

May 1992 (y.fr.), *Beentje & Andriampuniry* 4668 (K, TAN). Tolanaro: Andohahela, Ranohela valley, Oct. 1928 (stam.), *Humbert* 6232 (P); Manampanihy valley, W of Eminyminy, Feb. 1934 (y.fr.), *Humbert* 14031 (P); Andohahela south, Dec. 1989 (old stam.), *Dransfield et al.* JD 6780 (K, TAN); idem, March 1992 (fr.), *Beentje* 4600 (BH, K, MO, P, TAN) and (dead stam.) *Beentje* 4604 (K).

LOCAL NAMES AND USES. 'Ovojavavy' (Tsimihety), cut for its palm-heart; 'Manara', 'Tanave', 'Retanana' at Maroantsetra, cut for its palmheart; 'Munimuni', 'Loharanga' at Analamazaotra, 'Anivona' at Andasibe (fide Dransfield, Moore), palmheart eaten (though the Chef de Poste at Analamazaotra informs me the palmheart is rather bitter, and not much liked), formerly used to make salt from the ash of the trunk (fide Perrier); 'Laafa' at Ranomafana, not eaten, young leaves used to make brooms; 'Anive, Lakabolavo' at Amby; 'Bobokaomby' at Manombo, occasionally cut for palmheart, outer wood used for floorboards; 'Vakabe, Vakaky, Vakaboloka, ?Bokombio' at Andohahela, not eaten, outer (black fibre) wood used to make tables and house walls.

A population found near Sahasinaka growing in the open (*Beentje* 4677, 4717) may flower when trunks are as short as 6–7.5 m, but the only other differences from the rest of the populations are the cylindrical trunks, the rather long and wide leaflets (up to 7.5 cm wide, rather than up to 6 cm wide), the rather long staminate rachillae, and the large seed (13–16 × 11–13 mm, rather than 9–13 × 6–11 mm). The more typical *robustior* form was seen to grow in the same forest patch, and I feel uncertain about the taxonomic status of the form, which looks different, has a different local name, but in herbarium specimens is almost indistinguishable from typical *robustior*. *Beentje* 4686 from the Anjanaharibe Mts. is quite similar to the Sahasinaka population, and also grows in the open.

The differences between the type variety and var. *kouna* of Jumelle stated in the protologue follow, with my comments: *kouna* has less abundant tomentum on the leaves and the inflorescence (this is well within the normal range of variation); the ligule is shorter, with a rounded apex and different venation (the ligule has no taxonomic significance in this genus, the size and shape varying wildly within a species or even a specimen); the staminate inflorescence has 6 bracts, with bracts at the base of the lower branches (there are no bracts present on the type, but a collection from the Manongarivo shows the prophyll, and 4 peduncular bracts; the rest are rachis bracts, present in most *Ravenea* species); the petals of the staminate flowers are 3 × as long as the sepals (the type of *kouna* has the petals 2 × the length of the stamens, as in the type variety). The variety *kouna* is brought into synonymy here.

2. *Ravenea krociana* Beentje sp. nov. quoad habitum *R. robustiori* accedit, sed fructu multo majore, eophyllo pinnato, trunco stratu fibrarum durarum tenuiore, staminodiis 10 florum femineorum magis numerosis ab ea differt. Typus: Madagascar, Andohahela, *Beentje* 4605 (holotypus K; isotypi BH, MO, P, TAN).

Majestic tree palm; *trunk* 20–30 m, ventricose, DBH c. 26 cm, diameter just below crown about 18 cm (with internodes 5 cm, scars 3 cm); bark pale brown, internodes 8–9 cm, scars c. 2 cm; wood white, soft, with thin outer layer of hard wood with black fibres. *Leaves* 14–26 in the crown, porrect, held on edge distally,

