

0.7 cm, the last pair joined to 6 mm along rachis tip. Staminate inflorescence not known. Pistillate inflorescence pendulous, to 60 cm long, with up to 3 partial inflorescences and terminating in a well-defined flagellum, the partial inflorescences spaced to 15 cm apart, decreasing in size distally; prophyll tubular, to  $17 \times 0.3$  cm, armed with scattered short, black, rigid spines to 2 mm; other bracts similar but decreasing in size distally; peduncle c.  $16 \times 0.2$  cm to the prophyll scar; partial inflorescence pendulous, to 12 cm long, with up to 6 second-order branches of which the proximate one often bearing up to 3 rachillae, succeeding and ultimate second-order branches as rachillae; rachilla to  $25\text{--}35 \times 2$  mm, very slender, flexuous, bearing distichously arranged, striate bracts, each subtending a flower pair, alveolus of sterile staminate flower c. 0.5 mm dia., that of pistillate flower c. 1 mm dia. Sterile staminate and pistillate flowers not known. Fruit globose-oblong, to  $1.5 \times 1$  cm when fresh, with a rather obtuse or blunt beak; pericarp with scales arranged in 15 vertical rows, dull light-green to creamish-yellow, with light brown margins and mid-scale groove. Seed plano-convex, to  $1 \times 1.2 \times 0.8$  cm when fresh, smooth, brown and glossy on surface; endosperm homogenous. Seedling leaf not known.

*Distribution and Habitat:* Luzon (Aurora Prov.); in forest with large boulders, facing the sea, c. 50 m alt. Endemic.

*Specimens Examined:* Luzon: Aurora Prov., Baler, Digisit, *Fernando 478* (holotype LBC; isotype K), Semento, *Hernaes 3874* (CAHP).

This species belongs to Section *Coleospathus* Furt. and is closely related to *C. usitatus* Blco. differing in the much shorter leaves with a very short and often absent petiole, in the leaflets armed with short bristles only along the margins and drying glossy on the adaxial surface, and in the seed which is brown and generally smooth on the surface. In contrast, *C. usitatus* generally has longer leaves with a distinct, well-developed petiole; the leaflets are armed with bristles on both surfaces and along margins, and drying dull on the adaxial surface; the seed is black and with rough, irregular surface. Furthermore, *C. usitatus* often has leafsheaths and petioles covered with dull greyish-brown indumentum, a feature not found in *C. balerensis*. Although *C. usitatus* is such a variable species, *C. balerensis* has characters which amply separate it as a distinct species.

The specific epithet refers to the type locality.

***Calamus ornatus* Blume var. *pulverulentus* E. Fern., var. nov.**

Fig. 3

A ceteris varietatibus vaginis foliorum semper inermibus et simul petiolis, rachidibus foliorum et bracteis inflorescentiae indumento cineraceo-brunneo dense tectis, et squamis fructu atratis differt. *Typus:* Mindanao, Zamboanga Peninsula, La Paz, *Fernando 599* (holotypus LBC; isotypus K).

Robust, clustering, pleoanthic, dioecious rattan. Stems climbing to 20 m, stem without sheaths to 2.5 cm dia., with sheaths to 5 cm dia.; internodes to 38 cm long. Leafsheaths completely inerm, densely covered with greyish-brown, mealy or powdery indumentum; knee very conspicuous, unarmed as the leafsheath; ocrea scarcely developed; flagellum to 5 m long, armed with rigid grapnel spines. Leaf subcirrate, rarely ecirrate, to 3 m long; petiole to 30 cm long, semi-circular in transverse section, flattened to slightly convex on adaxial side, convex on abaxial side, to 2.5 cm wide, 1.0 cm thick near base, armed with solitary rigid spines to 6 mm, only along edges and occasionally along mid-portion on abaxial surface; petiole and rachis covered with greyish-brown, mealy indumentum, rather thick below and along the edges; rachis at mid-portion triangular in section, bifacial and unarmed above, flattened or slightly convex below and armed with black, rigid, grapnel spines arranged to 4–8 cm apart.

