



**Dypsis
heteromorpha**

USES. Not recorded.

CONSERVATION STATUS. Uncertain, but probably rare; the distribution area is not well known botanically.

Dypsis heteromorpha (Jum.) Beentje & J. Dransf. **comb. nov.**

SYNONYM:

Neodypsis heteromorphus Jum., Ann. Inst. Bot.-Géol. Colon. Marseille sér. 4, 2 (2): 20 (1924); Jum., Cat. Pl. Madagascar, Palmae: 18 (1938); Jum. & H. Perrier, Fl. Madagascar 30: 145 (1945). Syntypes: Madagascar, Tsaratanana, *Perrier* 11935 (not seen); 15266 (Syntype P); 15266bis (Syntype P).

Clustering palm in tufts of 3–6, but sometimes appearing solitary.

STEMS 3–12 m high, 8–12 cm diam.; internodes green, nodal scars obvious. **LEAVES** c. 10 in the crown, tristichous (fide *Humbert & Saboureaux* 31725); sheath 27–50 cm long, to 7 cm wide when flattened, with sloping shoulders, adaxially red-brown, abaxially very waxy, in the distal part with dense reddish lacinate scales; petiole absent or up to 35 cm long, 1–1.8 cm diam., densely pubescent or with scattered scales; rachis c. 1.5 m long, in mid-leaf 0.9–1.3 cm wide, slightly keeled, pubescent on both surfaces; leaflets (number unknown) regular, the proximal 20–62 × 0.2–2.5 cm, median 41–67 × 1–3.5 cm (interval 1.5–3.5 cm), distal 7–35 × 0.6–2.5 cm, main veins 1–5, and with thickened margins, abaxially with scattered reddish glands on the minor veins and continuous or scattered lacinate ramenta 3–20 mm long on the midrib, apex bifid, unequally attenuate, young shoots with entire, deeply bilobed leaves 26–50 cm long with a costa 2–4 cm and lobes 24–46 cm long, or leaves with 2–4 leaflets (not seen), on a 64–75 cm long petiole. **INFLORESCENCE** infrafoliar, branched to 2 orders, pendulous; peduncle 20–40 (+) cm long, proximally 2–3.5 × 0.8–1.3 cm, distally 1–2 × 0.7–1.2 cm, glabrous; prophyll 38–52 × 3–8.5 cm, borne at 9–20 cm above the base of the peduncle, open for a third or over its whole length, erect, with scattered scales; peduncular bract inserted at 17–29 cm from the base of the peduncle, 27–55 (+) cm long, open over its whole length, beaked for 0.5–4 cm, with scattered scales; non-tubular peduncular bracts one or two, 2–5 cm long; rachis 10–35 cm long, glabrous, with 8–10 branched and 7–9 unbranched first order branches, first order branches with a rachis 1.5–13 cm long and 1.1–1.7 × 0.5–0.8 cm diam. proximally with 3–9 rachillae; rachis bracts conspicuous, to 2.5 cm, pale brown; rachillae 5–23 cm long, 2–4 mm diam., with dense triads (more

distant in fruit), superficial or slightly sunk, with triangular acute rachilla bracts and very pronounced bracteoles. **STAMINATE FLOWERS** with sepals 2.7–3.2 × 3.5–4.4 mm; petals 3.5–3.8 × 2.5–3 mm; stamens 6, slightly 2-seriate (offset 0.2 mm), filaments in ripe buds 1.8–2.1 mm, cylindrical, anthers 2.2–2.4 × 0.9–1.2 mm; pistillode c. 2.4 mm high, 1.2 mm diam. **PISTILLATE FLOWERS** with sepals 3–4 × 3.3–5 mm; petals (at young bud stage) 3.6–3.8 × c. 3.5 mm, very concave (4–5.5 × 5–7.2 mm in young fruit); staminodes not seen; gynoecium when young c. 3 mm high, 1.8 mm diam. **FRUIT** ellipsoid, 17–23 × 14–22 mm, rounded at the apex; endocarp fibrous, the fibres anastomosing. **SEED** ellipsoid, 16–22 × 13–21 mm, obtuse at the base with a sub-aequatorial depression, rounded at apex, with slight surface grooving; endosperm ruminant, the ruminations distant and 1–7 mm deep. **EOPHYLL** bifid.

