

Principes, 39(2), 1995, pp. 95–99

Looking for *Chrysalidocarpus pembanus* and Finding *Calamus ornatus* in Ngezi Forest, Tanzania

GEORGINA ZIBARRAS AND FLO LIEBST

*Botanic Garden, Dar es Salaam, and
Migombani Botanical Garden, Zanzibar*

Towards the end of February 1993, just before the onset of the rains, we set off with great enthusiasm and anticipation to visit Ngezi Forest Reserve, Pemba, Tanzania. We had been asked by Erol Harrison of the South African Palm Society to try to collect *Chrysalidocarpus pembanus* seeds for trade purposes. Members of the International Palm Society will perhaps recall the well researched and informative article in *Principes* 35(2) 1991 pp. 83–85 by Dennis V. Johnson about the endemic Ngezi palm, Mpapindi, which is also mentioned by R. O. Williams (*Some Useful and Ornamental Plants in Zanzibar and Pemba* 1949 p. 190).

Anyone who has ever tried to travel to Pemba will know it is not an easy task! Although Pemba forms part of the twin offshore Tanzanian Islands of Pemba and Zanaibar, air and sea schedules are unreliable to the point of non-existence. Getting there was a challenge in itself. Ngezi Forest lies in the north-western part of the island and is reached by road—a very good one—but fuel for any kind of transport is elusive. Fortunately, we do have understanding and generous friends, one of whom owns a light aircraft and was willing to make it available to us. In a weak moment, after promises of a champagne lunch, he agreed to fly us to Pemba himself in search of *C. pembanus*.

Most safaris in Africa start at first light and this was no exception. We were ready very early that morning and arrived at the Dar es Salaam Airport No. 2 Terminal Building in good time for our flight. Chake Chake airport, Pemba Island, is rarely overused and certainly not on Sundays. It did not take long to complete formalities—though passports are required in Zanzibar and Pemba even if you are a Tanzania resident. Outside the airport we were pleasantly surprised to find a brand new Toyota four-wheel drive vehicle whose driver was ready to take us to Ngezi Forest. After sup-

plementing our picnic with some choice, huge and succulent Pemba mangoes—a rare treat—we were ready to face the forest—well almost. There was only enough fuel in the vehicle to get us to the capital city, Chake Chake (Fig. 1). After some hard bargaining for fuel on the part of our resourceful pilot, one hour later we were on our way.

During the drive along an impressive new tarmac road, we saw many palms: stands of *Borassus aethiopicum*, occasional *Phoenix reclinata*, *Elaeis guineensis*, one lonely *Corypha umbraculifera* and naturally the ubiquitous *Cocos nucifera*. The hour long journey was very pleasant as we crossed ridges and valleys with little swampy pools and near the coast, were wonderful sea views.

We were very excited to reach Ngezi as this kind of forest in lowland East Africa is rare (see H. J. Beentje, *Botanical Assessment of Ngezi Forest*, 1990 p. 6). “It is a small Reserve, only 14.4 square kilometres, of which just over one third is covered by moist forest. The rest of the area comprises coastal evergreen thicket, dry coastal forest, giant heath vegetation, secondary bush and swamp forest. The status of Forest Reserve has been in force since the early 1920s, when planned extraction of timber started. This had continued, often to the serious detriment of the forest environment, on and off since that time until recently—though some replanting has been done since the 1940s. The climate is the same as the rest of Pemba, 21 degrees Celsius being the coolest and 34 degrees Celsius the warmest temperatures. There are the usual Masika and Vuli rains experienced by the rest of the Tanzanian coast, but the climate is equable with regular rainfall. The soil of the main part of the forest is alluvial sand. There is some wildlife in the forest: the Pemba flying fox (*Pteropus voeltzkowi*) as well as the red



1. A view in Chake Chake. Photo by F. Liebst.

colobus monkey (*Colobus basius kirkii*, which was originally transported across from Jozani forest in Zanzibar. There is the Pemba vervet or green monkey (*Cercopithecus aethiops nesiotus*) and the shy Pemba blue duiker (*Cephalophus monticola pembae*).” We saw some *Colobus*, but high in the forest canopy.

