A New Species of *Beccariophoenix* from the High Plateau of Madagascar

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1. *Beccariophoenix alfredii* in a forested gulley at Manalazina.

A new species of *Beccariophoenix* (Fig. 1) has been discovered in a remote part of the central plateau of Madagascar in an area where palms in general are very rare or absent. Growing in astonishing numbers, the population is even visible on satellite images.

Of all palms in Madagascar, *Beccariophoenix madagascariensis* is perhaps the most majestic and charismatic and is much sought after by palm enthusiasts throughout the world. It is only now, almost a century after its discovery in 1915 by Perrier de la Bâthie at Perinet on the eastern escarpment of Madagascar, that scientists have begun to study the biology and variation of the palm in detail. In fact, *Beccariophoenix* remained very much in the shadows until, 50 years after its discovery in Perinet, a second collection was made near Manentenina, Tolagnaro (Fort Dauphin), far away from Perinet, near the southeastern tip of the island. *Beccariophoenix* was considered by many to be on the verge of extinction, if not already extinct, until Dransfield rediscovered it at Mantadia, near Perinet in 1986 (Dransfield 1988). Since then, another population has been discovered near to Sainte Luce, Tolagnaro (Dransfield & Beentje 1995), and Noblick made a collection from a single tree near to Ranomafana Est, Brickaville (*Noblick 5065*; K).

These different populations of *Beccariophoenix* have provided seed exported throughout the world, satisfying a demand for this ornamental species. Unfortunately, the demand appears to have had a serious effect on the wild populations. There is at least some circumstantial evidence for the felling of trees of *Beccariophoenix* at Mantadia in order to provide easy access to the fruits, but it must be said that the main threats to the survival of this very rare palm are habitat destruction and the felling of palms for palm cabbage.

Seed reaching the growers does so usually without documentation of the location of the source. Most remarkably, in cultivation *Beccariophoenix* displays two completely different seedling morphologies and differing tolerance of growing conditions, leading to the suspicion that there may be more than one species (Dransfield 2002). Unfortunately, herbarium material has been too sparse and incomplete to allow a careful comparison of the adult morphology of the palms from different localities, and this, coupled with the uncertainty of origin of the two seedling types, has emphasized the need for a detailed study. Nevertheless, *Beccariophoenix* continues to be regarded as a monotypic genus with the single species, *B. madagascariensis*. Dransfield (2002) summarized what was known of the variation in this species.

Beccariophoenix madagascariensis is considered to be critically endangered (IUCN 1998) because of the continuing decline of the known populations over the last two decades. Only the population at Mantadia is legally protected by its inclusion in a national park, but even there, it continues to be cut for its heart by local people. The habitat at Sainte Luce is for the most part included in the area that will be affected by the imminent mining of ilmenite in the coastal area of Fort Dauphin.

First suspicions of a new population of *Beccariophoenix*

In 2002, during an expedition to search for a species of *Pachypodium* in the rocky escarpments to the southwest of Antsirabe, on the High Plateau, the collectors of Alfred Razafindratsira (a horticulturist in Antananarivo) took numerous photographs of the vegetation surrounding Andrembesoa. When the collectors showed the photographs to Alfred he was astonished to discover an image of *Beccariophoenix*. He was particularly struck by the fact that this area of Madagascar is far from the other localities of *Beccariophoenix* and is, furthermore, ecologically totally different from the east coast and littoral forests. The photograph of *Beccariophoenix* had been taken near the village of Vilanitelo Andrembesoa. Alfred understandably wanted to know more about the palm and set off himself for Vilanitelo to look for this completely new locality for the genus. Arriving in Vilanitelo he was astonished to discover that the palm was indeed *Beccariophoenix* but that it differed in several aspects from *B. madagascariensis* as it occurs in Mantadia, most particularly in having oblate (flattened spheroid) rather than ovoid fruit. Villagers then told Alfred of a very large population of the palm at Marovato, further to the west of Vilanitelo. Several months later, Alfred's collectors set off to locate the population at Marovato; they were successful, and this population has formed the source of seed sown at Alfred's nursery in Antananarivo.

Alfred told no one of this astonishing discovery until John Dransfield, accompanied by Tianjanahary (Tiana) Ranarivelo, coordinator in Madagascar of Kew's Threatened Plants Project, visited Alfred in November 2003. Alfred showed John and Tiana photographs of the palm and a sample of the unusually shaped fruit. John confirmed that the palm had to be *Beccariophoenix* but was extremely surprised by and almost suspicious of the locality. He was also puzzled by the fruit shape.