with distally pendulous leaflets; sheath c. 92 cm, pale brown-tomentose, with stiff marginal fibres; petiole 30–40 cm long, c. 6.5 × 3 cm across, slightly canaliculate adaxially, convex abaxially, pale brown-tomentose; rachis about 365 cm, in midleaf 3 × 2 cm across and still flat adaxially (not yet keeled), pale brown tomentose; leaflets in one plane, distally pendulous, 101–104 on each side of the rachis, the proximal 46–62 × 0.5–2.2 cm, median 89–96 × 4.2–4.5 cm (3–3.5 cm interval), distal 17–35 × 1.5–3 cm; ramenta ? absent; main veins 3–5. *Staminate inflorescence* solitary (deduced from dead material), 130+ cm, branched to 2 orders; peduncle >> 35 cm, distally 2.2 × 1.5 cm; loose peduncular bract 120+ cm, rachis > 55 cm; rachillae 13–27 cm, 1 mm across. *Pistillate inflorescence* solitary, pendulous in fruit, c. 150 × 85 cm, branched to 1 order; peduncle 64–77 cm, orange-green, glabrous, proximally c. 5 × 3 cm, distally 2.6 × 1.8 cm across; prophyll 13–17 × 10–22 cm and thin, fibrous, white, disintegrating; peduncular bracts 20–33 × 6–8 cm (inserted at 7–13 cm from the base of the peduncle), 47–53 × 8 cm (inserted at c. 15 cm), 87–98 cm (inserted at 15–26 cm), 89–104 × 4.5 cm (inserted at 43–44 cm); rachis 43–52 cm, pale green, floccose-tomentose to glabrescent, pale green; rachillae 45–50 in number, 18–45 cm, 4 mm across but the bulbous base 15 mm across, pale green, slightly reflexed to spreading, zigzag; pedicel 2–3 mm; (the following measurements from bud material) calyx connate for 1.4 (2 in fruit) mm, 2.3 mm across, free lobes 1.1 × 1.2 mm; petals 2.8–3.3 × 1.7 mm; ovary 2.3 mm, 1.5 mm across; staminodes ten, c. 1.4 mm high. *Fruit* orange, subglobose, 27–30 × 25–28 mm, one-seeded, with the stigmatic remains subapical; seed dark brown, 18–20 × 16–21 mm, with large hilar spot (?), Calyx in fruit increasing to a sub-woody cup-like structure 4.5–6 mm across and 2–3 mm high, with faint indications of the calyx lobes, and occasionally with a remnant of a petal. Eophyll pinnate. Fig. 1.

DISTRIBUTION. SE Madagascar: Andohahela.

HABITAT. Moist forest, on steep to rather flat midslope; 420–545 m.

SPECIMENS EXAMINED. Tolanaro: Andohahela, March 1992 (fr.), *Beentje* 4605 (holotype K; isotypes BH, MO, P, TAN); idem 15 Dec. 1992 (dead stam.), *Beentje & Andriampaniry* 4761 (K).

LOCAL NAME. 'Vakakabe' (Antanosy).

R. krociana closely resembles *R. robustior* and occurs in a similar habitat. The lightness of the wood distinguishes *R. krociana*; there is also a much thinner layer of hard black fibres under the bark. The fruit is much larger. The ten staminodes in the pistillate flower distinguish it from all other *Ravenea* species; it would be very interesting to see a fresh staminate flower! From *R. rivularis* it is easily distinguished by its much longer leaves, the solitary staminate inflorescence, and the size of the fruit. The specific name honours Ray Kroc, founder of McDonald's Restaurants, the company who funded the 4-year project to study Madagascar palms during which I discovered this tree.

3. *Ravenea moorei* *J. Dransf. & N. W. Uhl* in *Principes* 30 (4): 159 (1986). Type: Comoro Islands, Grand Comore, *Moore & Moelevoce* 9028 (holotypus BH; isotypus K, P, TAN).

