, WAG); Yangambi, fr. July, *Louis* 2359 (B, BM, BR, K, P); fl. Aug., 5799 (BM, BR, P); fl. fr. Jan., 7343 (BM, BR, K, P); fl. Jan., 7753 (BM, BR, P); fl. April, 8875 (B, BM, BR, P); fl. July, 10504 (BM, BR, K, P); fl. Oct., 11681 (BM, BR, P); Yangole, ster. Oct., 12135 (BR); Yangambi, fl. Dec., 12855 (B, BM, BR, P); fl. Febr., 15591 (BR); fl. July, 15673 (BR, K); Sankuru, fl. June, *Luja* 13 (BR); Tundulu I., fl. fr. May, *Manaango* 1602 (BR); Kikwit, ster. Nov., *Masens* 191 (WAG); fr. Nov., 488 (WAG); Wanierukuru, fl. fr., *Mosango* 535 (BR); Kaniama, fl. March, *Mullenders* 490 (BR); km 65 Kisangani-Bukavu, fl. Nov., *Szafranski* 1489 (WAG); Tshopo, fr. Febr., *Szafranski* 1057 (BR); Bandudu, fl. May, *Vanderyst* 4177 (BM, BR); Malela, fr., *Verschueren* 2 (BR, type of *Oxystigma mafuta*).

ANGOLA: Maiombe, fl., *Dawe* 62 (K); Lulai R., fr. May, *Gossweiler* 7167 (BM); Maiombe, Nkanda Mbaku, fl. Jan., *Gossweiler* 9029 (BM, K); Dundo, fr. Oct., *Gossweiler* 13683 (BM, K, P); Lucala, fl., *Gossweiler* 9121 (BM, K); Ucuu, fr. Sept., *Gossweiler* 9646 (BM, BR, K).

Notes: The original material of *Oxystigma buchholzii* has been lost at Berlin and an isotype has not been found. According to Letouzey (1968: 81) Buchholz collected in the Mungo area, not too far from the location where Letouzey collected the neotype.

Oxystigma dewevrei was based on several specimens. *Dewèvre* 667 has been designated lectotype.

Prioria gilbertii (J. Léonard) Breteler **comb. nov.** Fig. 2(4), 5(6-7), 8, 9.

Basionym: *Oxystigma gilbertii* J. Léonard, Bull. Inst. Roy. Colon. Belge, XXI: 748 (1950); Fl. Congo Belge 3: 373 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 129 (1957). Type: Congo (Kinshasa), Yangambi, *Gilbert* 2717 (holo-, BR).

Large tree up to at least 35 m tall and 150 cm DBH, with cylindrical bole. Branches glabrous. Stipules very early caducous, not seen. Leaves 2-6-foliolate, glabrous; petiole subterete, 2-15 mm long; rachis subterete 1-7 cm long; stipellae absent; petiolule very slightly twisted, 2-5 mm long; leaflets coriaceous, usually glossy both sides, (sub)opposite, obliquely elliptic to obovate-elliptic, (2-) 2.5-3 (-4) times as long as wide, (6-) 9-12 (-18) x 2-3 (-9) cm, rounded to

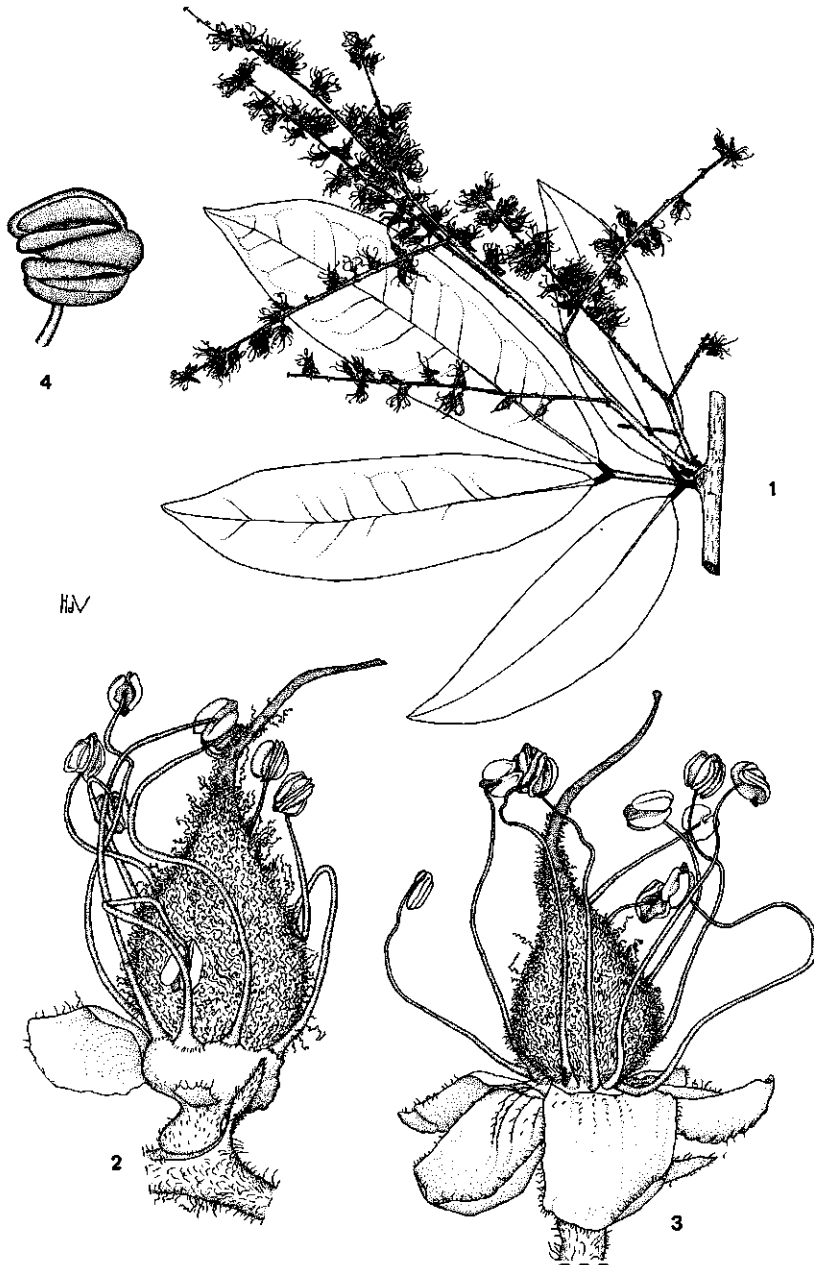


Fig. 8. *P. gilbertii* (J. Léonard) Bret.: 1. Flowering branchlet, x2/3; 2. Open flower with part of rhachis, bract, and bracteole, x10; 3. Open flower, x10; 4. Anther showing protruding connective, x30 (1-4. *J.J. de Wilde 8375*). Drawing by H. de Vries.

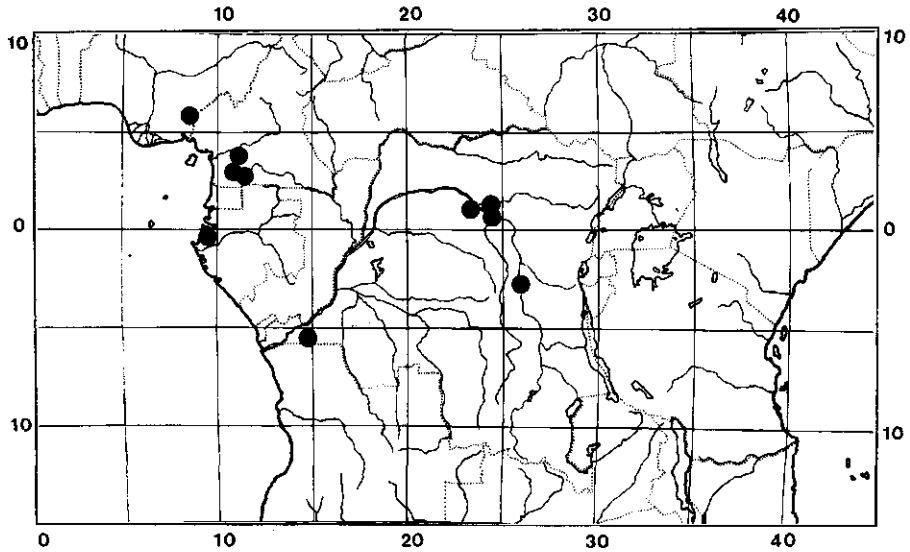


Fig. 9. Distribution of *P. gilbertii* (J. Léonard) Bret.

cuneate at base, acuminate at top, the acumen rounded or acutish at apex, 0.5-1 cm long; midrib impressed above, prominent beneath, main lateral nerves 8-12 pairs, indistinct, especially so on lower surface, usually slightly impressed; glands small, beneath and on the distal half only. *Inflorescence* short-brown-hairy, up to 15 cm long, with up to c. 7 cm long branches; peduncle up to c. 1 cm long; bracts ovate-subrectangular, concave, 1 x 0.5 mm hairy outside; bracteoles inserted at the top of the pedicel, (sub)appressed, subrectangular, concave, 0.5 x 0.5 mm hairy outside. *Pedicel* 0.3-0.7 mm long, puberulous; sepals 5, concave, ovate-triangular, \pm spreading, up to 2 x 2 mm, glabrous outside, inside glabrous or with a few hairs, margin hairy; stamens 10, suberect 4-5 mm long; filaments united at base, long-hairy on lower part mainly on the inner whorl inside; anthers c. 0.5 mm long, connective distinct, protruding; pistil 6 mm long; ovary 2.5-3 mm long, densely hairy as well as lower part of style, stigma minute. *Fruit* ovoid to obliquely ellipsoid, laterally compressed, with a narrow basal and partly unilateral wing or unwinged, 3.5-6 x 2.5-4 x 1.5-2.5 cm, wing up to 1 cm long and wide, glabrous; seed subellipsoid, laterally compressed, up to 4.5 x 3 x 2 cm, cotyledons ruminant. *Seedling* glabrous; primary stem with some cataphylls, up to 22 cm long till the first, bifoliolate leaf with long-acuminate folioles.

Distribution: From southern Nigeria to Congo (Kinshasa), not collected in Equatorial Guinea and Congo (Brazzaville).

Ecology: Tropical rain forest. Alt. up to 1300 m.

Specimens examined: NIGERIA: Afi R. F. Res., fr. Dec., *Keay FHI 28684 A* (K); fr. Aug., *Tuley 829* (K).

