DISTRIBUTION. Known from scattered records throughout mainland New Guinea with one collection from New Ireland.

HABITAT. Various types of primary and secondary forest vegetations, 100 – 1500 m with more than half of the records above 600 m.

LOCAL NAMES. *hele bu* (Yali), *kour* (Biaru), *kur* (Karkar), *mambile* (Yali), *meya* (Arfak Plains), *tendu mundu* (Berap)

USES. Cane used for making bridges and waist hoops, split cane for general cordage, for making arrows and bow strings, and for fire-making.

CONSERVATION STATUS. Least concern.

SPECIMENS SEEN. INDONESIA, Papua. Jayapura Regency: Jayapura, Berap, May 1994, *Upessy* 7 (K!); Cyclops Mts, Angkasa, Aug. 1998, *Heatubun et al.* 288 (AAU!, BO, K!, MAN, NY!); Papua, Jayapura, N Cyclops Mts, Jan. 2001, *Desianto* 7 (AAU!, K!, MAN). Manokwari Regency: Warmare, valley of R. Prafi, new road to Manyambo, Aug. 1995, *Dransfield et al.* JD 7600 (BO, FTG, K!, MAN, type); Mubri Lama, near Arfak Mts, April 1995, *Maturbongs* 47 (K!, MAN); Manokwari, Mubri, April 1995, *Maturbongs* 46 (K!, MAN); Arfak Plains, Settlement Unit Seven, (satuan Pemukiman Tujuh), April 1994, *Mogea* 6245 (BO, K!, L!, MAN, NY!). Merauke Regency: Between Mindiptanah and Imko, Aug. 1957, *Dijkstra* BW 6630 (L!). Wamena Regency: 6 km SW of Bernhard Camp, Idenburg R., Feb. 1939, *Brass* 12963 (A, L!); Abenaho Subdistr., Jayawijaya, Nov. 1999, *Maturbongs et al.* 644 (AAU!, K!, MAN); Snow Mountains, E of Baliem Valley, vicinity of Panggema, Oct. 1992, *Milliken* 1435 (K!). PAPUA NEW GUINEA. Madang Provice; Karkar Island, Mom, Sept. 1970, *Zieck* NGF 36248 (BH, K!, L!, LAE). Milne Bay Province: junction of Ugat and Mayu Rs, near Mayu Island, July 1972, *Streimann & Katik* NGF 28669 (BH, L!, LAE!). Morobe Province: locality unknown, 1989, *Taurereko* 209 (K!); Wau Subdistr., Kanis, between Tori-Korwa, Biaru Valley, June 1969, *Zieck* NGF 36225 (LAE!); Wau Subdistr., Bulolo-Watut, June 1969, *Zieck* NGF 36221 (L!, LAE), March 1964, *Moore & Womersley* 9278 (LAE!). New Ireland Province: Logagon Subdistr., N Schleinitz Range, 5 km S of Logagon, Oct. 1974, *Croft* LAE 65582 (A, BH, BRI, E, K!, L!, LAE). Southern Highlands Provice: Moro, Iagifuago, Path along water pipeline from well site down to road, Feb. 1996, *Baker & Kage* 659 (K!, LAE!). Western Province: Yat, June 1967, *Henty et al.* NGF 33042 (BH, CANB!, LAE!).

NOTES. This distinctive new species is readily distinguished from its relatives by its leaf sheath armature. The spines on the sheath are flexible, triangular and distinctly swollen at the base (Fig. 1D). While both large and small spines occur on the sheath, very long spines (up to 60 mm) are almost always present. Leaflet arrangement is variable, but the most frequent form bears leaflets grouped in pairs. Although *C. pachypus* is recorded from low elevations, it is more frequently found in submontane and montane vegetations. While the species is known from a relatively limited number of collections, it is apparently widespread in New Guinea and is recorded from both eastern and western extremes of the island. Outside mainland New Guinea, it is known from a single collection from New Ireland.

4. Calamus dasyacanthus *W. J. Baker, Bayton, J. Dransf. & Maturb.* **sp. nov.**, *C. aruensi* affinis sed spinis vaginarum foliorum numerosis laceratis fimbriatisque, spinis cirri

regulariter dispositis statim distinguenda. Typus: Indonesia, Papua, Mimika Regency, Timika, between Ajkwa and Otomona Rs, on road Timika to Mile 38, Feb. 1998, *Baker et al.* 827 (holotypus K!; isotypi AAU!, BH!, BO!, L!, MAN!).

