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Profiles and Pan-African Distributions of the Rattan Species (Calamoideae) Recorded in Nigeria

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Rattans are climbing palms belonging to the subfamily *Calamoideae*, the scaly fruited palms. Of the 13 genera that make up the rattans, three genera—*Eremospatha*, *Laccosperma* (formerly *Ancistrophyllum*), and *Oncocalamus*—are restricted to the rain forest areas of Africa. The large genus *Calamus* is also represented in Africa by one species (Uhl and Dransfield 1987). The remaining rattans are found in Asia, Malesia, and the western Pacific.

Though rattans play a very important role in the local economies of most West and Central African countries, they have been almost completely neglected by the scientific community, forestry institutions, and official legislation. The taxonomy of African rattans at, and within the species level remains confused and even less is known about their ecology. Little is known about their trade internationally and there have been no large scale attempts at silviculture, in contrast to the situation in S.E. Asia.

In spite of this neglect, the rattan cottage industry in Africa has thrived due to the escalating demand for rattans domestically and internationally. Cane furniture for sale can be found in most African cities with an unknown amount being exported to countries such as Japan (Komolafe 1992) (Figs. 9,13–15). Raw unprocessed rattan is also being exported from West Africa to Asian countries such as China which have been forced to look further afield for their cane supplies due to over-exploitation in their own countries and the ban on the export of raw cane by Indonesia and Malaysia, their main suppliers before 1987 (Xu 1987).

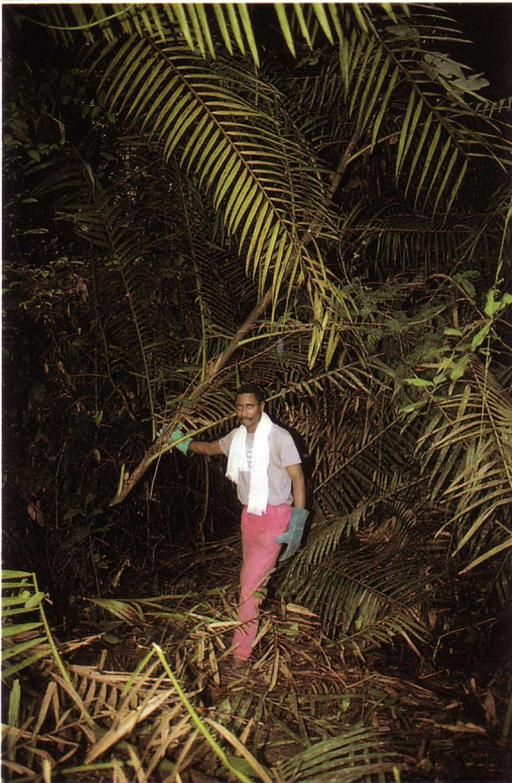
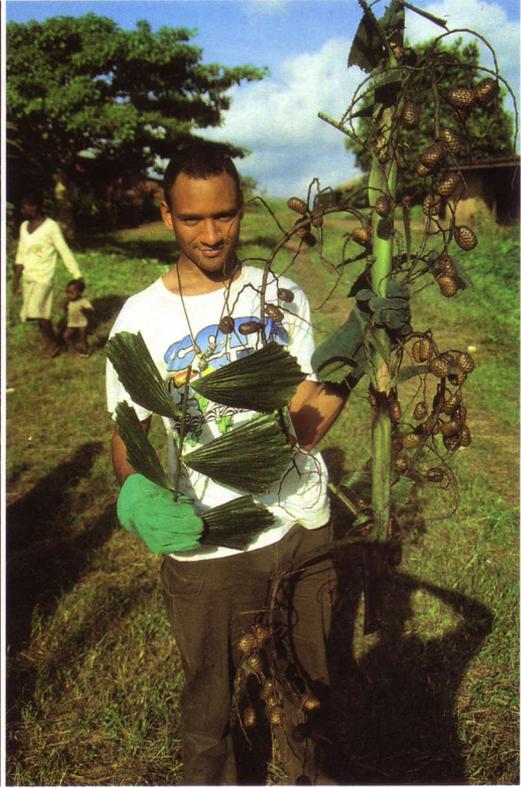
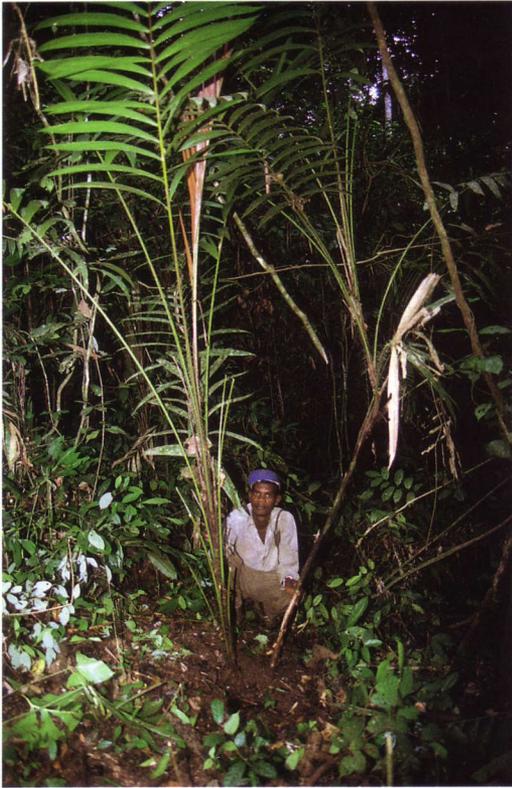
The future of this industry upon which so many rural people depend, now appears to be threatened by the over-exploitation in West Africa (Darko 1981, Pokam-Wadja 1979, Shiembo 1986, Komolafe 1992). The rattan industry in Nigeria

is becoming concerned about the increasingly scarce and irregular supply of raw materials. This is a major cause for concern, particularly in view of the paucity of information on African rattans. Several species of rattan are now suspected to be endangered in parts of their ranges, before any framework for conservation can be devised.

