

veins prominent abaxially, pinnae widest in the middle, 30–38 by 1.5–3.3 cm, apical pinnae with many veins, c. 15 each side. *Inflorescence* 80–90 cm long, 2–4-spiked, filiform; prophyll c. 21 cm long; peduncular bract 30–33 cm long, with dark scaly tomentum; peduncle to 60 cm long, 3–4 mm diam., with scaly tomentum; rachilla to 30 cm long, 3–4.5 mm diam.; floral pits well spaced in the lower part, becoming congested distally. *Staminate* flower 4–5 mm long, ovoid in bud; sepals 1.5–2 mm long, ovate, dorsally carinate; petals 3–4 mm long, ovate, dorsally densely nerved; stamens 8; filaments 3–4 mm long; anthers linear, 2 mm long, deeply sagittate, versatile; pistillode c. 4 mm long. *Pistillate* flower not seen. *Fruit* ovoid, beaked, 18–20 mm long, 8–10 mm diam., scarlet to purple-black; epicarp smooth, densely coarsely granular when dry. *Seed* globose, c. 10 mm diam.; endosperm ruminant.

*Distribution* — Papua New Guinea: Western, Gulf, and Southern Highlands Provinces.

*Habitat & Ecology* — In rain forest at 80–600 m.

*Etymology* — This species was named for the American botanist, Elmer Drew Merrill (1876–1956), who examined much of the material collected on the Archbold Expedition during which the type for this species was collected.

*Vernacular name* — Gurrinem (Drimskai language – upper Fly River, Western Province).

*Notes* — 1. *Calyptrocalyx merrillianus* is distinguished by a clustering habit, regularly pinnate leaves, multi-spiked filiform inflorescence, ovoid scarlet to purple-black fruit and ruminant endosperm.

2. This species occurs commonly on the banks of the upper Fly River, growing in full sun, an unusual habitat for *Calyptrocalyx* species.

3. Leaves are used to wrap fish and other food, and stems are used to make hunting and fishing spears.

## 18. *Calyptrocalyx micholitzii* (Ridl.) Dowe & M.D. Ferrero, *comb. nov.*

*Linospadix micholitzii* Ridl., Gard. Chron. 18, 454 (1895) 262. — *Paralinospadix micholitzii* (Ridl.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 12 (1935) 334, syn. nov. — Type: *Micholitz s.n.* (holo BM), Papua, 1895.

*Linospadix pauciflora* Ridl., Trans. Linn. Soc. London, Bot. 9 (1916) 233. — *Paralinospadix pauciflorus* (Ridl.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 12 (1935) 335, syn. nov. — Type: *Boden Kloss s.n.* (holo BM), Indonesia, Papua, Paniai Division, Snow Mts, Setakwa River, 'Camp III, 2500 ft' Observation Point, 800 m, Feb. 1913.

Solitary or clustering, small palms. *Stems* 1–5, 0.5–1 m tall, to 10 mm diam.; internodes 2–4 cm long; crown with 10–16 leaves. *Leaves* bifid, obcuneate to elongate, infrequently with 1 or 2 divisions each side, 16–100 by 8–18 cm, margins  $\pm$  parallel, new leaf emerges burgundy to purple; leafbase 6–8 cm long, with brown scaly tomentum; margins lacerate-fibrous; petiole absent. Leaves, when bifid, with c. 14 ribs each side, prominent on the upper surface, abaxially scarcely elevated; segmented leaves with broad bifid apical section, lower pinnae much narrower, in opposite pairs, apical pair to 5 cm wide, lowest pair to 1 cm wide, lamina coriaceous, glossy bright green adaxially, lighter green abaxially. *Inflorescence* 35–90 cm long, filiform, 1–3-spiked; prophyll 2.5–13 cm long, narrow linear-lanceolate; peduncular bract 20–25 cm long; peduncle 13–75 cm long, 3–4 mm diam., sparsely lepidote; rameal bracts 2–3 mm long in dis-