2. Road building on the way to Manalazina.

On returning to the Kew House that evening, John informed Mijoro (Joro) Rakotoarinivo, Masters student at University of Antananarivo, who was working on the natural history and demography of *Beccariophoenix* at Sainte Luce, that Alfred appeared to have discovered a new form of *Beccariophoenix* in a place where it should not really be growing. He encouraged Joro to plan an expedition to search for it and, if it existed, make good scientific collections.

Tiana visited Kew in February 2004, and she and John spent some time discussing the mystery population of *Beccariophoenix*. Because *Beccariophoenix madagascariensis* is one of the target species of Kew's Threatened Plants Project, there was absolutely no difficulty in justifying funding a visit to the mystery population, especially as one of the main aims of the project is to establish the distribution of the targeted species and, in particular, to hunt for new populations. Back in Madagascar, Tiana and Joro visited Alfred again and obtained as much information as possible on the location of the palm west of Antsirabe and a copy of the photograph of the palm. They tried to find Marovato on the map. No road was marked, and clearly the place was very remote and isolated. They realized that they would have to walk from Andrembesoa to Marovato, as no road seemed to exist. So, on this basis they decided to plan a trip of 10 days; everyone was optimistic that they would find the population of *Beccariophoenix*. Tiana and Joro tell the story of their expedition to Marovato.

The Expedition

In May 2004, Tiana and Joro, accompanied by Rolland Ranaivojaona and Tatamo A. Ranaivomanana from the national herbarium at Parc Botanique et Zoologique de Tsimbazaza, and Roger, the driver of Kew's Landrover, drove south down the main road to Antsirabe and beyond. On the first day of the search for Marovato we needed to look on the minor road from Alarobia Bemaha for the turn to Andrembesoa. We searched hard with absolutely no luck – not surprising as there were no road signs, and none of us had ever been in the area before. We eventually reached the village of Alatsinainy Ranoafo where we could ask for directions. In fact we had missed the turn, but fortunately the village was a good place to stop as we discovered there was a short cut to the road to Andrembesoa from the

3 (top). Roger looks down into a valley filled with *Beccariophoenix alfredii*. 4 (bottom). *Beccariophoenix alfredii* growing beside the river, Manalazina.

village. En route we were continually astonished by the nature of the terrain. This area lies between the rocky mountains of Ibity and Itremo, in the very center of Madagascar. It was often necessary to remake the road and look for new ways over the difficult terrain for the Landrover, which kept on getting stuck.

On the second day of our expedition we arrived at Manampa, where we tried to obtain information about Andrembesoa. The minute we stopped we were surrounded by a crowd of villagers. Everyone wanted to know if we were buying precious stones, and no one believed that we were interested in a plant! Thanks to the photograph of the palm at Vilanitelo given to us by Alfred, it was much easier to explain what we were after. Almost everyone knew the palm, but the road to get to it seemed to vary depending on the person we asked. Because we had no idea ourselves about the different localities mentioned by the villagers, we asked if anyone was willing to come with us. No one was willing out of fear of bandits, except for two boys.

Finally our plans changed completely. Instead of heading for Andrembesoa or Marovato, we set our sights on a third locality where the villagers said the palm grew – Manalazina near to Maditsaka. Manalazina, the name of the locality where the palm was said to grow, means in Malagasy, the forest with abundant *Beccariophoenix*!

At this moment we felt sure that we would find a population of *Beccariophoenix*. Despite our optimism the road remained our chief source of worry. From time to time it was necessary to haul rocks onto the road to fill in holes produced by the wheels of zebu carts. It seemed as if we had become road menders (Fig. 2). In fact, no motorized vehicles use these cart tracks, and it was often necessary to widen the track so our vehicle could pass. Fortunately, Roger knew what he was doing, and we had every confidence in his driving skills. Roger was very courageous, particularly in certain places where no one else was willing to stay in the vehicle with him.

After being forced to spend a night in a totally deserted place, sleeping on a rocky mountain top, we finally arrived at Maditsaka on the third day of our expedition. Everyone was exhausted but impatient to discover the new population of *Beccariophoenix*, which was said to grow just on the other side of the mountains that dominated the village (Fig. 3). At first sight it looked to be an easy climb up but we were far from realizing that the worst was yet to come.