CAMEROUN: Zingui Hill, fl. July, *J.J. de Wilde 8375* (WAG); Matomb, 50 km WSW of Yaoundé, ster. July, *Letouzey 11569* (P); *11569 bis* (P); 20 km NW of Yaoundé, Massif Mbam Menkoum, ster. Aug., *Letouzey 11634* (P); *11634 bis* (BR, K, P).

GABON: Nkan, Cocobeach Distr., fr. Nov., *Morel SRF 24* (P).

CONGO (Kinshasa): Kussuku, ster. Febr., *Claessens 119* (BR); M'Vuazi, fr. Febr., *Dubois 96* (BR, K); Mbanza, fl. Aug., *Dubois 195* (BR, WAG); between Basoko and Mogandja, fr. Jan., *Evrard 2181* (BR, K); Yangambi, fr., *Gilbert 2717* (BR, type), *2718* (BR), *10400* (BR); Yambuya, fr. March, *Laurent 1645* (BR); Yangambi, fr., May, *Léonard 1760* (BR, K); Boucle Tshopo F. Res., fr. April, *Liegeois 54* (BR); Kindu, fr., Febr., *van der Meiren 37 bis* (BR).

***Prioria joveri* (Normand ex Aubrév.) Breteler comb. nov. Fig 2(2), 4(4), 10.**

Basionym: *Gossweilerodendron joveri* Normand ex Aubrév., *Fl. du Gabon* 15: 150 (1968); *Fl. du Cameroun* 9: 148 (1970). Type: Equatorial Guinea, Sendye, *Normand s.n.* (holo-, P; iso-, WAG).

Tree up to 40 m tall and 1.5 m DBH; bole straight, cylindrical. Branchlets glabrous. Stipules very early caducous, not seen. *Leaves* 3-5 (-7)-foliolate, glabrous; petiole \pm terete, 0.5-1.5 cm long; rhachis subterete, usually obscurely grooved above, 2-5 cm long, stipellae absent; leaflets alternate, \pm papery; petiolule (2-) 3-4 (-5) mm long, slightly twisted or not; lamina elliptic or obovate-elliptic, (1.5-) 2-3 (-3.5) times as long as wide, 5-10 x 2.5-3.5 (-4) cm, rounded at base, gradually acuminate, the acumen 0.5 cm long, obtuse or emarginate apically; midrib straight or slightly curved, plane or impressed above, prominent beneath, lateral nerves 25-40 pairs, 0.5-3 mm apart, plane or very slightly prominent both sides, marginal nerve distinct, giving the margin a wedged appearance; margin often revolute; dull beneath, the epidermis showing a minute honey-comb structure; glands usually absent, sometimes a few present on the marginal nerve on the distal half of the lower surface.

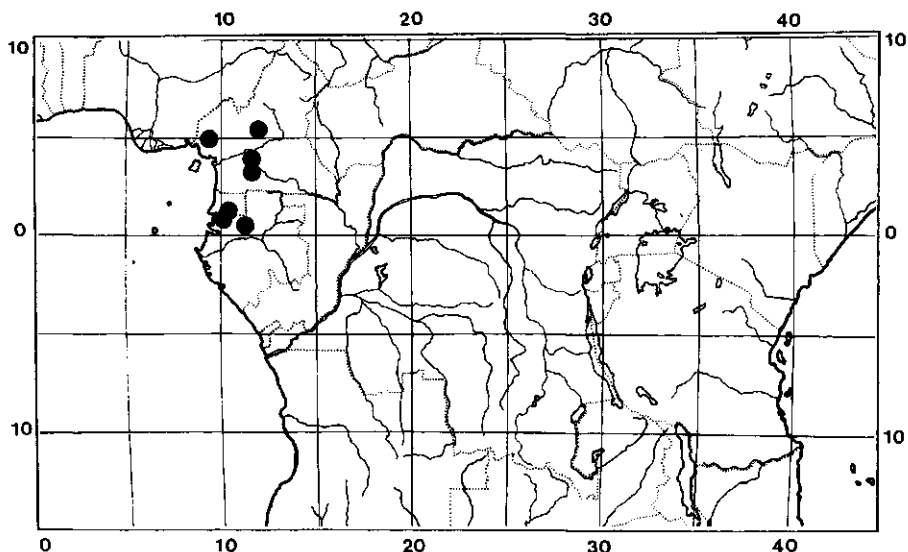


Fig. 10. Distribution of *P. joveri* (Normand ex Aubrév.) Bret.

Inflorescence densely short-hairy, up to 10 cm long, the branches up to ± 6 cm long; peduncle up to 1.5 cm long; bracts early caducous, ovate-triangular-oblong, $\pm 0.6 \times 0.3$ mm, puberulous; bracteoles inserted at the top of the pedicel, \pm appressed, shaped as the bracts, $\leq 0.5 \times 0.3$ mm, margin ciliate-lobulate. *Pedicel* 1-2 mm long, puberulous; sepals 4-5, spreading, concave, elliptic, 1.5-2 \times 1-1.5 mm, margin ciliate, translucent dots \pm distinct; stamens 10, suberect, 3-5 mm long; filaments hairy in lower part inside; anthers ± 0.5 mm long, the connective sometimes slightly protruding beyond thecae; pistil $\pm 3-6$ mm long, distinctly stipitate or not; ovary 1-2 mm long, hairy as well as lower part of style; disc sometimes developed. *Fruit* narrowly ovate, strongly curved at distal end or in the middle, broadly winged at proximal end, glabrous, 11-14 \times 2.5-3.5 cm, \pm longitudinally nerved especially so in distal end; seed cavity 3 (-6) \times c. 0.5 cm; seed most probably with plano-convex cotyledons. *Seedling* unknown.

Distribution: Cameroun, Equatorial Guinea, Gabon.

Ecology: Tropical rain forest.

Specimens examined: CAMEROUN: Nolibewoa, fl. April, Hedin 1705 (P); Kong, fl., fr. juv. June, Letouzey 2200 (BR, P, WAG); 25 km W of Ngoulémakong, fr. July, Letouzey 11424 (P); 11476 (P); 40 km N of Kumba, ster. Aug., Letouzey 14339 (BR, K,

WAG); 18 km Yaoundé-Edea Rd., fr. Dec., *Mezili 152* (K, P, WAG); 26 km Yaoundé-Mbalmayo Rd., fl. May, *Mpom 372* (P).

EQUATORIAL GUINEA: sin. loc., ster., *De Saint Aubin 2008* (LBV, P); Sendye, fr., *Normand s.n.* (P, WAG, type); 3 km NNE of Okuamkos, ster. June, *Wilks 1720* (WAG).

GABON: sin. loc., fr., *De Saint Aubin 52* (P); 59 (P); Goualé, ster., *Mariaux 723* (P); 724 (P); 725 (P); Oveng, ster., *Reitsma & Mezui 2530* (LBV); fl. Nov., *Reitsma et al. 2595* (LBV, WAG); ster. Febr., *Reitsma c.s. 2901* (LBV, WAG).

***Prioria mannii* (Baill.) Breteler comb. nov. Fig. 3(1), 5(8), 11.**

Basionym: *Copaifera ? mannii* Baillon, Adans. 6: 202 (1866). Type (lecto): Cameroun, Camaroun R. (=Wouri R.), *Mann 754* (holo-, P; iso-, K), see note.

Hardwickia ? mannii (Baill.) Oliv., F.T.A. 2: 316 (1871).

Oxystigma mannii (Baill.) Harms in Engl. & Prantl. Nat Pflanzenf. Nachtr. 1: 195 (1897); in Engl. Bot. Jahrb. 26: 264 (1899); Harms, Notizbl. Bot. Gart. Berlin, Appendix 21.2: 39 (1911); Baker f., Leg. Trop. Africa 3: 772 (1930); Pellegr. Leg. du Gabon: 130 (1948); Léonard, Bull. Inst. Colon. Belge: 748 (1950); Keay in Hutch. & Dalz., F.W.T.A. ed. 2, 1: 466 (1958); Aubrév. Fl. du Gabon 15: 130 (1968); Fl. du Cameroun 9: 128 (1970).

Eriander engleri Winkler in Engl. Bot. Jahrb. 41: 278 (1908). Type: Cameroun, Limbe (=Victoria), *Winkler 669* (holo-, B†; lecto-, K; iso-, LE).

Tree up to c. 30 m tall and 70 cm DBH, often with a large crown. Branches glabrous or sometimes sparsely puberulous when young. *Stipules* early caducous, narrowly triangular, c. 4 x 1 mm, with a few short hairs on the margin. *Leaves* 1-3 (-4)-foliolate, glabrous; petiole subterete, 2-10 mm long; rhachis subterete, up to 6 cm long; petiolule 2-5 mm long; leaflets coriaceous, opposite or alternate, elliptic to oblong, (2-) 2.5-3 times as long as wide, 8-45 x 3.5-17 cm, usually rounded at base, usually acuminate at top, the acumen up to 0.5 cm long; midrib straight or slightly curved, plane or impressed above, prominent beneath, the (8) 9-12 pairs of main lateral nerves slightly prominent both sides; glands absent; stipellae

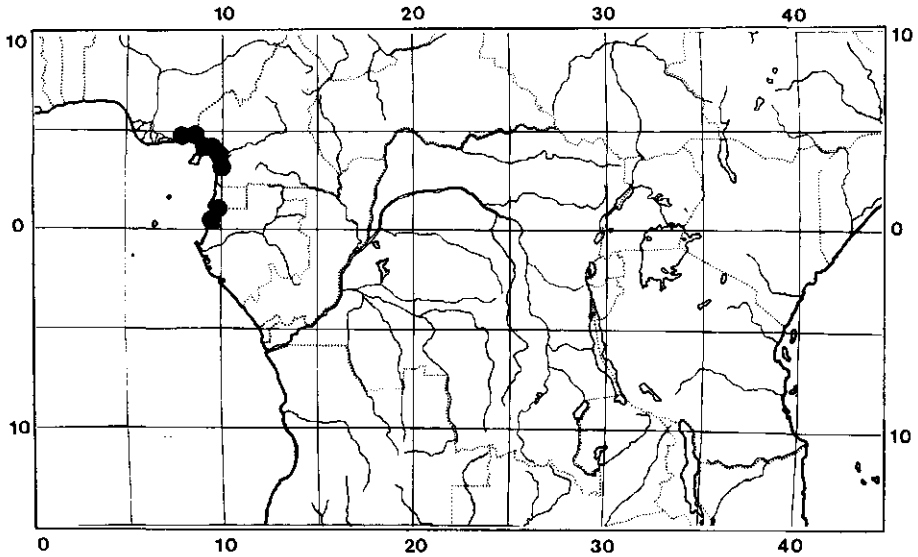


Fig. 11. Distribution of *P. mannii* (Baill.) Bret.

