Sclerosperma and *Podococcus* in Gabon

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1. *Podococcus barteri* flowering in the Forêt de Mondah near Libreville.

This paper focuses on some supposedly well known understory palms *Sclerosperma* and *Podococcus*. However, upon closer examination, the forest of Gabon once again reveals two botanical treasures, *Sclerosperma walkeri* and *Podococcus acaulis*, that had remained hidden in some long forgotten French periodicals.

The first two authors decided to attempt a joint palm hunting expedition to the Moukalaba-Doudou National Park in southern Gabon in November 2003. After a rather short but spectacular light aircraft flight from Gamba, where we spotted large groups of forest elephant and buffalo wading in the coastal swamps, we set up camp in an active logging concession under the management of a French family who were developing the site for an ecotourism resort. It was a perfect place to begin palm hunting.

During the next week of field work, rather disappointingly, we found that the southern part of the National Park, north of the Nyanga river, revealed vast stretches of tall terra firma forest that were virtually devoid of any palms at all. Only at the forest fringes where the soil changed to a more sandy texture did we discover *Oncocalamus macrospathus*. We made some excellent collections and photographs of this poorly-known *Oncocalamus* that will be used for a forthcoming field guide to the rattan palms of Africa (Sunderland, in press). In more seasonally inundated forest along water courses, localized pockets of the spectacular understory palm *Sclerosperma mannii* were found, and in high forest some scattered stands of *Podococcus barteri* were also encountered (Fig. 1)

Both *Sclerosperma* and *Podococcus* have for a long time been considered to be monotypic genera, i.e. represented by single species in Central Africa (Uhl & Dransfield 1987). However, because of uncertainty over recently received specimens at Kew, Govaerts and Dransfield accepted three species of *Sclerosperma* in the World Checklist of Palms (Govaerts & Dransfield 2005). These are beautiful palms with considerable horticultural potential, and as such, *S. mannii* and *P. barteri* can commonly be found in popular and

2. Indumentum on the underside of the leaflet of *Podococcus acaulis*.

3. A young inflorescence of *Podococcus acaulis* protruding from the base of a clump at the Waka National park.

4. *Podococcus acaulis,* detail of infructescence, showing immature fruits.

floristic accounts from the region, often accompanied by some fine illustrations.

A nice account by Moore (1971) testifies to their presence in Gabon. *Podococcus* is certainly one of the better-collected palms from the Central African region, primarily due to its size. Often 2 m or less in height and commonly in flower or fruit throughout the year, it fits well on an average size herbarium sheet, so even the most inexperienced palm collector can make relatively good specimens.

In contrast, until recently, *Sclerosperma* was very poorly represented in herbaria. Many field botanists often think that because a genus is thought to be monotypic, they already know what it is so do not often bother collecting it, especially when the large leaves do not fit well on a herbarium sheet and the palm almost always appears to be sterile. Only on closer examination, after digging through the leaf litter at the base of this acaulescent palm, does one come across the inflorescence or fruits.

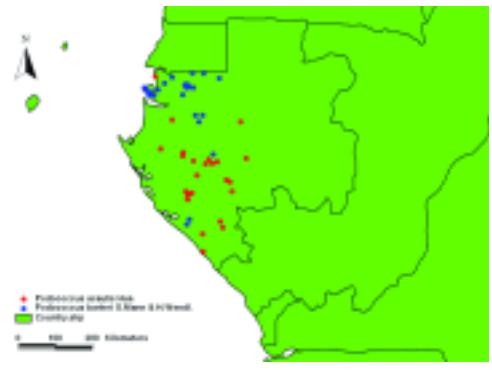
As both authors had been focusing on the poorly collected rattans from Gabon, neither of us had initially paid much attention to either *Sclerosperma* or *Podococcus*. It was only when JvV was working on the Palmae account for the Checklist of Gabon that he stumbled upon some obscure names published in long forgotten French periodicals: *Podococcus acaulis* Hua (1895) and *Sclerosperma walkeri* Chev. (1934). However, these new species were known only from the first, or type collection, and until recently, no further collection of either taxon was known or recognized. The names were included or synonymized under the more common species within each genus, contributing to the continued misconception that they are monotypic. However, as mentioned above, three species of *Sclerosperma* were accepted by Govaerts and Dransfield (2005). It was clear that additional material from the areas where the types were collected, downstream from Lambarene in the case of *Podococcus acaulis* and Sindara (160 km inland) in the case of *Sclerosperma walkeri*, was much needed to clarify the status of these possibly distinct species.