NOTE. Related to *D. baronii* and *D. onilahensis*, and possibly a high-altitude variant of the former; distinct by deep-ruminant endosperm.

SPECIMENS SEEN. Andapa / Ambilobe / Bealanana: Mt Tsaratanana, Oct. 1912 (y.fr.), *Perrier* 11935 (P); idem, Jan. 1923 (fr.), *Perrier* 15266 (P, syntype); idem, sine die (fl., fr.), *Perrier* 15266 bis (P, syntype). Bealanana: Ambohimirahavy Mts, Jan./Feb. 1951 (fr.), *Humbert & Capuron* 25281 (K, P). Andapa: N Anjanaharibe, Dec. 1950/Jan. 1951 (fr.), *Humbert et al.* 24766 (K, P); Ambatoharanana valley to upper Antsahaberoka, Nov./Dec. 1959 (y.fr.), *Humbert & Saboureaux* 31725 (K, P).

28. DYPISIS BARONII

A common species of the rain forest of the eastern escarpments. It closely resembles *D. lutescens*, but that is strictly a littoral species, confined to a narrow strip of vegetation close to the sea; and *D. onilahensis*, from drier localities on the Western side of the island. *D. baronii* is a graceful palm, and is often seen in the gardens of central Madagascar, particularly in Antananarivo. This is such a fine ornamental that it should be much more widely grown outside Madagascar than it is at present, particularly in view of its occurrence in upland areas. The species was named after the Reverend Richard Baron (1847–1907) who collected the type and many other plants in 1880–1897.

DISTRIBUTION. North, Central and E Madagascar.

HABITAT. Moist montane forests, bamboo-dominated forests; usually on steep mid-slopes, less often on ridge crests; survives in half-shade or full sun; 850–1470 m.

LOCAL NAMES. *Farihazo* (Imerina, “sugarcane tree”); *Tongalo* (Betsimisaraka).

USES. Excellent palm-heart; fruit edible and sweet. Very elegant palm, cultivated in Antananarivo and on the plateau as an ornamental.

CONSERVATION STATUS. Not threatened. The species occurs over a large area.

Dypsis baronii (Becc.) Beentje & J. Dransf. **comb. nov.**

SYNONYMS:

Chrysalidocarpus baronii Becc., Bot. Jahrb. Syst. 38, Beibl. 287: 33 (1906); Becc., Palme del Madagascar 39, fig. 30, t. 37 (1914); Jum.,

Dypsis baronii, perched on cliff edge, Marojejy (*Dransfield et al.* JD6769).

Ann. Inst. Bot.-Géol. Colon. Marseille sér. 2, 10 (3): 11 (1922). Lectotype (chosen here): Central Madagascar, *Baron* 3270 (lectotype K; isotype P).

Neodypsis baronii (Becc.) Jum., Compt. Rend. Acad. Paris 179: 249 (1924); Jum., Ann. Inst. Bot.-Géol. Colon. Marseille sér. 4, 2 (2): 23, fig. 1 (1924); Jum., Cat. Pl. Madagascar, Palmae: 16 (1938); Jum. & H. Perrier, Fl. Madagascar 30: 146, fig. 40 (1945).

Chrysalidocarpus propinquus Jum., Ann. Inst. Bot.-Géol. Colon. Marseille sér. 2, 10 (3): 19 (1922); Jum., Cat. Pl. Madagascar, Palmae: 11 (1938). Type: Madagascar, Analamazaotra, *Perrier* 12018 (Not seen).

Neodypsis compactus Jum., Ann. Inst. Bot.-Géol. Colon. Marseille sér. 5, 1 (1): 13 (1933); Jum., Cat. Pl. Madagascar, Palmae: 17 (1938); Jum. & H. Perrier, Fl. Madagascar 30: 154, fig. 43 (1945), **synon. nov.** Type: Madagascar, Mt. d'Ambre, *Perrier* 18870 (Holotype P).

