

mm, with 3 short to long, acuminate, triangular lobes to 1·5 mm; petals 3, free, 2·5–2·6 × 0·5–1 mm, 3 veined, eventually disintegrating leaving the veins free; staminodes 6, filaments very slender, flattened, the anthers sagittate, flattened, empty; ovary flask-shaped, 3 × 1 mm; stigmas 3, short, recurved. Mature *fruit* ellipsoid or broadly ovoid, 9–10 × 5–8 mm, one-seeded, stigmatic remains lateral near the base; epicarp yellow, drying wrinkled, mesocarp apparently thin. Seed rounded, c. 5 mm in diameter; seedcoat brown, very thin.

DISTRIBUTION. Comoro Islands: Grand Comore, Moheli, Anjouan.

HABITAT. Moist forest at altitudes of 600–900 m. Once reported from riverine forest at this altitude.

LOCAL NAMES. 'Inazi' (fide St John) which sounds suspiciously like Mnazi, the Swahili name for coconut.

SPECIMENS EXAMINED. Grand Comore: near Maoueni, La Grille, Dec. 1967, (stam.), *Bernardi* 11646 (K, P); Charboni-La Grille, Aug. 1961 (stam.), *St John* 26543 (K); and August 1961, (fr.), *St John* 26544 (K); Combani forest, Nov. 1884 (stam.), *Humboldt* 1395 (P); "on high mountains", April 1884 (stam.), *Humboldt* 1608 (P). Moheli: Mironjani, Nov. 1968 (fr.), *Schlieben* 11214 (P). Anjouan: March 1877 (stam.), *Bewsher* 34 (P); and April 1861 (fr.), *Kirk* s.n. Without locality: (stam.), *Humboldt* 395 (K, P).

Cultivated: Royal Botanic Gardens, Kew, 21 May 1884, (stam., prototype K); and 20 July 1886, (fr., K); and 17 April 1891, (stam., pist., K); and 18 June 1901, (stam., K); Hannover, Herrenhausen Botanic Garden, Sept. 1884, (stam., y.fr.), comm. *Wendland* s.n. (K); and May 1885, (stam.), *Wendland* s.n. (K).

I have designated a prototype because the holotype, i.e. the illustration accompanying the protologue, is of a young plant which is only referable to *Ravenea* because of the accompanying description and the provenance of the seed from which the plants were grown. The illustration on its own could depict virtually any palm with pinnate leaves; the seed is not illustrated. If the provenance (Anjouan, in the Comoros) is taken into account, the possibilities are restricted to *R. hildebrandtii*, *R. moorei*, *Chrysalidocarpus humblotianus* and *C. lanceolatus*. Beccari (1914) mentions *Hildebrandt* 1743 at Berlin, a specimen from Anjouan, in mountain forest at 600–1000 m, with young fruit; this must have been the voucher for the seed collection by Hildebrandt, grown at Berlin, of which the young plants were described by Bouché, and the flowering plants by Hooker. The specimen would have made an excellent prototype, but has been destroyed in the Berlin bombing, and only a fragment of it survives at FI. Therefore, I have chosen another specimen originating from the original seed collection by Hildebrandt.

12. *Ravenea dransfieldii* Beentje sp. nov. *R. lakatrae* affinis sed petiolis absentibus, inflorescentia mascula bis ramifera, fructu 1-seminali stigmatibus basalique recedit. Type: Madagascar, Hiaraka, *Dransfield et al.* JD 6372 (holotypus K; isotypi BH, MO, P, TAN).

Medium-sized palm, the *trunk* 4–7 m, DBH 10·5–18 cm (diameter near crown 9·5–15 cm); bark pale brown, scars 2·5–6 cm, internodes 4–7 cm; wood