A long term solution to the problem of supply would be large scale planting of rattans through agroforestry, enrichment planting of forest reserves, and effective management of wild rattans growing in natural forest. However, this requires knowledge of the biology, ecology, germination, and growth of the commercial species. At present, due to the scarcity of information on the subject, even the literature about which species are the most important commercially, is largely speculative or anecdotal. Most previous work on African rattans has centered on their taxonomy (e.g., Hutchinson and Dalziel 1972, Dransfield 1982, and Uhl and Dransfield 1987) and even this is rudimentary compared with the work on S.E. Asian rattans and the taxonomy remains confused, particularly for Central Africa (J. Dransfield, pers. comm. 1993).

Taxonomy

At the generic level, the taxonomy of the rattans in Africa is well established; however, at the specific level, the taxonomy is still insufficiently studied and so the exact number of rattan species in Africa is unknown, but is thought to be between 14 and 30. It is relatively simple to distinguish between the rattans at the generic level but at the specific level many specimens have been incorrectly named or sometimes given new names. At present, about 13 species are recognized as being "good" species in the Herbarium at the Royal Botanic Gardens, Kew; however, there are another



17 species which have been named elsewhere, but still remain to be examined for their validity. This does not include the ten African species of *Calamus* that have now been more or less accepted as belonging to one very variable species, *C. deeratus*. Another example concerns the three species *Eremospatha wendlandiana*, *E. rhomboidea*, and *E. korthalsiiifolia*, which could be three separate species, but it is now suspected that the latter two are simply varieties of *E. wendlandiana* (P. Tuley, pers. comm. 1993).

This article presents brief profiles of the nine species currently accepted as valid entities and occurring within Nigeria, describing their distribution and ecology across the whole of their ranges in Africa.

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1 (Upper left). *Laccosperma secundiflorum* growing in the forest canopy. 2 (Right). The fruit and leaves of *Eremospatha wendlandiana*. 3 (Lower). *Laccosperma secundiflorum* being pulled down by a villager from Old Ekun, S.E. Nigeria.

The Profiles

The intention is to provide basic information about each species with emphasis on data potentially useful for their silviculture. The morphological descriptions are written as a simple and practical guide to the identification of the species in the field. Certain outstanding features that make the species easily recognizable are highlighted. More detailed morphologies for some of the species can be found in Hutchinson and Dalziel (1958) and Uhl and Dransfield (1987). To describe the distribution and the ecology of the species, the UNESCO vegetation classification system for Africa was used (White 1983).

The uses of the different species were documented during a two month field survey in Nigeria in August 1993. Comments on tolerance of forest disturbance for each species are the result of ecological observations made during the field survey. These observations were augmented by references to phytogeographical accounts from countries across Africa. Figures for mean annual rainfall were derived by super-imposing distribution maps over rainfall maps for Africa.

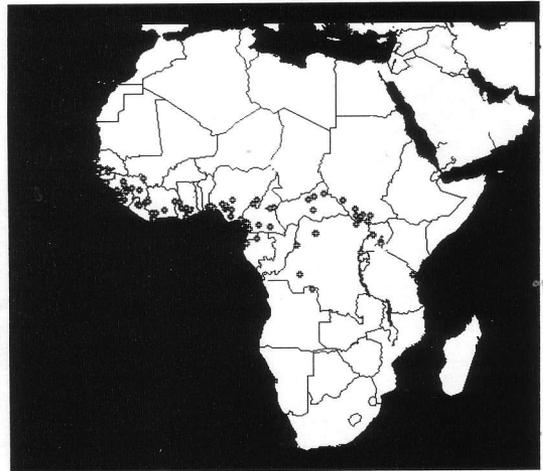
The Maps

Nearly 300 specimens were examined at the Herbarium of the Royal Botanic Gardens, Kew, for information of localities. The longitude and latitude of all the locations were obtained from gazetteers and tabulated using the Quattro Pro computer package.

Large areas in central Africa are still poorly collected, especially in Zaire, south of the Equator, Congo Republic, Equatorial Guinea, Angola, Central African Republic and Gabon. The amount of collecting in West Africa as regards rattans is much greater, apart from Liberia.

Morphology

Medium to large climbing woody palm, up to 30 m or more in length, stems branching sympodially at the base to form a cluster of stems each 7–30 mm diam. Mature leaves, pinnate, almost 2 m long with fine hair-like spines on margins and nerves of the leaflets; lamina long, very narrowly elliptic. Cirri absent. Leaf sheath spiny. A spiny lateral flagellum 2 m long, present partly fused to the stem and sheaths.



Map 1. Distribution of *Calamus deerratus* G. Mann & H. Wendl. Syn: *C. akimensis* Becc., *C. barteri* Becc. ex Drude, *C. falabensis* Becc., *C. heudelotii* Becc. ex Drude, *C. laurentii* De Wild., *C. leprieurii* Becc., *C. perrottetii* Becc., *C. schweinfurthii* Becc.

Reproduction and Phenology

The flowers are yellowish and are borne on lateral inflorescences, the male and female being borne on different plants (dioecious). Fruits, oblong-ellipsoid, 2 cm long covered with vertical rows of yellowish scales. Not distinctly seasonal.

Distribution

C. deerratus is the most widespread African rattan, its longitudinal range extending from Casamance (Senegal), to the Usambara Mts. (Tanzania), where it is probably introduced. In terms of latitude, it ranges from the south of Mali and the Bahr-el-Ghazal province in Sudan to the Dundo province in northern Angola. It is reported to be rare in the Biafran refugium forest area (east of the Cross River) (Letouzey 1978).