Arriving at Ngezi is like arriving in another world, the contrast from coastal vegetation and sand to a lush, thick forest with dense tree canopy and one muddy rutted track is almost a shock to the system. The immediate sensation is of relief from the sun’s heat and a conversation stopping silence. An overwhelming sight of luxuriant growth meets the eye. From the huge and magnificent *Asplenium nidus* resting precariously on branches to the creepers covering the tree trunks. We would have loved to have included some of them in our specimen bags! There is much to see, including the introduced *Maesopsis eminii* which is such a pest both in Ngezi and on the mainland in the Amani Forests of the Usambaras.

Soon we saw our first *Chrysalidocarpus pem-*

banus complete with scarlet infructescence, but at 10 m height and being rank amateurs with no crampons, lassoes or any kind of equipment for gathering fruits from great heights, we were reduced to scavenging on the ground for seeds. We were almost through the forest near the west coast, when at last we saw some stands of mature *C. pembanus*, many of which were fruiting. Unfortunately, the thickets in which they stood had been savagely hacked about. Whole trees of *C. pembanus* had been felled—probably for building purposes. With great enthusiasm and renewed energy we gathered sackfuls of seeds from around the bases of the palms.

The drive through the forest had revealed many interesting trees and plants, including *Elaeis*, *Phoenix*, the massive *Raphia farinifera* (another introduced species) plus a spiny palm which none of us recognized and which had not been mentioned in any botanical survey we had read. As it had a flanelum covered in spines (Figs. 2,3) we thought it must be a *Calamus* species, but which? We were very puzzled so we stopped for a closer



2. *Calamus ornatus* in the Negezi Forest Reserve, Pemba.

look and took a photograph. We later sent this with a letter to Kew for identification and received a very polite reply from John Dransfield pointing out that our picture was not very clear, although interesting. Could we, he asked, gather some specific material to assist him in making a positive identification? What a perfect reason for another trip to Pemba.

The next trip took place on 11th December, 1993. This time we were more organized—we took a rope with us, an ornithologist and friend and two bottles of champagne. How could we fail? In high spirits and with much optimism we took off from Dar es Salaam in a single engined aircraft (piloted by the same generous friend) and, after first landing in Zanzibar, arrived in Pemba an hour later. The transport and fuel had been arranged in advance and one and three quarter hours later we were at Ngezi Forest again. Now five pairs of eyes were searching for our mystery palm.

Despite this, we initially failed to find it. Suddenly we had reached the other side of the forest, and we were beginning to think it had been imag-

ination after all. Disappointed, we retraced our steps and were half way back when suddenly black prickles were sighted! We all scrambled out of the vehicle and unloaded the camera, the rope, the champagne, the binoculars, and the secateurs. The required specimens were collected very carefully, not only with the desire to avoid the wickedly sharp thorns, but also to obtain exactly what had been requested. We were even luck enough to find an infructescence, which we skilfully lassoed with the help of a rock on the end of our rope!

This time it was clear to us that this was a rattan—we thought probably *Calamus deeratus*. In places the flagella reached high up to the top of the canopy, over 100 ft above our heads. There were about twenty clumps of this clustering palm, concentrated in an area of about half to three quarters of an acre, but how on earth did it find its way here? Local people passing by, fascinated with our activities, told us that it was the only place in the forest where these palms occur. They said it had come from the mainland and had been planted by a man over his wife's grave many years



3. A close-up of *Calamus ornatus* showing part of the stem with spiny sheath, a petiole (right) and a flagellum (left).

ago. At this point we uncorked the champagne and congratulated ourselves on a good day's work.

Returning home with our booty we empathized with those palm botanists who do this sort of thing

all the time. We found out that it is not easy to transport specimens which have inch long viciously sharp spines and a flagellum like razor wire. Getting the specimens packed in suitably sized parcels

was another challenge. Somebody had to be persuaded to take the parcel to the Post Office, because it was not possible to reduce the packages to letter box dimensions. Neither are large pieces of prickly palm welcome additions to a suitcase. A student son was eventually persuaded that by arranging delivery of the parcels to Kew he would be helping mankind and the environment. So, after lots of packaging material was obtained the specimens were carefully packed, addressed, and included in the young man's luggage and all despatched to London while we waited anxiously for news.

