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Palms (formerly PRINCIPES)

Journal of The International Palm Society

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THE INTERNATIONAL
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FRONT COVER

Copernicia ekmanii, a charismatic but endangered species endemic to Haiti. See article by E. Fernández et al., p. 5. Photo by E. Fernández.

BACK COVER

Saribus pendulinus, a new species from Purari River, Gulf Province, Papua New Guinea. See article by J. Dowe and S. Venter, p. 15. Photo by S. Venter.



The orange fruits of a newly discovered *Saribus* from New Guinea. See article by Dowe & Venter, p. 15. Photo by S. Venter.

PALM NEWS

Basal stem rot, or butt rot, is a soil-borne disease of oil palm (*Elaeis guineensis*) plantations caused by the fungus *Ganoderma boninense*. The host range of *G. boninense* is broad, affecting many ornamental palms, and once the disease is in the soil, it cannot be reliably eradicated. **Researchers in Indonesia have identified a possible biocontrol for basal stem rot disease.** Budi et al. (*Biodiversitas* 23: 5914–5922. 2022. <https://doi.org/10.13057/biodiv/d231145>) found promising results by screening multiple samples of the actinomycete *Streptomyces gelaticus* against *G. boninense* in vitro. Seven isolates showed inhibition of *G. boninense* of 33–100%. As natural members of the soil microbiome, actinomycetes play an important role in the nutrient cycle, fix nitrogen and promote plant growth, so an actinomycete biocontrol of basal stem rot might have knock-on beneficial effects for palms.



Scott Zona

The inflated and inrolled ocreas (leaf sheath extensions) of some species of the rattan genus *Korthalsia* are inhabited by ants, who “farm” aphids under cover of the ocrea. When their home is disturbed, the ants make an audible sound by tapping their bodies against the dry ocreas, one of the more unusual sounds of southeast Asian forests. An investigation by J.L. Bota et al. published in *Arthropod Structure & Development* (70: 101172. 2022. <https://doi.org/10.1016/j.asd.2022.101172>) found that **the vibrations produced by the two ant species inhabiting *K. robusta* in response to disturbance are species specific.** The exact way that the vibrations are created and whether individuals synchronize their tapping require further investigation. Likewise, the hypothesized function of the sound, i.e., that herbivores are warned away by it, requires additional study and field observations.

As the Palms of New Guinea project wraps up and is prepared for publication, researchers are making a final push to name all the palm species from that biologically rich island. A paper published last year provided **names for seven species of *Licuala* new to science.** The work by A. Barfod and C. Heatubun appeared in *Phytotaxa* (555: 001–016. 2022. <https://doi.org/10.11646/phytotaxa.555.1.1>). Persons honored by eponymous species include botanists Frederick B. Essig, Martin J.S. Sands, our very own William J. Baker and the late Roy Banka.



Scott Zona

The charismatic *Coccothrinax borhidiana* is endemic to a small area of Matanzas, Cuba, where oil and gas exploitation, fires and cattle grazing are threatening natural populations. A recent conservation assessment by J.A. García-Beltrán et al. (*Journal for Nature Conservation* 68: 126206. 2022. <https://doi.org/10.1016/j.jnc.2022.126206>) found that **the species is critically endangered and, without intervention, the area of occupancy will continue to decline.** The authors found evidence of seedling recruitment in areas abandoned by the oil and gas industry, an observation indicating that population recovery is possible. The authors called for immediate action to safeguard this species from extinction in the wild.

Copernicia ekmanii in Haiti

ELADIO FERNÁNDEZ¹, JOEL TIMYAN², CHRISTINE D. BACON^{3,4} AND
ANDREW HENDERSON⁵

The conservation status of the Haitian palm *Copernicia ekmanii* is reviewed.

Copernicia comprises 29 species of Neotropical palms. Three species occur in South America, two in Hispaniola, and the rest are endemic to Cuba. Of the two Hispaniolan species, *C. berteroa* is widespread on the island, but *C. ekmanii* has a much narrower distribution.

The type specimen of *C. ekmanii* was collected by the extraordinary Swedish collector Eric Leonard Ekman (1883–1931). Ekman collected extensively in Cuba and Hispaniola, and from 1924 until 1928 he collected primarily in Haiti. On 28th March 1925, Ekman was in northern

Haiti, and he collected a palm at “Presqu’île du Nord-Ouest, road Port-de-Paix to Jean-Rabel, coral reef at the mouth of Rivière Cabaret.” Ekman wrote in his notes “I am not sure if this *Copernicia* is the same as the homme de paille [straw man] and from Tortue and the Môle. It ought to be, of course, but the pet. of the leaves has not the same indument as that from Tortue.” The two places Ekman’s note refers to are currently known as Tortuga Island and Môle Saint-Nicolas, both of which are not far from the type locality – Port-à-l’Écu – between Port-de-Paix to Jean-Rabel (Fig. 1). Ekman’s palm was eventually described as a new species by German palm specialist Max Burret, in 1929, and was named *Copernicia ekmanii*.

Dahlgren and Glassman (1963) published a monograph of *Copernicia*. In their discussion of *C. ekmanii* they cited three specimens – Ekman’s original collection plus another from the same locality, and one from between Ennery and Port-au-Prince. In our opinion, the supposed occurrence from between Ennery and Port-au-Prince is likely to be based on a misidentification, and in fact *C. ekmanii* occurs only in coastal areas in northern Haiti. Dahlgren and Glassman also noted that it occurred on the Isle de Tortue, presumably based on Ekman’s notes. The current status of this population is uncertain.

Since 1963 there have been a few more collections of *C. ekmanii*. In 1985 Tom Zanoni and colleagues collected it “4.8 km from Môle St Nicolas en la carretera a Bombardopolis”

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1. A juvenile *Copernicia ekmanii* grows on the grass tussock savanna of the Presqu'île du Môle Saint Nicolas, 2014.

and in 1989 Andrew Henderson and Michel Aubry collected it from "road from Jean Rabel to Anse Rouge, near Abricots." The Zanoni collection represents the most interior population of the species in an area known as Habitation Morne Blanc. The Henderson and Aubry collection noted that the palm was cultivated.