Robust, solitary rattan climbing to 15 m. *Stem* with sheaths 36 – 45 mm diam., without sheaths 20 – 23 mm diam.; internodes 10 – 25 cm. *Leaf* cirrate, to 5 m long including cirrus and petiole; sheath green, with scattered, thin, caducous indumentum of matted brown fibrous scales, spines numerous, 2.5 – 47 × 1 – 10 mm, orange-brown, planar, parallel-sided, flexible, somewhat papery, apices truncate, apices and margins distinctly lacerate and fimbriate, spine bases slightly swollen adaxially, spines of various sizes, forming partial whorls of few to many spines, sheath mouth densely armed with numerous spines; knee 50 – 70 mm long, 37 – 45 mm wide, moderately to densely armed, colour and indumentum as on sheath; ocrea 8 – 10 mm, forming a low, woody, brown, armed, persistent collar, base of ocrea extending along petiole to an acute angle; flagellum absent; petiole 0 – 30 mm, 16 – 23 mm wide and 8 – 10 mm thick at base, channelled or flat adaxially, rounded abaxially, indumentum as on sheath, with few to many short triangular spines or spines as sheath; rachis 2 – 3 m, with few to many spines as petiole, with grapnel spines abaxially; leaflets 14 – 25 each side of rachis, irregular or arranged in widely spaced pairs, the leaflets in each pair sometimes slightly divergent, broadly lanceolate, cucullate, longest leaflets near middle of leaf, 28.5 – 40 × 4 – 6.8 cm, apical leaflets 20.5 – 29 × 2 – 3 cm, distal leaflets widely spaced, basal leaflets small, leaflet surfaces lightly armed with few bristles 0.8 – 2 mm on adaxial surface of midrib and major veins near leaflet base, leaflet margins unarmed or with few bristles 0.3 – 2.6 mm near leaflet apex, transverse veinlets inconspicuous; cirrus 1.5 – 2 m, cirrus grapnel spines arranged regularly. *Staminate inflorescence* similar to pistillate inflorescence, but branched to 3 orders, up to 1.3 m long including c. 27.5 cm peduncle, branched to 3 orders; prophyll c. 28 × 1.3 cm, strictly tubular, with 2 conspicuous keels, prophyll mouth entire, with narrow, acute, triangular limb to one side, subtending primary branch (always?), indumentum as on sheath, moderately armed with short spines; peduncular bracts absent, rachis bracts not seen; primary branches up to c. 28 cm long, strongly recurving, bracts on primary and secondary branches funnel-shaped; rachillae c. 4.5 – 21 × 1 mm, sublinear, glabrous; rachilla bracts c. 0.7 × 1.2 mm, distichous, glabrous; floral bracteole c. 0.8 × 1.2 mm. *Staminate flowers* c. 3.6 × 2.2 mm in early bud; calyx c. 2.2 mm diam., tubular in basal c. 1.4 mm, with 3 lobes c. 0.4 × 1.5 mm, glabrous; corolla c. 3.2 × 2 mm in bud, tubular in basal c. 0.8 mm, glabrous; stamens 6, filaments c. 1.2 × 0.3 mm, anthers c. 1.5 × 0.7 mm; pistillode c. 0.3 mm. *Pistillate inflorescence* up to 2 m long including 26 – 44 cm peduncle and 31 – 48 cm sterile tip; prophyll 21 – 27 × 1.4 – 2.2 cm, similar to staminate prophyll, sometimes subtending primary branch; peduncular bracts absent, rachis bracts 9 – 30 × 0.6 – 1.6 cm, similar to prophyll; primary branches 4 – 8, to 36 cm long, 11 – 23 cm apart, moderately to strongly recurving, with up to 27 rachillae, bracts on primary branch funnel-shaped; rachillae 3.5 – 15.5 × 0.1 – 0.2 cm, sublinear or irregular; rachilla bracts 0.8 – 1.5 × 1 – 2.2 mm, subdistichous, sometimes with scattered indumentum as on sheath; flower clusters sometimes distinctly stalked, stalk 0.3 – 1.5 mm long, proximal floral