On the fourth day we had literally to climb up rocks to reach the summit of the mountain chain, the slope being very precipitous. After some time, everyone was out of breath and we rested for a long time even though we had not managed even half the ascent. While climbing the mountain our guide announced that the population of *Beccariophoenix* would be visible once we reached the summit. This spurred us on and provided the incentive to reach the top. Once at the top we could see about 300 m below us what looked like coconuts, not growing along a beach but deep in a valley (Figs. 3 & 4). Everyone was completely staggered by the abundance and dominance of the palm in the midst of the low herbaceous vegetation. In their excitement, Roger, Rolland and Tatomo, together with the guides, raced down the slope. After about an hour of descent, Joro and Tiana finally arrived in the valley of palms.

At first sight there was absolutely no doubt that this was *Beccariophoenix* – all the generic characteristics were present, including the fibrous sheaths, the windows in juvenile leaves and the torpedo shaped inflorescences, but there were also differences from the *Beccariophoenix* we knew (*B. madagascariensis*), differences so striking that we began to think that what we had in front of us was a different variety or species. In our joy at being in the middle of the palm grove, we were totally unaware of the clouds of mosquitoes attacking us in full daylight.

We devoted the rest of the morning and midday in the palm valley preparing collections of the palm and the flora in general. On our return to camp we spent the rest of the afternoon pressing specimens, putting flowers into spirit and putting leaf samples into silica gel for later DNA analysis.

On leaving Manalazina at the end of our expedition, each of us was completely satisfied. We had finally found the population of *Beccariophoenix,* and it seemed to represent a new species. This expedition remains an astonishing experience, especially for the beauty of the landscape dominated by the palm. For those of us lucky enough to be part of the expedition, it was the first time seeing in the wild such an abundant population of a native Madagascar palm. It is possible that this

is the only place in Madagascar where such a palm population exists.

Aftermath of the expedition

Back at the Kew House we downloaded the images we had taken, burned a CD and sent it off, hand carried by another Kew colleague, back to John in Kew. John found the CD unannounced in his pigeon hole one lunchtime and opened up the files on his computer, hardly able to believe his eyes on seeing picture after picture of this wonderful population of *Beccariophoenix*. How he wished he could get on the next plane to Madagascar!

John looked carefully at the pictures. He felt pretty sure that the palm found west of Antsirabe represented an undescribed form of *Beccariophoenix* but, as usual, was reluctant to commit himself without actually seeing the specimens. In November 2004, while spending a short time in the Kew House in Antananarivo to examine a student, he was able to work with Joro and examine the specimens in detail. Everyone was now convinced that the Manalazina palm was not *B. madagascariensis* but an unnamed and undescribed species. In drawing up the description of the new palm, the differences became very apparent. We decided then and there to name the palm *Beccariophoenix alfredii*, recognizing the crucial role played by Alfred Razafindratsira in the discovery of this astonishing palm and acknowledging our debt of gratitude to him.

Beccariophoenix alfredii Rakotoarinivo, Ranarivelo et J. Dransf., **sp. nov.** a B. madagascariensi inflorescentiae infrafoliaribus, pedunculo simper brevissimo, bractea pedunculare coriacea, staminibus 15 vice 18–21 et fructu oblato bene distincta. Typus: Madagascar: Prov. Antananarivo, Andriambesoa, Betafo, Manalazina, 21.5.2004, *M. Rakotoarinivo, T. Ranarivelo, R. Ranaivojaona, T. Ranaivomanana, R. Rajaonarison RMJ136* (Holotypus K, Isotypi MO, P, TAN).