In 1996 Joel Timyan, Charles Hubbuch and Suzanne Michal surveyed Môle Saint Nicolas for *C. ekmanii* (Timyan et al. 1997). Three populations were identified in the area: one near Côtes-de-Fer River northeast of town, the second on the western tip of the Presqu'île du Môle – across the bay and northwest of the town – and the third 6.5 kilometers southwest of the town of Môle Saint Nicolas, in a small fishing village called Cap-à-Foux. One of these was presumably the population that Ekman visited decades before.

On August 29, 2014, the first author along with Joel Timyan, visited Môle Saint Nicolas, this time in preparation for a book on Hispaniola palms (Fernández & Gottschalk 2017). They drove for six hours from Gonaïves to Môle Saint Nicolas, with an overnight in Bombardopolis. Upon reaching their final destination early the next morning, Timyan guided Fernández to the two locations he had

previously visited. The idea was to photograph *C. ekmanii* in its natural habitat, assess the status of this species and collect seeds for ex situ conservation. A sizeable population on the west end of the Presqu'île du Môle grew along the first marine terrace (Fig. 1). A few individuals could be seen growing inland above the cliff. The habitat was a mixture of grass tussock and thorn scrub and showed signs of accidental periodic burns due to charcoal production. Most *C. ekmanii* at this site were juvenile palms 2–3 meters tall that were just starting to form their characteristic skirt of dead leaves. Almost all exhibited fire scars at the base of their trunks, but they seemed to be resilient. Locals called them *Ti Pay*, a name that had not been previously documented.

That afternoon, Fernández and Timyan walked from Hotel Boukan Gingette to Cap-à-Foux, the small fishing cove west of Môle Saint Nicolas. The trail, dominated by thorn scrub on karst, traversed several clearings with remnants of charcoal kilns. Large old growth arborescent *Consolea* and other cacti dominated the rest of the landscape. In one particular spot, they found recently cut *Cereus* cacti that were being harvested for their woody stems. That was Fernández's first encounter with cacti being used for charcoal production.



2 (top). The seven oldest individuals of *Copernicia ekmanii* at Cap-à-Foux Fishing village, 2014. 3 (bottom). Three of the most spectacular specimens with their characteristic skirt of dead leaves. Antillean palm-swifts can be seen flying around as they use the skirts for roosting and nesting, 2014.

Timyan and Fernández descended the cliff on the back side of Cap-à-Foux and noted seven spectacular specimens of *C. ekmanii* that stood tall above the village with their characteristic

large skirts of dead leaves (Fig. 2). A swarm of Antillean palm-swifts (*Tachornis phoenicobia*) flew in and out of the dead leaves, which they use for roosting and nesting (Fig. 3). The



4. Only three of the oldest seven *Copernicia ekmanii* individuals (center) remain at the Cap-à-Foux fishing village, 2022

central three individuals clustered together right in the middle of the fishermen's shelters. The rest grew closer to the water's edge. As Timyan had already assessed in a previous visit, these were possibly the oldest *C. ekmanii* in the area. South of the cove, both researchers found a larger population of juveniles, most averaged 1–2 meters high. Their leaves were being harvested for thatch to be used on the fishermen's shelters.

In June 2022, Fernández, David Stephenson (Haiti National Trust) and Andres Miolan (camera operator) revisited northern Haiti as part of a project on a revision of the palms of Hispaniola. The goal of the trip was to collect tissue from all palms in the north, to assess the status of their populations and to film the expedition. Given the difficult socio-political situation at the time, the team was advised to take the northernmost coastal road from Cap Haitian to Port-de-Paix and from there to Môle Saint Nicolas. This route required a very good vehicle with 4x4 capability, and it took approximately eight hours to complete. On the way, Fernández noted a large population of the African Oil Palm (*Elaeis guineensis*) that was naturalized in the area along several streams and mountain slopes between the towns of Limbé and Petit Bourg de Borgne. No

large-scale plantations of this species were present, although it is likely the species was introduced to this area during the 1940s when SHADA – an American company – was established to expand the production of rubber and other commodities during World War II. Other palm species along the road to Môle Saint Nicolas included *Bactris plumeriana*, *Roystonea borinquena*, *Sabal domingensis*, one lone individual of *Pseudophoenix vinifera* and *Coccothrinax gracilis*.

The morning after the team's arrival in Môle Saint Nicolas, Fernández, Stephenson and Miolan targeted first the Cap-à-Foux population of *C. ekmanii*. As soon as they started on the trail, they noticed that large plots of property along the coast were being fenced off west of town. Given that this is the preferred habitat for *C. ekmanii*, expansion and development of property along the first marine terrace poses a future threat to this palm species. The trail crossed cleared patches of thorn scrub and old charcoal kilns. The team missed the turn off for Cap-à-Foux by a couple of kilometers and had to use a drone in order to find the fishermen's cove. Upon arrival at Cap-à-Foux, Fernández immediately noticed that tragedy had struck (Fig. 4). Four out of the seven oldest *C. ekmanii* had been lost to a



5. Charred upper trunks indicate that the skirts caught on fire, 2022.



6 (top). Juvenile *C. ekmanii* south of the fishing village at Cap-à-Foux ravaged by fire from charcoal production, 2022. 7 (bottom). Fire-scarred juvenile *C. ekmanii* in the Presqu'île du Môle beginning to produce fruit, 2022.

fire which ravaged the fishing village in 2021. The skirts of dead leaves of the remaining three had also been lost to the fire (Fig. 5). The juvenile population south of the cove also

exhibited recent evidence of fire. Many young palms were completely lost, while others that were less affected were sprouting new leaves (Fig. 6).



8. The island of Hispaniola, adapted from a map produced by the Jet Propulsion Laboratory at the California Institute of Technology (USA), with the populations of *C. ekmanii* marked in red.