Clustering palm in clumps of 3–5, rarely appearing solitary. **STEMS** 2–8 m high, rarely with a single branching point, 2.5–12 [–22] cm diam., near the crown 2.5–5.5 cm diam.; internodes 4–35 cm, near the crown as short as 1.3 cm, grey, grey-green or blackish; nodal scars c. 0.5 cm, faint, white; wood hard, with a dense layer of hard red fibres just underneath the bark; crownshaft to 10 cm diam., pale green to pale yellow, waxy, the unexposed sheaths peach-coloured; occasional-



Dypsis baronii

ly with the remnants of sheaths remaining on the distal part of the trunk, but usually the leaves abscising neatly. **LEAVES** 4–8 in the crown, spiral or tristichous, arching, the young leaves sometimes held on edge in their distal half; sheath 28–60 cm long, pale green to pale yellow, waxy, the unexposed sheaths peach-coloured, only distally densely scaly, with auricles to 2 cm high; petiole 0–37 (–53) cm long, proximally 1–2.3 × 1.2–2.5 cm, distally 0.8–1.3 × 0.8–1 cm diam., with dense but flaking red to dark scales, therefore appearing crimson when young, later with scattered scales, slightly channelled; rachis 0.5–1.2 m long, abaxially densely scaly but glabrescent, in mid-leaf 0.8–1.6 cm wide and keeled; leaflets 35–60 on each side of the rachis, regular, in one plane, dark green, stiff with the distal part pendulous, the proximal 19–100 × 0.3–1.1 cm, median 25–49 [–77] × 0.9–2.7 cm, distal 7–36 × 0.3–1.8 cm, sometimes glabrous but more often with quite a few ramenta (2–5 mm long) proximally, on the minor veins often with scattered reddish bumps, these being the remnants of the quite dense bases of stellate-laciniate reddish scales on the minor veins in young leaves, main vein 1, plus rather thickened

margins, apices bifid, unequally attenuate. **INFLORESCENCE** interfoliar or infrafoliar, branched to 2 orders, arching; peduncle 24–62 cm long, proximally 0.8–2.2 × 0.5–0.8 cm, distally 1.8–3.5 × 0.9–2 cm diam., glabrous, proximally red, distally green; prophyll 25–73 × 2.2–4 [–5.5] cm, borne at 2.5–22 (–45) cm above the base of the



Dypsis baronii. View of crown in fruit, Mt. d'Ambre (Photo: B. Du Puy & D. Du Puy).