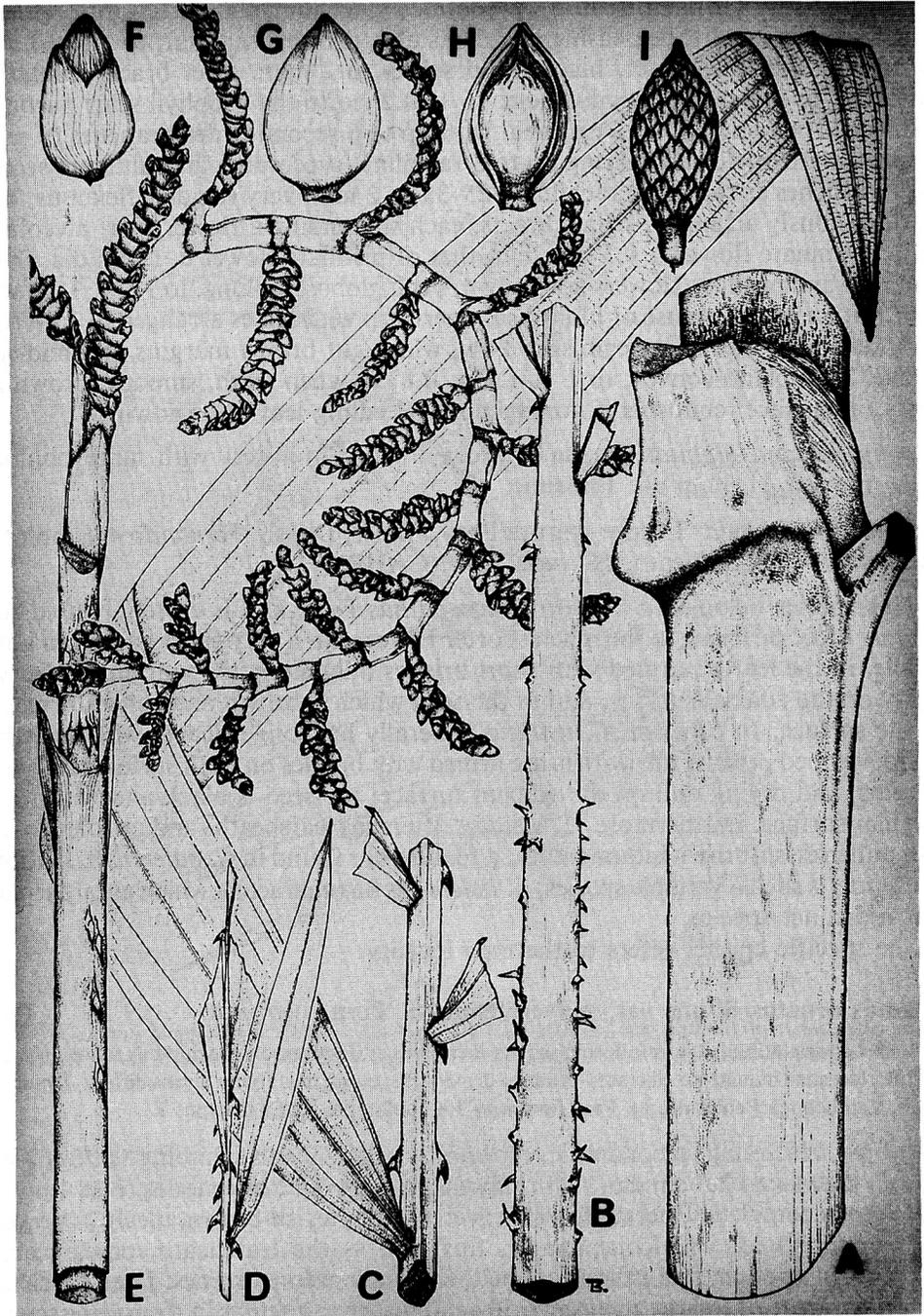


Fig. 3. *Calamus ornatus* Blume var. *pulverulentus* E. Fern. — A. leafsheath with base of flagellum,  $\times 2/5$ ; B. petiole,  $\times 2/5$ ; C. mid-portion of leaf,  $\times 2/5$ ; D. leaf apex,  $\times 2/5$ ; E. partial pistillate inflorescence,  $\times 2/5$ ; F. sterile staminate flower,  $\times 3\ 1/3$ ; G. pistillate flower in bud,  $\times 3$ ; H. vertical section of pistillate flower in bud,  $\times 3$ ; I. immature fruit,  $3/5$ . All from *Fernando 599*.