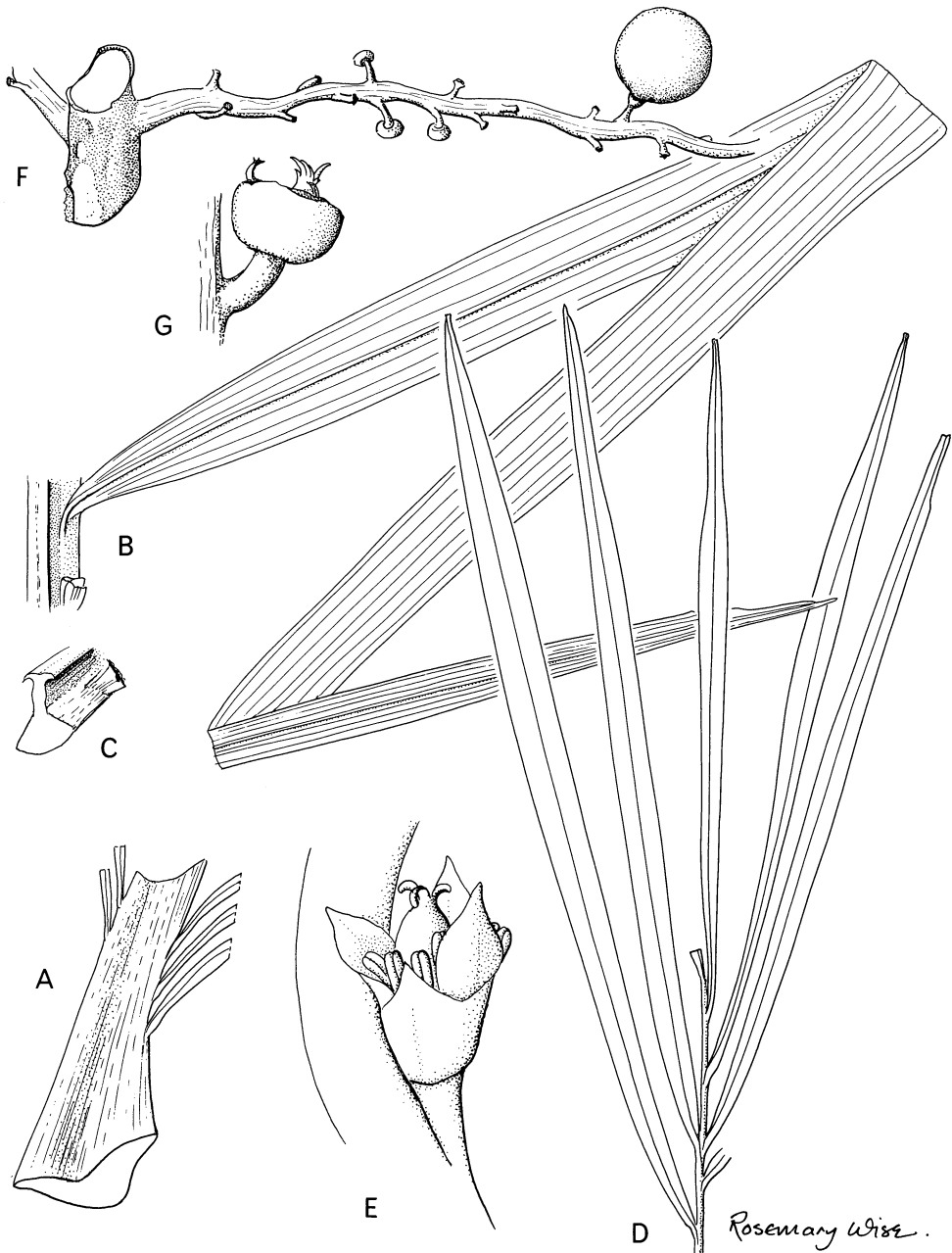


FIG. 1. *Ravenea krociana*, from Beentje & Andriampaniry 4605. **A** proximal portion of rachis $\times \frac{1}{2}$; **B** median portion of rachis with leaflet $\times \frac{1}{2}$; **C** cross-section of rachis in mid-leaf $\times \frac{1}{2}$; **D** leaf tip $\times \frac{1}{2}$; **E** pistillate flower bud, from an immature inflorescence $\times 6$; **F** portion of infructescence $\times \frac{1}{2}$; **G** fruiting calyx $\times 3$. Drawn by Rosemary Wise.