sometimes present, narrowly triangular to subulate, c. 2 mm long. *Inflorescence* a compound raceme, up to 20 cm long, with up to 15 cm long branches, puberulous; peduncle up to c. 1 cm long. *Flowers* white; bracts triangular, concave, c. 0.5-1 x 0.5 mm, hairy outside; pedicel c. 1 mm long, puberulous; bracteoles at top of pedicel, appressed, broadly triangular, c. 0.5 x 0.5 mm, hairy outside. Sepals 5, spreading, concave, ovate-elliptic-obovate, 1.5-2.5 x 1.5 mm puberulous outside, glabrous inside. Stamens 10, suberect, 5-6 mm long; filaments long-hairy in lower part mainly on the inside; anthers 0.5 mm long, connective distinct, not or only slightly protruding. Pistil 5 mm long; ovary and lower part of style hairy, style suberect, stigma minute; ovary c. 1 mm long. *Fruit* obcordate in outline, laterally compressed, 5-6 cm diam., c. 2.5 cm thick, glabrous, dull, finely scaly. Seed subcircular in outline, laterally compressed, c. 4 cm in diam.; cotyledons ruminant to deeply grooved. *Seedling* glabrous; primary stem with some cataphylls (or their scars) up to c. 35 cm long till the first 2-foliolate (alternate) leaf.

Distribution: Coastal area of Bay of Biafra from Southern Nigeria to Northern Gabon.

Ecology: Swamp forest.

Specimens examined: NIGERIA: Calabar, fr. Jan., *Espley 1*

(K); Old Calabar R., fl. fr. March, *Holland 92* (K); Calabar, ster. Oct., *Kennedy s.n.* (K); 4-5 miles Calabar-Atimbo Rd, fl. Febr., *Onyeachusim & Latilo FHI 48181* (P); Eket Distr., fl., *Talbot 3104* (BM); fr. April, *Talbot s.n.* (BM, K).

CAMEROUN: near Douala, fr. Dec., *Aubréville s.n.* (P); between Bopo and Pete, fl. Febr., *Binuyo & Daramola FHI 35565* (FHI, K, P, WAG); sin. loc., ster., *Büsgen 344* (B); 346 (B); W of Ekondo Titi, fl., *Doumenge 307* (WAG); Yapoma, ster., *Letouzey SRFK 1348* (P); near Mbanda, fl. Dec., *Letouzey 12440* (P); near mouth of Sanaga R., fr. Jan., *Letouzey 12632* (P); 5 km NE Douala, fl. May, *Letouzey 14933* (BR, K, P); Limbe (Victoria), fr. May, *Maitland 1150* (FHO, K); Camaroon R., fl., *Mann 754* (K, P, type); fl. June, 2194 (K, P); Limbe, ster. May, *Obama 296* (BATA); Makimba Isl., fr. July, *Thomas 948* (K); Ndian R., fr. July, *Thomas 2353* (B, BR, K, P, WAG); fl. July, 2355 (P, WAG); Limbe, ster. Jan., *Wieringa 2011* (WAG); 2013 (WAG); fl. Jan., *Winkler 669* (K, LE, type of *Eriander engleri*).

EQUATORIAL GUINEA: Kongui R., fl. Sept., *Mann 1822* (K, P).

GABON: Mondah Forest, ster., Aug., *Estasse SRF 811* (LBV).

Note: Baillon based his *Copaifera ? mannii* on three collections from Mann, 754 and 2194 from the Camaroon River, and 1822 collected at 1°North at the border between Equatorial Guinea and Gabon. I have followed authors like Léonard (1957) and Aubréville (1968) who cited Mann 754 as the type, in fact the lectotype collection. Léonard considered the Kew specimen holotype, but this is not correct. The Paris specimen must be designated as such because Baillon based his species on the duplicates he had received from Kew.

***Prioria msou* (Harms) Breteler comb. nov. Fig. 3(2), 5(4-5), 12.**

Basionym: *Oxystigma msou* Harms in Fedde, Repert. XIII: 417 (1914); Baker f., Leg. Trop. Africa 3: 774 (1930); Léonard, Bull. Inst. Roy. Colon. Belge 21: 748 (1950); Brenan in Fl. T.E.A., Legum. 2: 136 (1967). Type; Tanzania, Moshi District, Rau Forest, *Deiniger s.n.* (holo-, B†); same locality, *Drummond & Hemsley 1313* (neo-, K; iso-, B, BR), see note.

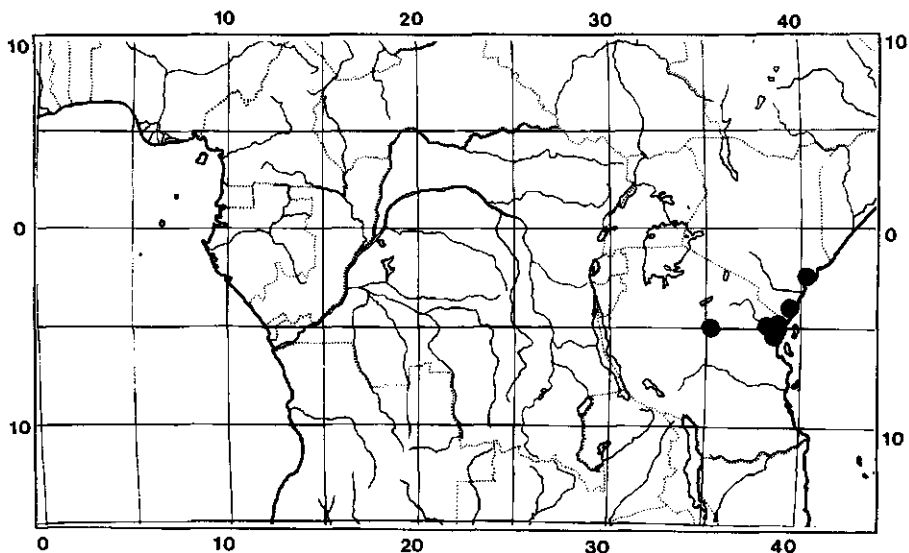


Fig. 12. Distribution of *P. msou* (Harms) Bret.

Tree up to 50 m tall and 3 m DBH, with cylindrical bole. Branchlets glabrous. *Stipules* very early caducous, not seen. *Leaves* (4-) 5-6 (-8)-foliolate; petiole subterete, 1-2.5 cm long; rhachis subterete, (2-) 4-7 (-10) cm long, glabrous or sometimes with a few short hairs, stipellae absent; leaflets alternate, rarely some opposite; petiolule 2-4 mm long, usually slightly twisted, glabrous rarely puberulous; lamina papery, ovate to elliptic to obovate, obliquely so or not, 2-3 times as long as wide, 5-7 (-15) x 1.5-5 (-7) cm, rounded to obtuse at base, acuminate with rounded or acutish top, the acumen 0.5 (-2) cm long; glabrous; midrib impressed above, prominent beneath, main lateral nerves (8-) 9-11 (-12) pairs, usually \pm plane and indistinct above, slightly prominent beneath, glands not seen. *Inflorescence* up to 25 cm long, branches up to 20 cm long, puberulous; peduncle up to 1 cm long; flowers white; bracts ovate-triangular, c. 0.5 mm long, puberulous; bracteoles inserted at top of pedicel or nearly so, appressed, minute, \pm 0.3 x 0.3 mm, puberulous; pedicel 0.5-1.5 mm long, puberulous. *Sepals* (4-) 5 (-6), suberect to slightly spreading, concave, broadly ovate to circular, 1.5-2 x 1.5-2 mm long, pubescent outside at least on outer sepals, all sepals hairy inside; stamens 10, suberect, 4-5 mm long; filaments hairy in the lower part inside; anthers 0.5 mm long, connective distinct or not, slightly protruding or not; pistil shortly stipitate or not, 3.5-4 mm

long; ovary and lower part of style hairy. *Fruit* obliquely obovate-obcordate in outline, 3.5-6 x 3.5-4 x 1-1.5 cm with a proximal and often partly lateral wing, laterally compressed, apiculate, glabrous, finely prominently veined; wing 0.5-2.5 cm long, the seed cavity 3-4 cm long; seed lenticular, up to c. 3 x 3 x 1.2 cm; cotyledons strongly ruminate. *Seedling* glabrous; primary stem 19 cm long with some cataphylls or scars of it; first leaves bifoliolate, alternate.

Distribution: Kenya, Tanzania.

Ecology: Evergreen forest, up to 1260 m alt.

Specimens examined: KENYA: Pangani Forest, fr. Nov., *Brenan et al.* 14565 (K); near Pangani, fr. May, *R.B. & A.J. Faden* 72/225 (K); fr. July, 74/1265 (K); 27 km NE of Garsen, fl. July, *Gillett & Kibuwa* 19933 (B, K); near Wema, fl. fr. Aug., *Robertson & Luke* 5314 (K).

TANZANIA: Panani Distr., fl., *Bond* 77 (K); Rau Forest, fr. Febr., *Drummond & Hemsley* 1313 (B, BR, K, type); fr. Jan., *Greenway* 4530 (BR, FHO, K); fl. fr. Dec., *Hoyle* 1393 (BR); Lusoto Distr., fl. Febr., *Kisena & Shabani* 538 (K); fl. March, 539 (K); Rau Forest, fl. Aug., *Lewis* 3 (K); fl. Nov., 233 (K); ster., Jan., *Ndosi & Pocs* 90.001 (K); Lutindi F.R., fr. Aug., *Ruffo & Kmari* 2253 (K); Rau Forest, fl. March, *Swynnerton* 289 (BM); Lutindi F.R., fr. Nov., *Temu* 86768 (K); Rau Forest, fl. Oct., *Wigg* 1445 (FHO, BR); Lugufu Forest, Kigoma Distr., ster., *Wigg* 1888 (BR); Moshi, fr. April, *Wood* 134 (K); Amani, ster. Dec., *Zimmermann* 3257 (BR).

Notes: Of the original material on which Harms based this species nothing could be traced. A specimen collected in the same Rau Forest has been designated neotype.

