

petiole becoming tattered and so producing the piassava clothing the upper part of the trunk; petiole 40–170 cm long, proximally 1.2–2.6 × 0.8–1.5 cm, distally 0.9–1.6 × 0.8–1 cm, with red-brown patches of tomentum but glabrescent, adaxially slightly convex or channelled, with sharp edges; rachis 1.4–2 m long, in mid-leaf 0.9–1 cm wide and keeled, with red-brown patches of tomentum but glabrescent; leaflets regular, 34–51 on each side of the rachis, in one plane, dull dark green (red in young leaves), the proximal 45–82 × 0.8–2.5 cm, median 46–71 × 2.6–4.3 cm (108 × 7.3 cm in *Perrier* 14097), distal 10–42 × 0.5–2.3 cm, acute, the terminal pair in young plants wide (up to 5 cm) and connate for up to 25 % of their length, main veins 5–7, the midrib prominent adaxially, glabrous, apices unequally attenuate. **INFLORESCENCE** interfoliar, erect in bud, porrect-arching in flower and fruit, branched to 3 orders (once to 4 orders); peduncle 70–94 (–150) cm long, proximally 1.5–2.5 × 0.9–1.8 cm, distally 1–1.7 × 0.7–1 cm, green, glabrous; prophyll 39–56 cm, reddish-tomentose, glabrescent; peduncular bract 103–188 cm, 6–8 cm wide, splitting only near its apex, beaked for 2–12 cm, coriaceous, inserted at 17–20 cm from the base of the peduncle, abscising and carried upwards with the lengthening inflorescence, brown with patches of red-brown pubescence; rachis 37–60 cm long, green, glabrous, with 15–17 branched and 6–14 unbranched branches; first order branches flattened, 0.8–1.3 × 0.3–0.5 cm, with basal swelling; rachillae arching to almost pendulous (4.5–) 17–53 cm long (up to 78 cm in fruit) and 0.1–0.2 cm diam. (up to 0.5 cm in fruit), glabrous, green to red-brown, with spaced triads in slight pits. **FLOWERS** orange in bud, yellow at anthesis. **STAMINATE FLOWERS** slightly trigonous, narrowed near the base, with sepals 1–1.4 × 1.4–2.3 mm, broadly ovate, hooded; petals 1.5–1.8 × 1.3 mm, hooded; stamens 6, in 2 series, didymous, densely appressed against the pistillode, filaments 1–1.4 × 0.5 mm, anthers medifixed or dorsifixed with almost globose thecae, c. 0.3 × 0.3 mm; pistillode bottle-shaped, with indentations conforming to the stamens, c. 1.3 × 0.4–0.5 mm in diam. **PISTILLATE FLOWERS** globose, with sepals 1.2–1.8 × 2.3–2.8 mm, broadly ovate, hooded; petals suborbicular, 2.1–2.8 × 1.8–2.4 mm; ovary asymmetrical, c. 1.8 × 1.6 mm, topped by an indistinct trigonous apex; staminodes c. 0.2 mm high, dentiform. **FRUIT** black, obovoid to almost globose, 20–30 × 18–25 mm; persistent sepals c. 3 × 3–4 mm, persistent petals c. 5 × 7 mm; mesocarp fleshy, c. 5 mm thick; endocarp fibrous, with up to 25 mm long fibres. **SEED** 20–23 × 15–18 mm, ellipsoid, pointed at the apex; endosperm with ruminations 3–4 mm deep. **EOPHYLL** bifid, germination adjacent-ligular.

NOTE. The fruit is said to be eaten by wild pig, and we have seen signs which seem to confirm this. Though Beccari (1906) thought he was making a new combination based on *Dypsis thouarsiana* when coining the name *Vonitra thouarsiana*, the descriptions, both of the new genus and of the species, were based on *Baron* 3190, quite distinct from the types of *Dypsis thouarsiana*. Beccari saw the types of *Dypsis thouarsiana* and thought the leaf was a young one, possibly a seedling, of his new taxon; he also considered the inflorescence of *Dypsis thouarsiana* as too young to analyse. The taxa, however, are clearly distinct, the types of *Dypsis thouarsiana* having three most peculiar stamens and leaves with 3–4 leaflets on each side of the rachis (see under 109. *Dypsis thouarsiana*).