Altitude

Below 500 m in most of West Africa but up to 1,500 m in East Africa.

Soils

The species is associated with poorly drained, waterlogged soils.



4 (Upper left). "Cane ropes" made from *Eremospatha wendlandiana* are used to guide the following yam tendrils up the stake centered between four yam mounds. 5 (Upper right). Rattans are used for other things in the village: a basket and a porcupine trap (left), along with two bundles of "cane rope" probably to be used for yam farming as shown above. 6 (Lower left). Regeneration of *Eremospatha macrocarpa* on a farm freshly cleared from the forest the previous dry season. 7 (Lower right). Bundles of *Eremospatha macrocarpa* (left) and *Laccosperma secundiflorum* (right) stacked at the Maryland rattan market in Lagos, for sale to furniture workshops.

Rainfall

C. deerratus tolerates a wider range of rainfall than other rattan species in Africa hence its large range. Its range spreads beyond the limits of the Guineo-Congolian rainforest region (where it grows in swampy areas) to riverine and gallery forest found in the transition zones into Sudanian savanna woodland to the north of the forest area and Zambezian savanna woodland to the south. Mean annual rainfall over its range is from 1,000 mm to 2,500 mm and above. It is notable, though, that *C. deerratus* is most abundant in forest which receives between 1,250 and 1,750 mm. It is less common in wetter areas (Hall and Swaine 1981).

Uses

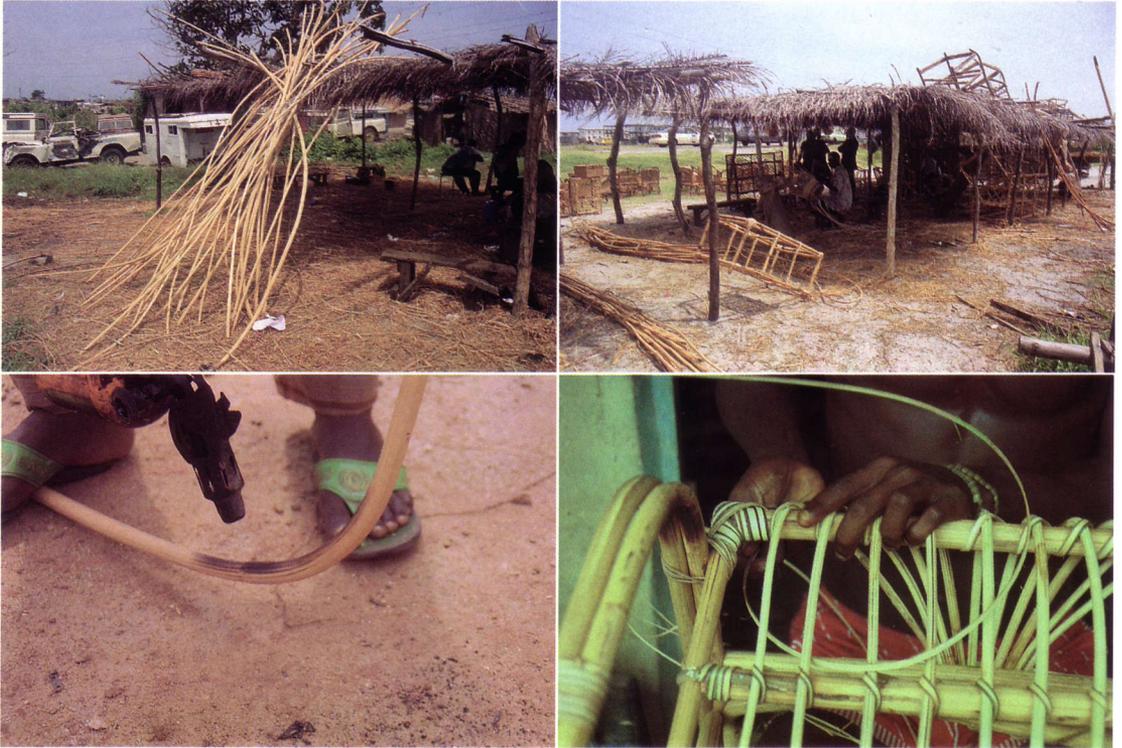
In areas where *Eremospatha macrocarpa* is found, it is only used as a substitute for this rattan

(Profizi 1986). The cane is split length-ways to make cane rope which is then used for tying fencing poles together, food bundles, scaffolding in house construction and also for weaving baskets (Berhaut 1988, Guinea Lopez 1946, Profizi 1986).

2. *Eremospatha hookeri* (G. Mann & H. Wendl.) H. Wendl. Syn. *Calamus hookeri* G. Mann & H. Wendl.

Morphology

Grows in clumps of two to three, sometimes five stems (not a very vigorous rattan). Stem tasting extremely bitter when freshly cut, 10–15 m in length (occasionally up to 30 m), circular in cross-section and 1 cm diam. Leaves pinnate, relatively small, 40 cm long not including cirrus at leaf tip. Leaflets obovate or oblanceolate with sev-



8 (Upper left). *Laccosperma secundiflorum* (the large diameter cane) drying in the sun after cleaning. 9 (Upper right). A typical rattan furniture workshop by the roadside in Lagos. 10 (Lower left). *Laccosperma secundiflorum* cane being bent to shape with a kerosene blow-lamp. 11 (Lower right). The frame of the chair made from *L. secundiflorum*. The joints are bound using "cane ropes" peeled from the stem of *E. macrocarpa* (the small diameter cane).