The fragment found in BR labeled *Wigg* 1888, consisting of 2 leaflets only, undoubtedly represents this species. Its locality, however, is far apart from all the other localities where this species has been collected in Tanzania. In the loan from the Forest Herbarium Oxford (FHO), *Wigg* 1888 was not present.

***Prioria oxyphylla* (Harms) Breteler comb. nov. Fig 3(3), 4(1-3), 13.**

Basionym: *Pterygopodium oxyphyllum* Harms in Engl. Bot. Jahrb. 49: 439 (1913); Baker f., Leg. Trop. Africa 3: 775 (1930);

- Pellegr., Leg. Gabon: 127 (1948); Aubrév., Fl. du Gabon 15: 144 (1968); Fl. du Cameroun 9: 142 (1970). Type: Cameroun, Mouloundou region, between Lokomo, Bumba, and Bange, *Mildbraed* 4538 (holo-, B†; lecto-, HBG; iso-, BR, P).
- Oxystigma mortehanii* De Wild., Bull. Jard. Bot. Brux. 7: 246 (1920); Ann. Soc. Scient. Brux. 44: 65 (1924); Baker f., Leg. Trop. Africa 3: 774 (1930), Type: Congo (Kinshasa), Dundusana, *Mortehan* 886 (holo-, BR).
- Oxystigma oxyphyllum* (Harms) Léonard, Bull. Inst. Roy. Colon. Belge 21: 753 (1950); Fl. du Congo 3: 373 (1952); Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 130 (1957); Keay in Hutch. & Dalz. F.W.T.A. ed. 2, 1: 446 (1958); De Saint Aubin, Forêt du Gabon: 69 (1963).

Tree with cylindrical, straight bole, up to c. 50 m tall and c. 100 cm DBH. Branches usually glabrous, sometimes short-hairy and glabrescent. *Stipules* very early caducous, hairy (or not?), c. 3 x 1 mm. *Leaves* (4-) 6-8 (-10)-foliolate, glabrous, rarely with short hairs on rhachis (see note), and lower surface; petiole subterete, (5-) 10-20 (-25) mm long; rhachis subterete, (4-) 6-11 cm long; petiolule (2-) 3-6 (-7) mm long; leaflets alternate, the uppermost pair opposite or not, coriaceous, usually elliptic to ovate-elliptic, sometimes obovate, often asymmetric, (3-) 6-11 x (1-) 2-4.5 cm, 2-3 times as long as wide, cuneate to rounded rarely obtuse at base, acuminate at top, the acumen 0.5-1 cm, long, rounded apically; midrib usually impressed above, prominent beneath, the (6-) 7-10 (-11) pairs of main laterals indistinct, especially so beneath, slightly impressed above, lower surface slightly glossy; glands present or not, when present a few on the lower surface only; stipellae not found. *Inflorescence* up to 20 cm long with branches of up to 15 cm long, short-hairy, densely so or not, rarely long-hairy; peduncle up to 2.5 cm long; bracts ovate-triangular to obovate, up to 1.5 x 0.5 mm, concave, margin hairy; bracteoles (sub)appressed, inserted towards the top of pedicel, (sub)concave, subovate to narrowly triangular, up to 0.8 x 0.3 mm margin lobulate to hairy. *Pedicel* 1-1.5 mm long, puberulous; sepals 5, free, ± spreading or suberect, concave, obovate-elliptic, 1.5-2 x 1 mm, hairy both sides or only so on margin; stamens 10, suberect, 2-5 mm long, filaments hairy in lower part, especially so on the inside; anthers 0.3-0.5 mm long, connective not protruding; pistil 3-4 mm long; ovary and lower part of style densely hairy; ovary 1 mm long, stigma minute. *Fruit* with a long,

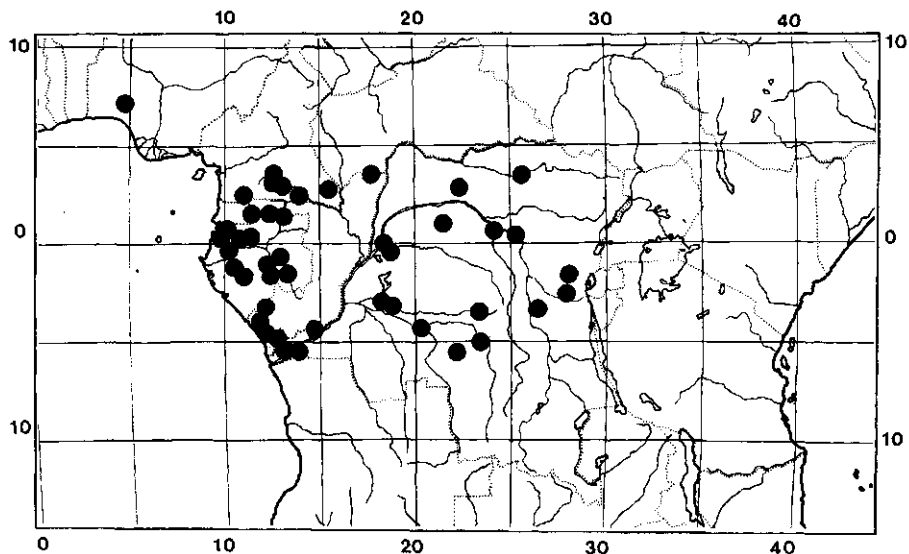


Fig. 13. Distribution of *P. oxyphylla* (Harms) Bret.

curved or \pm straight wing, 6-11.5 x 2-4 cm, glabrous, longitudinal nerves distinct at least in apical part of wing, top usually apiculate; seed cavity 1.5-3 x 1-2 cm. Seed \pm ellipsoid, laterally compressed, up to 2.5 x 1.5 cm, c. 0.8 cm thick; cotyledons grooved to slightly ruminant. *Seedling*: primary stem glabrous with some cataphylls or scars of it; first leaves alternate, bifoliolate with opposite leaflets; stipules narrowly triangular, 3-3.5 x 1 mm; leaflets ovate-elliptic with a long distinct acumen of c. 1 cm, and of up to 3 cm in subsequent leaves.

Distribution: From southern Nigeria to Central African Republic in the East and Congo (Kinshasa) and Angola (Cabinda) in the South.

Ecology: Tropical rain forest.

Specimens examined: NIGERIA: Ondo, fr. Dec., *Ainslie 10* (FHO); fl., *Kennedy 2422* (FHO); sin. loc., fl., *Mackay 4* (BM, FHO).

CAMEROON: Bitey, fl. Febr., *Bates 1553* (BM); 20 km E of Soumalomo, ster. Febr., *Letouzey 4329* (P); Mwapak, ster. June, *Letouzey 5304* (P); 60 km ESE of Ebolowa, fr. Jan., *Letouzey 9905* (BR, K, P); Mimbomimbo Soup, fr. Febr., *Letouzey & Villiers 10372* (P); Lidjombo, ster. April, *Letouzey 10650* (P); Mintom II, ster. Jan., *Letouzey 11780* (P); between Lokomo, Bumba, and

Bange, fr. Febr., *Mildbraed 4538* (BR. HBG, P, type).

GABON: Kougouleu, ster. Dec., *Bernard SRF 1007* (LBV); Fernan Vaz, ster. May, *Bernard SRF 1336* (LBV, P); Makande, 65 km S of Booué, ster. Jan., *Breteler et al. 14768* (WAG); fr. Febr., *15135* (LBV, WAG); 30 km E of Lastoursville, fr. Nov., *Breteler & Jongkind 10599* (WAG); *10601 A* (WAG); ster. May, *11264* (WAG); Mouila, ster. April, *De Saint Aubin CTFT 2024* (LBV); Ndjolé, ster. Sept., *Durand SRF 1395* (LBV); 25 km E of Franceville, ster. Oct., *Gouchotte SRF 1903* (LBV); Bélinga, fr. July, *Hallé & Le Thomas 15* (P); *587* (P); *588* (P); Fougamou, fr. April, *Lau 156* (LBV); Pougou, fl. Oct., *Le Testu 8439* (B, BM, BR, K, P); Koulamotou, fl. April, *Le Testu 8757* (BM, BR, FHO, K, P); Oyem, fl. Oct., *Le Testu 9312* (BM, BR, FHO, K, P); Ngoulalé, ster., *Ollome s.n.* (LBV); Minkebé, fr. March, *Tengue A 761* (WAG); 35 km N of Koumaméyong, fr. March, *Wilks 1469* (WAG); Otouma Mission, fr. Jan., *Wilks 2563* (WAG).

CONGO: (Brazzaville): Kamoeka, fr. Nov., *Bouquet 1945* (P); Kouilou, ster. Dec., *Dowsett-Lemaire 1459* (BR); fr. Jan., *1565* (BR); upper Loukénéne R., fr. Oct., *Groulez-Morel SFMC 51* (LBV, P); Mayombe, sin. loc., ster. Dec., *Lagadic 755* (P); Boubissi valley, fr. July, *Normand 532* (P); *533* (P); Mvouti, ster. June, *Normand s.n.* (WAG); Kouilou, ster. March, *Sargos 136* (P); Matoumbou, fr. Aug., *Sita 1757* (WAG).