tal portion; rachilla 18–22 cm long, 3–4 mm diam., sparsely lepidote; floral pits shallow, widely spaced. *Staminate flower* 2–4 mm long in bud, ovoid; sepals 1.5–2 mm long, ovate, ciliate, minutely toothed on the keel; petals 3.5–4 mm long, triangular, acute, cream; stamens 8–15, equal in length; filaments c. 5 mm long, narrowing from a broad base; anthers linear, deeply sagittate, versatile. *Pistillate flower* 2–4 mm high, globose; sepals ovate, obtuse, margins ciliate; stigmas broad. *Fruit* ellipsoid to globose, 11–12 mm long, 6–8 mm diam., red; epicarp smooth, finely granular when dry; mesocarp fibrous, fibres aggregated into a layer close to the endocarp, fibres frayed at the apices. *Seed* globose, c. 7 mm diam.; endosperm homogeneous.

Distribution — Indonesia: Papua: Fakfak Division in the Timika area; Paniai Division, Snow Mts; Jayapura Division, Kaimana area.

Habitat & Ecology — In rain forest at 300–800 m.

Etymology — The species was named for Wilhelm Micholitz (1854–1932), German plant collector employed by Sander's Nursery, England.

Vernacular name — Sawat net (Kroi language – Kaimana, Papua).

Notes — 1. The origin of the type of *C. micholitzii* is not known with certainty. Ridley (1895) described the species from a specimen given to him by Micholitz who had visited New Guinea in 1891 and who had ascended mountains in the SW of the island. Ridley subsequently sent seeds to Sander's Nursery, England, from where a plant was eventually sent to Kew in 1896, flowered in 1905 and illustrated in Botanical Magazine (Wright, 1906). The specimen from which the plate was drawn, *Anon. s.n.*, is conserved in K. The species is distinguished by a solitary or clustering habit, bifid or once-segmented leaves, small staminate flowers, ellipsoid to globose fruit and homogeneous endosperm. Specimens of *Paralinospadix pauciflorus*, described from the Snow Mts, are attributable to *C. micholitzii*.

2. Seedling leaves have a metallic lustre, and are strongly blotched.

## 19. *Calyptrocalyx multifidus* (Becc.) Dowe & M.D. Ferrero, *comb. nov.*

*Linospadix multifidus* Becc., Malesia 1 (1877) 64. — *Paralinospadix multifidus* (Becc.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 12 (1935) 334, syn. nov. — Type: *Beccari 906* (holo FI; iso K), Indonesia, Papua, Manokwari Division, Mt Arfak, Putatat, 400–500 m, Oct. 1872.

Clustering, small palms. *Stems* 2–5, 1–2 m tall, 8–40 mm diam.; internodes 2–4 cm long, dark green. *Leaves* irregularly segmented or regularly pinnate, 70–125 cm long, new leaf emerges bronze red; leafbase 8–35 cm long, dark green, glabrous, swollen at the base, margins densely lacerate-fibrous; petiole 0.5–19 cm by 3–10 mm, adaxially channelled, glabrous; pinnae of regularly pinnate leaf 4–18 per side, alternate, opposite or subopposite, placed up to 20 cm apart, lanceolate, widest above the middle, narrowing toward the base, apically acuminate, caudate, dark green adaxially, slightly lighter abaxially, reddish brown ramenta on ribs abaxially; lower pinnae shortest, apical pinnae longest; midleaf pinnae 20–60 by 10–25 cm, chartaceous; midrib prominent, but strong secondary veins present, marginal veins thicker than secondary veins; lower pinnae to 16 cm long, 12 mm wide; irregularly segmented leaf with pinnae united, one side of leaf all united or with irregular intervals between groups of united pinnae. *Inflorescence* 40–105 cm long, 1-spiked, erect, rigid; prophyll 15–28 cm by 14–25 mm, glabrous, apices acute; peduncular bract 30–40 cm by 13 mm, glabrous to densely tomentose; peduncle 20–85 cm by 2–6 mm, subterete, densely scaly; rameal bracts present