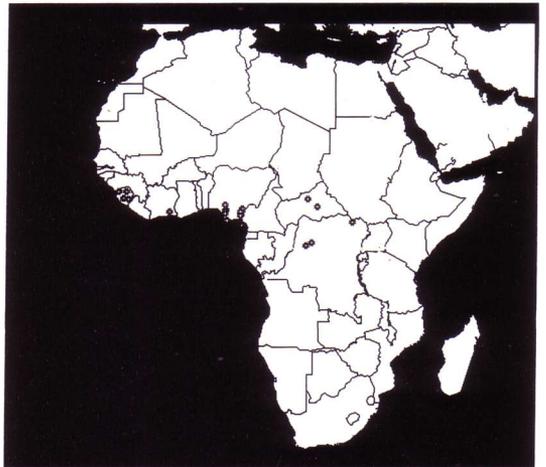
eral tiny sharp spines on the margin. Leaf sheaths unarmed. Rachis produced into a slender cirrus armed with opposite hooks and with many black recurved prickles. Basal modified leaflets present on rachis where it meets the main stem, ovate.

Reproduction and Phenology

Inflorescence lateral, bearing numerous hermaphrodite flowers. Fruit, ovoid, about 2.5 cm long with vertical rows of dark brown rhomboidal scales. One or two seeds. Phenology not known.

Distribution

Known so far to be found in Sierra Leone, Côte d'Ivoire, Nigeria, C.A.R. and Zaire. It is also said to be in Ghana (Hawthorne 1990) and in Cameroon (Letouzey 1978) though no specific locations have been cited.



Map 2. Distribution of *Eremospatha hookeri* H. Wendl. Syn. *Calamus hookeri* G. Mann & H. Wendl. It has also been found in the south western forests of Ghana (Hawthorne 1990) and is also found in Cameroon according to Letouzey (1978) though he gives no locations. It possibly also occurs in Liberia, Equatorial Guinea, Gabon and Congo.

Elevation

Below 500 m.

Soils

Prefers waterlogged, periodically inundated soils except in high rainfall areas receiving more than 2,500 mm per annum where it grows on freely drained soils.

Rainfall

The mean annual rainfall over the range is between 1,400 and 3,000 mm and above. *E. hookeri* seems to be restricted to the wettest areas of Ghana, Nigeria and Côte d'Ivoire but it has also been found in dense, flooded gallery forest in Sierra Leone, C.A.R. and Zaire, where it grows only on the banks of the biggest rivers which can provide sufficiently humid conditions (Lebrun and Gilbert 1954, Sillans 1958).

Forest Disturbance

Associated with gaps in undisturbed, mature forest areas and rare in secondary forest.

Uses

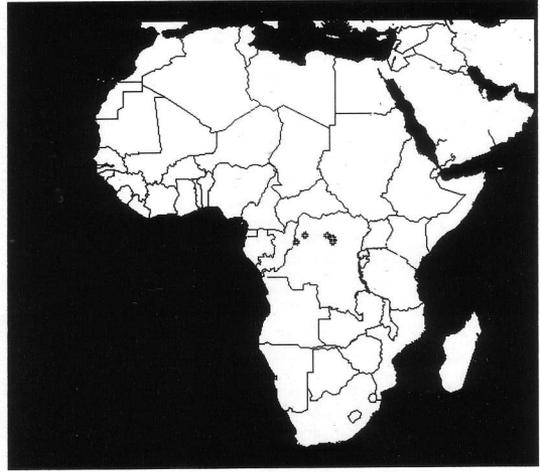
This cane is only used as a chewing stick (native toothbrush). The stem is cut into 15 cm lengths which when chewed, taste *exceedingly* bitter! This is meant to make it medicinal. This is the *only Eremospatha* species (certainly from the species profiled), that tastes bitter.

3. *Eremospatha laurentii* de Wilde.

This species is very similar to *E. macrocarpa* with which it has often been confused (see below).

Morphology

Similar to that of *E. macrocarpa* with respect to stems and leaves (see description for *E. macrocarpa*). Near the stem there are a cluster of a few narrow strap-like, very spiny leaflets on each side of the rachis, very much smaller than the other leaflets and reflexed across the sheathed stem. These are strap-shaped (long, narrow parallel sided) on *E. laurentii* (whereas on *E. macrocarpa* they are ovate).



Map 3. Distribution of *Eremospatha laurentii*. Apart from Zaire, the species has recently been recorded in southern Nigeria (P. Tuley, pers. comm. 1993), having been previously misidentified as *E. macrocarpa*. Specimens of *E. macrocarpa* from other locations have probably been misidentified, so it may yet be found to occur in the countries in between Nigeria and Zaire.

Distribution

Has been recorded in Nigeria from the Niger Delta eastwards. It has also been found in central Zaire. *E. laurentii* is probably found in the countries in between since many specimens of *E. macrocarpa* have probably been misnamed (P. Tuley, pers. comm. 1994).

4. *Eremospatha macrocarpa* (G. Mann & H. Wendl.) H. Wendl. Syn. *Calamus macrocarpus* (G. Mann & H. Wendl.).

A very widespread though site-specific rattan found mainly in West Africa. It is one of the most common rattans in West Africa along with *C. deerratus* and *L. secundiflorum* (Fig. 6).

Morphology

Grows in clumps of ten to 20 stems. Each stem, up to 30 m or more in length, 2.5 cm diam. with leaf sheath (adult plant stems), cross-section, sometimes obscurely three-angled. The stems of the juvenile plant are much more slender than the adult. Leaves, pinnate, length including terminal cirrus, up to 1.5 m. Leaf sheaths unarmed. Cirrus bearing neat pairs of opposite hooks but not armed with prickles. Leaflets, long and narrow, with numerous tiny, sharp teeth on the margin. Near



12 (Upper left). To make certain patterns the canes are nailed together before being bound with cane rope. "Cane rope" from *E. macrocarpa* is also used to weave the backing of the chair. 13 (Upper right). Finished furniture outside a workshop for display by the roadside. 14 (Lower left). Craftsmen from the workshop with their furniture. 15 (Lower right). A view of the Maryland rattan market in Lagos, possibly one of the largest rattan markets in Africa. This is the main depot for raw rattan sold in Lagos. Furniture is also made and sold at the market.

the stem there are a few narrow strap-like, very spiny leaflets on each side of the rachis, very much smaller than the other leaflets and reflexed across the sheathed stem.