In due course the identification arrived—we had confounded the experts and found *Calamus ornatus*. This is one of the many species mentioned in John Dransfield's book (The Rattans of Sarawak 1992 pp. 163–166), where it is described thus.

'Robust clustering rattan climbing to great heights, to 50 m or more; stem without sheaths to 40 mm diam., with rather prominent nodes and frequently slightly angular in cross section, with sheaths to 70 mm diam., internodes to 30 cm long. Sheaths dark green, armed with large triangular, flattened, yellowish-based black spines 4 × 1 cm, and scattered dull brown scales; knee conspicuous; ocrea short, quickly tattering. Flagellum massive, to 10 m or more long, dark green, armed with short black, yellowish-based spines. Leaf subcirrate, very robust, to 4 m long including the petiole to 1 m (usually less; leaflets 20–30 on each side of the rachis, usually pale green, regularly arranged, the proximal to 50 × 5 cm increasing to 80 × 8 cm in mid leaf, decreasing to minute at the tip, c.4 × 0.5 cm, forming a subcirrus, the leaflets drying pale green, not blackish, prickly on the upper surface of the veins near the tip and along the margins. Inflorescences to 8 m long including the long terminal flagellum, bearing 4–6 partial inflorescences to 80 cm with robust reflexed rachillae in female, and more finely branched in the male. Ripe fruit ellipsoid to 30 × 20 mm, tipped with short beak and covered in 15 vertical rows of matt brown to black scales with paler bases. Seed to 20 × 8 mm, rather angular and grooved with one flattened lateral face; sarcostesta sour, endosperm homogeneous. Seedling leaf bifid, shiny green.

'Geographically occurring throughout the lowlands of Sarawak. Widespread in Borneo, Java,

Sumatra, Peninsular Malaysia, S. Thailand, and Sulawesi. It produces good quality cane for furniture manufacture; however, it does not command the highest prices because the cane is rather uneven in cross-section.'

We are not sure either when or why this palm has been planted in Ngezi, but it is likely to have been for experimental and economic reasons, as is true for many other species that have been introduced into tropical forests.

During a recent trip to Zanzibar when the authors conducted a search of the Herbarium material stored in two dusty cupboards in the National Museum they came across a palm specimen labelled '*Areca catechu*', Ngezi Forest, Feb. 18th 1929, P. J. Greenway. There is no record of this palm having been found in Ngezi in any of the Botanical surveys produced recently. Also, the accompanying material was definitely *Chrysalidocarpus pembanus*. What a pity we did not gather some material of *C. ornatus* for inclusion in the Herbarium records and a specimen of *C. pembanus*. Perhaps this could be a reason for another field trip to Ngezi. We would, of course, not forget to take the champagne.

Acknowledgments

To Nicola Colangelo of Coastal Steel Limited, Dar es Salaam Tanzania who made these trips possible and personally flew us on both occasions to Pemba. He not only organized transport and fuel on the ground to get us to Ngezi, but joined in wholeheartedly with the seed search and gathering operations, even at one point trying to shim up the *C. pembanus*. We are very grateful to him both for his generosity and his company.

LITERATURE CITED

- BEENTJE, H. J. 1990. Botanical assessment of Ngezi Forest, Pemba. Consultancy report for the Zanzibar Forestry Development Project, FINNIDA.
- DRANSFIELD, J. 1992. The Rattans of Sarawak, p. 233. Forest Department Sarawak and Royal Botanic Gardens, Kew.
- JOHNSON, D. V. 1991. The Mpapindi Palm (*Chrysalidocarpus pembanus*) of Pemba Island, Tanzania. *Principes* 35(2): 83–85.
- WILLIAMS, R. O. 1949. Some useful and ornamental plants in Zanzibar and Pemba. Zanzibar.