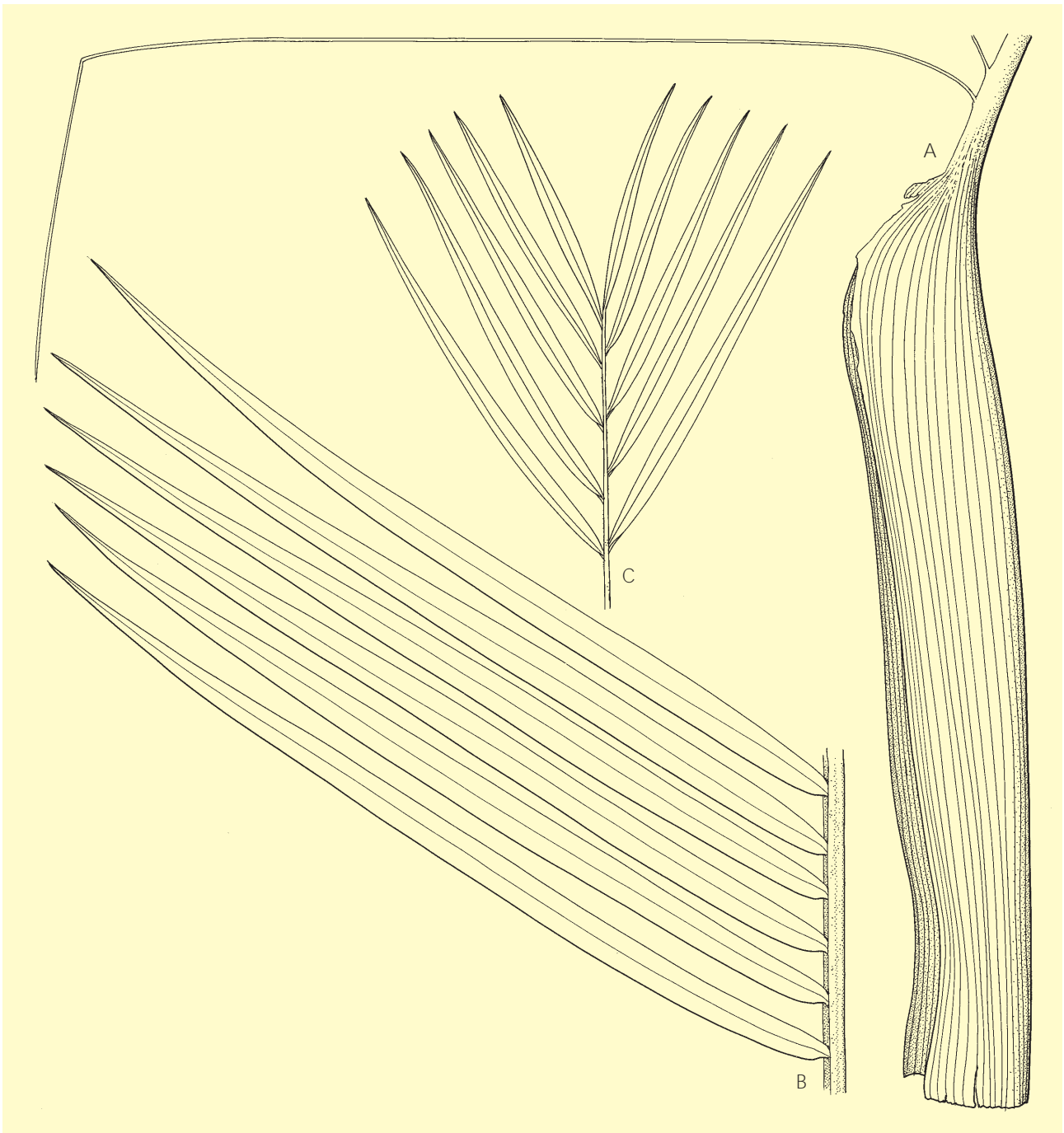


Dypsis baronii. Close up of staminate flowers, Ambohitsaratelo (*Dransfield et al.* JD6447).

peduncle, erect, often hooded, dark crimson to pale brown, distally with scattered scales; peduncular bract inserted at 22–54 from the base of the peduncle, deciduous, 20–44 (–65) cm long, erect and hooded, deep crimson or brown, carried upwards by the lengthening inflorescence; non-tubular peduncular bracts usually 2, 1–6 (–17.5) × 0.6–1.4 cm; rachis 13–33 cm long, glabrous, with 5–21 branched and 7–10 unbranched first order branches, the proximal with a secondary rachis of up to 4.5 [–11.5] cm long and 4–13 × 2–6 mm diam. and with 4–9 [–15] rachillae, rachis bracts 4–20 mm long; rachillae 3–24) cm long, [1.5–] 2.5–4.5 mm diam., glabrous, pinkish to pale green, with distant or dense slightly sunken triads; rachilla bracts 1–1.5 mm, acute. **STAMINATE FLOWERS** faintly scented; sepals cream with brown tips and 1.9–3 × 2–3.1 mm; petals proximally white, distally red, connate for 0.5–1.8 mm, free parts 2.5–4 × [1.8–] 2.5–3.5 mm, often with swellings proximally on each side of the filament insertion; stamens 6, biseriate (offset 0.2–0.4 mm),

filaments white, (0.8 in bud–) 2.4–4.5 mm long, 0.4–1.3 mm wide with the antepetalous ones flatter than the cylindrical antesealous ones, anthers 1.1–2 × 0.5–1.4 mm; pistillode 1.4–3.3 × 0.6–1.5 mm. **PISTILLATE FLOWERS** with sepals 2.2–2.8 × [1.7–2.4] 2.5–3 mm, slightly apiculate; petals 2.8–3.5 × [2.3–2.6] 2.8–4.2 mm; staminodes 6, 0.4–1 mm; ovary 2.8–3.3 × 2.8 mm. **FRUIT** yellow, ellipsoid or subglobose, 10–20 × 8–16 mm; endocarp fibrous. **SEED** ellipsoid or slightly obovoid, 9.5–12 × 7.5–11 mm, pointed at the base, rounded at the apex, with a sub-basal depression, the outside slightly grooved; endosperm ruminant, the intrusions corresponding to the grooves, 1–1.5 [–3] mm deep and medium dense.

NOTE. *Chrysalidocarpus propinquus* is said by Jumelle to be a form on denuded rocks with a short petiole and short, narrow leaflets, a very short peduncle and



Dypsis baronii. **A** leaf sheath and basal leaflet × 1/2; **B** mid section of leaf × 1/2; **C** leaf tip × 1/2. All from *Beentje & Andriampaniry* 4544. Drawn by Rosemary Wise.

rachillae, and small fruit. It was put into synonymy by Jumelle in 1924.

