

2. The identity of *Daemonorops florida*

The identity of Beccari's *Daemonorops florida* has puzzled me for several years. Beccari based it on a collection made by Hewitt in Kuching preserved at Kew. In the protologue Beccari indicated affinity with *D. acamptostachys* Becc. and on successive expeditions to Sarawak I have hunted in vain for a palm of similar appearance. Part of the difficulty of interpreting the type specimen is due to the fact that it consists of a scarcely emerged leaf sheath with unexpanded spines and an inflorescence in the process of expanding and dropping its bracts. This makes it difficult to compare with other material. I have now realised that the type of *D. florida* is a young pistillate shoot of widespread *D. periacantha* Miq., a common rattan in the Kuching area. Leaflet form and arrangement (although unexpanded), flowers and spines all match those of *D. periacantha*. Synonymy may be cited as follows:

***Daemonorops periacantha*** Miq. in Prodr. Fl. Sum. 256, 592 (1861); Becc. in Ann. Roy. Bot. Gard. Calcutta 12(1): 197 (1911); Dransfield, Man. Ratt. Mal. Pen. 117 (1979), Ratt. Sabah 80 (1984). Type: Sumatra, Palembang, *Teysmann* 3591 (holotype BO).

*Daemonorops dissitophyllus* Becc., Nelle Foreste di Borneo 608 (1902) and Rec. Bot. Surv. India 2: 229 (1902). Type: Borneo, Sarawak, PB 248 (holotype FI; isotype K).

*Daemonorops florida* Becc. in Ann. Roy. Bot. Gard. Calcutta 12(1): 230 (1911). Type: Borneo, Sarawak, *J. Hewitt* s.n. (holotype K); **synon. nov.**

3. *Daemonorops maculata*

***Daemonorops maculata*** *J. Dransf.* sp. nov. *D. didymophyllae* Becc. affinis sed habitu solitario, petiolo brevissimo vel carenti, rachidi maculata, foliolis coriaccissimis spathulatis regulariter dispositis bene distincta. Typus: Borneo, Sarawak, *Dransfield et al.* JD 5927 (holotypus K; isotypi BH, BO, L, SAR).

Solitary, slender to moderate rattan with stems rarely longer than c. 5 m, often only c. 2 m; stem without sheaths up to c. 11 mm diam., with sheaths to 20 mm diam.; internodes c. 8 cm long, often much less. Leaf sheaths bright green when fresh, bearing scattered straight black spines to 15 × 4 mm with yellow bases, and abundant caducous pale brown scales; knee conspicuous, the sheath very pale cream-coloured above the knee and around the mouth; ocrea not developed. Rosette leaves ecirrate, apparently long-persisting, to c. 1.5 m long, the petiole c. 75 cm, c. 8 mm diam., bright green, conspicuously blotched with yellow around the base of each spine, the spines sparse, mostly lateral and abaxial, a few on the adaxial surface, the longest to c. 22 × 4 mm; leaflets c. 8–10 on each side of the rachis, regularly arranged, very broad-spathulate, cucullate, c. 25 × 8 cm. Leaves on climbing stems cirrate, up to 2 m long, but frequently very much shorter (c. 75 cm); petiole very short, 2–5 × 0.5–0.8 cm, bright green adaxially, pale creamy-yellow abaxially, armed along the margins with sparse to crowded horizontal black spines to 2 cm, along the mid-abaxial lines with spines to 2 cm and on adaxial face with sparse, much shorter spines; cirrus to 75 cm; rachis sparsely armed with short spines to 5 mm, bright green, conspicuously