SPECIMENS SEEN. Ambanja: Manongarivo, Bekolosi, Dec. 1992 (fr.), *Malcomber et al.* 1972 (K). Maroantsetra: Antalavia, Apr. 1988 (fl.), *Gentry & Schatz* 62180 (K, MO, P); W of Maroantsetra, Oct. 1963 (fl.), *Moore* 9009 (P, TAN); 5 km W of Maroantsetra, Oct. 1986 (bud), *Dransfield et al.* JD6360 (K, P, TAN); Nosy Mangabe, April 1989 (fl.), *B. DuPuy* MB146 (K, TAN); Hiaraka, Oct. 1986 (fl., fr.), *Dransfield et al.* JD6373 (K, TAN). Sainte Marie: Kalalao forest, Nov. 1994 (bud), *Dransfield et al.* JD7523 (K, TAN). Soanierana-Ivongo: Andasibe, Dec. 1938 (bud), *Lam & Meeuse* 5862 (K, L). Ambatondrazaka: Maningory Falls, Dec. 1944, *Homolle* 547 (P, probably a very young plant). Toamasina: Betampona, Oct. 1991 (bud, fr.), *Beentje* 4498 (BH, K, MO, P, TAN); Toamasina, (leaf, seed), *Proctor Bros.* s.n. (K). Moramanga: Analamazaotra, (fl., fr.), *Perrier* 12001 (P). Ampasimanolotra: Andrambolahy kely to Andranampony, April 1951 (fl.), *Cours* 4511 (K, P, TAN); Anivoranokely, Sept. 1954 (fl.), *Vigrence* 15462 (P); 5 km S of Ambila-Lemaitso, Nov. 1986 (fr.), *Dransfield et al.* JD6440 (K, P, TAN); idem, Sept. 1991 (fl., fr.), *Beentje* 4449 (BH, K, MO, P, TAN). Vatomandry: without precise location, Nov. 1927 (fl.), *Perrier* 14097 (P). Ifanadiana: Ambohimanga rd. (fl.), *Dequaire* 27702 (P); 34 km E of Ranomafana, March 1991 (bud), *Beentje* 4439 (BH, K, MO, P, TAN). Mananjary: Mt Vatovavy, Aug. 1911 (fl.), *Perrier* 12053 (P). Farafangana: Manombo, Nov. 1991 (bud), *Beentje* 4519 (BH, K, MO, P, TAN). Vangaindrano: Analalava, Dec. 1971 (fl.), *Guillaumet* 4017 (TAN). Tolanaro: Manantenina, Marovony, Oct. 1990 (infl.), *Randrianasolo et al.* 185 (K); NW of Ste Luce, Oct. 1989 (fr.), *McPherson et al.* 14218 (P). Without locality, Central Madagascar, s.d. (fl.), *Baron* 2319 (K, type of *V. thouarsiana* sensu Beccari).

CULTIVATED: Sri Lanka, Peradeniya Royal Bot. Gard., July 1986 (fr.), *Rutherford & Bandara* R 136 (K).

117. DYPISIS ANTANAMBENSIS

This is a new species in the “Vonitra” group; it thrives on steep slopes and on ridge tops in low-canopy forest on ultramafic rock. It tends to branch near ground level and have several more or less equal rather slender trunks that are clothed in long persistent short piassava fibre. The leaves are distinctive having rather short leaflets that diverge from the rachis at an acute angle and tend to be held rather stiffly. The name is derived from the type locality. As far as we know, this species is not in cultivation.

DISTRIBUTION. Only known from one small area in the Mananara Avaratra Biosphere Reserve.

HABITAT. Rather open rain forest, on ultramafic soils on steep mid slopes and ridge tops; 250–290 m.

LOCAL NAMES. Not recorded.

USES. Not recorded.

CONSERVATION STATUS. Endangered. Despite its occurrence in a protected area, the number of individuals seems to be less than fifty.

Dypsis antanambensis Beentje sp. nov.

inter species inflorescentia semel ramosa *D. pusillae* Beentje & J. Dransf. accedens sed statura majore, foliis pluribus, inflorescentia longiore ab ea recedens. Type: Madagascar, Antanambe, Beentje, Dransfield & Andriampaniry 4629 (Holotypus K, isotypi BH, MO, TAN).