bracteole c. 1.6 × 1.2, distal floral bracteole 1.5 – 1.8 × 1.2 – 2 mm, glabrous, scar from sterile staminate flower c. 0.2 mm diam. *Pistillate flowers* c. 3.7 × 2.2 mm at anthesis; calyx c. 2.2 mm diam., tubular in basal c. 2.7 mm, with 3 lobes to c. 0.5 × 1 mm, glabrous; corolla c. 3 × 1.5 mm, tubular in basal c. 2 mm, with 3 lobes to c. 1 × 0.7 mm, glabrous; staminodes 6, c. 0.8 mm long, staminodal ring c. 1 mm high; ovary c. 1.5 × 1.2 mm, globose, style c. 1 mm long, stigmas c. 1 mm long. *Sterile staminate flowers* not seen. *Fruit* globose, 9 – 12.8 × 8.5 – 10 mm including beak 1.5 – 2 mm, with 18 – 19 longitudinal rows of white to pale yellow, shallowly channelled scales with entire margins, sometimes with dark tips. *Seed* (sarcotesta removed) 7 – 7.8 × 7 – 7.8 × 5.6 – 6 mm, globose, with a deep, narrow pit on one side, the surface covered with numerous deep pits and irregular channels; endosperm homogeneous; embryo basal. Fig. 2.

DISTRIBUTION. Known from three localities, two on the south coast of New Guinea and the third on Biak.

HABITAT. Various types of primary and secondary forest vegetations, 30 – 150 m.

LOCAL NAMES. *Warar* (Biak).

USES. Not known.

CONSERVATION STATUS. Data deficient.

SPECIMENS SEEN. INDONESIA, Papua. Biak Numfor Regency: Biak, beside main road to Korem, June 2001, *Maturbongs et al.* 687 (AAU!, BO, K!, MAN). Mimika Regency: Timika, between Ajkwa and Otomona Rs, on road Timika to Mile 38, Feb. 1998, *Baker et al.* 827 (AAU!, BH!, BO!, K!, L!, MAN!, type); mile 39 on road from Timika to Tembagapura, March 1998, *Baker et al.* 983 (BO!, K!, MAN). PAPUA NEW GUINEA. Western Province: Nomad Subdistr., 2 km from Nomad, April 1978, *Essig & Young* LAE 74018 (LAE!).

NOTES. The species epithet of this extraordinary new rattan refers to the shaggy appearance of its lacerate, fimbriate leaf sheath spines. The papery spines are numerous and apically truncate, giving the impression that they have been roughly trimmed with scissors. Although known from only four collections, the large distances between the three localities suggests that *C. dasyacanthus* is widespread, if not common, in the western half of New Guinea. Further collecting efforts in the lowlands of west New Guinea, especially in Merauke and Mimika Regencies in Papua Province, would very likely yield new records.

SPECIMENS OF UNCERTAIN AFFINITY

The following specimens cannot be readily assigned to species:

Banka 2012 (Papua New Guinea, Morobe Province) — a remarkably slender, unarmed palm with subregularly arranged leaflets. At 9 m tall, the specimen is undoubtedly adult and yet its stem is a mere 5 mm in diameter. We tentatively link it to *C. vitiensis*, as opposed to *C. aruensis*, because moderately slender forms of *C. vitiensis* are known already, whereas *C. aruensis* is uniformly robust. The cirrus of *Banka* 2012 is too fine for the arrangement of the grapnel spines to be observed clearly.

Kjaer 531 (Papua New Guinea, Western Province) — with truncate and irregularly lacerate sheath spines and leaflets grouped in pairs, this specimen has close affinities