Reproduction and Phenology

Laterally borne inflorescences with hermaphrodite flowers, buff yellow in color and very fragrant. Fruit pale orange to brownish, one-seeded berry. Not distinctly seasonal.

Distribution

E. macrocarpa has a largely Guinean center of distribution extending to Cameroon and Equatorial Guinea with two records additionally from Kinshasa and Salonga NP. in Zaire.

Altitude

Mostly below 500 m but grows at 1,100 m on the Ndop plain (Cameroon).

Soils

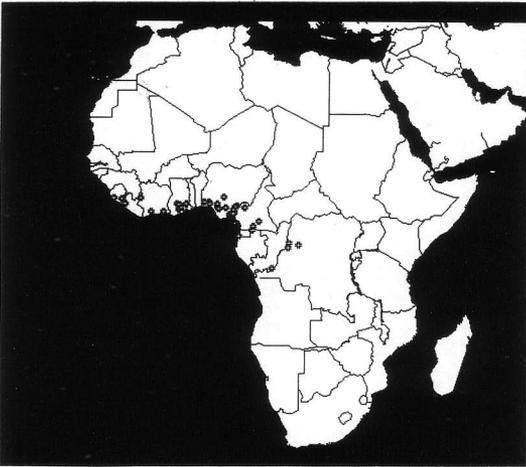
Favors heavy, clayey, waterlogged soils. In areas that receive more than 2,000 mm, it will grow on freely drained sites. Associated with acid soils (Hall and Swaine 1981).

Rainfall

Mean annual rainfall over the range is between 1,100 and 3,000 mm and above in certain locations. It tends to be much more common in areas which receive more than 1,500 mm per annum and becomes especially abundant in the "true wet rain forest" (Letouzey 1978).

Forest Disturbance

E. macrocarpa grows in gaps in dense high forest, hence it benefits from a certain amount of forest disturbance and flourishes in the more open canopy. Thus it can be quite common in secondary forest. The rootstock is easily killed by fire and it



Map 4. Distribution of *Eremospatha macrocarpa* (G. Mann & H. Wendl.) H. Wendl. Syn. *Calamus macrocarpa* G. Mann & H. Wendl. It is probably found in Gabon and Congo Republic as well. Note: It seems to be the West African equivalent of *E. haullevilleana* in terms of being widespread and hence relatively tolerant of a wide range of conditions. *E. haullevilleana* possibly occupies the same niche as *E. macrocarpa* and hence the ranges of the two species are almost mutually exclusive apart from a small overlap in northeast Zaire. Guinea Lopez (1946) states that *E. macrocarpa* becomes substituted by *E. tessmaniana* in the south of Equatorial Guinea.

will not regenerate in areas that have been burnt several times in the past unless a seed source is close-by.

Uses (Figs. 6,7,11,12)

This species is the most sought after for splitting as it makes the strongest and most durable cane ropes. When the stem is split into four, the weak pith is removed leaving the durable outside, which is further split into ropes. The rope is used to tie furniture joints and also to weave the backing and seats for furniture. It is also used to tie house scaffolding, for tying *Raphia* roof thatch, for weaving baskets, for sieves, and to make porcupine traps.

5. *Eremospatha wendlandiana* Dammer ex Becc.

The large fan-like rhomboid-shaped leaflets of this rattan make it instantly recognizable (Fig. 2).

Morphology (Fig. 2)

Stem, up to 30 m or more in length and 2 cm diam. below leaf sheath, cross-section sometimes

obscurely three-angled. Grows in clumps of five to 20 stems. Leaves, pinnate, including cirrus, up to 2.5 m in length. Leaf sheaths unarmed and inhabited by fierce red, biting ants. Modified strap-shaped leaflets present on rachis where it meets the main stem. Cirrus with neat pairs or opposite hooks and armed throughout with numerous small recurved green thorns. Leaflets rhomboid or fan shaped, the sides of the cuneate portion, straight, the apex, ovate-triangular, toothed.

Reproduction and Phenology

Inflorescence; branched, growing laterally from leaf sheaths with hermaphrodite flowers, becoming a bunch of over 30 fruits. Fruits, brownish green, one-seeded berry, cylindrical and covered in vertical rows of rhomboid scales. Phenology unknown.

Distribution

The range extends from Sapele in south central Nigeria to Ejagham FR. in west Cameroon and then southwards to Campo FR. on the border with Equatorial Guinea. *E. wendlandiana* is almost completely restricted to the coastal "Biafran" rainforest of Nigeria and Cameroon which is the largest of Africa's postulated Pleistocene forest "refuge" areas. This is the wettest part of Africa today.

Altitude

Below 600 m.

Soils

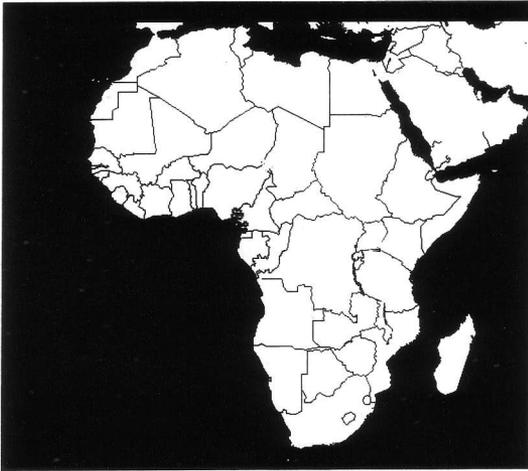
E. wendlandiana reaches its best development in swampy areas with heavy clayey soils even in very high rainfall areas.