Leaflets to 25 on each side of the rachis, arcuate, regularly arranged to 9–14 cm apart, broadly linear-elliptic to lanceolate, generally unarmed on both surfaces except near leaflet tip where midcosta on adaxial side and margins are armed with short spiculae to 1.5 mm, transverse veinlets prominent; basal leaflets to  $57 \times 6$  cm; mid-lamina leaflets to  $70 \times 7$  cm; apical leaflets to  $15 \times 1.5$  cm, the terminal pair often fused to the tip of rachis. Staminate inflorescence not known. Pistillate inflorescence flagelliform, pendulous, to 3 m long, with up to 3 partial inflorescences and terminating in a well-defined flagellum, the partial inflorescences spaced to 55 cm apart, slightly decreasing in size distally; peduncle to  $8 \times 3$  cm to the prophyll scar, laterally compressed and 2-keeled, unarmed, covered with greyish-brown, mealy indumentum; prophyll closely tubular to  $56 \times 3$  cm, covered with greyish-brown, mealy indumentum and generally unarmed except along edges on proximal side where sparsely armed with bulbous-based laminar spines to 1.5 cm long; other primary bracts similar but decreasing in size distally and completely unarmed, all other bracts similarly covered with mealy indumentum and margins fringed with caducous cream-coloured hairs to 3 mm; partial inflorescences to 42 cm long, arcuate, bearing to 21 reflexed rachillae, each rachilla subtended by a tubular bract to  $3.5 \times 1.5$  cm, decreasing in size distally; rachilla c.  $9\text{--}20 \times 1$  cm, robust, decreasing in length distally, and bearing to 20 bracts, each subtending a flower pair, alveolus of sterile staminate flower c. 2 mm dia., that of pistillate flower c. 4 mm dia. Sterile staminate flower c.  $6 \times 3$  mm; calyx 3-lobed, with basal tube to 4 mm and triangular lobes to 1.5 mm; corolla with very short basal tube and 3 petals to  $4 \times 2$  mm; stamens 6, with filaments to 2 mm long and anthers  $1.5 \times 0.5$  mm; pistillode trifold to 1 mm high. Pistillate flower c.  $7 \times 5$  mm; calyx tubular in basal 4 mm with three triangular lobes to  $3 \times 2$  mm; corolla with short basal tube and three petals to  $5 \times 2.5$  mm; staminodal ring to 2.5 mm high bearing 6 minute triangular teeth; ovary c.  $4 \times 1.5$  mm. Fruit (immature) obovoid-ellipsoid or spindle-shaped, c.  $4.2 \times 2$  cm, tipped with a beak to 4 mm; pericarp with scales arranged in 15 vertical rows, dark brownish-black with darker margins and prominent mid-scale groove. Seed from immature fruit rather angular; sarcotesta sour; endosperm homogenous. Seedling leaf not known.

*Distribution and Habitat:* Palawan and Mindanao (Zamboanga Peninsula); in dipterocarp forest at c. 100–800 m alt. Endemic.

*Vernacular names:* Borongan (Zamboanga), Mananga (Palawan).

*Specimens Examined:* Palawan: Puerto Princesa, Bagumbayan, *Dransfield 5486* (K, LBC), Irawan, *Madulid 1007* (K, PNH); Aborlan, Talakigan River, *Hernaez 3875* (CAHP, LBC); Mindanao: Zamboanga Peninsula, Malayal, *Fernando 589* (K, LBC), La Paz, *Fernando 599* (holotype LBC; isotype K).

This new variety is distinguishable from all other varieties of *C. ornatus* Blume in the leafsheaths which are consistently completely unarmed and densely covered with greyish-brown, powdery indumentum, including petioles, leaf rachis, and inflorescence bracts, and in the dark brownish-black fruit scales. The other endemic variety of *C. ornatus* in the Philippines, *C. ornatus* Blume var. *philippinensis* Becc., is more widespread in the islands and differs from *C. ornatus* var. *pulverulentus* in the leafsheaths being dark green and armed with laminar spines and in the fruit scales which are yellowish with blackish margins.

The varietal epithet refers to the powdery indumentum on the leafsheaths.