

distal part pendulous, the proximal 105–137 × 0.8–2.1 cm, median 105–170 × 2.7–5.1 cm (interval 2.5–4 cm), distal 18–30 × 0.4–2.3 cm, the distal pair joined for c. 10 cm, main veins 1, quite glabrous, apices acute and bilobed. **INFLORESCENCE** infrafoliar, erect and spreading, 1.3–1.5 × 1.2–1.4 m, branched to 3 orders; peduncle 25–34 cm long, proximally 6.5–12 × 3.5–7 cm diam., with scattered scales; prophyll 50–60 × 10–13 × 4 cm, borne at 7–9 cm above the base of the peduncle; peduncular bract inserted at 15–16 cm from the base of the peduncle, c. 90 cm long, 14 × 9 cm diam., green with a white bloom, beaked for 6 cm; rachis 90–120 cm long, pale whitish green, with 18–22 branched and 15–21 non-branched first order branches, the most proximal of these with a rachis of up to 32 cm, at its base to 2.5–5 × 1.2–1.5 cm diam., with up to 21 second order branches and rachillae; rachillae whitish green, 24–58 cm long, 3.5–5 mm diam., glabrous; triads distant, in slight pits; rachilla bract small, acute. **STAMINATE FLOWERS** cream; sepals 1.5–2.1 × 1.4–1.8 mm, broadly ovate, gibbous proximally, keeled, acute to truncate, with ciliolate membranous margins; petals 3–3.4 × 1.7–2 mm, ovate, acute; stamens 6, uniseriate, filaments 1.2–1.5 mm long, thin, anthers 2–2.3 × 0.5–0.6 mm, dorsifixed, versatile, the locules parallel and obtuse; pistillode c. 1.5 mm high, columnar, 0.5 mm diam. **PISTILLATE FLOWERS** cream; sepals 1.8–2.4 × 2.2–2.6 mm (–3.6 mm in fruit), broadly ellipsoid, rounded, concave, ciliolate; petals 2.7–3.4 × 2.3–2.5 mm (–4 × 4.5 mm in fruit), concave, striate, with membranous margins, ciliolate; staminodes 6, flat, obtuse, 0.2–0.8 mm long; gynoecium 3–3.4 × 2.2–2.7 mm. **FRUIT** ovoid, 10–13 × 7.5–9 mm, apex obtuse with an asymmetrical point; endosperm fibrous, the fibres slightly anastomizing. **SEED** ellipsoid, 9–11 × 7–8 mm, pointed at the base, rounded at the apex, with a subaequatorial depression; endosperm ruminant, the ruminations distant and 1–2 mm deep.

NOTE. Closest to the other large tristichous species, *D. tsaravoasira* and *D. pilulifera*. Distinct in its longer rachillae and homogeneous endosperm.

SPECIMENS SEEN. Nosy Be: Lokobe, Sept. 1932 (fr.), *Perrier* 18730 (Holotype P); idem, July 1992 (fl.), *Beentje & Andriampaniry* 4697 (K, MO, TAN), and (bud), *Beentje & Andriampaniry* 4700 (BH, K, MO, P, TAN). Ambanja: Manongarivo, S of Ambalafary, Feb. 1992 (fr.), *Beentje et al.* 4583 (BH, K, MO, P, TAN).

6. DYPISIS TSARAVOASIRA

A majestic, tristichous palm. The leaves are in three ranks. Although the material is incomplete, this is clearly a distinct taxon. The name derives from the local name.

DISTRIBUTION. Only known from Marojejy, Maroantsetra and Mananara.

HABITAT. Open primary forest, steep upper slopes or ridgetop hollows; 275–1050 m.

LOCAL NAMES. *Tsaravoasira*, *Hovotravavy*, *Lavaboko* (Betsimisaraka).

USES. Palm-heart edible.



Dyopsis ampasindavae

CONSERVATION STATUS. Endangered. Only known from three sites, two of which are under agricultural pressure; numbers within the populations are low, and we have seen less than thirty altogether.

***Dyopsis tsaravoasira* Beentje sp. nov.**

inter species maximas tristichas foliolis regulariter dispositis inflorescentiis multo ramosis numero foliolorum infra glandibus dispersis tectorum distincta. Typus: Madagascar, Sahavary, hills E of village, Andilampananina, *Dransfield et al.* JD6463 (Holotypus K; isotypi P, TAN)