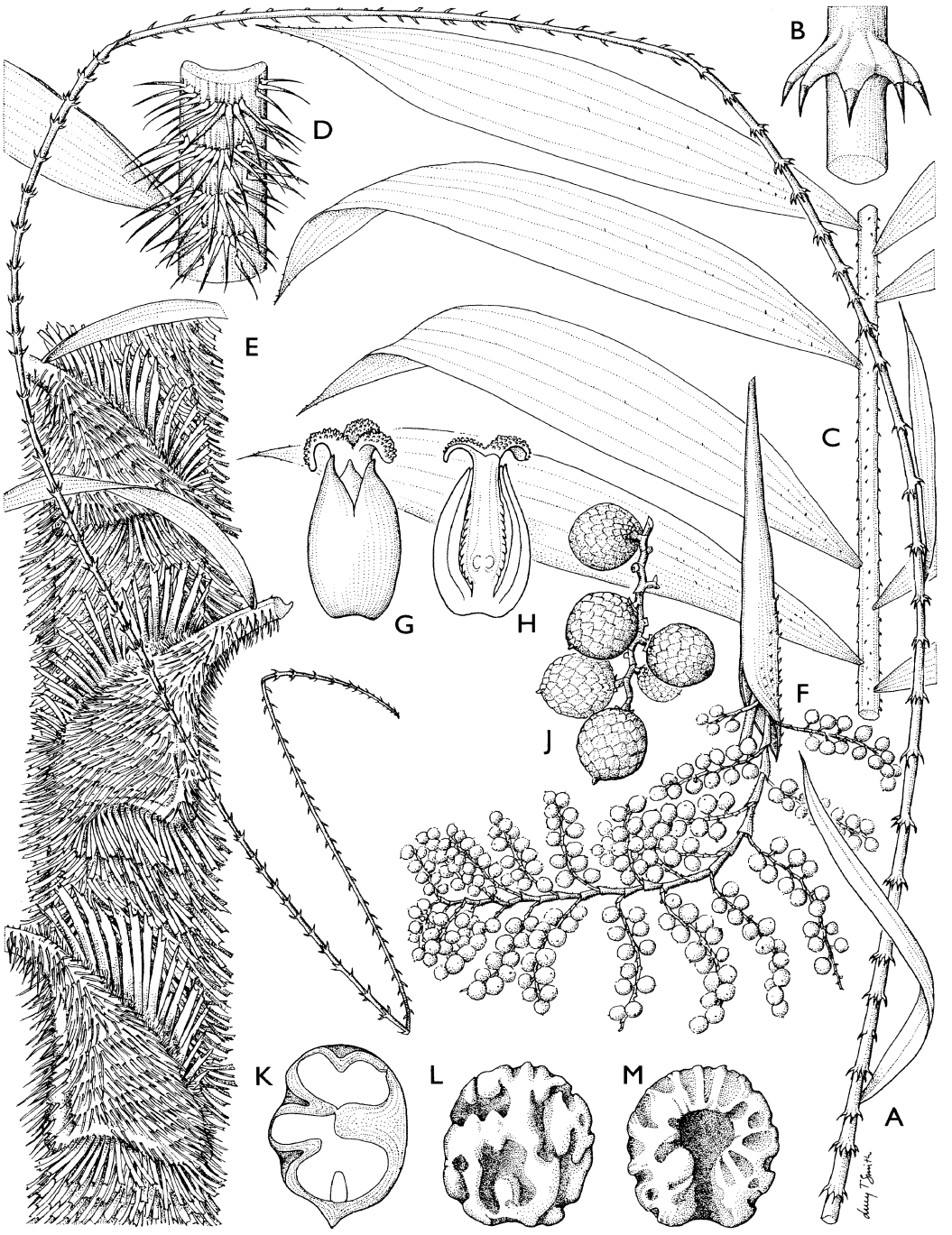

FIG. 2. *Calamus dasyacanthus*. **A** distal portion of leaf with cirrus × 1/4; **B** detail of cirrus spines × 2; **C** middle portion of leaf × 1/4; **D** abaxial surface of basal part of rachis and petiole × 2/3; **E** leaf sheath × 1/3; **F** primary branch of infructescence × 1/4; **G, H** pistillate flower whole and longitudinal section × 7; **J** fruit on rachilla × 1; **K, L, M** seed in longitudinal section and two views (sarcotesta removed) × 3. **A – F, J – M** from *Baker* 827, **G – H** from *Baker* 983. Drawn by Lucy T. Smith.

to *C. dasyacanthus*. However, the sheath spines are thick and rigid, rather than papery and flexible. This collection may be another undescribed species or alternatively may represent an additional dimension to the morphological variation of *C. dasyacanthus*. More material from the region is required.

Whitmore BSIP 2362 (Solomon Islands, Santa Isabel) — a robust palm bearing spines of various sizes, the larger spines with somewhat swollen bases and forming whorls. The leaflets are regularly arranged and the cirrus grapnel spines organised in whorls. The specimen may represent a new record for *C. pachypus* in the Solomon Islands or perhaps a different dimension to *C. vitiensis*, but the material is too limited for a judgement to be made.

Zieck & Kumul NGF 36533 (Papua New Guinea, Gulf Province) — the leaflets of this rather poor specimen are irregularly grouped and the sheath spines are numerous, narrow and flexible. A few sheath spines are divided into two to four points. Its closest affinities may lie with *C. vitiensis*.

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