CONGO: (Kinshasa): Lodja, fr. Sept., *Baptiste 40* (BR, FHO); Yangambi, fr. Febr., *Bolema 414* (BR); Ganda Sundi, ster., *Briey 223* (BR); Pompombo, ster. Aug., *Cauwe SF 98* (BR); Kiboko, fr. Aug., *Cauwe SF 100* (BR); Mvuazi, fl. May, *Davio 50* (BR, FHO, K); Yangambi, fl. Febr., *Devred 4142* (BR, K); Luki, fr. Nov., *Donis 1525* (BR, K); Ntosi valley, fr. July, *Donis 1897* (BR); Yangambi, fl. Dec., *Donis 3267* (BR, K); fl. Jan., *3293* (BR); *3319* (BR); *3320* (BR); *3361* (BR, K); *3363* (BR); Mvuazi, ster. April, *Dubois 266* (BR, WAG); Bambesa, ster., *Dubois 920* (BR); Djolu-Bongandanga, fr. Febr., *Evrard 3475* (BR); sin. loc., ster., *Flamigni 7122* (BR); Bambesa, fr. July, *Gerard 659* (BR); fr. Sept., *1040* (BR, K); fr. Jan., *2644* (BR); fl. May, *2935* (BR, WAG); fl. Febr., *3261* (BR, WAG); Tshela, fr. April, *Ghesquière 3 bis* (BR); Boiela, fr. July, *Ghesquière 806* (BR); Yangambi, fr., *Gilbert 977* (BR); fl. Aug., *1019* (BR); fl. May, *1117* (BR, K, P); fr. May, *1157* (BR); fr. July, *1282* (BR, K); fl. Aug., *1317* (BR, WAG); fr. Dec., *1477* (BR, P, WAG); sin. loc., fl., *8028* (BR); fr., *8168* (BR); fr., *8170* (BR); fl., *8445* (BR); fl., *8448* (BR); fl., *8464* (BR); fr., *8689* (BR); fl.,

8844 (BR); fr., 9994 (BR): ster., 10009 (BR); fl., 10047 (BR); Boende, fr. July, *Gorbatoff* 241 (BR, FHO, K); Luki, ster. Sept., *Hombert* 175 (K); Demba, ster. Febr., *Jacques* 3 (BR); ster. May, 8 (BR); Yangambi, fl. Jan., *A. Léonard* 229 (BR, WAG); fr. May, 745 (B, BR, P); Kakuku, fr. June, *A. Léonard* 4668 (B, BR, K, P, WAG); Kisangani, fr. April, *Liegeois* 2 (K); 12 (BR); Yangambi, ster. Nov., *Lisowski* 15499 (BR); 12 km E of Wanie Rukula, fr. Dec., *Lisowski* 15872 (BR); Yangambi, fr. May, *Lisowski* 40021 (BR); fr. Oct., *Louis* 403 (BR); fr. Nov., 699 (B, BM, BR, K, P); fl. Dec., 799 (B, BM, BR, K, P); fl. Dec., 851 (BR); fl. Jan., 977 (B, BM, BR, K, P); fr. Febr., 1393 (BR); fl. Dec., 2928 (BR); fl. June, 4077 (B, BM, BR, K, P); fl. Nov., 6505 (B, BM, BR, K, P); fl. Dec., 6578 (BM, BR, K); fr. March, 8487 (B, BR, BM, K, P); fl. May, 9490 (B, BR, BM, K, P); fl. Aug., 10655 (B, BM, BR, K); 10709 (B, BM, BR, K, P); fl. Dec., 12940 (BR, BM, K, P): fr., 16579 (BR); fr. April, 16624 (BR); Bumbaye, ster. April, *Luja* 3 (BR); Sankuru, ster., *Luja s.n.* (BR); sin. loc., fl., *Luyten* 41 (BR); Luki, fr., *Mahieu* 241 (K, WAG); Yangambi, fr. Jan., *Maudoux* 1217 (BR): 1218 (BR): 1219 (BR): fl. March, 1163 (BR); fl. Jan., *Menavanza* 120 (BR); Pangi, ster. June, *Michelson* 140 (BR); fr. June, 158 (BR): sin. loc., ster., 533 (BR); fr., 673 (BR); Belanzovi, fl. Jan., *Michelson* 883 (BR, K); Dundusana, fl. Dec., *Mortehan* 886 (BR, type of *Oxystigma mortehanii*); Bambesa, ster., *Pittery* 431 (BR); Kikwit, fr., *Renier 7 bis* (BR); Maniema, ster. Dec., *Tondeur* 56 (BR); Luki, fr. Dec., *Toussaint* 73 (BM, BR); ster. March, 281 (BR, K); fl. Dec., 2082 (B, BR, FHO, K, P); ster. May, 2346 (BR, K); 2350 (BM, BR); fr. July, 2416 (BR, FHO, K).

ANGOLA: Maiombe, Chiluangó, fl., *Gossweiler* 6093 (BM, K); 7126 (K); 7136 (BM, K).

CENTRAL AFRICAN REPUBLIC: Lobaye, Lotemo R., ster. Aug., *Guignis* 2243 (P).

Note: The collections *Breteler et al.* 14768, *Le Testu* 8439 and 8757 from Gabon have a hairy leaf rhachis. This is not seen in the other specimens that have been examined. Apart from this aberrant character these collections fit well into *P. oxyphylla*.

THE AMERICAN SPECIES OF *PRIORIA*

***Prioria copaifera* Griseb. Fig. 1(1), 3(4), 14(7), 15.**

Prioria copaifera Griseb., Fl. Br. W. Ind.: 215 (1864); Fawcett & Rendle, Fl. Jamaica 4 (2): 123 (1920); Burtt, Kew Bull.: 461 (1936); Standley, Fl. Costa Rica 2: 521 (1937); Dwyer in Fl. Panama 5 (3): 28 (1951); Léonard, Mém. Acad. Roy. Belg. Cl. Sci. 30 (2): 132. Type: Jamaica, sin. loc., *Wilson s.n.* (holo-, K), see note.

Tree up to 30 m tall and 150 cm DBH. Branches glabrous. *Stipules* very early caducous, not seen. *Leaves* (2-) 3-4 (6)-foliolate, glabrous; petiole (sub)terete 0.5-2.5 (-4) cm long; rhachis (sub)terete, 1-7.5 cm long; petiolule slightly twisted, slightly grooved above or not, 4-6 (-10) mm long; leaflets coriaceous, elliptic, obliquely so or not, usually (sub)opposite, (6-) 8-12 (-17) x (3-) 4-6 (-9) cm, rounded to obtuse rarely cuneate at base, acuminate or obtuse or rounded at top, acumen rounded at apex, 0.5-1 cm long; midrib plane or slightly prominent above, prominent beneath, the 7-10 pairs of main laterals slightly prominent both sides; glands small, beneath only, usually present on both sides of the midrib; stipellae not found. *Inflorescence* axillary or terminal, up to 30 cm long, branches up to c. 15 cm long, puberulous; peduncle up to 5 cm long; bracts caducous, transversely ovate, concave, up to 1 mm across, margin hairy; bracteoles appressed usually free or very slightly united at base, imbricate, concave, subcircular in outline, up to 1.5 x 2 mm, puberulous at least on margin. *Pedicel* \pm 0; sepals 5, concave, obovate, up to 2.5 x 2 mm, with hairy margin; stamens 10, suberect, \pm free, 4-6 mm long; filaments hairy in lower part on the inside, more distinctly so on the inner filaments; anthers c. 0.5 mm long, with a distinct protruding connective; pistil 3-4.5 mm long; ovary 1-1.5 mm long, hairy; stigma minute. *Fruits* obovoid-ellipsoid, laterally compressed, sometimes (in young fruits only?) concave-convex, or circular in outline, 6-10 x 4.5-7 x 1-2 cm, apiculate or not, glabrous, often distinctly vertically veined, densely minutely lenticellate. Seed lenticular or concave-convex, c. 5 x 5 x 1.5 cm, testa firm, c. 0.5 mm thick; cotyledons rather flat, not plicate nor grooved, up to 0.5 cm thick. *Seedling* glabrous, stem, till the first leaf up to c. 25 cm long; first leaves alternate, 2-jugate, leaflets

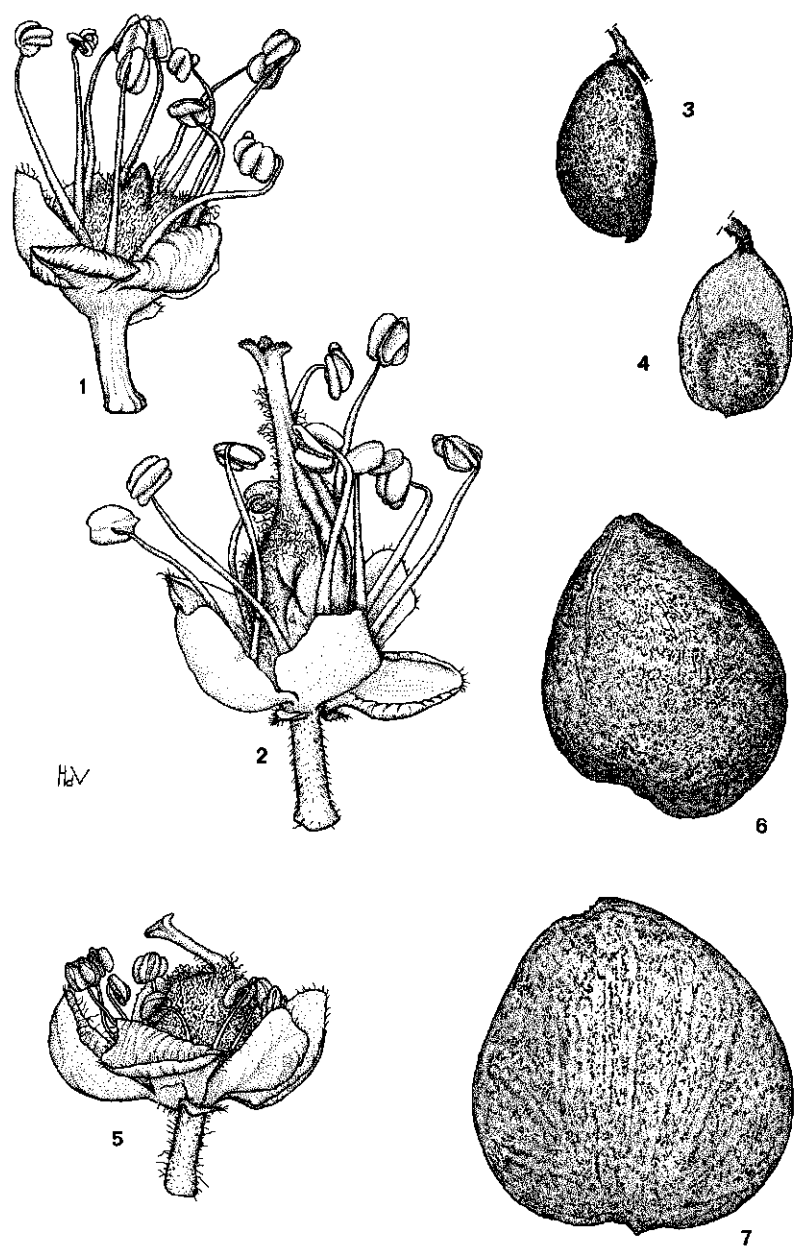


Fig. 14. American, Asiatic and Pacific species of *Prioria*: 1-4. *P. pinnata*: 1. male flower, x10; 2. Bisexual flower, x10; 3-4. Fruits, x2/3; 5. *P. alternifolia*: flower, x10; 6. *P. platycarpa*: fruit, x2/3; 7. *P. copaifera*: fruit, x2/3 (1. *Herb. Hookerianum, Hort. Calcut. 1867*; 2. *Kostermans 28130*; 3. *Nicholson et al. 2871*; 4. *Wight 875*; 5. *Sulit 6432*; 6. *Smith 8185*; 7. *Harris & Britton 10575*). Drawing by H. de Vries.

opposite, rhachis with a deciduous, filiform subulate tip or not; stipules \pm axillary.