Rainfall

Mean annual rainfall over the range is between 2,000 mm to 4,000 mm and above at the foot of Mount Cameroon. It tends to grow in localized areas in the forest favoring swampy boggy areas where the canopy is more open. However, it regenerates well under dense forest on freely drained areas.

Forest Disturbance

E. wendlandiana grows well where there are gaps in the forest canopy and so will tolerate a fair amount of forest disturbance. Thus it can be



Map 5. Distribution of *Eremospatha wendlandiana* Becc. *E. korthalsiiifolia* (Becc.)¹ and *E. rhomboidea* (Burret)² are possibly synonymous with *E. wendlandiana* (P. Tuley, pers. comm. 1993).

found in secondary forest particularly where the soil is waterlogged.

Uses (Figs. 4,5)

The cane is split to make ropes. It is the only cane in which the pith of the stem is left on the ropes since it is also strong. The main use for the rope is to guide young yam tendrils to a stake placed at the center of a square formed by four yam mounds. The rope is also used to tie the bamboo and stick frame of houses before the frame is plastered with mud.

6. *Laccosperma laeve* (G. Mann & H. Wendl.)
H. Wendl. Syn. *Calamus laevis* G. Mann & H. Wendl.

Morphology

Very similar in many respects to *L. opacum* (see below). Leaf rachis produced into a cirrus, armed throughout with similar sharp, recurved, black-tipped thorns. The fine cirrus bears pairs of enlarged hooks in addition to the small sharp thorns. Leaflets are broadly elliptic becoming gradually acuminate with a long fine tip, commonly with two prominent veins. Leaflet margins are unarmed.

¹ (Angola—Gossweiler, 7564; and Gabon—L.T. 1652).

² (Angola—Gossweiler, 10086).

Reproduction and Phenology

The inflorescence is terminal, bearing hermaphrodite flowers. The fruits are globose, one-seeded berries up to 1.5 cm in length with 18 vertical rows of small scales. Phenology unknown.

Distribution

The northern and westernmost point of the range is Gbanga (Liberia) which then extends east to Côte d'Ivoire and Ghana. A large gap occurs in east Ghana, Togo, Benin, and western Nigeria. From the Oban Hills, Nigeria, the range continues to Dzanga NP. in C.A.R. and southwards to Gabon.

Elevation

Below 500 m.

Soils

Seems to prefer waterlogged soils except in high rainfall areas (above 2,500 mm) where it grows on freely drained sites.

Rainfall

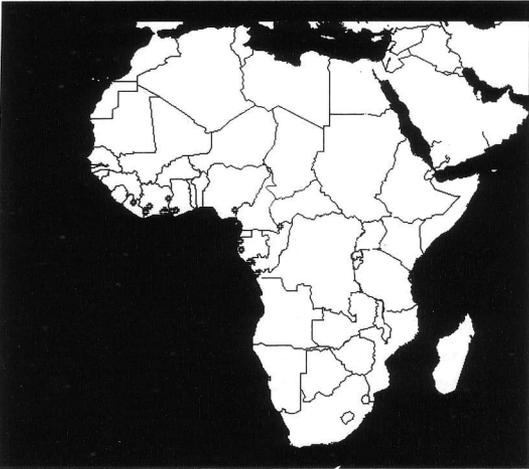
The mean annual rainfall over the range is between 1,400 mm and 3,000 mm and above. *L. laeve* is only found in the wetter areas of the Guineo-Congolian region. In Ghana and Nigeria for example, it is only found in the wettest regions of the country. On the basis of geological evidence, it has been suggested that several dry climatic phases have occurred in the past 20,000 years during which the African rainforest was reduced to a few isolated refuge areas. In the wetter conditions of today, *L. laeve* has not spread far beyond these "refuges" and remains within these areas except for one record from Dzanga NP. in C.A.R.

Forest Disturbance

L. laeve tends to be associated with gaps in mature areas and is rare in secondary forest.

Uses

The stem of this rattan is extremely hard and can only be split with great difficulty. Its main use is for walking sticks and occasionally for furniture frames.



Map 6. Distribution of *Laccosperma laeve* (G. Mann & H. Wendl.) Drude. Syn. *Calamus laevis* G. Mann & H. Wendl. Possibly also found in Equatorial Guinea, Congo Republic, Angola³ and Zaire.

7. *Laccosperma opacum* (Mann & Wendl.)
Drude. Syn. *Calamus opacus* (Mann & Wendl.)

Morphology

Stem, rarely more than 20 m in length. This rattan is smaller than *L. secundiflorum*. The plant grows in clusters of about three stems (there are usually few stems), circular in cross-section and 0.8–1.5 cm diam. Leaves, 2 m long or more. The leaflets and the diameter of the rachis are much smaller than that of *L. secundiflorum* (see below). Leaf sheath is armed with crowded black-tipped spines extending into an ochrea 15–30 cm long bearing similar spines. The rachis is armed with many, recurved, very sharp black-tipped thorns throughout, which is produced into a fine cirrus bearing six pairs of hooks in addition to the small sharp spines. Leaflets, broadly elliptic with one to four main nerves, the margin is armed with fine spinules.

Reproduction and Phenology

The inflorescence is terminal, up to 60 cm long with five or six primary branches bearing many flowered branchlets with hermaphrodite yellowish flowers. Fruiting and flowering not distinctly seasonal. Fruit, globose, red, one-seeded berry, 1.5 cm in diameter with scales in twelve vertical rows.

