Calamus suaveolens — a new rattan from Sulawesi

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Summary. A new species of cirrate rattan from Sulawesi, *Calamus suaveolens* W. J. Baker & J. Dransf., a close relative of the *C. aruensis* Becc. complex in New Guinea and the Pacific, is described and illustrated.

In the course of preparing a revision of the *Calamus aruensis* Becc. complex (Baker *et al.* 2003), which consists of four cirrate species in section *Phyllanthectus* Furtado (1956) distributed from New Guinea into the west Pacific, we came across a small number of specimens from Sulawesi of an undescribed *Calamus* species that is evidently a close relative of this group. A number of other species in section *Phyllanthectus* that occur to the west of New Guinea have affinities with the *C. aruensis* complex, for example *Calamus adspersus* (Blume) Blume, *C. boniensis* Becc. ex K. Heyne, *C. kandariensis* Becc., *C. leiocaulis* Becc. ex K. Heyne, *C. occidentalis* J. Witono & J. Dransf., *C. paucijugus* Becc. ex K. Heyne and *C. unifarius* H. Wendl. However, not only does the new taxon not match any of these species, but it also appears to be more closely allied to the *C. aruensis* complex than any of them, displaying all the key characteristics of the group, namely the barely armed, broad, cucullate leaflets, the inflorescence with long, robust bracts on the primary axis contrasting with the short, funnel-shaped bracts on the first order branches (and second order branches in staminate inflorescences), the uniform flower and fruit morphology, and the seed with its deep narrow pit to one side and numerous smaller pits and irregular channels. Herein, we name, describe and illustrate this species, *C. suaveolens* W. J. Baker & J. Dransf.

Calamus suaveolens *W. J. Baker & J. Dransf.* **sp. nov.**, *C. aruensi* affinis sed foliolis singulariter vel binatim non regulatim dispositis, geniculis et vaginis foliorum spinis triangularibus dense tectis (geniculum *C. aruensi* raro spinosum), inflorescentia spinosa non raro spinosa, ocrea 14 – 23 mm (vice 3 – 9 mm) differt. Typus: Indonesia, N Sulawesi, Bolaang Mongondow, Kotamobagu, Gunung Ambang, Oct. 1973, *Dransfield & Mogea* JD 3858 (holotypus K!; isotypi BH, BO, L).

Robust, solitary rattan climbing to 10 m. *Stem* with sheaths 15 – 40 mm diam., without sheaths 11 – 20 mm diam.; internodes 30 – 40 cm. *Leaf* cirrate, c. 4.3 m long including cirrus and petiole; sheath dark green, with sparse to abundant, caducous indumentum of minute, irregular, brown and white scales, spines numerous, 2 – 25 × 0.5 – 5 mm, black, planar, triangular, stiff, slightly deflexed, scattered evenly throughout sheath, spine bases slightly swollen adaxially, sheath mouth densely armed; knee 60 – 90 mm long, 18 – 21 mm wide, moderately to densely armed, spines and indumentum as on sheath; ocrea 14 – 23 mm, forming a hard, woody, persistent flange, divergent from stem, armed with bristle-like spines and spines as on sheath, base of ocrea extending along petiole to an acute angle; flagellum absent; petiole 20 – 30 mm, 14 – 17 mm wide and 7 – 8 mm thick at base, flat adaxially, rounded abaxially, indumentum as on sheath, with numerous short triangular spines; rachis up to 3 m, with few, very small, triangular spines, with irregularly-arranged grapnel spines abaxially; leaflets 13 – 15 each side of rachis, irregularly arranged in divergent pairs and solitarily, broadly lanceolate, cucullate, longest leaflets near middle of leaf, 28 – 40 × 6.5 – 9 cm, apical leaflets 19 – 35 × 1.8 – 3 cm, distal leaflets widely spaced, basal leaflets small and apparently reflexing, with few bristles 1 – 2.5 mm towards base of adaxial surface of mid-rib and rarely on other major veins, unarmed abaxially, leaflet margins unarmed or with very few bristles 1 – 1.5 mm, increasing in density towards leaflet apex, transverse veinlets moderately inconspicuous; cirrus 1.2 – 2 m, cirrus grapnel spines arranged irregularly. *Staminate inflorescence* up to 3.8 m long including c. 35 cm sterile tip, branched to 3 orders; prophyll 12 – 16.5 × 1 – 1.3 cm, strictly tubular, with 2 keels, prophyll mouth entire, with narrow,