Distribution: Atlantic coasts of Central America, from Nicaragua to Colombia (see note).

Ecology: Coastal swamp forest and along river estuaries.

Specimens examined: JAMAICA: Bachelors Hall, near Bath, fr. Sept., *Britton 3629* (NY); ster. Sept., *Harris & Britton 10575* (BM, K, P, U); Meylers field, Westmoreland, fl. Dec., *Harris 11814* (BM, K, MO); Mansfield, fr. Sept., *W. Harris 6001* (BM); sin. loc., fl., *Wilson s.n.* (K, type).

NICARAGUA: Rio San Juan, fl. Nov. *Araquistain 3285* (MO); fr. July, *Rueda et al. 1598, 1704, 1838* (MO); fr. Jan. *2625* (MO); fr. Febr., *4123* (MO); fr. July, *4598* (MO).

COSTA RICA: Limon, 7 miles NE Matina, fl. Febr., *Barbour 1051* (MO); Cerro Tortuguero, fl. March, *Barringer et al. 1951* (MO); Tortuguero, fl. Sept., *Cascante & Boyer 699* (K); 9 miles NW Puerto Limon, fl. Febr., *Godfrey 66377 a* (MO); Refugio Gandoca-Manzanillo, fr. Jan., *Graham 8033* (K, MO); Caño de Moin, fl. Febr., *Jimenez 2891* (BM); Puntarenas, Osa, ster. Aug., *Morales 154* (K); Tortuguero, fr. Nov., *Robles 1290* (MO); fl. Nov., *1341* (MO); fr. May, *1829* (MO); between Barra Parismina and Chiquero R., fl. Oct., *Shank & Molina 4303* (BM, MO); Tortuguero, fr. Sept., *Solano 95* (K, MO); Colorado R., fr. Jan., *Stevens 24066* (MO); Caño Pereira, fl. March, *Stevens et al. 25123* (BM, MO); Estrella R., *Stork 4607* (NY); Aguabena, ster. Nov., *Thomsen 494* (K); Puerto Limon, fr. Oct., *Tonduz 2471* (MO); Patarenas, Peninsula de Osa, ster. Nov., *Zamora 1885* (MO).

PANAMA: Darien, fr. March, *Allen 277* (MO); fl. March, *909* (MO); fl. Oct., *932* (MO); Barro Colorado Isl., fl., *Aviles 27* (MO); Rio Congo, ster. May, *Cohn 10* (MO); *16* (MO); sin. loc., fr. Dec., *Cooper 345* (FHO); fl. May, *345 a* (FHO, K); Summit Gardens, fr. April, *Croat 5000* (MO); Barro Colorado Isl., fr. May, *Croat 5567* (MO); *5594* (MO, NY); *5653* (MO); *5720* (MO); fl. May, *5732* (MO); fl. Sept., *6146* (MO); fl. fr. Oct., *6860* (MO, NY); fl. Febr., *7945* (MO); *8204* (MO); fl. April, *14087* (MO); Cañazas, Chepo, fl. Sept., *Diaz 423* (MO); Camino del Pirre, ster. July, *Duke & Bristan 250* (MO); Bayano R., fr. Jan., *Gentry 3787* (BM, MO); Gatun Lake, ster. Aug., *Haines 574* (MO); Frijoli, fl. Febr., *Hayes 49* (BM, G, P); Comarca de San Blas, fr. Febr., *Herrera & Diaz 397* (MO); Barro Colorado Isl., ster. March, *Hladik 274* (P); fl. Oct., *Montgomery 188* (MO); Comarca de San Blas, fr. Nov., *Mori 390*

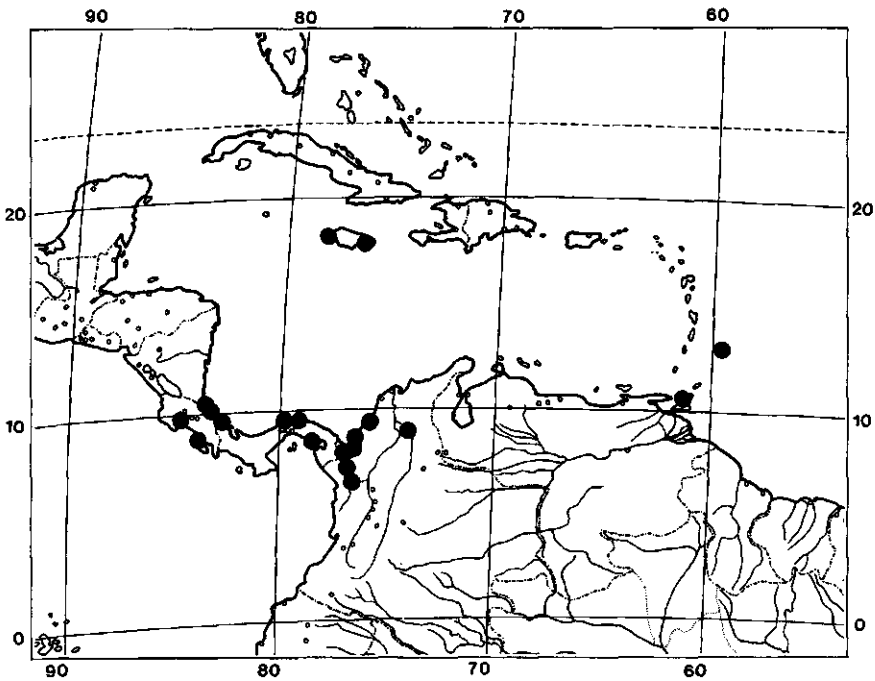


Fig. 15. Distribution of *P. copaiifera* Griseb.

(BM, MO); Petitpie R., fl. Oct., *Mori & Kallunki* 2702 (MO); Summit Garden, fl. Dec., *Mori & Kallunki* 3728 (MO); Trinidad R., fr. July, *Pittier* 3971 (BM); Barro Colorado Isl., fl. Jan., *Schmalzel* 274 (MO); fl. Oct., *Schmalzel & Alverson* 1176 (MO); *Shattuck* 469 (MO); Fort Sherman, fr. Jan., *Standley* 3111 (MO); Guabito, ster. June, *Stern & Chambers* 114 (MO); El Real, fr. July, *Stern et al.* 789 (MO); fl. fr. July, 970 (MO, Z); Gatun Locks-Fort Sherman, fr. March, *Tyson & Nee* 7311 (MO).

COLOMBIA: Turbo, fl. Nov., *Brand & Gonzales* 677 (K, MO); fl. fr. Febr., 973 (MO); Chigorodo, fr. Dec., *Callejas et al.* 9717 (NY); Archi, fr. May, *Cuadros s.n.* (MO); sin. loc., ster. Nov., *Dawe* 888 (K); El Valle, fr. April, *Espina et al.* 2877 (MO); Acandi, fr., *Forero et al.* 1943 (MO); Tagachi, ster. April, *Forero et al.* 9013 (MO); Bellavista, fr. April, *Forero et al.* 9203 (MO); Atrato R., fl. Jan., *Gentry* 9261 (MO); La Teresita, fr. Jan., *Gentry* 9330 (MO); Riosucio, fr. Dec., *Leon* 665 (MO); Turbo, fl. Febr., *Renteria et al.* 3587 (MO); Chigorodo, fr. Jan., *Renteria et al.* 4514 (MO); Tolie, fl. Jan., *Warner* 498 (P).

Cultivated: TRINIDAD: St. Clair, fr. Oct., *Broadway 5833* (FHO, G, K, MO); Woodbrook, fl. Sept., *Broadway 9250* (BM, K, MO, U, Z); BARBADOS: sin. loc., fl. fr. Febr., *Hayes s.n.* (K); CAMEROUN (Africa): Limbe (Victoria), fl. Nov., *Maitland 109* (K); fl. Dec., 786 (K).

Notes: Grisebach cited that the type collected by *Wilson* came from Bachelor's Hall, near Bath. On the type specimen in K, however, only 'Jamaica' is found.

This species has been collected twice on the Pacific Coast of Central America. Both collections (*Morales 154*, *Zamorra 1885*) are sterile and come from Puntarenas in Costa Rica. They have been collected recently, in 1991 and 1992 respectively. It is not known whether this species is cultivated there.

P. copaifera can easily be distinguished from all other species of the genus by its sessile flowers with distinctive, relatively large, imbricate bracteoles.

THE ASIATIC AND PACIFIC SPECIES OF *PRIORIA*

Introduction

The key to the Asiatic and Pacific species has almost exclusively been based on fruit characters. Its use will be difficult when fruits are missing. In such cases geographical data can be used, except for the two species from New Guinea, *P. novoguineensis* and *P. tenuicarpa*, both described by Verdcourt in 1977. Flowering material from New Guinea is difficult to assign to either of these two species. Good flowering material is scarce and, moreover, has, at least so far, not offered good characters for specific distinction. Material with flowers and fruits on the same specimen or from the same individual is completely absent for most species. This has hampered the review of the species presented hereafter.

Leaves have, so far, not shown characteristics that could be used with certainty in specific segregation.

The pistil character used by Meeuwen (1970: Fig. 7) to distinguish between *Kingiodendron alternifolium* (Fig. 7c) on the one hand and *K. pinnatum* and *K. platycarpum* (Fig. 7b) on the other hand does in fact not point to the difference between the flowers of two different species, but has to do with male (Fig. 7b) and female flowers (Fig. 7c). The anthers in Fig. 7b are large and the filaments long. The pistil is small, its style not well developed and the stigma is missing. The flower is fully developed and not, as Meeuwen stated, that it concerns a young flower. The flower in Fig. 7c has a very well developed pistil, but here the anthers are small and the filaments short. Verdcourt (1979) pointed to the possibility of functionally male and female forms as he called it and he takes *Brass 8101* (Fig. 7c) and *Brass 8004* as an example. Both specimens have been collected on the same spot, and the only difference (apart from flower colour) is found in the pistil, well developed in *Brass 8101*, with an obsolete style in *Brass 8004*. A similar situation has been experienced in the African genus *Eurypetalum* where in *E. tessmannii* the apparently male flower shows also an obsolete style without a stigma. *P. pinnata* (see Fig. 14) is polygamous as bisexual flowers occur next to male flowers.