Palm apparently basally branched to give clumps of up to 3 otherwise unbranched aerial stems. **STEMS** up to 4 m high, covered for their whole length with a dense fibrous layer c. 12 cm diam., without layer c. 5.5 cm diam., internodes 1.5–2.5 cm, bark conspicuously stepped and ringed; wood brown, quite hard. **LEAVES** c. 12 in the crown, porrect, with stiff leaflets; sheath c. 48 × 3 cm, pale brown with white bloom and orange-red scales, with many marginal fibres; petiole c. 66 cm long, proximally 1.1–2 × 1.4–1.6 cm diam., distally 1–1.6 × 0.8–1.1 cm, red-brown, margins sharp,

abaxially convex with patches of brown scales, adaxially channelled; rachis c. 2.5 m, in mid-leaf keeled, 0.8–1.1 × 0.6–0.9 cm; leaflets c. 49 on each side of the rachis, regular, stiff, erect, those on opposite sides of the rachis at an angle of c. 90° with each other, the proximal 36–37 × 0.4–0.7 cm, some with long pendulous reins, median 52–53 × 2.8 cm (leaflet interval 4 cm), distal 15–38 × 0.4–1.9 cm; leaflets glabrous, the apices unequally acuminate, bifid for 3–4 cm with one tip 5–7 cm longer, main veins 5–7, midrib prominent adaxially. **INFLORESCENCE** interfoliar, spreading, branched to 1 order, in bud c. 225 cm long; peduncle c. 160 cm, distally 1.2 × 0.9 cm diam., with dense small red-brown scales; prophyll c. 131 × 2.2–3 cm, cylindrical, 2-keeled, split only at the apex; peduncular bract 102–122 cm (inserted at c. 100 cm), deciduous and carried upwards by the lengthening inflorescence, glabrous, ?beaked for c. 6 cm; rachis c. 41 cm, with c. 20 branches and scattered red-brown scales; rachillae 34–60 cm long, 3.5–5 × 2



Dypsis antanambensis. **A** base of petiole and sheath × 1/2; **B** distal part of petiole and basal leaflets × 1/2; **C** mid section of leaf × 1/2; **D** leaf tip × 1/2; **E** basal part of inflorescence rachis × 1/2; **F** detail of rachilla × 3; **G** seedling × 1. All from Beentje et al. 4629. Drawn by Rosemary Wise.



**Dypsis
antanambensis**

mm diam., somewhat pitted, bare at the base, densely covered in tiny stellate scales, with distant triads, more distally with paired flowers only; rachilla bracteoles c. 3×0.6 mm. **STAMINATE FLOWERS** with sepals $1.4\text{--}1.6 \times 1.4$ mm; petals (in bud) $1.7\text{--}1.8$ mm long; stamens 6, biseriate, the outer (antesealous) series sessile, the inner series with filaments c. 0.6 mm long, anthers c. 0.6×0.4 mm, dorsifixed, locules parallel. **PISTILLATE FLOWERS** with sepals $1.4\text{--}1.6 \times 1.4$ mm; petals (in bud) $1.7\text{--}1.8$ mm long; gynoeceum c. 0.8×0.5 mm; staminodes c. 0.2 mm. **FRUIT** unknown, except for:

endocarp very fibrous, $15\text{--}25 \times 12\text{--}18$ mm. **SEED** with deeply ruminant endosperm, the ruminations many and up to 5 mm deep. **EOPHYLL** pinnate.

NOTE. Among the species of the Vonitra-group this species can be distinguished by its short, stiff leaflets, the inflorescence branched to 1 order resembling *D. pusilla* but is much larger, has a greater number of leaflets and a larger inflorescence.

SPECIMENS SEEN. Mananara Avaratra: Antanambe, April 1992 (bud), *Beentje et al.* 4629 (Holotype K; isotypes BH, MO, P, TAN, type); idem, Oct. 1994 (sd.), *Beentje & Dransfield* 4809 (K, TAN).

118. DYP S I S PUSILLA

This is the smallest species of the “Vonitra” group. It is an attractive palm of the undergrowth in valley bottoms. The stems are almost always unbranched, and often solitary, and densely clothed with very short piassava. It can be distinguished from other species in the group by the short usually unbranched stems, the short piassava, the delicate curving leaflets and the inflorescence that is branched to one order only. Its rather dainty appearance is reflected in the species name. As far as we know, this species is not in cultivation, but it would clearly be an attractive subject for a small garden.

DISTRIBUTION. Masoala Peninsula and Mananara Biosphere Reserve.



Dypsis antanambensis, growing in forest on ultramafic rock, Mananara Avaratra (*Beentje et al.* 4629).



**Dypsis
pusilla**