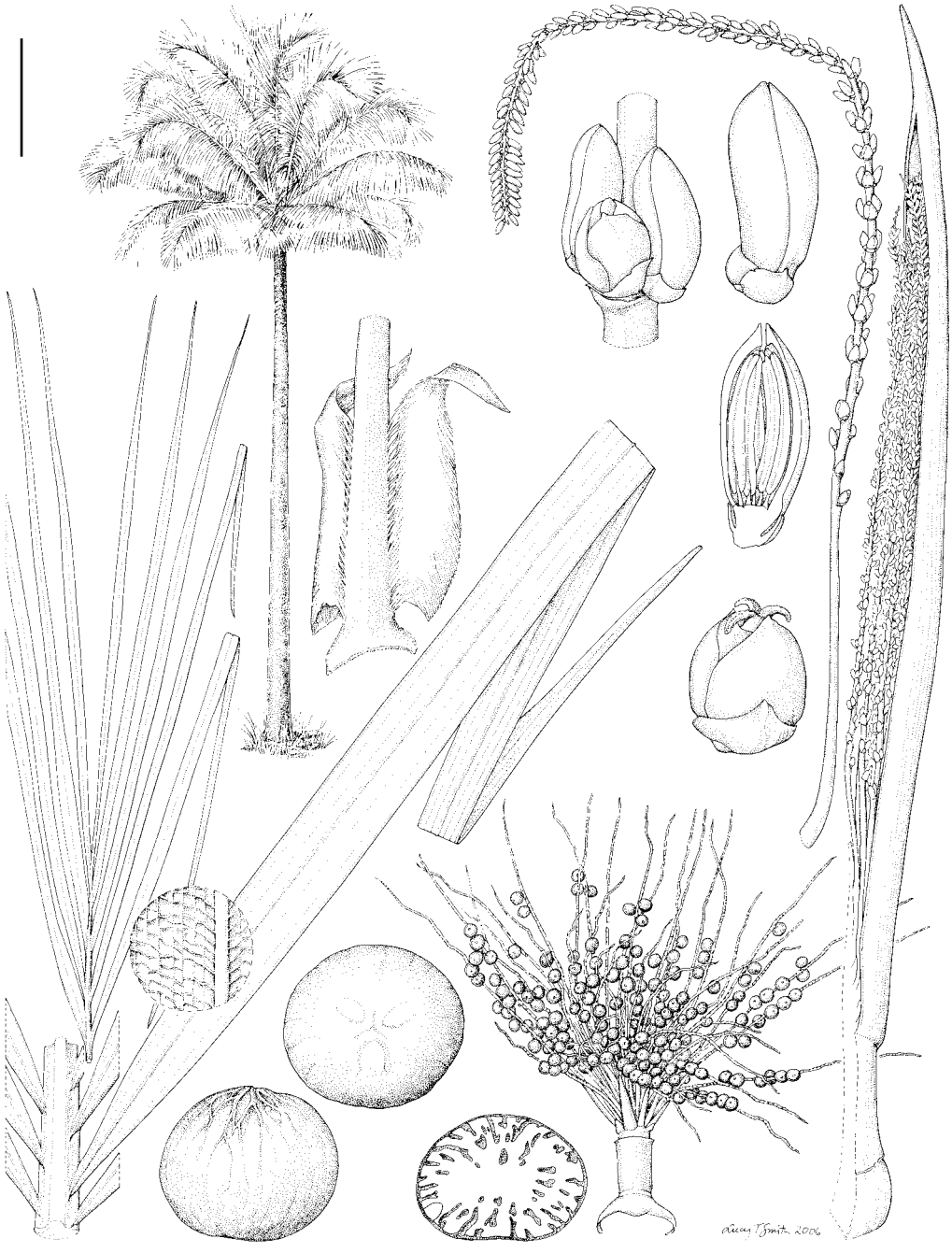
Robust, solitary, unarmed, pleonanthic, monoecious, tree palm. *Stem* erect, to ca. 15 m tall, 28–30 cm diam. at breast height, gray-brown, eventually becoming bare and closely ringed with leaf scars, internodes ca. 2.5 cm. *Leaves* 30–36 in crown, pinnate, marcescent in juvenile palms, abscising neatly in adults; sheath tubular at first, to at least 82 cm long, with two lateral, ± entire, triangular lobes to