In April 2005 JvV visited Gabon, funded by an NGS grant, to make an inventory of the Moukalaba-Doudou National Park. This time the north-eastern part of the park was the focus of the work, and to reach there we would be passing though the Lambarene Fougamou area in the central region of Gabon. In June 2005, TS visited Gabon within the framework of a CARPE-funded, Smithsonian Institution-led vegetation assessment of the Waka National Park east of Sindara, the reported locality of *S. walkeri*.

The April 2005 visit to the north-eastern part of the Moukalaba Doudou National Park focused on the highest peak in the region, Mount Igoumbi, which is slightly over 800 m altitude and an area hitherto never botanically explored. Although part of a former forestry concession the foothills of the mountain were covered in undisturbed and pristine closed-canopy forest. This lack of exploitation in the area was due to the absence of *okoumé* (*Aucoumea klaineana*), the major export timber from Gabon, and hence, the forest had remained unlogged.

As soon as we started climbing the mountain we stumbled upon clumps of clustering acaulescent palms with praemorse leaflets. Were these juvenile rattans in their establishment phase, or might this be our *Podococcus acaulis*? This unknown palm was sterile, so we continued climbing the mountain for the days to come, once again

5. Distribution map of *Podococcus* in Gabon.



6. *Sclerosperma mannii* in a swampy spot along the road near Fougamou.

witnessing a virtual absence of palms in the forest. Only above 700 m in altitude did we encounter some clumps of *Eremospatha laurentii*. Finally we decided to descend to 200 m altitude and pay closer attention to the sterile clumps with fishtail-like leaflets, which we had seen earlier.

Upon closer examination the undersurfaces of the leaves were densely covered with red brown curly hairs (Fig. 2), matching the description in the protologue of *Podococcus acaulis*. In addition its profusely acaulescent clustering habit did not match any of the clearly non-acaulescent and stoloniferous *P. barteri* plants we had seen before.

The following day we went collecting on some low undulating hills east of Mount Igoumbi and found some wonderful fruiting stands of what turned out unmistakably to be *P. acaulis*. These acaulescent clustering pinnate-leaved palms possess infructescenses protruding form the very base, a fruiting stalk of up to 40 cm and a rachis up to 35 cm covered in red brown tomentum with olive green to purplish fruits (Figs. 3 & 4). *P. barteri* fruits when ripe are orange and slightly curved whereas the fruits of *P. acaulis* remain ovoid and do not appear to be pedicellate.

Upon further examination of existing herbarium collections we have now identified 30 collections of this species in Gabon. In general *P. acaulis* is confined to Gabon south of 0° 12′ S, apart from an errant collection near Cocobeach at 0° 52′ N (Fig. 5). At present a single collection is known from Congo Brazzaville. By contrast *P. barteri* is found from southern Nigeria to Cabinda, Angola.

The search for *Sclerosperma* in the northern part of the Moukalaba Doudou National Park was far less fruitful, and only one juvenile collection was made. In general, the presence of *Sclerosperma* in an area is indicated by the entrance of traditional Bwiti temples that are covered with its leaves, the whitish glaucescent underside of the leaves producing a spectacular appearance to the thatch. Luckily, on the way back just north of Fougamou, we spotted a stand of *Sclerosperma* palms in a swampy spot

along the road. Some fine fruiting collections were then made of *S. mannii* (Fig. 6).

In the Waka field work of April 2005, TS led a multi-institutional team to undertake a preliminary vegetation assessment of the proposed Waka National Park, based on the establishment of a series of 1 ha permanent sample plots. Prior to leaving for the field JvV warned us to look out for some "unusual" species of *Podococcus* and *Sclerosperma*. TS was skeptical given that he had seen many stands of these "monotypic" genera all over West and Central Africa and would have been surprised if additional distinct species existed.

A reconnaissance trip was undertaken by Yves Issembé of the Herbier National du Gabon prior to our visit, and he selected the appropriate sites for plot establishment in as "representative" forest as possible.

When we met up in Libreville prior to the commencement of the field work Yves waxed lyrical about the high densities of understory palms that dominated the forest he had encountered during his preliminary site visit. His descriptions of these palms did not fit either *P. barteri* or *S. mannii*, and TS was intrigued; maybe JvV was on to something.