Solitary palm. **TRUNK** 10–25 m, 18–40 cm diam, prominently ringed above, scarcely below, 7.5–25 cm across near crown, internodes 5–15 cm, pale brown, distally green. Crownshaft green, swollen, 1–1.5 m. Wood pink. **LEAVES** 5–9, tristichous, porrect, stiff to arcuate; sheath 69–150 cm long, 12 cm across, green, distally densely scaly, with or without irregular ligule c. 22 mm; petiole 0–13 cm, distally 4.5 × 4 cm, densely scaly to glabrous; rachis strongly arcuate, 2–3.5 m long, glabrous or scaly, in mid-leaf 2–3 cm wide; leaflets 102–120 on each side of the rachis, regular, stiff to arcuate, dull dark green, the ones on opposite sides of the rachis in one plane or at a slight angle, less conspicuously so near the tip, mid-green, proximal leaflets 68–135 × 0.5–3.1 cm with conspicuous pendulous reins, median 81–127 × 2.2–3 cm (interval 1.5–3 cm), distal 10–48 × 0.2–2 cm, apex single or bifid, unequal, main vein 1, thickened margins, rest faint, scattered tufts of ramenta, and with a few scattered scales on the minor veins. **INFLORESCENCE** infrafoliar, branching to 3 orders, arching with pendulous rachillae; peduncle 22–26 cm, strongly curved, distally c. 4 × 3 cm, with



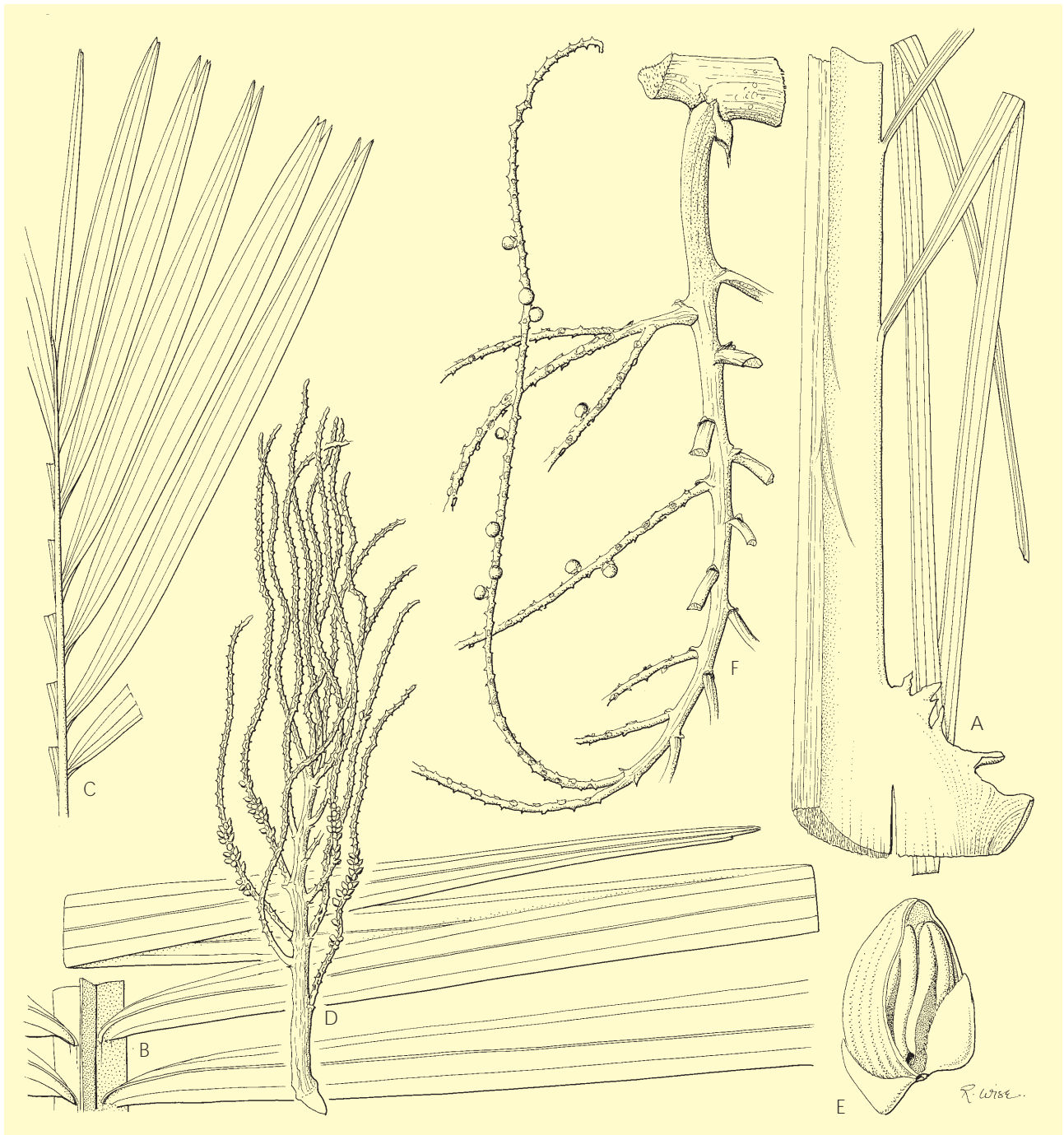
Dyopsis tsaravoasira, the crowns of curving leaves visible in the distance, Antalavia.