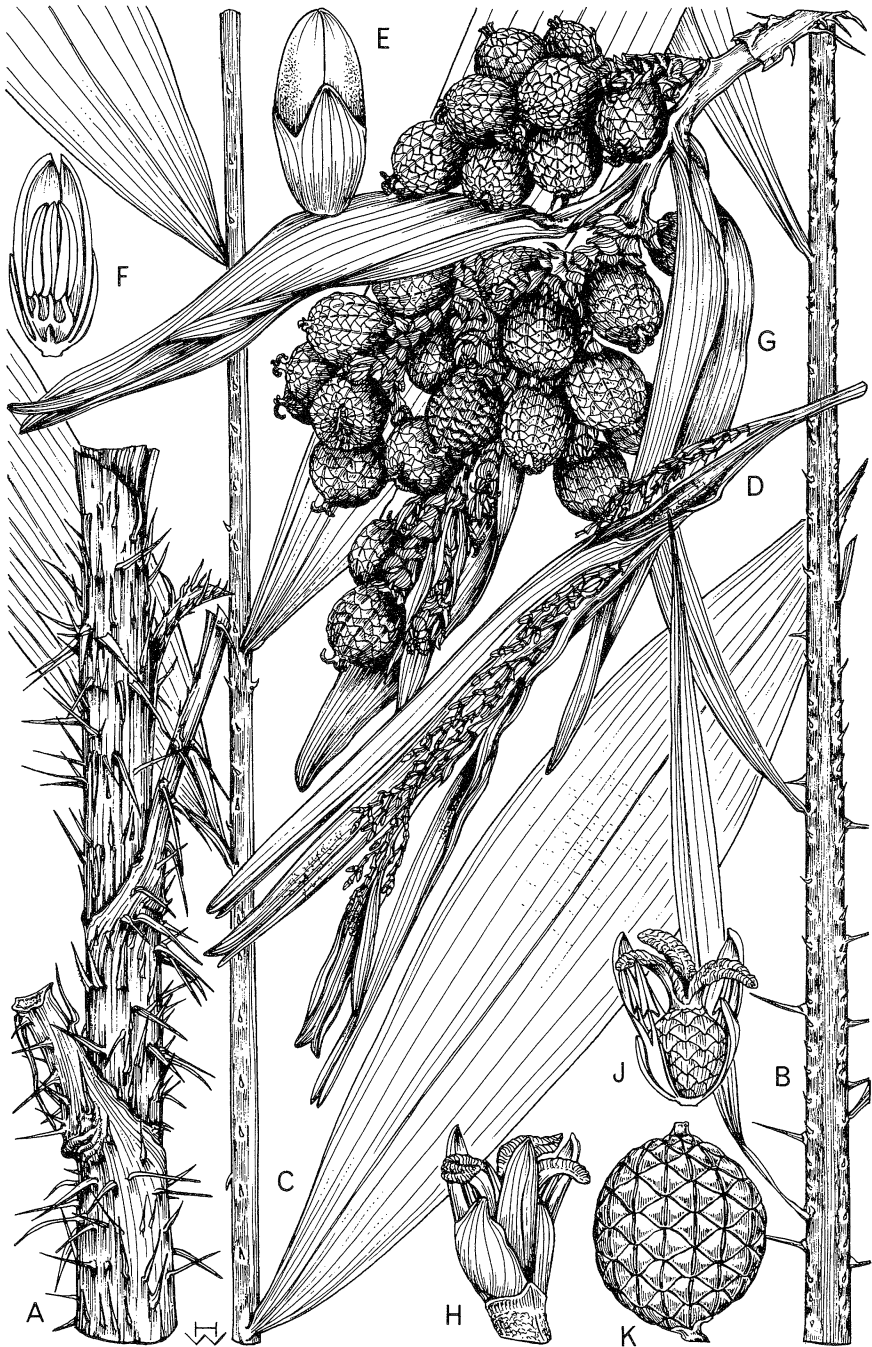


FIG. 1. *Daemonorops maculata*. A portion of sheathed stem  $\times \frac{2}{3}$ ; B base of leaf showing slender leaflet  $\times \frac{2}{3}$ ; C portion of rachis and leaflets  $\times \frac{2}{3}$ ; D staminate inflorescence  $\times \frac{2}{3}$ ; E staminate flower bud  $\times 5$ ; F staminate flower bud in section  $\times 5$ ; G infructescence  $\times \frac{2}{3}$ ; H pistillate flower  $\times 3$ ; J pistillate flower in section  $\times 3$ ; K fruit  $\times 1\frac{1}{2}$ . A-C, G from *Dransfield et al.* JD 5927, D-F from *Dransfield et al.* JD 5928, H & J from *Java* S 36626 and K from *Chai* S 19460. Drawn by Heather Wood.

TABLE 1. *Daemonorops didymophylla* and *D. maculata* compared.

	<i>D. didymophylla</i>	<i>D. maculata</i>
Habit	clustering, moderately tall	solitary, usually very short
Petiole of mature stem leaves	always well developed, usually more than 30 cm	very short or absent, not exceeding 5 cm
Rachis	dark green adaxially, slightly paler abaxially	dark green adaxially, but conspicuously blotched at the base of spines, very pale abaxially
Leaflet arrangement	rarely regular, usually grouped in divergent pairs	regular
Leaflet shape	varying from linear-lanceolate to sub-spathulate, little variation within one leaf	proximal 1-2 very slender and short, the rest broadly spathulate
Leaflet texture	moderately coriaceous	very coriaceous
Leaflet margins	sparsely armed with black bristles	very sparsely armed or unarmed
Transverse veinlets	obscure	conspicuous