We have included *N. compactus* in the synonymy of *D. baronii*; the differences with the bulk of *D. baronii* are *N. compactus* being called solitary and having a diameter of 10–22 cm; in *N. compactus* the median leaflets are generally longer, 49–77 cm long (bulk of population 25–49 cm); the first order branches have a generally longer secondary rachis, 4.5–11.5 cm, and the petals are narrower. Except for the trunk characters all these differences are differences of degree rather than absolute; several collections of *D. baronii* s.s. have been called solitary; we believe

the thicker trunk is the only real character. With a bit more we would have kept them apart, but they look so similar that *N. compactus* has to be included in synonymy; the extremes for *N. compactus* are indicated by [square brackets] in the description.

HB found many small red ants in a ripe infructescence (*Beentje & Raharilala* 4412). In Mantady and at Maromiza HB has seen two stems which had a single branch at c. 1 m above the base.

This species is extraordinarily close to *D. onilahensis*, and only differs in the habitat and the ruminant endosperm; the ruminations in *D. baronii* are difficult to see at times, being very small, and *D. baronii*



Dypsis baronii. **A** inflorescence $\times 1/2$; **B** staminate flower $\times 5$; **C** fruiting rachillae $\times 1/2$; **D** mature fruit $\times 2$; **E** fruit in cross section $\times 2$. **A, C - E** from *Beentje & Andriampaniry* 4544, **B** from *Beentje & Andriampaniry* 4771. Drawn by Rosemary Wise.

has been found in sites which are really in *D. onilahensis* territory, such as the forest of Ambohitsaratelo. In the absence of fruit, several collections could not be identified as belonging to one or the other [Miandrivazo: NW of Ambohitsaratelo-Bebao, July 1974 (fl.), *Morat* 4590 (P, TAN); idem, Nov. 1986 (fl., y.fr.), *Dransfield et al.* JD6447 (K, P, TAN)] but since *Dorr et al.* 3532 from the same locality has ruminant endosperm, they are more likely *D. baronii*.

SPECIMENS SEEN. Antsiranana: Mt d'Ambre, Nov. 1932 (fl., fr.), *Perrier* 18870 (P, type of *N. compactus*); idem, June 1970 (fl.), *Bosser* 20367; idem, near the summit, Oct. 1991 (fr.), *Malcomber et al.* 976; idem, Bianamalo, June 1989 (ster.), *B. Du Puy et al.* MB 217 (K) & (fl.) MB 222 (K). Andapa: Mt Ambodilaitra, March 1949 (y.fr.), *Humbert* 23287 (K, P; differs in longer rachillae than rest, 19–24 cm); Ambatosoratra, Jan. 1949 (y.fr.), *Cours* 3342 (P); Marojejy E, N of Mandena, Nov. 1989 (bud), *Dransfield et al.* JD6769 (K, TAN). Ambatondrazaka: Manaka Est, Jan. 1959 (dead infl), *Rakotovao RN* 11019 (K, P); idem, April 1961 (fr.), *Rakotovao RN* 11859 (K); Ambatoharanana near Antsevabe, March 1951 (fr.), *Cours* 4061 (K, P, TAN). Manjakandriana: Angavokely, Oct. ?1924 (fl.), *Perrier* 15883 (P); Mandraka, Feb. 1985 (y.fr.) *Barnett et al.* 455 (K, MO, P); idem, Feb. 1985 (fr.) *Dorr et al.* 3729 (K, MO). Moramanga: Andasibe, Nov. 1986 (bud), *Dransfield et al.* JD6426 (K, P, TAN); idem, Dec. 1991 (fl), *Beentje & Andriampaniry* 4534 (BH, K, MO, P, TAN); idem, Dec. 1991 (fl., y.fr.) *Beentje & Andriampaniry* 4544 (BH, K, MO, P, TAN); Mantady, Dec. 1992 (fl.), *Beentje & Andriampaniry* 4771 (K, TAN); Maromi(ha)za, Feb. 1926 (fr.), *Perrier* 15990 (P); idem, March 1991 (fr.), *Beentje & Raharilala* 4412 (BH,



Dypsis andrianatonga, showing branching and infructescence, Bekolosi (*Beentje et al.* 4571).