That afternoon the team proceeded to the Presqu'île du Môle by car to check on the other population of *C. ekmanii*. More properties and expanded development along the coast north of the town were some of the changes since the last trip in 2014. Also, the old airstrip now had a partial fence and an unfinished terminal, all recent projects attributed to slain president Moïse. The Presqu'île was mostly uninhabited in 2014, but by 2022, the team noticed a brand-new church and a small fishing village on the southern coast of the peninsula, close to a few individuals of *C. ekmanii*. The rest of the population on the western tip was in relatively good condition. Juveniles represented the vast majority at this location. Some of the older individuals did have inflorescences with immature fruits. Unfortunately, we were too early in the season for ripe fruits. Several trails cut through the thorn scrub vegetation, presumably so the locals can harvest the leaves for thatch. We were able to access the second marine terrace on a dirt road used recently to build a lighthouse. We documented a few individuals of *C. ekmanii* there as well (Fig. 7).

On the trip back to Port-de-Paix, Fernández, Stephenson and Miolan stopped by Port-à-l'Écu to check on a third population of *C. ekmanii* that had been first reported by Ekman in 1925 as the type locality and which was revisited in 1996 (Timyan et al. 1997). A small house next to the beach with *C. ekmanii* leaves for thatch roofing was one of the first

indicators that the species was still present. With a pair binoculars Fernández was able to see a number of individuals on the eastern end of the cove. Unfortunately, the team was unable to reach the site to assess the size of that population.

Taken together, we believe there are upwards of 2,500 individuals of *C. ekmanii* in the wild, all found in northwestern Haiti. We updated the Red List assessment for *C. ekmanii* (Théogène & Timyan 2018) with documentation gathered in the 1996, 2014 and 2022 expeditions, and the species continues to be categorized as Endangered (Endangered B1ab(i, iii, iv, v)+2ab(ii, iii, v); C1 ver 15.1). Môle Saint Nicolas has shown an unfortunate increase in threats and a significant decrease in the number of individuals of *C. ekmanii*. Land development along the coast, as the size of the town increases over time, will likely encroach on prime *Copernicia* habitat. Escaped fires from continued charcoal production along the marine terraces are a major threat to the species. Considering that most of the population in the Presqu'île are juveniles that still do not bear fruit (but remain vulnerable to fires), this could mean a steep decline in the number of individuals over a short period of time. In addition to this, access by land to Môle Saint Nicolas is very difficult, so obtaining seeds to establish an ex situ nursery for the species is a costly undertaking. Regardless, Haiti National Trust, a local NGO

with a good track record in bringing back endemic *Magnolia* species from extinction, is interested in exploring options for in situ and ex situ conservation programs, including the establishment of protected areas in this region of Haiti (Fig. 8).

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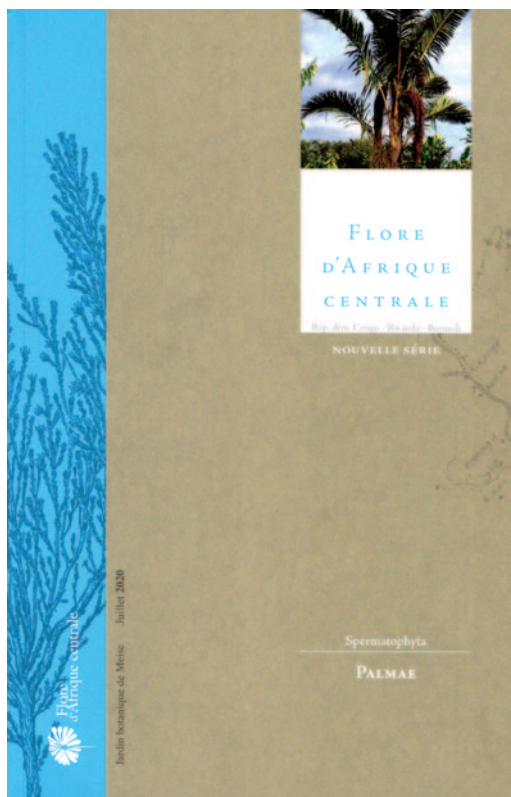
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PALM LITERATURE

FLORE D'AFRIQUE CENTRALE. Rép. Dém. Congo - Rwanda - Burundi – PALMAE – P. Mbandu Luzolawo, C. Lubini Ayingweu, S. Mogue Kamga and F.W. Stauffer. Jardin Botanique de Meise, Belgium. 2020. Paperback. ISBN 978382361778-5, ISSN 0779-116X. Pp 80, line drawings. Price €16.00. (available from <http://shopbotanicgarden.weezbe.com>)

This part of the long-running series, Flore d'Afrique Centrale, devoted to palms, has just been published by the Botanic Garden at Meise in Belgium. Authored by botanists from the region and Fred Stauffer in Geneva, it provides a much needed account of the palms of a vast area of the African continent. It is gratifying to know that some of the fieldwork backing up the account was supported by the International Palm Society through its Endowment grants. The account covers twelve genera and 28 species all of which occur in the Democratic Republic of the Congo, five in Ruanda and six in Burundi. The text is in French apart from an abstract in English. There are full nomenclatural citations, clear descriptions, summaries of distributions with citations of representative collections, habitats, vernacular names and uses. Most taxa are



illustrated with line drawings, many of which have been published elsewhere.

This crisply printed publication is a valuable addition to the detailed cataloguing of the palms of the African continent.

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PALM LITERATURE

THE PALM FLORA OF WEST AFRICA: CÔTE D'IVOIRE, GHANA, TOGO AND BÉNIN. F. Stauffer, D.N. Outtara, L. Michon, S. da Giau, P. Ekpe, K. Adéoti, E.-E. Ewedje, K. Koudouvo, D. Roguet, C. Chatelain and A. Bakayoko. 2021. *Archives des Sciences* 72: 1–72.