The classification presented here is quite different from Meeuwen's work of 1970, where the same species are recognized (except the two Verdcourt species), but often with a very different geography. In this review *P. alternifolia* is restricted to the

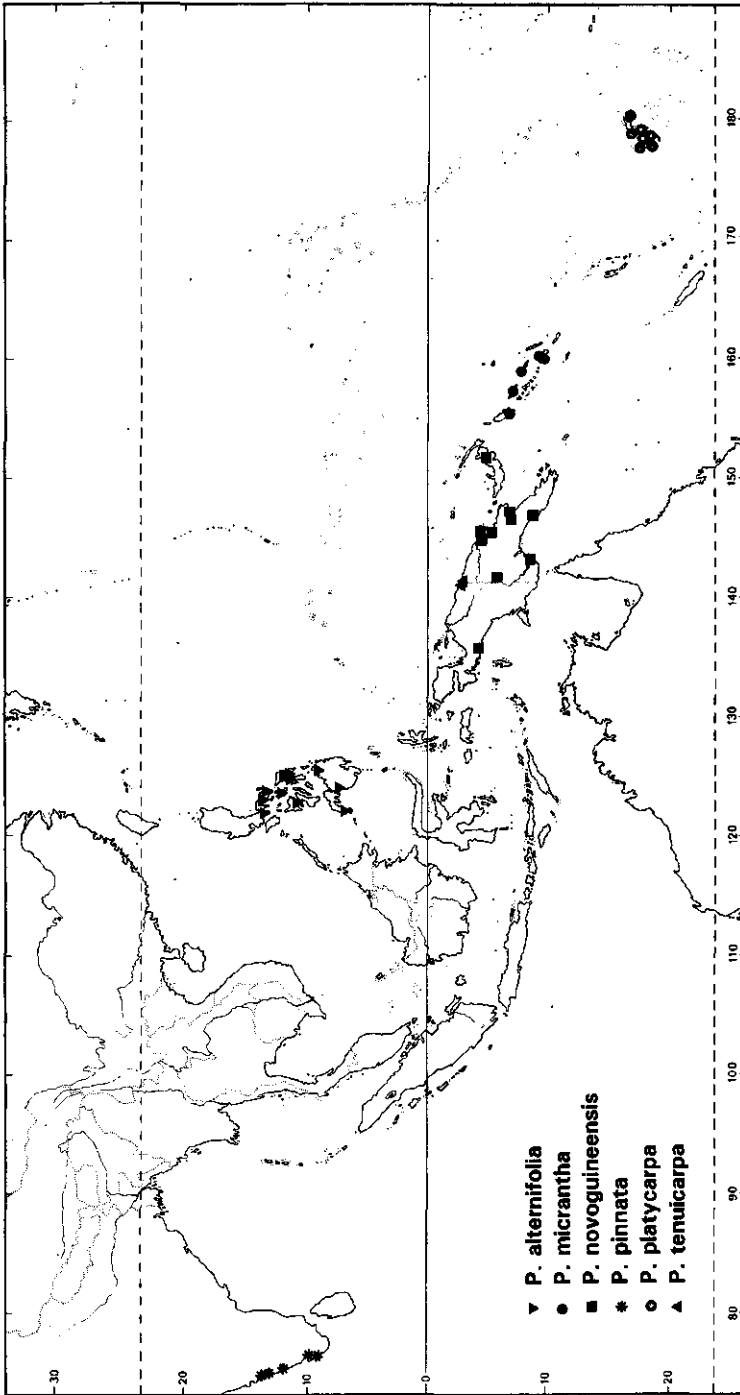


Fig. 16. Distribution of the Asiatic and Pacific species of *Prioria*.

Brief alphabetical review of the Asiatic and Pacific species

***Prioria alternifolia* (Elm.) Breteler comb. nov. Fig. 14(5), 16.**

Basionym: *Cynometra alternifolia* Elm., Leafl. Philip. Bot. 1: 223 (1907). Type: Philippines, Leyte Isl., Palo, *Elmer* 7356 (holo-, n.v.; iso- G, K, LE).

Hardwickia alternifolia (Elm.) Elm. Leafl. Philip. Bot. 1: 362 (1908).

Kingiodendron alternifolium (Elm.) Merr. & Rolfe, Philip. J. Sc. 4, Bot.: 267 (1909); Meeuwen in *Blumea* 18 (1): 48 (1970); Verdc., Manual New Guinea Leg., Lae Bot. Bull. 11: 94 (1979); Ding Hou in *Fl. Males. I*, 12 (2): 628 (1996).

Distribution: Philippines.

Specimens examined: PHILIPPINES: Luzon, Camarines, *Alvarez* *FB* 21259 (BM, P); Tayabas, *Curran* *FB* 10327 (K); Albay-Sorsogon, *Curran* *FB* 10624 (P); Camarines, *Curran* *FB* 10671 (L); Leyte Isl., Palo, *Elmer* 7356 (G, K, LE, type); Mindanao, Zamboango, *Franco* *FB* 24956 (BM, P); Samar, Sohoton Mt., *Madulid et al.* 986 (L); Masbate Isl., *Merrill* 2761 (BM, K); Mindanao, Cotabato, *Miranda* *FB* 28625 (L, P); Leyte, *Ponce* *FB* 27821 (P); Mindanao, Butuan, *Rafael & Ponce* *FB* 20731 (K, P); Samar, *Ramos* *BS* 1619 (BM, G, L, P); Catinduanes, *Ramos & Edano* *BS* 75204 (L); Mindanao, Santa Maria, *Reillo* *BS* 16443 (BM, K, P); Luzon, Camarines, *Solevin* *FB* 27392 (L, P); Samar, Calbiga Mt., *Sulit* 6432 (L); Panay, Miagao, *Vidal* 2468 (K); Mindanao, Zamboango, *Whitford & Hutchinson* *FB* 9301 (K); Mindanao, Port Banga, *Whitford* *FB* 11036 (K).

***Prioria micrantha* (Burt) Breteler comb. nov. Fig. 16.**

Basionym: *Kingiodendron micranthum* Burt. Kew Bull. 1936: 460 (1936); Meeuwen in *Blumea* 18 (1): 49 (1970); Verdc., Manual New Guinea Leg. Lae Bot. Bull. 11: 95 (1979); Type: Solomon Islands, Bougainville, Maisua, *Waterhouse* *B* 812 (lecto-, K; iso-, P).

Distribution: Solomon Islands.

Specimens examined: SOLOMON ISLANDS: Honiara, Wanderer Bay, *Boraule et al.* BSIP 9081 (L); Santa Ysabel, Suavanao, BSIP 6730 (K, L); Honiara, Choiseul, *Gafui et al.* BSIP 18813 (K, L); Bougainville, Kugumaru, *Kajewski 1901* (G, L); Bougainville, N. of Buin, *Schodde & Craven 3863* (K, L); Guadalcanal, Aula. Walker, BSIP 252 (K); Bougainville, Maisua, *Waterhouse B 812* (K, P, type); *Waterhouse Y 172* (K); Santa Ysabel, Allardyce Harbour, *Whitmore et al.* BSIP 3635 (K, L); Choiseul, Ruruvai, *Whitmore BSIP 5207* (K, L).

Notes: The specimens *Whitmore BSIP 3635* and *BSIP 6730*, both with the Kwara'ae name Dada are somewhat aberrant. The leaves have 2-3 large leaflets of up to 20 x 8-13 cm, the inflorescence branches are few in number, flattened and up to 20 cm long, the calyx is glabrous. In the other material, including the type, there are 4 (-5) smaller leaflets, the inflorescence branches are terete and more numerous and up to 8 cm long and the calyx is ciliate.

Kajewski 1901 bears the only immature fruit that has been observed. It is flat, ± obovate in outline, c. 6 x 4.5 cm, the pericarp is slightly glossy and has a fine, slightly prominent venation.

***Prioria novoguineensis* (Verdc.) Breteler comb. nov. Fig. 16.**

Basionym: *Kingiodendron novoguineense* Verdc., in Kew Bull. 32 (1): 244 (1977); Manual New Guinea Leg. Lae Bot. Bull. 11: 97 (1979); Ding Hou in Fl. Males. ser I. 12 (2): 630 (1996). Type: Papua New Guinea, Madang, *Henty NGF 28032* (holo-, LAE, n.v.: iso-, K).

Distribution: New Guinea.

Specimens examined: NEW GUINEA, Majaja near Oeta, *Aet 346* (L); Lower Fly R. opposite Sturt Isl., *Brass 8004* (G, L); *8101* (BM, G, K, L); Trans Brown, *Havel et al. NGF 17389* (K, L); Madang, *Henty NGF 28032* (K, type); Usino, Madang Distr., *Henty NGF 28045* (K, L); Lae, Buaru Creek, *Katik NGF 46873* (K, L); Josephstaal, Lower Ramu Valley, *Pullen 1104* (BM, L); Matanakunei, *Ridsdale & Katik NGF 36784* (K, L); *NGF 38067* (L); above junction of Fly & Elevala R., *Streimann & Lelean NGF 18409* (K, L); Herzog Mts, *Takeuchi 7192* (L); Usino, Madang Distr.,

Womersley NGF 24796 (K, L).

Note: The description of the fruit of this species as given by Verdcourt and used by Ding Hou (1996), needs to be adjusted. Verdcourt described the pericarp as \pm lepidote, with 16-25 distinct vertical ribs on the faces. This description does in fact not concern the pericarp but the endocarp, and the scales adhered to it are remnants of the mesocarp or exocarp. There are two specimens in the Kew Herbarium which show more or less a complete fruit: *Womersley NGF 24796* and *Katik NGF 46873*. From these it becomes clear that the exocarp is smooth, the mesocarp at least a few millimetres thick and that it is the endocarp that is finely ridged as described by the author of this species.

***Prioria pinnata* (Roxb. ex DC.) Breteler comb. nov. Fig. 1(4), 14(1-4), 16.**

Basionym: *Hardwickia pinnata* Roxb. ex DC. Prod. ii: 487 (1825).

Type: India, Calcutta Bot. Gard., *collector unknown* (holo-, G-DC), see note.

Kingiodendron pinnatum (Roxb. ex DC.) Harms in Engl. & Prantl. Nat. Pflanzenf. Nachtr. 1: 194 (1897); Meeuwen in Blumea 18 (1): 48 (1970).