5. Leaf of *Beccariophoenix alfredii* harvested from a palm partially felled by flood.

30 cm long, 10 cm wide at the base, tapering to ca. 8 cm, the abaxial surface of the sheath covered with thick caducous gray-brown indumentum, the body of the sheath disintegrating into a mass of robust sinuous gray fibers ca. 3 mm wide, adaxially the sheath glabrous, reddish-brown; petiole very short, ca. 4–5 cm long, to 8 × 2.3 cm wide and deep, with scattered caducous scales; rachis to at least 4.4 m long, to 7 × 2.3 cm wide and deep at the base, tapering gradually distally, adaxially ridged near the base, abaxially rounded, distally with 2 lateral grooves; leaflets ca. 120 on each side of the rachis, ± regularly arranged, very slender and crowded at the base, ± rigid or somewhat pendulous, ca. 47 × 1 cm at the base of the leaf, ca. 112 × 4 cm in mid leaf, ca. 65 × 1.8 cm at the tip, ± acute, easily splitting and becoming bifid, adaxially glabrous, abaxially lacking powdery white wax, transverse veinlets short, conspicuous, minute punctiform scales present on longitudinal veins. *Inflorescences* solitary, infrafoliar, branching to 1 order; peduncle moderate, 8–13 cm long, elliptic in cross-section, 4 × 1.7 cm, with caducous gray-brown indumentum, ± glabrescent in infructescence; prophyll not seen, presumably inserted at the base of the peduncle and included within the leaf sheaths; peduncular bract inserted at the apex of the peduncle, woody, with solid beak, the whole to 90 cm long, 3–5 mm thick, abaxially with conspicuous longitudinal grooves, at anthesis the peduncular bract splitting longitudinally and circumscissile at the insertion, leaving a collarlike scar, the bract curling up on drying after abscission, adaxially the bract smooth, shiny, yellowish green abaxially tomentose and longitudinally shallowly grooved; rachis very short, to 8–9 cm long, to ca. 4 × 2 cm diam., tapering to ca. 0.7 cm at the tip, bearing ca. 30–50 crowded, spirally arranged rachillae, each subtended by a short, triangular, acuminate, coriaceous bract 1.1–7.5 × 1.0–2.8 cm; rachillae glabrous and lacking white wax, yellowish, becoming crimson in ripe fruit, straight, rigid, held at a narrow acute angle to the rachis, 45–66 cm long, ca. 5–8 mm diam. at the base, tapering distally, each with a poorly defined swelling at the very base, proximally with a bare portion 15–18 cm long, distally bearing distichous triads in the proximal 13–19 cm, paired staminate flowers in the middle 11–17 cm and solitary staminate flowers in the distal 13–18 cm, rachilla bracts triangular 1–4 × 1–6 mm; floral bracteoles well developed, broad, rounded, striate, rather coriaceous, shorter than the rachilla bracts. *Staminate flowers* narrow ellipsoid, ca. 13 × 4 mm; sepals to 2 × 2 mm, joined in the basal 1 mm, distally triangular, free and imbricate, glabrous, not striate; petals coriaceous, ca. 12 × 3 mm, tapering to a short acute tip, basally very briefly joined, abaxial surface glabrous, lacking white wax, obscurely striate; stamens 15, filaments 2 mm, anthers elongate 8 × 1 mm, erect, ± basifixed; pistillode absent. *Pollen* not studied. *Pistillate flowers* in bud, irregularly globose to obscurely angled, 9 × 6 mm, perianths persistent and enlarging in fruit; sepals broadly imbricate, 8–9 × 5–6 mm; petals 8 × 7 mm, broadly imbricate with short valvate tips; staminodal ring membranous, ca. 1 mm high; gynoecium ellipsoid, 6 × 4 mm, stigmas pyramidal in bud, 2 mm high. *Fruit* 1-seeded, oblate, 16 × 24 mm, with a short triangular beak to 3 mm long, 4 mm wide at the base, dark purplish-black at maturity, smooth, becoming striate when dry, surface glabrous except the beak where minutely and obscurely scaly; mesocarp thin, fleshy 1 mm thick, with longitudinal fibers, endocarp 15 × 22 mm, very thin, scarcely lignified, pores rather obscure, just below the equator. *Seed* oblate 13 × 20 mm, attached near the base with a broad hilum, with numerous anastomosing raphe branches, endosperm deeply ruminate; embryo lateral below the equator. *Germination*: adjacent-ligular; eophyll entire, lanceolate. (Figs. 1, 3–12 & Front Cover).

Specimen Examined: MADAGASCAR: Prov. Antananarivo, Andriambesoa, Betafo, Manalazina, 20º 12′ 32.1″ S, 46º 30′ 04.3″ E, gallery vegetation, 1072 m alt, 21.5.2004, *M. Rakotoarinivo, T. Ranarivelo, R. Ranaivojaona, T. Ranaivomanana, R. Rajaonarison RMJ136* (Holotypus K, Isotypi MO, P, TAN).