This important, beautifully illustrated account of the palms of a significant part of the West African region is published as a volume of the journal *Archives des Sciences*, produced by the Société de Physique et d'Histoire Naturelle de Genève. Apart from two obituaries and a brief summary of the activities of the Society, it occupies the whole volume and can thus stand alone as a palm flora of the region. The account is in English. It covers eleven genera and 21 species. Each taxon is described in detail, with full nomenclatural citation, distribution and ecology, specimens examined and colorful distribution maps. Towards the end of the account there is general discussion of the palm flora, growth habits and morphological diversity, palm ecological regions, ethnobotanical and economic importance and conservation. The long list of



authors displays the wide collaboration underpinning the account. The main glory of the account is the large number of high quality photographs, sumptuously illustrating the palms, some of which have hardly been illustrated before. This is altogether a very fine piece of work.

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Saribus pendulinus, a New Fan Palm from New Guinea

JOHN LESLIE DOWE¹ AND STEPHANUS VENTER¹

A new species of fan palm, *Saribus pendulinus* sp. nov. (Arecaceae: Trachycarpeae; Livistoninae) is described from the Purari River, Gulf Province, Papua New Guinea. It is distinguished from other species of *Saribus* by the distinctive thin pendulous inflorescences and infructescences, small flowers with red sepals and petals and orange-red fruit 40–45 mm in diameter.

In the course of ecological research undertaken in the remote Purari River area, Gulf Province, Papua New Guinea, one of us [SV] encountered a fan palm tentatively identified as a species of *Saribus* Blume, but it did not correspond to any of the species recognized for the genus. We describe it here as new to science thus bringing the number of species in the genus to ten, eight of which occur in New Guinea and of which six are endemic.

The taxonomic and nomenclatural restoration of the genus *Saribus* was proposed by Bacon and Baker (2011) following a molecular analysis of the genus *Livistona* R.Br. Their research indicated that *Livistona*, in the sense of its identity at the time, was not monophyletic, and they identified a segregate group of species that were subsequently placed under a resurrected *Saribus*, the earliest valid name available. *Saribus* was established by

Blume (1838) but was soon after placed in synonymy under *Livistona* by Martius (1838). The name then remained in nomenclatural abeyance, apart from some minor uses, until the work of Bacon and Baker (2011). Previously, Dowe (2009) had recognized the “*Livistona rotundifolia* subgroup” as a distinct morphological assemblage to include those species subsequently transferred to *Saribus* by Bacon and Baker (2011) but did not pursue formal generic transfer.

The group of species assigned to *Saribus* also have, apart from strong molecular support, some morphological characters that are common to the group but not for all species. The most obvious are inflorescence and fruit characters: the inflorescences are bifurcately or trifurcately branched at the base and held within a single prophyll, whilst the fruits mature from orange through to red. In *Livistona sensu stricto*, the inflorescence consists of a single axis and fruits mature to green, blue, purple, brown or black in individual species.

In contradiction to the former generalization of inflorescence characters, two *Saribus* species,

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1. *Saribus pendulinus*, Purari River, Gulf Province, Papua New Guinea. All photos by S. Venter.



2. *Saribus pendulinus*. View into crown showing elongate petioles and pendulous infructescences.



3. *Saribus pendulinus*. Leaf outline in adaxial view of a sub-adult plant.



4. *Saribus pendulinus*. Hastula, raised with a sharp margin.

S. jeanneneyi (Becc.) C.D. Bacon & W.J. Baker (2011) from New Caledonia and *S. woodfordii* (Ridl.) C.D. Bacon & W.J. Baker (2011) from the Solomon Islands and New Guinea, have an inflorescence structure more typical of *Livistona*, but they otherwise have fruit coloration typical of *Saribus* and in regard to molecular data are highly supported as species of *Saribus*. Some *Saribus* species also have distinctive flower coloration in which both the sepals and petals are red, a condition that is not known in *Livistona*.

Previous work undertaken by one of us (JLD) on the fan palms of New Guinea, described four species, then in *Livistona*, *Saribus brevifolius* (Dowe & Mogeia) C.D. Bacon & W.J. Baker, *S. chocolatinus* (Dowe) C.D. Bacon & W.J. Baker, *S. tothur* (Dowe & Barfod) C.D. Bacon & W.J. Baker and *S. surru* (Dowe & Barfod) C.D. Bacon & W.J. Baker (Dowe & Barfod 2001; Dowe & Mogeia 2004; Bacon & Baker 2011). The remaining species of *Saribus* include *S. merrillii* (Becc.) C.D. Bacon & W.J. Baker (Philippines), *S. rotundifolius* (Lam.) Blume (type for the genus and widespread in the Philippines, Malaysia and Indonesia), *S. woodfordii* and *S. papuanus* (Becc.) Kuntze (New Guinea) (Blume 1838, Beccari 1877, 1904).

***Saribus pendulinus* Dowe & S.Venter, sp. nov.**

Saribus pendulinus is similar to *S. chocolatinus* but differs in having pendulous rather than arching inflorescences, glabrous rather than chocolate colored tomentose inflorescence rachillae, and larger fruit, 40–45 mm diam., but only to 25 mm diam. in *S. chocolatinus*. Type: PAPUA NEW GUINEA. Gulf Province: Purari River, -07.351283° 145.209263°, 48 m elev., 3 November 2019, S. Venter 15939 (holotype CNS!; isotypes K!, LAE!).