The first day of field work started with a classic discovery. At the site where our first permanent sample plot was to be established, the prevailing species of the understory of the forest, the canopy of which was dominated by the commercially valuable *Aucoumea klaineana*, were the acaulescent palms, *Podococcus* and *Sclerosperma*. However, these were not the same species TS had seen in the field elsewhere in Africa, and fitting the descriptions provided by JvV, these were clearly distinct species. Following extensive specimen collections, the examination of photographs and subsequent review of the literature, it was clear we had discovered two new records for Waka, *P. acaulis* (Fig. 7) and *S. walkeri* (Fig. 8 & Back Cover).

Unfortunately, these forests also possess large numbers of forest elephants. On the final day

7. Yves Issembé taking a break under a vigourous *Podococcus acaulis* clump.

of field work and armed with presses full of these exciting new palm discoveries TS and palm researcher Michael Balinga, whilst trekking back to camp, came across a female elephant and a young calf in dense forest dominated by a large ginger relative, *Aframomum*. Twice we were charged and chased some distance before she gave up and returned to her young offspring. Despite losing a GPS unit and a camera during the chase, we clung on to the presses, and the palm specimens returned safely. However, it was

8. *Sclerosperma walkeri* in dense shade clearly showing the glaucescent underside of the numerous leaflets.

9. Distribution map of *Sclerosperma* in Gabon.

certainly the most terrifying palm collection trip TS has ever been on!

Upon further examination of existing herbarium collections we have now identified six collections of *S. walkeri* in Gabon. In general *S. walkeri* is confined to terra firma, as opposed to the more swampy conditions preferred by *S. mannii*. In Gabon *S. walkeri* to date has been found further inland than *S. mannii*, which appears to be confined to the coastal zone (Fig. 9). The identity of a single record for *S. mannii* at 0°41′ S, 11°54′ E could not be verified. Additional collections of *S. walkeri* are also known from the lower reaches of the Congo river. In contrast *S. mannii* is found from Liberia, and Nigeria southward to Congo Kinshasa.

In terms of conservation and management value, the rediscovery of these species originally described as *P. acaulis* and *S. walkeri* has considerable implications for understanding the patterns of endemism within the landscape of Central Gabon. A list of such endemic and rare plants is also critical for defending parks such as Waka and Moukalaba-Doudou that may be threatened by logging interests in the future.

Acknowledgments

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Literature Cited

Chevalier, A. 1934. Sur un nouveau *Sclerosperma* du Gabon. Revue de botanique appliquée et d'agriculture tropicale 11: 236–239.

Govaerts, R. and J. Dransfield. 2005. World Checklist of Palms. Royal Botanic Gardens, Kew, United Kingdom. 223 pp.

Hua, H. 1895. Les dernieres collections de M. Dybowski; quelques especes rares ou nouvelles. Bulletin Museum Paris 1: 314–315.

Moore, H.E. 1971. Wednesdays in Africa. Principes 15: 111–119.

Sunderland, T.C.H. [in press]. A Field Guide to the Rattans of Africa. Royal Botanic Gardens, Kew, United Kingdom.

Uhl. N.W. and J.Dransfield. 1987. Genera Palmarum. A Classification of Palms Based on the Work of Harold E. Moore Jr. L.H. Bailey Hortorium & International Palm Society, Allen Press, Lawrence, Kansas. 610 pp.

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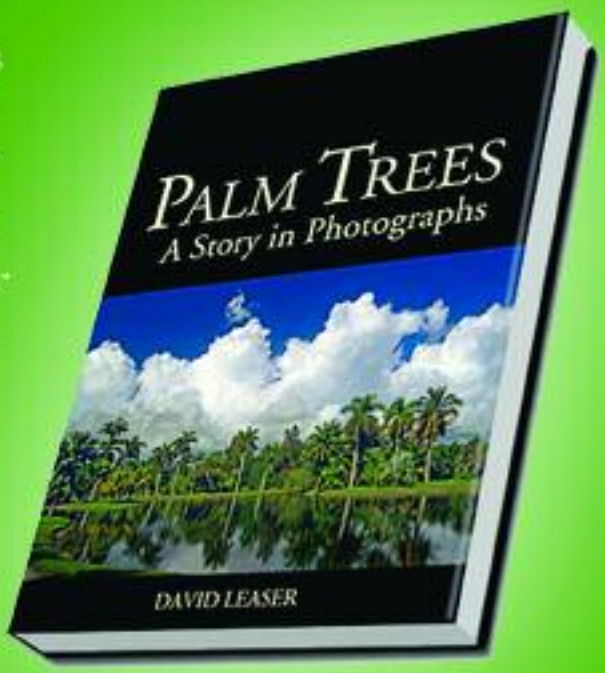

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