K, MO, P, TAN), 4414 (K, TAN); Lakato Road, Nov. 1972 (fl.), *Guillaumet* 4030 (P, TAN); Rahobevava, March 1951 (fr.), *Cours* 4297 (K, P, TAN). Miandrivazo: NW of Ambohitsaratelo-Bebao, Jan. 1985 (fr.), *Dorr et al.* 3532 (K, MO, P). Fianarantsoa: Vohiparara, July 1992 (dead infl.), *Beentje & Andriampaniry* 4716 (BH, K, MO, P, TAN).

WITHOUT PRECISE LOCALITY: Central Madagascar, (bud), *Baron* 3270 (K, type of *N. baronii*), (bud) 4509 (K, P), (bud) 6068 (K, syn-type); anno 1847–1852 (leaf only), *Boivin* s.n. (P); without any data, *Perrier* 12082 (P).

CULTIVATED: Analamazaotra (fr.), *Perrier* 15989 (P); Antananarivo, Antanimena, 1924 (fr.), *Perrier* 16061 (P).

29. DYPISIS ANDRIANATONGA

A rather small branching palm which is restricted to the high mountain massifs of northern Madagascar. All individuals we have seen displayed branching. The species seems closest to *D. baronii*. The epithet means 'the nobleman has arrived' and comes from the local name of the species.

DISTRIBUTION. Manongarivo and Marojejy Massif.

HABITAT. Open moist montane forest or heath vegetation, occasionally on rocks in denser forest; 700–1800 m.

LOCAL NAMES. *Tsiriki andrianatonga* (Tsimihety, *tsiriki* being a general palm name).

USES. Leaf decoction used in drink for convalescence, highly prized.

CONSERVATION STATUS. Rare. The distribution of this species is limited. In Manongarivo it is not uncommon in a rather narrow vegetation belt on Bekolosi Mountain.

Dypsis andrianatonga Beentje sp. nov.

D. baronii et *D. serpentinae* similis, a *D. baronii* habitu ramificanti foliis paucioribus inflorescentia minore grana majore et a *D. serpentina* petiolo brevioris foliis regulariter dispositis inflorescentia majore rachillis pluribus differt. Typus: Madagascar, Manongarivo, Bekolosi, Jan. 1992, *Beentje & Quansah* 4559 (Holotypus K; isotypus MO, P, TAN).

Clustering palm in tufts of 8–14. **STEMS** 2–9 m tall, 1.5–2.5 cm diam., snaking and procumbent but with the distal part erect, proximally and/or distally branching at the nodes, often rooting at the branching points; internodes proximally 11–18 cm, distally 1–2.5 cm, dark green, glabrous, nodal scars 0.3–0.7 cm, grey-brown, slightly stepped. **LEAVES** c. 5 per crown, spiral to almost tristichous, arching-erect, 80–190 cm; sheath 20–39 cm, closed but occasionally split proximally, without obvious auricles or with minute ones to 5 mm high, green, slightly waxy, proximally glabrous or with lacinate reddish scales, distally with some scattered scales; petiole 6–32 cm, proximally 5.5–10 × 3–5 mm diam. and with a triangular fleshy extension of the sheath lining, channelled proximally, distally 3–6 × 3–5 mm diam., densely pubescent or with scattered scales; rachis 42–128 cm, in mid-leaf to 7 mm wide, keeled, densely pubescent or with few scattered scales; leaflets regular, attenuate, 12–35 on each side of the rachis, the proximal 21–43 × 0.6–1.8 cm, median 16–35 × 2–3.2 cm (interval 3–5.3 cm), distal 3–20 × 0.3–1.9 cm, the distal pair joined for up to 0.5 cm, main veins 1–3, and with thickened margins, with occasional ramenta to 6 mm, with scattered scales on the veins and margins. **INFLORESCENCE** infrafoliar, branched to 1–2 orders, erect proximally, curved in the distal part of the peduncle through some 140°; peduncle 7–40 cm, proximally 4–12 × 3–3.5 mm diam., distally 4–6 × 2.5–4 mm diam., waxy; prophyll 12–59 cm, borne at 1.5–24 cm above the base of the peduncle, pale brown with scattered scales; peduncular bract persistent or deciduous, inserted at 4–28 cm from the base of the