Habit a solitary, single-trunked palm, to 30 m tall. Stem 8–14 cm dbh; crown with 30–40 leaves held in a globose to ovoid crown; leaf scars of irregular width, grey, slightly raised, internodes green to brown, narrow to broad; leaves deciduous throughout stem. Leaves 150–200 cm long, leaf blade shallowly to moderately costapalmate, subcircular, flat, rigid, adaxially dark green, abaxially lighter green; petiole 130–145 cm long, straight to arching, basally to 30 mm wide, apically to 10 mm wide, green, readily deciduous papery scales aggregated toward the margins, abaxial surface concave throughout; small erect recurved or straight spines for the length of the petiole, being less prominent in aged



5 (left). *Saribus pendulinus*. Upper petiole in adaxial view showing the deciduous scales. 6 (right). Leaf base fibers and lower petiole spines.

plants and sometimes lacking apart from those in the basal portion; hastula raised with a sharp margin; segments 60–80, evenly arranged, segments free for > 50% of their length, apices rigid becoming pendulous with age; apex entire, acuminate, or very shallowly cleft in juvenile leaves; leaf base fibers coarse, interwoven, ageing into loose sheets that remain intact and persistent in the crown. Inflorescence 1.1–2 m long, primary axes thin and lax, 20 mm thick at the base, basally bifurcate or trifurcate with a common bicarinate prophyll, branched to 3 orders; peduncular bracts 2–3, tightly tubular, glabrous, yellowish to cream; rachis bracts tightly tubular, glabrous, yellowish green; surface of 1st order branches glabrous, pink; rachillae straight to slightly curving, finger-like, 50–100 mm long, glabrous, surface pink at floral anthesis. Flowers sessile to shortly pedicellate, solitary or in clusters of 2–4, alternate-spirally arranged, tightly aggregated in bud, to 1.5 mm high; pedicels to 0.5 mm long; sepals 3, basally imbricate, triangular, glabrous, to 1 mm long by 1 mm wide, red; petals 3, basally connate, triangular, glabrous, 1.2 mm long by 1.5 mm wide, fleshy, carinate,

margins smooth, red; stamens 6, not longer than the petals, epipetalous, basally connate to form a fleshy ring; filament short; anthers medifixed, rounded to oblong, dehiscence latrorse; stigma short, 3-lobed, not longer than the petals. Fruit globose, 40–45 mm diam.; epicarp thin, smooth, semi-glossy, orange to orange-red at maturity; stigmatic remains apical, mostly obscure; mesocarp fleshy with scattered thick fibers; endocarp crustaceous, thin. Seed globose, 28–38 mm diam.; endosperm homogeneous, deeply intruded by the seed coat and pulpy tissue throughout; embryo position not known (Figs. 1–13).

Specimens Examined: NEW GUINEA. Papua New Guinea. Gulf Province: Purari River, -07.351283° 145.209263° , 48 m elev., 03 November 2019, *S. Venter 15939* (holotype CNS!; isotypes K!, LAE!); Gulf Province: Purari River, -07.35725° 145.19249° , 33 m elev., 06 November 2019, *S. Venter 15956a* (LAE!).

Etymology: From the Latin *pendulinus*, “hanging down,” in reference to the inflorescences and infructescences hanging vertically from the crown and particularly noticeable when bearing the weight of mature fruit.



7. *Saribus pendulinus*. View into crown showing inflorescences with flowers at anthesis.



8. *Saribus pendulinus*. Terminal rachillae with flowers at anthesis.



9. *Saribus pendulinus*. Inflorescence with mature fruit.

Distribution: This species is endemic to the Purari River area, Gulf Province, Papua New Guinea (Fig. 14).

Habitat: Lowland hill rainforest, in association with *Dillenia papuana*, *Pometia pinnata*, *Syzygium* spp., *Myristica* spp., *Hornstedtia scottiana*, *Riedelia corallina*, *Cyrtandra* spp. and various *Urticaceae* on the forest floor. This is a palm-rich area, and *Saribus pendulinus* grows nearly always with *Hydriastele costata*, *Arenga microcarpa*, *Calypstrocalyx* spp., *Korthalsia zippellii*, many species of *Calamus*, *Licuala lauterbachii* and *Ptychosperma* spp. Soils are a gritty clay loam derived from conglomerate and sandstone. Estimated annual rainfall in the area is 6000–8000 mm (240–315 inches) making it among the wettest locations in Papua New Guinea. Cassowaries are known to consume the fruit and may be an important dispersal agent.

Local Names: None recorded.

Uses: None recorded.

Conservation Status: Vulnerable (V), based on small population, limited distribution and planned development in the immediate area (IUCN Standards and Petitions Committee 2022).

The description of *S. pendulinus* brings the number of *Saribus* species to ten, eight of which occur in New Guinea and of which six are endemic. This new species is “typical” of *Saribus* but readily distinguished from other species by the conspicuously pendulous inflorescences and infructescences. Furthermore, flowers (both sepals and petals) are red, and the fruits are large, globose, 40–45 mm diam. and maturing orange to orange-red.

Saribus pendulinus has some morphological similarities to two species in New Guinea, *S. chocolatinus*, known from the Vailala River in Central Province and Lababia in Morobe Province, and *S. tothur* from Oeneke Mts in West Sepik Province. *Saribus chocolatinus* is

10. *Saribus pendulinus*. Mature fruit. Scale: blue pen about 150 mm long.





11 (top). *Saribus pendulinus*. Ruptured fruit exposing the fleshy mesocarp and thick scattered fibers. 12 (bottom). Dissected fruit showing the intrusion of the seed coat throughout the endosperm.



13. *Saribus pendulinus*. Juvenile plant in the shaded understory.

distinguished by small rigid leaves, usually spineless or slightly spiny petiole that has an initial coating of white waxy powder, arching inflorescences, multiple tightly tubular peduncular bracts, chocolate brown tomentum on the proximal surfaces of the partial inflorescences and rachillae, red flowers and fruit to 25 mm diam. *Saribus tothur* is distinguished by moderate rigid leaves, glabrous petioles that are spiny throughout in mature individuals, robust arching inflorescences, a single loosely tubular peduncular bract, glabrous surfaces on the partial inflorescences and rachillae, red flowers and fruit to 25 mm diam. *Saribus pendulinus* is distinguished by moderate to large rigid leaves with thin lamina, spiny petioles with flat corky scales aggregated toward the margins, thin pendulous inflorescences and infructescences, multiple tightly tubular peduncular bracts, glabrous surfaces on the partial inflorescences and rachillae, red flowers and fruit to 45 mm diam.