scattered scales; prophyll 41–54 cm, borne at 6–9.5 cm above the base of the peduncle, c. 14 cm wide, persistent, pale brown abaxially, chestnut-red adaxially; peduncular bract inserted at c. 14 cm above the base of the peduncle, deciduous; rachis 47–50 cm, first order branches 14–20, 15 × 9 mm across, glabrous or with minute scattered scales, all axes green; rachillae cream-coloured, pendulous, 13–53 cm, 3–4 mm across, glabrous; triads spaced to dense, sunken; rachilla bract obtuse. **STAMINATE FLOWERS** only known in young bud. **PISTILLATE FLOWERS** in young fruit with sepals 2.8–3.7 × 4–5.2 mm, ciliolate; petals 4.5–5 × 5.6–6 mm; staminodes c. 1.2 mm long. Young **FRUIT** 4–5 × 5–5.5 mm.

NOTE. This taxon resembles *D. pilulifera* but is distinct by the regular leaflets and the presence of scattered scales on the leaflets.

SPECIMENS SEEN. Andapa: Marojejy E, N of Mandena, Nov. 1989 (y.fr.), *Dransfield et al.* JD6760 (K, P, TAN). Maroantsetra, Sahavary, hills E of village, Andilampananina, Feb. 1988 (y.fr.), *Dransfield et al.* JD6463 (Holotype K; isotypes P, TAN); Antanambe, Oct. 1991, (dead infl.), *Beentje & Andriampaniry* 4467 (K, TAN).

ALLIED SPECIMEN: close, but with clear differences are two specimens from Andapa: Marojejy, Nov. 1984 (y.fr.), *Dransfield et al.* JD6762 (K, P, TAN); idem, S base of Mt. Beondroka, Oct. 1989 (dead infl.), *Miller & Randrianasolo* 4493 (K, P, TAN); local names: *Voanioala*, *Lavaboko*, *Tsaravoasira*. A solitary palm 15–20 m high, 15–20 cm diam., with 8–10 tristichous leaves; leaf sheath 62 cm, hardly scaly; petiole 0–5 cm; rachis c. 4 m with c. 70 leaflets on each side, the median 85–104 × 3.3–3.6 cm. Inflorescence branched to 2 orders; rachillae pink, 11–26 cm long, 3–4.5 mm diam., glabrous,



Dypsis tsaravoasira. **A** proximal part of leaf with distal part of sheath, petiole and lowermost leaflets × 1/3; **B** mid section of leaf × 1/3; **C** leaf tip × 1/3; **D** first order inflorescence branch × 1/3; **E** young staminate flower, one petal removed × 15; **F** first order branch of inflorescence × 1/3. All from *Dransfield et al.* JD6463. Drawn by Rosemary Wise.



**Dypsis
tsaravoasira**

with distant triads in slight pits. No flowers have been seen; fruit only seen when young.

Similar is possibly *Moore* 9919 from Masoala: Ambohitralanana, April 1971 (fr.) with the leaf sheath c. 90 cm, petiole 45 cm, rachis 3.2 m, but this has interfoliar inflorescences with rachillae 19–29 cm and fruits 16–17 × 12–13 mm, with homogeneous endosperm; the leaves are said to be in five ranks. The local name is *Buresy*.

7. DYPISIS NAUSEOSA

We found this species some eighty years after the type (and up to that time, only) collection by Perrier, though we failed to find it on Vatovavy. The name indicates the supposed poisonous palm-heart, which is also reflected in local names.

DISTRIBUTION. Known only from the coastal parts of Fianarantsoa Province.

HABITAT. Eastern forest, possibly rather dry; 50–200 m.

LOCAL NAMES. *Rahoma*, *Mangidibe* (Antaisaka, means very bitter), *Laafa* (general palm name).

USES. Wood used for roofing beams, outer wood used for floorplanks. Palm-heart bitter, said to be poisonous.

CONSERVATION STATUS. Critical. Only known from two recent collections, both from areas where the forest is being cut down at a rapid rate. Less than twenty trees are known to exist.

Dypsis nauseosa (*Jum. & H. Perrier*) *Beentje & J. Dransf. comb. nov.*

SYNONYM:

Neodypsis nauseosus Jum. & H. Perrier, Ann. Inst. Bot.-Géol. Colon. Marseille sér. 3, 1 (1): 19, pl. VI (1913); Jum., Ann. Inst. Bot.-Géol. Colon. Marseille sér. 4, 2 (2): 31 (1924); Jum., Cat. Pl. Madagascar, Palmae: 18 (1938); Jum. & H. Perrier, Fl. Madagascar 30: 156 (1945). Type: Madagascar, Mt Vatovavy, *Perrier* 12087 (Holotype P).

Solitary palm. **TRUNK** 7.5–15 m, 20–25 cm diam., with a basal swelling 47–58 cm diam.; internodes 10–23 cm, pale brown, nodal scars c. 3 cm; wood medium soft, white or pink. **LEAVES**



Dypsis nauseosa. Inflorescence (*Beentje & Andriampaniry* 4510).