The existence of this population of *Beccariophoenix* on the western slopes of the High Plateau of Madagascar is quite astonishing. This new species grows in a completely different phytogeographic zone from the humid rain forest zone associated with *B. madagascariensis*. Manalazina belongs to the zone of the western slope of the Domaine Centrale defined by Humbert (1955). The primary vegetation is formed of sclerophyll forest with *Uapaca bojeri* and members of Sarcolaenaceae (Humbert & Cours-Darne 1965), but the current vegetation of the area consists mostly of a scrubby savannah. Furthermore, the climate is very different from that experienced by *B. madagascariensis* at Mantadia. In fact, *B. alfredii* experiences a subhumid temperate climate (Cornet 1974),



6. **Beccariophoenix alfredii**: **A.** habit × ; **B.** leaf-sheath × ; **C.** mid and apical leaflets × 3/8; **D.** detail of leaflet surface × 1.5; **E.** part of inflorescence × 1/6; **F.** rachilla × 1/3; **G.** triad × 2; **H.** staminate flower in bud × 3; **I.** staminate flower in section × 3; **J.** pistillate flower × 3; **K.** infructescence × ; **L.** seed in section × 1.5; **M.** endocarp, two views × 1.5 . Scale bar: A = 1 meter, B = 40 cm, C = 8 cm, D, L, M = 15 mm, E = 9 cm, F = 6 cm, G = 1 cm, H, I, J = 7 mm, K = 30 cm. Drawn from *Rakotoarinivo RMJ136* by Lucy T. Smith.

drier than that of the east of Madagascar. The average temperature is 15–20ºC and the rainfall generally less than 1500 mm. The dry season is about five months long. The population of *B. alfredii* occurs at an average elevation of 1050 m above sea level; above that elevation, the palm becomes very rare, as the depressions between two mountains are too infrequent

7. View into the crown of *Beccariophoenix alfredii* showing the narrow leaf bases and a newly opened inflorescence.

8. Specimens of unopened inflorescences of *Beccariophoenix alfredii* split down the middle to show the thin peduncular bract and numerous flowers.

and where there are such depressions they are usually too dry. The soils in general in the region are ferralitic, but *B. alfredii* seems to grow solely on sandy soils on the banks of tributaries of the Mania River.

Beccariophoenix alfredii is the dominant species in the gallery forest and, reaching mostly 10–15 m, constitutes the only canopy species. The species grows so abundantly in the area that we estimated at least 500 mature individuals at this locality. In contrast, regenerating individuals are few. The dominance of this species may be due to the fallen leaves and inflorescences that carpet the ground, completely eliminating any other woody plants. Moreover, seed dispersal seems to be mostly by water. The flattened shape of the fruits allows them to be dispersed easily by water until they are deposited in a site favorable for germination. Sometimes seedlings are found actually growing in water but they mostly occur along the river bank.

Perhaps this explains why the adult palms are restricted to a band along all the valleys.

It could be asked why we consider this palm to be a new species of *Beccariophoenix* when *B. madagascariensis* is itself variable. Dransfield (2202) reported what was known of this variation and highlighted the presence of two distinct seedling morphologies of the palm in cultivation. One type of *Beccariophoenix* has juvenile leaves with a broad terminal pair of multifold segments displaying many windows. In contrast the second type of *Beccariophoenix* has narrow terminal segments composed of few folds and with one or two windows only. After some research in the field and discussion with seed importers and growers we can say that the population of *Beccariophoenix* from the lowlands near to Brickaville (the Ranomafana Est population, currently known with certainly from a single adult tree and, about twenty km away, a few more) produces seedlings with many windows. The population from the general area of Mantadia near the type locality of *B. madagascariensis* and the population at Sainte Luce produce seedlings with few windows. *Beccariophoenix alfredii* has seedlings with narrow terminal segments and few windows.

The habitat of the population at Sainte Luce at near sea level might be thought of as being very different from that of the montane ridgetops at almost 1000 m in Mantadia, but there are in fact considerable resemblances in vegetation – both areas support generally rather small-leaved dicotyledonous trees, growing on humus rich soils overlying extremely nutrient-poor sand or quartzite. The main difference between the Mantadia and Sainte Luce populations is in the length of the peduncle – always elongate at Mantadia, sometimes elongate, sometimes very short at Sainte Luce (incidentally, the one tree at Ranomafana Est is remarkable for it extremely short peduncles.

The main differences between *B. alfredii* and *B. madagascariensis* are listed in Table 1. The most striking differences are in the size and form of the inflorescence and fruit.