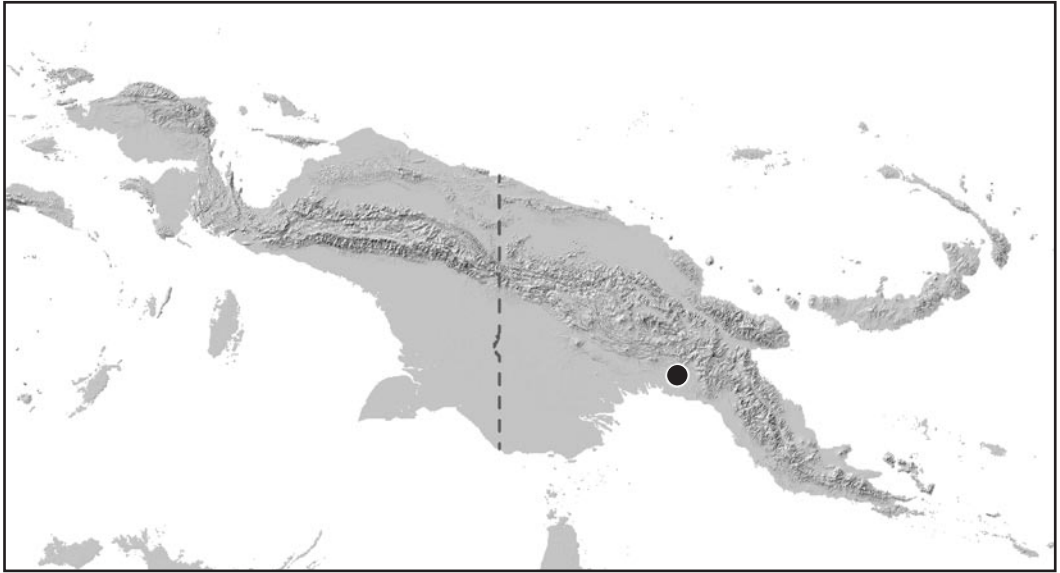
Acknowledgments

We thank the Lae Herbarium personnel Tiberius Jimbu and Penniel Lamei, and Wilson Jay Numdi for assistance in the field. Staff at the Australian Tropical Herbarium (CNS),

Frank Zich, Darren Crayn and Mel Harrison, are thanked for administrative support. We also thank TEP PNG for help with logistics. The distribution map was prepared by Tim Wilkinson, Royal Botanic Gardens Kew.

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14. Distribution map of *Saribus pendulinus*. Prepared by Tim Wilkinson, Royal Botanic Gardens Kew.

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Photo Feature



Young northern pig-tailed macaque (*Macaca leonina*) feeding on the palm heart (terminal bud) of *Calamus* cf. *melanochaetes*, Khao Yai National Park, Thailand (December 2021).

JUN YING LIM
Singapore

Trachycarpus geminisectus Flowering in Cornwall, UK

TOM HUDSON¹ AND JOHN DRANSFIELD²

Trachycarpus geminisectus, only relatively recently introduced into cultivation is flowering in Tregrehan Gardens, Cornwall, UK.

Trachycarpus geminisectus was first described by Martin Gibbons, Toby Spanner, Nguyen Van Du and Phuong Anh in 2003 based on a palm growing on karst limestone in the north of Vietnam (Gibbons et al. 2003). In their article they describe how they became aware of the palm as a distinct species based on herbarium collections made under the collecting program of Missouri Botanical Garden. Together they made an excursion to collect it. The palm was clearly a species of *Trachycarpus* but distinct from *T. fortunei* in the conspicuous white waxy under-surface to the leaves and the fact that the leaf blade is divided into paired segments. The leaf is also of a generally thicker texture than that of *T. fortunei*. Subsequently the paired segments have proved not to be such a consistent character as at first thought.

One of us (TH) made an excursion to north Vietnam in 2008 and photographed a species of *Trachycarpus* with erect infructescences (Fig. 1). Seed from this plant was sown in Tregrehan Gardens, Par, Cornwall, and the original photographs were shared with JD and Martin and Toby. Initially there was some discussion as to which species of *Trachycarpus* it belonged, but eventually a consensus was reached that

it was *T. geminisectus*. The seedlings were planted out in the gardens and have flourished, surviving lows of -6°C (21°F). By 2022 they were flowering well and developing fruit. Photographs taken in March 2022 (Figs. 2–5) were shared with Toby and Martin, and they have confirmed that this is indeed *T. geminisectus*. Note the erect inflorescences that are unlike those of *T. fortunei*. However, although there are some paired segments, the leaf blade is irregularly divided, perhaps more reminiscent of *T. fortunei*.

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As this issue was finally being prepared for press, some doubt emerged over the identity of these palms in Tregrehan. John Prescott of the European Palm Society informed Martin Gibbons and Toby Spanner that there is active discussion among members of the European Palm Society on the subject. The speed of growth and the texture of the leaves could be at variance with true *T. geminisectus*, but unfortunately there are no authentic mature individuals of *T. geminisectus* in cultivation for comparison. The inflorescence and the origin of the seed both suggest that the palms are indeed *T. geminisectus*. We shall report any updates on the identity of these beautiful palms.—THE EDITORS



1. *Trachycarpus geminisetus* growing in the wild on limestone karst in Ha Giang province, northeast Vietnam (Photo: T. Hudson).