black, extremely hard; wounds in bark bleed watery fluid. Base of crown bulbous, 24 cm across. *Leaves* 11–17 in crown, porrect, straight, held on edge in distal half; sheaths open, 45–63 × 15–20 cm, pale or bright green, covered in white or brown tomentum, glabrescent, the margins with reflexed fibre spines; petiole absent; rachis 330–435 cm long, 4·3–13 × 1·2–6 cm across proximally, 2–2·8 × 1·1–2 cm in the middle part, here either deeply canaliculate or with a keel c. 5 mm wide, green with scattered brown scales; leaflets dark green, 70–84 on each side of the rachis, the lowermost reflexed or pendulous (and grouped in 3), the rein margin with almost woody dentiform excrescences; other leaflets in one plane or slightly pendulous, pale or dark green, leathery, ramenta lacking, the proximal (65) 95–120 × 1·3–4·7 cm (and once with the proximal 2 pairs distant by 30 cm from the more distal pairs), median 72–100 × 3–5 cm (interval 3–4 cm), distal 11–37 × 0·5–3 cm, the top pair connate for 1/5, the rachis continuing past the distal pair for >1 cm; ramenta very few or none; small sinuous transverse veinlets visible in dried material. *Staminate inflorescence* solitary, erect, c. 126 cm, branched to 2 orders with erect rachillae; peduncle 44–66 cm long, distally 0·5–2·5 × 0·5–1·25 cm; prophyll unknown; peduncular bracts about 42 cm, 52–66 × 9 cm, 97–140 cm, 100–139 × 8 cm; non-tubular peduncular bract 4·7–7·9 × 0·1–0·8 cm; rachis 30–50 cm with 1–6 branched and c. 50 unbranched first order branches; rachillae 18–35 cm long, c. 1·3 mm across; pedicels 1·5–3 mm; bracteole 2·3–2·8 mm, connate for 0–1 mm; flowers foetid or sickly scented, cream-coloured becoming grey-brown, becoming hot at anthesis, not abscising but becoming marcescent; petals very quickly deliquescing, leaving included fibres; calyx connate for 1·8–3 mm, 2·3–2·6 mm across, free lobes triangular, acute, 0·8–1·7 × 0·8–1·2 mm; petals free, narrowly ovate, acute, 4·5–6·5 × 1·5–2·5 mm; anthers 3–3·3 × 1–1·3 mm, the filaments 0·2 mm (anther inserted 0·5 mm up the petal when antepetalous) to 0·6–1·6 mm (antesepalous); pistillode 0·3–0·7 × 0·3–0·5 mm. *Pistillate inflorescence* solitary, interfoliar, branching to one order, erect, largely obscured by the leafsheaths; peduncle c. 26 cm long, proximally 3 × 1·4 cm, distally 2·5–2·8 × 1·3 cm across; prophyll 28 × 9 cm, white, membranous; peduncular bracts almost fleshy, pale cream-coloured when fresh, becoming brown, the proximal small (36·5–49 × 3·7–6·5 cm), pubescent externally, glabrous internally, the upper two large, (43+)–72, (58+)–74 cm; rachis c. 18 cm long, the rachillae many, tightly packed, appressed-erect, 9·5–27 cm long, 1·5–2 mm across; pedicels 1·5–8 mm, with an 80% connate bracteole of 1·5–3·5 mm long; bracteoles 15 × 0·5 cm; flowers foetid or sickly-scented, cream-coloured becoming grey-brown, becoming hot at anthesis, not abscising but becoming marcescent; petals very quickly deliquescing, leaving included fibres; calyx connate for 1 mm, 1·5 mm across, free lobes 1–1·5 × 1·3 mm; petals 4·2–8·5 × 2·3–3·2 mm, c. 1 mm thick; ovary 3·5–4·2 × 2·3–3 mm; staminodes six, 1·5 mm long. *Fruit* orange (fide Humbert), ovoid or ellipsoid, 15–20 × 12–15 mm, one-seeded; stigmatic remains subbasal; seed ellipsoid, 15 × 10 mm, seed coat black, 0·2 mm thick, with outer sclerified pericarp-like black layer. Fig. 4, 5.