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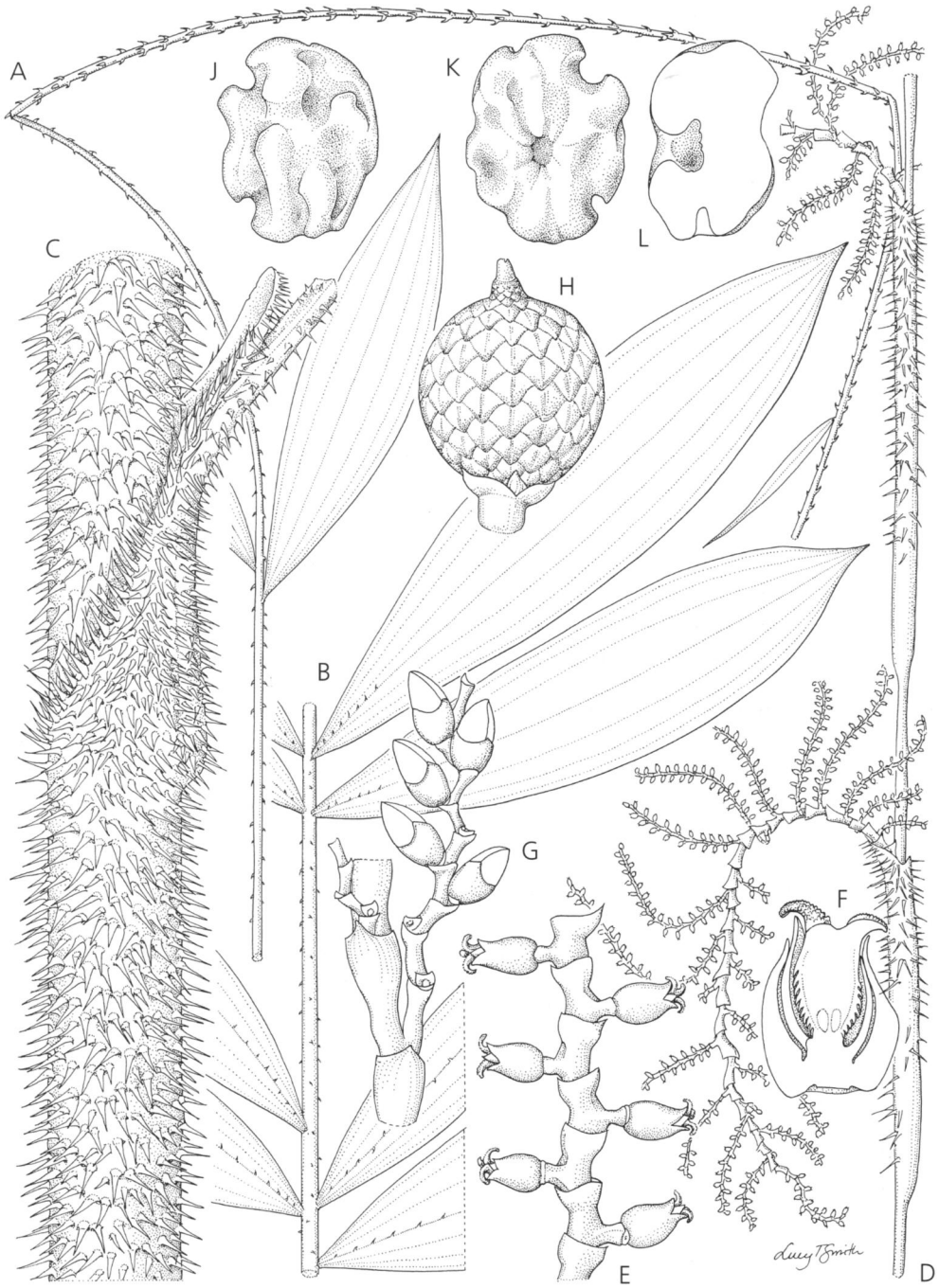

Fig. 1. *Calamus suaveolens*. **A** distal portion of leaf with cirrus × ¼; **B** middle portion of leaf × ¼; **C** leaf sheath × ½; **D** portion of pistillate inflorescence × ⅓; **E** pistillate rachilla × 3; **F** pistillate flower in longitudinal section × 9; **G** staminate rachilla × 3; **H** fruit × 4; **J**, **K**, **L** seed (sarcotesta removed) in two views and longitudinal section × 5. All from *Dransfield & Mogea* JD 3858, except **A**, **B** & **G** from *de Vogel* 5283. DRAWN BY LUCY T. SMITH.