2. A group of *T. gemisectus* at Tregrehan Gardens, Cornwall, originating from seed sown in 2008 (Photo: J. Dransfield).



3. Undersurface of the leaf blade of *T. geminisetus* showing the white, waxy coating (Photo: J. Dransfield).



4. Detail of the leaf sheath fibers of *T. geminisetus* (Photo: J. Dransfield).



5. The distinctive erect infructescence of *T. geminisetus* (Photo: J. Dransfield).

Trachycarpus ukhrulensis in Kent, UK

VIC SILVER¹

***Trachycarpus ukhrulensis* has reached maturity in Kent, England and has begun to flower.**

Back in 2003 seeds of a newly discovered species of *Trachycarpus* became available; back then it was known as *Trachycarpus "manipur."*

Seeds were purchased as soon as they were made available from Toby Spanner on RarePalmSeeds.com. Seedlings were very slow and difficult to establish, and after eight years of pot culture, my largest plant was only in a 5-liter pot and no more than 90 cm in total height. In 2011, it was planted out in a sunny position in the garden, and after a few years of a creeping trunk habit, which is certainly a trait of *T. ukhrulensis*, it then started growing at a considerable rate.

Within 11 years of being planted it had produced its first flowers in April 2022 (Fig 1). To my knowledge it is the first of its kind to flower in the UK, and its flowering coincided with specimens flowering for the first time in both France and the Netherlands, presumably from same original batch from RarePalmSeeds. My plant turned out to be a male.

The differences between it and *T. fortunei* are fairly subtle but clear. It has a much thicker trunk that is wider at the base (still apparently expanding even with a huge trunk) and has very tight packed fibers surrounding the trunk (Fig. 2) giving it an almost naked appearance reminiscent of *T. martianus*. Around the

growing point and along the bases of the petioles there is fluffy light tan tomentum, that falls away almost like sawdust (Fig. 3). It has a silver-gray powder to the undersides of the leaf, and the leaves are generally larger than those of *T. fortunei*, having around 70 leaf segments compared to 40–50 for *T. fortunei*. I believe it is very closely related to *T. takil* and to the very rare *T. oreophilus*. *Trachycarpus ukhrulensis* is considered by some to be a synonym of *T. oreophilus*, but I grow both and although similar are certainly not the same. I have discussed this with my friend Martin Gibbons from the Palm Centre, who has written articles on all species of *Trachycarpus*, and based on my specimen, he agrees they are notably different and worthy of further study. It is very cold hardy. My established palm survived minus 11°C in 2018 with minor leaf damage, so less cold hardy than *T. fortunei*. I suspect smaller palms would certainly appreciate protection when young. It is quite susceptible to wind damage, and in the late winter of 2022, storm Eunice tore through the garden giving many palms an untidy look. A sheltered spot would suit this particular palm.

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1. *Trachycarpus ukhrulensis* flowering for the first time in cultivation in the UK. The flowers are staminate (male).



2. *Trachycarpus ukhrulensis* mature palm. Inset shows the relative thickness of the trunk and the texture of the persistent leaf base fibers.



3. Close-up photo of *T. ukhrulensis* showing the leaf base fibers and sawdust-like indumentum.

Photo Feature



This lush grove of *Washingtonia filifera* is at the northern limit of the species' natural range in California here in Kern County.

DR. PETAR VUKASIN
Valley Village, California







Chrysalidocarpus rufescens

JOHN DRANSFIELD¹, JEFF MARCUS² AND WOLF L. EISERHARDT³

The subject of this paper is a beautiful palm that has been in cultivation for almost 25 years, under various names, such as *Dypsis* 215 and *Dypsis heteromorpha*. Here it is described and named as *Chrysalidocarpus rufescens*.

It has proved tricky to find the origin of this palm in cultivation, although evidence suggests at least two separate introductions. One of us (JM) has consulted with Jerry Andersen, who grows the palm and is certain that the seed was originally purchased from Ortanique, a palm-seed business, and that the seed reached Ortanique from Alfred Razafindratsira in Madagascar in 2003. By 2004, JM was offering small plants in the Floribunda catalog. It is possible that there was a second, earlier introduction into cultivation. Matt Bradford and Darryl O'Connor on

PalmTalk reported that their original plants were received as seeds given to them by Ed Saloner, a nurseryman and IPS member, at the International Palm Society Biennial in Nong Nooch Tropical Garden, Thailand in 1998. A photograph purporting to be an adult of this palm taken in Madagascar was provided by Ed Saloner and posted on PalmTalk, but it is scarcely diagnostic, and there is little to indicate that it was photographed in the wild. In fact, there are numerous threads on PalmTalk discussing the identity and cultivation of this palm, either under the name *Dypsis* 215 or *Dypsis heteromorpha*.

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Following the recent phylogenetic classification of subtribe Dypsidinae (Eiserhardt et al. 2022), the palm in question is undoubtedly a species of *Chrysalidocarpus* H.Wendl. The palm's size, presence of six stamens and the general habit are all congruent with *Chrysalidocarpus* rather than *Dypsis* Noronha ex Mart., and DNA sequence data also place it firmly within *Chrysalidocarpus*. The palm is not a good match for *Chrysalidocarpus heteromorphus* (Jum.) Eiserhardt & W.J.Baker (formerly *Dypsis heteromorpha* (Jum.) Beentje & J.Dransf.) or any other described species of the genus, differing in a few key points. We here describe it as a new species.

***Chrysalidocarpus rufescens* J.Dransf., Eiserhardt & J.Marcus, sp. nov.**

Moderate-sized clustering palm (Fig. 1) with arcuate leaves with regularly arranged arcuate leaflets and interfoliar inflorescences, resembling in size and habit *Chrysalidocarpus lutescens* but differing in the presence of abundant lacinate rust-coloured scales on sheaths and petioles and the deeply ruminant endosperm. Type: USA. Hawai'i, Island of Hawai'i, Kurtistown, Floribunda Palms, 16 Feb 2015, J. Dransfield with J. Marcus and S. Dransfield JD7822 (Holotype K).