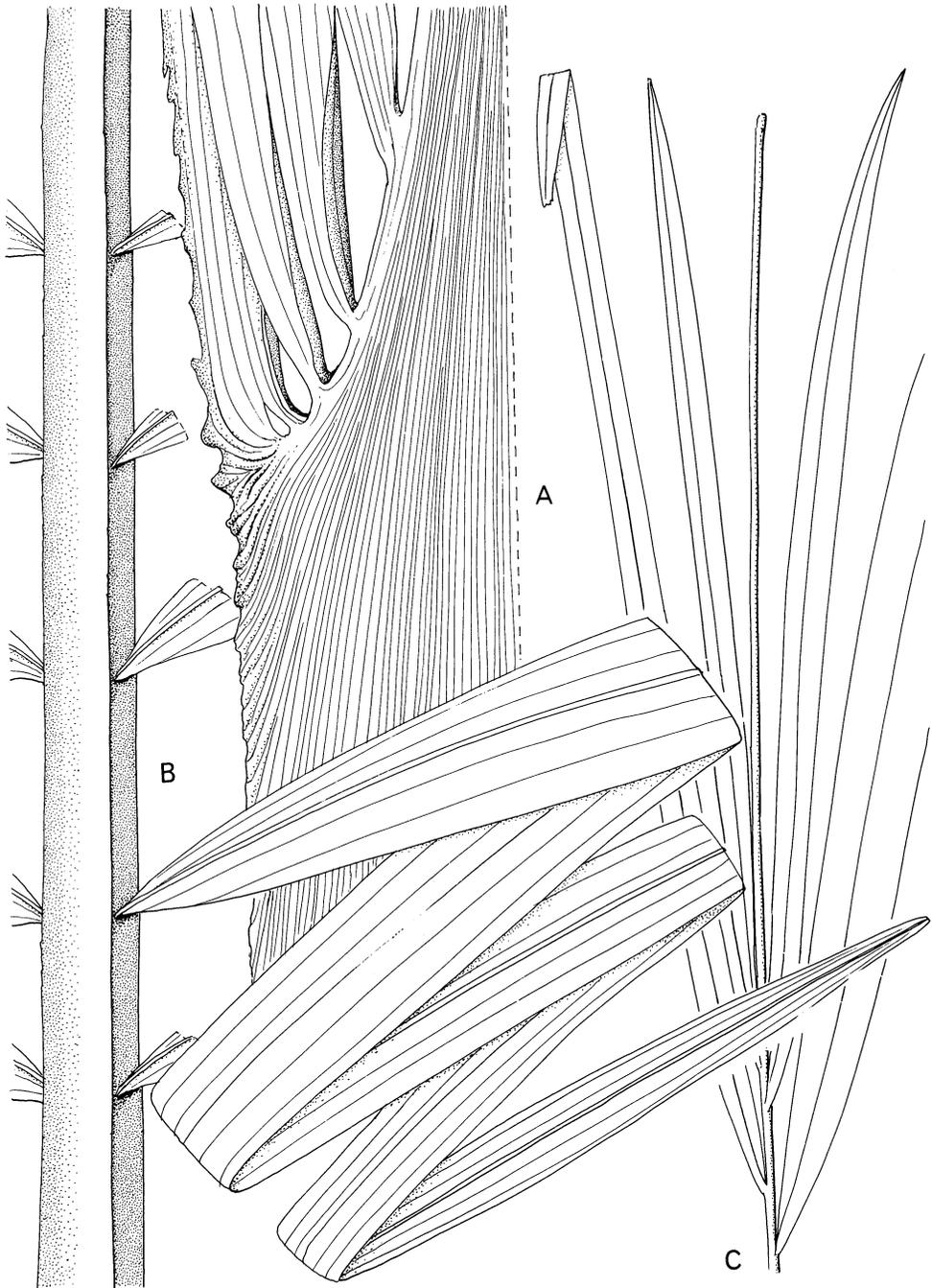


FIG. 4. *Ravenia dransfieldii*. **A** distal part of sheath and proximal leaflets $\times \frac{2}{3}$; **B** mid-portion of leaf, adaxial view $\times \frac{2}{3}$; **C** leaf tip $\times \frac{2}{3}$. **A** from *Dransfield et al.* JD 6372, **B-C** from *Beentje & Andriampaniry* 4732. Drawn by Rosemary Wise.

DISTRIBUTION. E Madagascar: between Marojejy Mts. and Ifanadiana.

HABITAT. Moist forest, on slight to steep slope or hillcrest; 425–1700 m.