³ (Maiombe—Gossweiler, 7995).

Distribution

L. opacum has been found in Guinea, Ghana, Nigeria, Equatorial Guinea, and Zaire. The easternmost and southernmost location it has been recorded at is Beni in the Kivu province (Zaire), close to the Uganda border.

Elevation

Below 500 m.

Soils

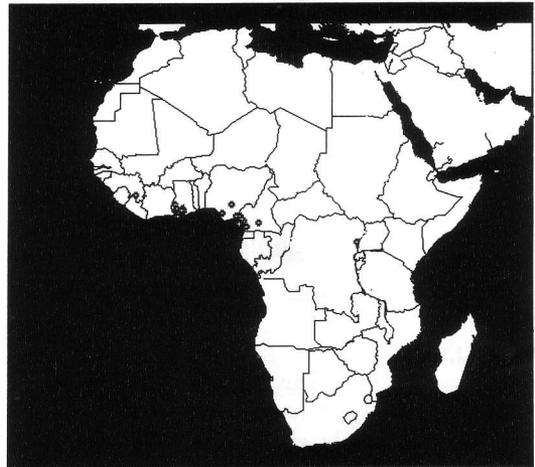
Associated with swampy areas and riverine forest where the soil is waterlogged. Significantly associated with base-poor soils (Hall and Swaine 1981).

Rainfall

Mean annual rainfall over the range is 1,250–4,000 mm with a dry season of two to three months or less. It is most abundant in the wettest forest areas receiving 2,000 mm or more (Hawthorne 1990).

Uses

Used to make cane rope for tying (Walker and Sillans 1961).



Map 7. Distribution of *Laccosperma opacum* (G. Mann & H. Wendl.) Drude. Syn. *Calamus opacus* G. Mann & H. Wendl. and *Ancistrophyllum opacum* Drude. There is a disjunction between Guinea and Côte d'Ivoire and another wide disjunction in the distribution between Cameroon and Zaire. It may yet be found in the gaps in between.

8. *Laccosperma secundiflorum* (P. de Beauvois) Kuntze (Figs. 1,3) Syn. *Ancistrophyllum secundiflorum* (P. de Beauvois) H. Wendl. (see Dransfield 1982). *Calamus secundiflorus* P. de Beauvois.

This is easily the largest and most robust rattan palm in Nigeria, its large overall size, its very large leaves with a terminal cirrus, together with its extremely spiny leaf sheaths make it instantly recognizable (Figs. 1,3,8).

Morphology

Stem, up to 30 m in length or more, circular in cross-section, between 2 to 6 cm diam. (including the leaf sheaths). Grows in clumps of two to three stems and sometimes as many as ten. Leaf, pinnate, up to 2 m long with the stout cirrus extending another 0.5–2 m, bearing several pairs of large, yellowish, blunt, anchor-shaped hooks. Leaf sheaths covered with straight, sharp, brownish to light green spines. Rachis very large and thick, up to 2 cm in diameter. Leaflets, long and narrow with small spines on the leaf margin and on the principal nerves on the leaflet underside. Overall leaf up to 2 m long with cirrus extending another 0.5–2 m.

Reproduction and Phenology

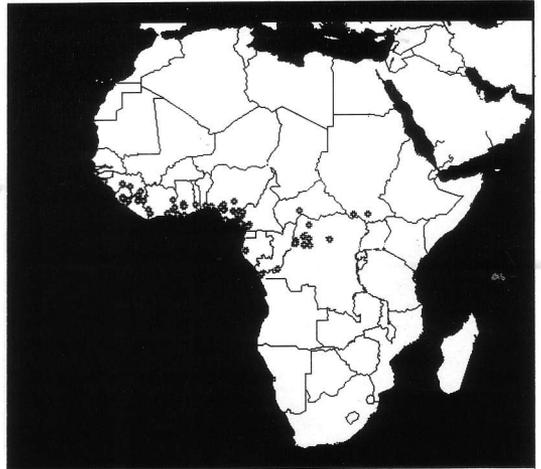
Terminal flowering, bearing large inflorescences, with greenish-white hermaphrodite flowers. Seems to flower predominantly during the rainy season and to fruit in the dry season. Fruits bright red, ellipsoid, 1.5 cm long with rows of scales.

Distribution

L. secundiflorum is the second most widely distributed rattan in Africa after *Calamus deeratus*. Its range extends from Basse Casamance (Senegal), eastwards to southern Sudan and then southwards to the Angolan province of Cabinda (Maiombe).

Altitude

Up to 1050 m in sub-montane forest in Guinea (West Africa).



Map 8. Distribution of *Laccosperma secundiflorum* (P. de Beauvois) Kuntze Syn. *Calamus secundiflorus* P. de Beauv. and *Ancistrophyllum secundiflorum* (P. de Beauvois) H. Wendl. It has also been found in the northern forests of the Congo Republic.

Soils

L. secundiflorum is associated with poorly drained waterlogged soils; however, in areas which receive more than 1,750 mm of rainfall per annum it is found on the drier well drained areas of the high forest.

Rainfall

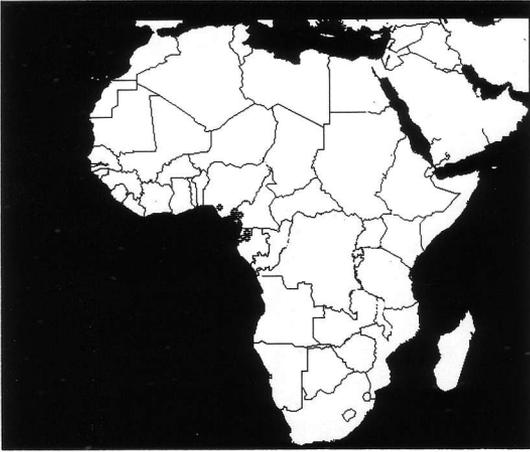
Mean annual rainfall over its range is from 1,100 mm to 4,000 mm and above.