Moderate-sized densely clustering palm with 2–7 or more stems in the clump. Stems to 3 m tall, up to 12 cm diam. at base, tapering to 6 cm; nodal scars conspicuous, ca. 12–20 mm wide, pale; internodes (5)7–10(15) cm, bright green with vertical brown cracking; leaves 7–11 in crown, $\pm$ tristichously arranged; crownshaft rather poorly defined; leaf sheaths 25–81 cm long, up to 12 cm diam., bright green with gray-white caducous wax and abundant lacinate red brown scales, particularly around the leaf sheath mouth (Fig. 2), a distinctive coriaceous triangular auricle to 34 mm long and 20 mm wide sometimes present on one side of the petiole (Fig. 3), lacinate scaly as the sheath; petiole to ca. 40–58 cm long, 15–20 mm wide, 11 mm thick, adaxially channelled, abaxially angled, adaxially very sparsely brown scaly, abaxially densely covered with rough lacinate red-brown scales similar to those on the leaf sheath; rachis arcuate and twisted towards the tip, to ca. 2 m long, adaxially ridged, abaxially rounded, densely covered with caducous red-brown lacinate scales; leaflets to 46–59 on each side of the rachis, regularly arranged, held at an acute angle to the rachis, stiff in proximal half, distally arcuate, basal leaflets 57–81 $\times$ 1 cm, mid leaf leaflets 56–78 $\times$ 1.5 cm, distal leaflets 24–33 $\times$ 0.3 cm, adaxially glabrous, abaxially glabrous apart from large gray and brown lacinate ramementa in the proximal ca. 5 cm of the midrib and scattered powdery, caducous indumentum (Fig. 4), all leaflets tapering to a slender filamentous tip. Inflorescence interfoliar (Figs. 5 & 6), to ca. 80 cm long, branching to 2 orders, the branches widely spreading, yellowish when young, becoming green at maturity, all axes with abundant dark punctiform scales; peduncle ca. 50–80 cm long, 2 cm diam., with abundant brown lacinate scales; prophyll 38–45 cm long, 5 cm wide, inserted 12–14 cm above the base; peduncular bracts 50 $\times$ 5 cm, inserted 36–43 cm above the

base, both prophyll and peduncular bract densely brown tomentose, the bracts soon falling; rachis 45–50 cm long; rachillae slender, 12–27 cm long, 2 mm diam. in dry state; floral triads superficial borne 2–3 mm apart, rachilla bracts broadly triangular, entire, 1 1.5 mm, striate in dry state. Flowers at anthesis not seen. Fruits ellipsoid to obpyriform (Figs. 7 & 8), green in immature state, 15–20 $\times$ 9–13 mm, drying curved when immature. Seeds 10 $\times$ 6 mm; endosperm deeply ruminant.

Specimen examined: USA. Hawai'i, Island of Hawai'i, Kurtistown, Floribunda Palms, 16 Feb 2015, J. Dransfield with J. Marcus and S. Dransfield JD7822 (Holotype K).

The palm is now flowering and fruiting in several collections and it is clear that it does not match the type of *Neodypsis heteromorpha* Jum. (= *Chrysalidocarpus heteromorphus*), although it keys to that species (as *Dypsis heteromorpha*) in Dransfield and Beentje (1995). It is very distinctive and needs an unambiguous name.

In habit, the palm resembles *Chrysalidocarpus lutescens* H.Wendl. It is a moderate-sized species with prolifically clustering stems and with arcuate leaves and regularly arranged arcuate stiff leaflets, very much in the manner of *C. lutescens*. However, what immediately distinguishes the new species is the abundance of reddish brown lacinate scales in the distal part of the leaf sheath and towards the base of the petiole, a feature also attributed to *Chrysalidocarpus heteromorphus*. This latter species has entire bifid leaves on juvenile stems (not the case in *C. rufescens*) and infrafoliar inflorescences with crowded short rather thick rachillae, while in the new taxon, the inflorescences are interfoliar, with spreading slender rachillae. At face value it seemed highly unlikely that *C. heteromorphus*, described from the remote mountain massif of Tsaratanana in northern Madagascar would be collected again and again by seed collectors (albeit in small quantities) and exported.

In the recently published phylogenetic analysis of all Dypsidinae (Eiserhardt et al. 2022), the type specimen of *C. rufescens* is included under the name *C. heteromorphus*. Its position, grouping with *C. decaryi* (Jum.) Eiserhardt & W.J.Baker and *C. plumosus* (Hodel, Marcus & J.Dransf.) Eiserhardt & W.J.Baker rather than the morphologically similar *C. lutescens* and *C. arenarum* Jum. Unfortunately, true *C. heteromorphus* is not included in the study of Eiserhardt et al.



1. *Chrysalidocarpus rufescens*: mature clump showing strongly arcuate leaves and leaflets, reminiscent of *Chrysalidocarpus lutescens*, Floribunda Palms, October 2022. Photo: W. Eiserhardt.

(2022), and the phylogenetic relationships of *C. rufescens* to this species remain to be established. At first JD considered the possibility that the palm might be a hybrid of

cultivation, made between *C. decaryi* and some other species of *Chrysalidocarpus*. Such hybrids do exist in cultivation, and interestingly, several commentators on PalmTalk threads



2. *Chrysalidocarpus rufescens*: close-up of leaf sheaths showing dense reddish scales. Photo: W. Eiserhardt.

dealing with this palm speculated on a possible hybrid origin. However, all evidence suggests that *C. rufescens* originated from wild source seed collected in Madagascar and distributed by the late Alfred Razafindratsira.

Acknowledgments

We thank Mike Dahme and Toby Spanner for supplying information on the early introduction of this palm.

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3. *Chrysalidocarpus rufescens*: detail of lobe borne on one side of some leaf sheaths. Photo: J. Dransfield.



4. *Chrysalidocarpus rufescens*: detail of under-surface of leaflet showing ramenta along midrib and scattered powdery indumentum. Photo: W. Eiserhardt.



5 (top). *Chrysalidocarpus rufescens*: interfoliar inflorescence. 6 (bottom). Young inflorescence removed from leaf sheaths. Photos: W. Eiserhardt.



7 (top). *Chrysalidocarpus rufescens*: immature fruit. Photo: W. Eiserhardt. 8 (bottom). Old fruits (at left) and endocarps. Photo: William J. Baker.

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