SPECIMENS EXAMINED. Andapa: Marojejy East, 1500–1700 m, March 1949 (fr.), *Humbert* 23682 (K, P). Maroantsetra: Hiaraka, Oct. 1986, (stam.) *Dransfield et al.* JD 6372 (holotype K; isotypes BH, MO, P, TAN), idem (pist.) *Dransfield et al.* JD 6374 (K, TAN); idem, Ampanga River, Oct. 1986, (stam.) *Dransfield et al.* JD 6384 (K, P, TAN) and (pist.) *Dransfield et al.* JD 6385 (K, TAN). Toamasina: Betampona, Oct. 1991 (stam.) *Beentje* 4486 (BH, K, MO, P, TAN). Ifanadiana: Ambinanindrano, Nov. 1991 (old stam.), *Beentje* 4532 (BH, K, MO, P, TAN); idem, July 1992 (fr.), *Beentje & Andriampaniry* 4732 (BH, K, MO, P, TAN).

LOCAL NAMES & USES. 'Anive' (Betsimisaraka-Masoala), apex said to be poisonous; 'Ovotsarorona' (Betsimisaraka-Betampona), palmheart eaten; 'Lakatra' (for stam.) and 'Lakabolavo' (for pist.) (Tanala), used in high-quality hatmaking.

POLLINATION. Flowers visited by beetles (fide *Dransfield*).

Distinguished from other species with solitary staminate inflorescences branched to two orders by the absence of a petiole, the sinuous veins connecting the longitudinal veins, the three epipetalous stamens and the short pistillate rachis.

13. *Ravenea xerophila* Jum. in Ann. Inst. Bot.-Géol. Colon. Marseille 5, 1, 1: 28 (1933); Jum. & H. Perrier in Fl. Madagascar 30: 176 (1945). Type: Madagascar, between Menarandra (Tranasoa) and Manambovo (Ankoba) Rivers, *Perrier* 18653 (holotype P).

Beautiful medium-sized palm; *trunk* 1.5–8 m. DBH 13–30 cm, widened at the very base; distal half of trunk (or in smaller trees the entire trunk) covered in densely packed sheath remnants; diameter near crown c. 10 cm; bark brown; internodes 2.5–8 cm; nodal scars 0.5–1 cm, occasionally with tattered sheath remnants appearing as threads; wood hard. Sometimes producing a yellow latex-like substance when slashed. *Leaves* (11–)18–22 per crown, glaucous, gracefully arching, with stiff segments, the old leaves marcescent; sheath 36–55 × 13–20 cm, white- to dark brown-tomentose, the tomentum quickly deciduous, the distal part waxy-white; petiole 22–60 cm long, proximally 2.8–6 × 2.0–3.5 cm, distally 1.4–3.0 × 1.4–2 cm, slightly channelled adaxially, with rather sharp edges, proximally red-brown-tomentose, distally glabrous and yellow or with whitish bloom when dry, abaxially strongly convex; rachis 106–208 cm long, in midleaf 0.9–2 × 0.8–1.6 cm across, pale green with white bloom; leaflets pale green, stiff, coriaceous, the leaflets on opposite sides of the rachis at an angle of 90° with each other, 47–55 on each side of the rachis, regular, coriaceous, glaucous, the proximal ones 33–110 × 0.3–1.5 cm, median 43–64(–94) × 1.3–2.4 cm (interval 3.5–4 cm), distal 11–44 × 0.3–1.3 cm; secondary veins very visible, tertiary veins indistinct; ramenta red-brown or grey, elongate, 1–2(–3) near the base of lower leaflets, to large patches of dense ramenta in the proximal third of the midrib; upper 12 pairs without ramenta; slightly glaucous, acuminate. *Staminate inflorescence* solitary, 55–58 cm, branched to 1 order; peduncle 15–19 + cm, distally 5 × 3 mm across; prophyll not seen; peduncular bracts seen 31 cm, 41–62 cm, 44–62 cm; rachis 29–40 cm, with c. 100 branches; rachillae 1.5–7.5 cm, 0.6–1 mm across; pedicels c. 0.2 mm long, 0.7 mm across, with a 1–1.3



FIG. 5. *Ravenea dransfieldii*. **A** portion of staminate inflorescence $\times \frac{2}{3}$; **B** staminate flower $\times 4$; **C** stamen $\times 4$; **D** portion of pistillate inflorescence $\times \frac{2}{3}$; **E** pistillate flower $\times 4$; **F** portion of infructescence $\times \frac{2}{3}$. **A-C** from *Dransfield et al.* JD 6732, **D-E** from *Dransfield et al.* JD 6374, **F** from *Beentje & Andriampaniry* 4732. Drawn by Rosemary Wise.