marked with creamy-yellow blotches at the base of each spine; leaflets 8-10 on each side of the rachis, regularly arranged, broad-spathulate, cucullate, abruptly mucronate, very thick coriaceous, the largest in mid-leaf c. 18-25 × 3.5-6 cm, the proximal 1-2 leaflets much smaller and narrower, c. 12 × 0.6 cm, the distalmost also sometimes much reduced, margins very sparsely armed with minute black bristles; lamina plicate on drying, transverse veinlets conspicuous, very abundant and close. Staminate and pistillate inflorescences superficially similar, rarely exceeding 20 cm long, rather congested; peduncle 3-10 × 0.5 cm, heavily armed with spines 2-10 mm long; prophyll to 14 × 4 cm, ± woody, bearing groups of 2-3 spines along the 2 keels and scattered caducous indumentum; primary bracts c. 5, as the prophyll but smaller and with only 1 keel, usually unarmed, each subtending and ± concealing a short partial inflorescence; staminate rachillae c. 15 × 1.5 mm, densely brown-tomentose, pistillate rachillae similar, c. 25 × 3 mm. Staminate flower c. 5 × 2 mm, covered in rich brown tomentum; calyx tubular, striate, 2.5 × 2 mm, shallowly 3-lobed; petals c. 4 × 1 mm, blunt; filaments c. 1.0 × 0.3 mm, anthers narrow c. 2.2 × 0.4 mm; pistillode minute. Sterile staminate flower like the fertile but with empty anthers. Pistillate flower densely covered in rich brown tomentum; calyx cupular, ± explanate, 3.5 × 5 mm, shallowly trilobed, splitting irregularly; corolla tubular in basal 2 mm, the lobes triangular 4.5 × 2.5 mm; lobes of staminodal ring triangular, 1.5 × 0.8 mm; ovary c. 4 mm diam., the stigmas sinuous, c. 4 × 0.7 mm, the scales encrusted with dragon's blood. Mature fruit ovoid to ellipsoid, c. 20 × 16 mm, tipped with stigmatic remains and covered in 15 vertical rows of pale brown scales, very heavily encrusted with dragon's blood. Seed c. 14 × 10 mm, somewhat flattened laterally; endosperm deeply ruminant; embryo basal. Eophyll unknown. (Fig. 1).

BORNEO. Sarawak. 1st Division, Kuching, Bako National Park, *Dransfield et al.* JD 5927 (holotype K; isotypes BH, BO, L, SAR), JD 5928 (BH, K, L, SAR), *Jawa* S 36626 (BH, K, KEP, L, SAN, SAR), *Chai & Paie* S 17838 (K, SAR), Serian District, Sabal Tapang Forest Reserve, *Dransfield et al.* JD 6071 (BH, BO, K, L, PNH, SAR), Pundajaya Logging Camp, *Dransfield et al.* JD

6131 (K, SAR); 3rd Division, Balingian, Bawan, Begrih, Rumah Temenggong, *Chai S* 19460 (K, SAR); 4th Division, G. Mulu National Park, Ulu Sg. Berar, *Chai S* 39622 (BH, K, SAR).

I had confused this species with polymorphic *D. didymophylla* Becc., but *D. maculata* is very distinctive in its leaves with very short petioles, regularly arranged, cucullate, coriaceous leaflets with conspicuous transverse veinlets and the solitary habit. The specific epithet refers to the curiously blotched rachis. *D. maculata* seems to be confined to 'kerangas' forest at low to moderate elevations. Dragon's blood seems to be more copious in this species than in any other.

The differences between *D. maculata* and *D. didymophylla* are summarised in Table 1.

#### 4. *Calamus myriacanthus* and its relatives

'Wi tulang' (bone rattan) is the Iban name for a group of short-stemmed, usually erect rattans lacking climbing whips (cirri and flagella), belonging to section *Platyspathus* of *Calamus* as defined by Furtado (1956). They are sometimes also referred to as 'wi duduk' (sitting rattan). They are abundant in certain Bornean forest types (such as forest transitional to 'kerangas') and with their hard straight stems with short internodes are well known to local people as a source of cane for walking sticks and supports for baskets. Taxonomically they are confusing and have proved to be problematic. Variation is considerable and the types of the names of rattans in this group are sometimes not strictly comparable—e.g. the type of *C. myriacanthus* is pistillate whereas that of *C. hewittianus* is staminate. Fortunately these palms are frequently collected and there is now available material sufficient for at least a partial elucidation. I now recognise five closely related taxa in Borneo, three of which are described as new below. The relatively large number of new Bornean taxa parallels the situation in Peninsular Malaysia for which I described five new taxa in the same group (Dransfield 1978).

#### KEY TO SPECIES OF 'WI TULANG'

1. Leaflets less than 20 on each side of the rachis ..... 2  
    Leaflets more than 30 on each side of the rachis ..... 4
2. Clustering 'stemless' palm with linear leaflets . . . **C. sabalensis** *J. Dransf.*  
    Solitary 'stemless' or erect palms with broad spatulate leaflets ..... 3
3. Dwarf 'stemless' or short erect palm scarcely exceeding 1.5 m tall; leaf to 1.5 m long; mid-part of sheath armed with grouped spines .....  
    ..... **C. paulii** *J. Dransf.*  
    Erect palm with stem to 3 m or more; leaf to 2.5 m long; mid-part of sheath usually unarmed ..... **C. myriacanthus** *Becc.*
4. Inflorescence bracts armed with scattered papery spines; pistillate rachillae rather distant, somewhat curved, c. 20–100 × 2.5 mm .....  
    ..... **C. bacularis** *Becc.*  
    Inflorescence bracts densely armed with tough spines; pistillate rachillae crowded, strongly reflexed, stiff, c. 20–50 × 4 mm .....  
    ..... **C. acanthochlamys** *J. Dransf.*