Forest Disturbance

L. secundiflorum grows in gaps in dense high forest, hence it benefits from a certain amount of forest disturbance and flourishes in the more open canopy. Thus it can be quite common in secondary forest. The rootstock is easily killed by fire and it will not regenerate in areas that have been burnt several times in the past (eliminating the soil seed bank) unless a mature seed producing plant is close-by.

Uses (Figs. 7,10,11)

This is the main rattan used for furniture frames. The cane can also split though this is said to be difficult, it is then used to make basket frames when especially strong baskets are required. The



Map 9. Distribution of *Oncocalamus mannii* (G. Mann & H. Wendl.) H. Wendl. syn. *Calamus mannii* (G. Mann & H. Wendl.). *O. acanthocnemis* Drude*, *O. djodu* Wilde⁴, *O. phaeobalanus* Burret⁵, *O. macrospathus* Burret⁶, *O. wrightianus* Hutch* are all considered to be synonyms of *O. mannii* (P. Tuley pers. comm., 1993).

frames are then woven with the softer and more easily split *Oncocalamus* or *Raphia*.

9. *Oncocalamus mannii* (G. Mann & H. Wendl.) H. Wendl. Syn. *Calamus mannii* G. Mann & H. Wendl.

Morphology

Grows in clumps of five to eight stems, up to 20 m in length, circular in cross-section and up to 3 cm diam. Leaves pinnate, leaflets about 16 on each side of the rachis, linear-lanceolate with a prominent midrib; rachis leafy to the base without stout, hooked prickles and produced into a slender cirrus 30–40 cm long bearing pairs of reflexed hooks (not neatly opposite). Leaf sheaths (and hence stem) covered in numerous flattened little triangular spines that come off easily (usually in your skin!). The rattan is inhabited by red biting ants.

Reproduction and Phenology

Inflorescences, terminal, produced simultaneously in the axils of the uppermost, often reduced leaves, bearing male and female unisexual flowers

on the same inflorescence. Fruit spherical, one-seeded berry covered in vertical rows of light yellow scales. Phenology unknown.

Distribution

From Sapele in the Niger delta (Nigeria) eastwards to southwest Cameroon and then south to Libreville (Gabon). *O. mannii* is restricted to the coastal “Biafran” rainforest of Nigeria and Cameroon which is the largest of Africa’s postulated Pleistocene forest “refuge” areas. *O. mannii* is a relict species possibly indicating a richer African rattan flora in the past.

Elevation

Below 500 m.

Soils

Grows in swampy, waterlogged soils but also found in freely draining areas.

Rainfall

Mean annual rainfall over the range is from 2,500 mm to 4,000 mm and above.

Forest Disturbance

This species is associated with gaps in mature high forest. It is not common in secondary forest.

Uses

Oncocalamus is sought after because it is said to be relatively easy to drag down. The leaf sheaths come off very easily leaving a clean stem. The cane is split. Only the outer part of the stem is used for rope because the pith is too soft. The rope is used for tying yams to a “yam-barn” as it is less likely to bruise the yams than the tougher *Eremospatha macrocarpa* (the main cane rope species) and is also used for making protective coverings for machete handles, which will not be abrasive to one’s hands. The rope is also used sometimes for basket weaving and the weaving on furniture backs and seats (as a substitute for *E. macrocarpa*).

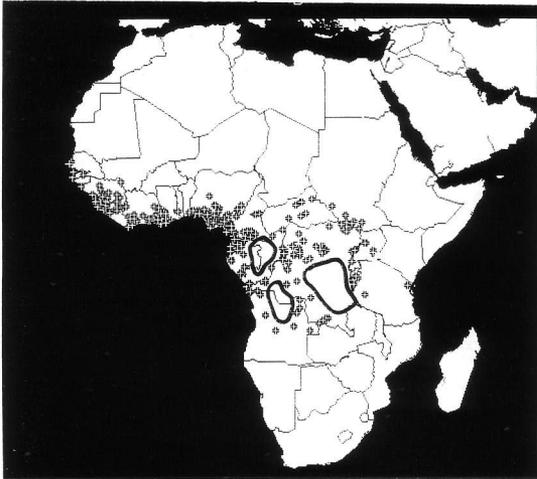
Other species said to be in Nigeria are *Lacosperma acutiflorum* and *Eremospatha cuspidata*, which may just intrude into Nigeria near the border with Cameroon, but if so, it is very rare.

* Assumed to be juvenile forms.

⁴ Zaire—R. P. Mathieu Renier S. J., 1948.

⁵ Cameroun—Letouzey, 1978.

⁶ Angola—Gossweiler, 9092.



Map 10. All the locations in Africa where rattans have been recorded to date. The area within the circles indicate important areas where rattans still remain to be collected.

Recommendations and Conclusions

The taxonomy and ecology of rattans in tropical Africa remains poorly understood and requires further study.

1. A Pan-African taxonomic study is needed to clarify the status of the 30 or so species so far named. It is suspected that at least half of these are synonyms of other species. Specimens from as many herbaria as possible worldwide need to be studied.
2. Further collecting of African rattans is required. Some areas of Africa are particularly poorly collected especially Angola, Central Zaire, Gabon, and Congo (see Map 10). Further collecting will aid taxonomic studies and will provide a better idea about the distributions and ecology of the different species.
3. A rattan arboretum should be established at the Limbe Botanic Garden, Cameroon. The phenology and changes in plant morphology with age can then be studied with ease providing information that could have potential applications for their silviculture.

These measures will help with devising a conservation strategy for these rattans and will also contribute towards research into their ecology and silviculture.

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