At the moment, the only scientifically proven and recorded locality for *B. alfredii* is Manalazina. This population is limited to the west by the Mania River. Individuals become abruptly very rare as soon as one approaches the Mania, the river into which the tributary lined with *Beccariophoenix* flows. Fewer than twenty individuals of *B. alfredii* grow on the banks of the Mania, possibly because of its depth, which is unfavorable to the dispersal and establishment of seedlings. As we climbed

9. View into the crown of *Beccariophoenix alfredii* showing inflorescences at various stages, including ripe fruit.

10. More or less ripe fruit of *Beccariophoenix alfredii*.

11. Carpet of fallen fruit of *Beccariophoenix alfredii*.

up another mountain chain in the hope of finding other populations in further localities, we saw not one palm on the horizon. Because of the extremely difficult access and the time we had already taken to reach Manalazina, we were unable to conduct further searches for the palm. Meanwhile, we are optimistic concerning the existence of more populations further away in the region. Justin Moat, GIS specialist at the Royal Botanic Gardens, Kew, using satellite imagery, has looked for habitats similar to that at Manalazina. After analysing the very distinctive spectrum and relief seen in the satellite images at the exact coordinates of Manalazina, Justin was able to search for similar spectra and relief elsewhere in this part

12. Seedling foliage of *Beccariophoenix alfredii* showing few narrow "windows."

of the plateau. He found similar habitats but much further away from Manalazina. Other populations of *B. alfredii* surely exist in the area – during our visit, we did not have the time to revisit Vilanitelo where the palms was first seen by Alfred's collectors, nor Marovato, the site of the large population mentioned by Alfred.

While we await the discovery of additional populations, we can declare that the population at Manalazina can be considered to be intact and not facing any major threat, thanks to mountain chains that effectively act as natural barriers protecting the population. This palm occurs in one of the most secure localities in the whole island. The area has one of the lowest densities of human population in the whole of Madagascar and this is, of course, very significant for the future survival of the species. Furthermore, no one locally seems interested in utilizing the palm at the moment, because it is virtually impossible to transport the palm or its products up the 300 m of extremely steep slope from the valley bottom, and the locality is inaccessible to any of the usual forms of mechanized transport utilized in Madagascar. It is for these reasons that the locality is so deserted. During our four days camping we five from Antananarivo and our two guides saw no one apart from ourselves in the area.

Of course, the discovery of this new species is of fundamental importance in developing our understanding of the taxonomy and biogeography of the genus, previously thought to be monotypic and confined to eastern Madagascar. The discovery of *B. alfredii* adds impetus to the initiation of an intensive study of the genus throughout its range in Madagascar. It is possible that *Beccariophoenix* comprises more than two species. During the last few years we have heard rumours of several new populations of *Beccariophoenix* but these have not always proved to be the real thing. There is clearly much more survey work to be done!

Table 1. Comparison between *Beccariophoenix madagascariensis* and *B. alfredii*.

Beccariophoenix madagascariensis	*Beccariophoenix alfredii*
Inflorescence interfoliar	Inflorescence infrafoliar
Peduncle to 120 cm long	Peduncle not exceeding ca. 13 cm long
Peduncular bract heavily lignified, 30–40 mm thick, not deforming when abscising	Peduncular bract leathery, 3–5 mm thick, rolling up on itself when abscising
Stamens 18–21	Stamens 15
Fruits ovoid	Fruits oblate

As this paper goes to press, our colleague Alison Shapcott from the University of the Sunshine Coast in Australia, who is working on an analysis of genetic variation within the whole genus and within populations, reports that *B. alfredii* is genetically very distinctive when compared with the other samples of *Beccariophoenix* that she has analyzed, adding support for the decision to recognize it as a distinct new species.

Acknowledgments

We thank Alfred Razafindratsira for having informed the team from RBG Kew of the possible existence of this new species. Our expedition would not have been successful without the cooperation and collaboration of Parc Botanique et Zoologique de Tsimbazaza. We thank Rolland Ranaivojaona and Tatamo A. Ranaivomanana for their help and companionship in the field. We also thank our driver, Roger Randrianarison, for his exceptional driving skills and his help and companionship throughout. We thank Justin Moat at Kew for his GIS analysis of Manalazina. The expedition was funded as part of the Kew Threatened Plants Project, and Mijoro was financed as part of this project in his year long study of *Beccariophoenix*. Lucy Smith prepared the analytical plate.

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