Distribution: India

Specimens examined: INDIA: Madras, *Barber 3200* (K); sin. loc., *Beddome 192* (K); Tirunelveli, *Beddome 2551* (BM); Travancore, *Bourdillon 26* (CAL, K); Coorg, *Hok 2* (CAL); Nadgani, *Madras Herb. 11208* (K); Hassan Distr. Mysore, *Nicolson et al. HPF 2871* (K); Coorg, *Sedgwick & Bell 3944* (K); Madras, *Wight 875* (K, L).

Cultivated: Calcutta Bot. Gard., *div. collectors (Anderson, Griffith, Wallich)*; Ceylon, Peradeniya, *Alston 156* (FHO, K); *Kostermans 28130* (G, K, L, P).

Notes: Meeuwen l.c. could not locate the holotype of this species, but suggested that it might be in CAL. She erroneously quoted a *Roxburgh* plant as the type, probably because he provided the name (nomen nudum) for the basionym. It was De Candolle, however, who validated the name and there is a flowering specimen

from the Calcutta Garden in his herbarium which must be taken as the holotype.

P. pinnata is probably, at least at first sight, most closely related to the East African *P. msoo*. The leaves look very similar and so do the fruits. The areas of the two species are now far apart, but may have been rather close in the past, a more or less similar situation as between *Hardwickia binata* Roxb. from India and *H. mopane* (Kirk ex Benth.) Bret. from South Tropical Africa (Breteler et al., 1997). *P. pinnata* with its polygamous flowers may also be considered as being transitional between the bisexual flowers of the African species and the probably unisexual flowers of the other Asian and Pacific species.

Analysis of the characters of *P. msoo* and *P. pinnata* revealed the following, most important, differences (Table 2).

Table 2. Differences between the characters of *P. msoo* and *P. pinnata*.

	<i>P. msoo</i>	<i>P. pinnata</i>
leaflets	lateral nerves indistinct, not prominent on surface	lateral nerves distinct, prominent on upper surface
inflorescence	up to 25 cm long	up to 12 cm long
flowers	bisexual	polygamous
sepals	densely hairy both sides	sparsely hairy at apex only or glabrous
fruits	obliquely obovate-obcordate in outline, 3.5-6 x 2.5-4 x 1-1.5 cm, with a proximal (and partly lateral) wing of 0.5-2.5 cm	obliquely ellipsoid-obovoid in outline, 3.5-5 x 1.5-3 x 1-1.5 cm, with a proximal (and partly lateral) wing of 1-1.5 cm, or unwinged
seed	lenticular up to 3 x 3 x 1.2 cm	ellipsoid, laterally compressed, 1.5 x 1 cm
cotyledons	strongly runcate	(sub) plano-convex

***Prioria platycarpa* (Burt) Breteler comb. nov. Fig. 14(6), 16.**

Basionym: *Kingiodendron platycarpum* Burt in Kew Bull. 1936: 460 (1936); Meeuwen in Blumea 18 (1): 49 (1970). Type: Fiji Islands, Viti Levu, Raki Mts, *Horne* 483 (holo-, K).

Distribution: Fiji Islands

Specimens examined: FIJI ISLANDS: Serua, *Bulai* 5 (K); Galoa, *Damanu G10* (K); Nditasiri, *Damanu L 12627* (K); Tailevu

N., Dawasumu, *Damanu et al.* K 299 (K); Viti Levu, Galoa, *Damanu* FD 774 (L); Galoa, *For. Departm.* 931 (K); Lautoka, *Greenwood* 423 C (K); Raki, Mts., *Horne* 483 (K, type); Vanua Levu, Bua, *Horne* 112 (K); Suva, *Land Res. Division*, L 13373 (K); Vanua Levu, *Parkham* 387 (K); Taveuni, *Seemann* 129 (K); Ovalau, *Smith* 7549 (L, P); Taveuni, *Smith* 8185 (K, L, P); Viti Levu, *Smith* 9056 (K, L, P).

Note: The inflorescence of this species has been described as pubescent. There are, however, some specimens in which the inflorescence branches seem to be glabrous, but the main axis of the inflorescence and the basal part of branches are pubescent in these specimens.

***Prioria tenuicarpa* (Verdc.) Breteler comb. nov. Fig. 16.**

Basionym: *Kingiodendron tenuicarpum* Verdc. in *Kew Bull.* 32: 245 (1977); *Manual New Guinea Leg., Lae Bot. Bull.* 11: 98 (1979); Ding Hou in *Fl. Males. Sér. 1, 12 (2):* 630 (1996). Type: Papua New Guinea, West Sepik Distr., Vanimo, *Streimann & Kairo NGF 39186* (holo-, Lae, n.v.; iso-, K).

Distribution: New Guinea

Specimens examined: NEW GUINEA: Djajapura (Hollandia), *Schram BW 2820* (L); West Sepik Distr., Vanimo, *Streimann & Kairo NGF 39186* (K, type).

Note: As has been stipulated above, it is very difficult to assign flowering material from New Guinea, either to this species or to *P. novoguineensis*. There are many sterile specimens in the Leiden herbarium which have been left unidentified.

EXCLUDED SPECIES

Oxystigma stapfiana A. Chev. in Bull. Soc. Bot. France 58, Mém. 8: 166 (1912); Baker f., Legum. Trop. Africa: 774 (1930).

Kaoue stapfiana (A. Chev.) Pellegr. in Bull. Soc. Bot. France 80: 464 (1933); Keay in Hutch. & Dalz. F.W.T.A. ed. 2, 1: 456 (1958); Aubrév., Fl. For. Côte d'Ivoire ed. 2, 1: 308 (1959).

= *Stachyothyrsus stapfiana* (A. Chev.) J. Léonard & Voorhoeve in Bull. Plantent. Bruss. 34: 442 (1964).

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INDEX TO SCIENTIFIC NAMES

Synonyms are in *italics*. Page numbers of principal entries are in **bold face**.

- Apaloxylon* Drake 5, 6
Augouardia Pellegr. 5, 6, 7
Bathiaea Drake 5, 6
Colophospermum Kirk ex J.Léonard 5, 6
Copaifera ? mannii Baill. 8, 33, 35
Crudia Schreb. 5, 6, 7
Crudia group 5
Cynometra L. 7, 11
 alternifolia Elm. 50
Daniellia J.J.Benn. 6
Detarieae DC. 5, 11
Detarium complex 7
Eriander Winkler 10, 15
 engleri Winkler 15, 33
Eurypetalum Harms 7, 47
 tessmannii Harms 47
Gossweilerodendron Harms 5, 6, 8, 11, 13, 15
 balsamiferum (Verm.) Harms 11, 15, 21
 joveri Normand ex Aubrév. 8, 11, 31
Guibourtia J.J.Benn. 5, 6
Hardwickia Roxb. 5, 6
 alternifolia (Elm.) Elm. 50
 binata Roxb. 53
 ? mannii (Baill.) Oliv. 33
 mopane (Kirk ex Benth.) Bret. 53
 pinnata Roxb. ex DC. 8, 52
Hymenaea L. 6
Hymenaea complex 5, 6
Hymenostegia Harms 7
Kaoue stapfiana (A.Chev.) Pellegr. 55
Kingiodendron Harms 5, 6, 8, 10, 13
 alternifolium (Elm.) Merr. & Rolfe 8, 47, 50
 micranthum Burtt 8, 50
 novoguineense Verdc. 8, 51
 pinnatum (Roxb. ex DC.) Harms 13, 47, 52
 platycarpum Burtt 8, 47, 53
 tenuicarpum Verdc. 8, 54

- Macrolobieae Bret. 11
 Monopetalanthus Harms 11
 Neoapaloxylon Rauschert 5, 6
 Oxystigma Harms 5, 6, 8, 10, 11, 13
 buchholzii Harms 8, 24, 28
 dewevrei De Wild. 25, 27, 28
 gilbertii J.Léonard 8, 11, 28
 mafuta De Wild. 24
 mannii (Baill.) Harms. 15, 33
 mortehanii De Wild. 38, 41
 msoo Harms 8, 10, 11, 35
 oxyphyllum (Harms) J.Léonard 38
 stapfiana A.Chev. 55
 Oxystigma Harms section *Oxystigma* 8
 Oxystigma Harms section *Pterygopodium* 8
 Peltogyne Vogel 6
 Prioria Griseb. 5, 6, 8, 9, 10, 11, 12, 13, 14, 17, 18, 20, 42, 43, 47, 49
 alternifolia (Elm.) Bret. **comb. nov.** 13, 43, 47, 48, 50
 balsamifera (Harms) Bret. **comb. nov.** 9, 11, 12, 13, 15, 16, 17, 18, 19, 21, 22, 24
 buchholzii (Harms) Bret. **comb. nov.** 9, 11, 12, 13, 17, 19, 20, 24, 27
 copaifera Griseb. 8, 9, 11, 13, 14, 16, 42, 43, 45, 46
 gilbertii (J.Léonard) Bret. **comb. nov.** 12, 13, 16, 17, 19, 20, 28, 29, 30
 joveri (Normand ex Aubrév.) Bret. **comb. nov.** 11, 12, 13, 16, 17, 18, 19, 31, 32
 mannii (Baill.) Bret. **comb. nov.** 13, 14, 15, 17, 19, 20, 33, 34
 micrantha (Burt) Bret. **comb. nov.** 13, 48, 50
 msoo (Harms) Bret. **comb. nov.** 13, 14, 16, 17, 19, 20, 35, 36, 53
 novoguineensis (Verdc.) Bret. **comb. nov.** 13, 47, 48, 51, 54
 oxyphylla (Harms) Bret. **comb. nov.** 11, 13, 14, 15, 17, 18, 19, 20, 37, 39, 41
 pinnata (Roxb. ex DC.) Bret. **comb. nov.** 9, 13, 43, 47, 48, 52, 53
 platycarpa (Burt) Bret. **comb. nov.** 13, 43, 48, 53
 tenuicarpa (Verdc.) Bret. **comb. nov.** 13, 47, 48, 54
 Pseudocopaiva Britt. & Wilson 6

Pterygopodium Harms 5, 6, 8, 13, 15
 balsamiferum Verm. 8, 21
 oxyphyllum Harms 8, 15, 37
Sindora Miq. 7
Sindoropsis J.Léonard 7
Stachyothyrsus stapfiana (A.Chev.) J.Léonard & Voorhoeve 55
Stemonocoleus Harms 5, 6, 7
Talbotiella Bak.f. 7
Tessmannia Harms 7