acute, triangular limb to one side, indumentum as on sheath, densely armed with spines 1 – 18 mm long, similar to spines on sheath; peduncular bracts absent (always?), rachis bracts 19 – 26.5 × 0.7 – 1.5 cm, similar to prophyll, densely armed towards apex as prophyll; primary branches up to c. 12, to 28 cm long, 31 – 38 cm apart, strongly recurving, with up to c. 250 rachillae, bracts on primary and secondary branches funnel-shaped; rachillae 4 – 20 × c. 1 mm, sublinear, glabrous; rachilla bracts c. 0.5 × 1.2 mm, subdistichous, glabrous; floral bracteole c. 0.8 × 1 mm. *Staminate flowers* 3.3 – 4.1 × 1.8 – 2 mm in bud near anthesis, very sweetly scented; calyx 1.8 – 2 mm diam., tubular in basal 1 mm, with 3 lobes 0.7 – 1 × 1 – 1.2 mm, glabrous; corolla 3 – 3.6 × 1.8 – 2 mm in bud, scarcely united at base, glabrous; stamens 6, filaments 1.5 – 1.8 × 0.3 mm, anthers 1.6 – 2.1 × 0.4 mm; pistillode inconspicuous. *Pistillate inflorescence* similar to staminate inflorescence, but branched to 2 orders; primary branches c. 25 cm long, strongly recurving, with c. 26 rachillae, bracts on primary branch funnel-shaped; rachillae 25 – 70 × 2 mm, sublinear or irregular; rachilla bracts c. 1.2 × 1.7 mm, subdistichous, glabrous; proximal floral bracteole obscured by distal bracteole, distal floral bracteole 1.3 – 1.5 × 1.5 mm, glabrous, scar from sterile staminate flower c. 0.2 mm diam. *Pistillate flowers* c. 3 – 3.5 × 2 mm at anthesis, very sweetly scented; calyx c. 2 mm diam., tubular in basal c. 2 – 2.2 mm, with 3 lobes to c. 0.9 × 1 mm, glabrous; corolla c. 2.4 × 1.5 mm, tubular in basal c. 1.3 – 2 mm, with 3 lobes to c. 1.1 – 1.2 × 1 mm, glabrous; staminodes 6, staminodal ring c. 1 mm high; gynoecium 1.8 – 2 × 1.1 – 1.4 mm, ovoid, stigmas 0.6 – 0.8 mm long. *Sterile staminate flowers* not seen. *Fruit* globose, c. 8 × 6 mm including beak 1.5 mm (available material unripe), with c. 20 longitudinal rows of shallowly channelled scales with entire, but uneven margins. *Seed* (sarcotesta removed) c. 6 × 4 × 4 mm (available material unripe), globose, with a deep, narrow pit on one side, the surface covered with numerous deep pits and irregular channels; endosperm homogeneous; embryo basal. Fig. 1.

DISTRIBUTION. North and central Sulawesi.

HABITAT. Hill forest and lower montane forest, on steep slopes, 780 – 1350 m.

LOCAL NAMES. Not recorded.

USES. Not recorded.

CONSERVATION STATUS. Data deficient.

SPECIMENS SEEN. INDONESIA. Sulawesi: N Sulawesi, Bolaang Mongondow, Kotamobagu, Gunung Ambang, Oct. 1973, *Dransfield & Mogea* JD 3855 (BH, BO, K!, L), *Dransfield & Mogea* JD 3858 (BH, BO, K!, L, type). C Sulawesi: Mt Roroka Timbu, W slope, c. 80 km SSE of Palu, May 1979, *de Vogel* 5283 (L!).

NOTES. *Calamus suaveolens* is easily recognised by a combination of characters: the irregular arrangement of solitary and divergent pairs of leaflets, the leaf sheath and knee densely armed with black triangular spines, the cirrus with irregularly arranged grapnel spines, the heavily armed major bracts on the primary axis of the inflorescence and the relatively large, heavily armed, persistent ocrea. Some characters are shared with other members of the *C. aruensis* complex in New Guinea and the Pacific, for example, *C. pachypus* W. J. Baker *et al.*, *C. vitiensis* Warb. ex Becc. and *C. dasyacanthus* W. J. Baker *et al.* display similar leaflet arrangements, *C. aruensis* bears similar cirrus spines and the sheath spine morphology resembles that of *C. aruensis* and *C. vitiensis*. However, none of them possesses inflorescences that are densely armed throughout (in fact, most bear largely unarmed inflorescences) or so conspicuous an ocrea.

Calamus suaveolens is so named on account of the strikingly sweet odour of the flowers at anthesis observed by one of us (JD) when collecting two of the three known specimens.

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