

Gronophyllum cariosum, an Ornamental New Species from Papua New Guinea

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In the course of recent field-work undertaken in the Papua New Guinean West Sepik Province – the most biologically rich region of the island – a number of new palm species were identified. One such species is described here and notes provided.

This species of *Gronophyllum* displays exceptional ornamental qualities, as well as some unique biological aspects.

Gronophyllum cariosum Dowe & Ferrero sp. nov.

Palma insignis *G. pleurocarpo* (Burret) Essig & Young et *G. rhopalocarpo* (Becc.) Essig & Young similis sed folio obovato indiviso vel rare bijugato, segmentis proximalibus distalibus multo angustioribus, floribus pistillatis petalis recurvatis, pagina adaxiali minute papilloso-verrucata cariosa aspectu, et fructu ellipsoidalibus, obovoideo vel fusiformi, 12–15 × 5–8 mm differt. Typus: Papua New Guinea, West Sepik Province, *J. L. Dowe et al.* 514 (Holotypus BRI, isotypi K, LAE).

Solitary or clustering small palm. Stems 1–6, 1–4 m tall, 10–15 mm diam., green, internodes 65–95 mm long. Leaves 4–6 in the crown; leaf sheath tubular, 14–15 cm long, green with dark lepidote scales densest toward the apex; petiole 15–16 cm long, 3–4 mm wide, shallowly channeled adaxially, rounded abaxially, green with dense

lepidote scales; lamina obovate in outline, 45–55 cm long, 20–30 cm wide, papyraceous, bullate, dark green adaxially, lighter green abaxially, simple or irregularly divided with a large bifid apical section, paired or single narrow basal segments, widely spaced on the rachis, ribs 11–13 in the apical section, single in the basal segments, prominent adaxially, less prominent abaxially and moderately ramentaceous throughout the length. Inflorescence spicate or 1-branched, protandrous, 12–14 cm long, rigid, erect becoming slightly curved in fruit; peduncle 2–3 cm long, basally dorsiventrally flattened and winged, distally terete in cross section, green, glabrous; prophyll 10–12 cm long, ca. 2.5 cm wide, cymbiform, ancipitous, light green, dark leprose scales in the apical portion; rachis 10–11 cm long, terete in cross section, glabrous, cream; peduncular bract 9–11 cm long, ca. 2 cm wide, sub-tubular, moderately dorsiventrally compressed, light green with dark leprose scales sparsely distributed toward the apex; rameal bract 2–3 cm long, ca. 8 mm wide, triangular, acuminate, light green, glabrous; triads borne throughout the length of the rachilla,

vertically ranked to slightly helical. Staminate flowers 8–9 mm long, asymmetrical, with a bubble-gum odor at maturity; sepals ca. 1 mm high, imbricate, fleshy, rounded, not keeled, cream, margins hyaline; petals 7–8 mm long, acuminate, irregular in length with 1 petal longer than other 2, apically loosely valvate, lavender with a cream base; stamens 6, as long as the petals, clustered, filaments short, anthers ca. 6 mm long, linear, basifixed, cream; pistillode short. Pistillate flowers ca. 3 mm high; sepals ca. 0.5 mm high, fleshy, cream; petals 3–4 mm long, recurved, violet becoming brown at receptivity, adaxially minutely papillose-warty, appearing decayed; stigma ca. 1 mm high, trifid, lobes erect to slightly recurved, light brown, minutely papillose-warty, appearing decayed. Fruit ellipsoidal to obovoid or fusiform, 12–15 × 5–8 mm, red; epicarp smooth, glossy; mesocarp thin, dryish, densely fibrous, endocarp crustaceous, dark brown. Seed ellipsoidal, 10–12 × 4–7 mm diam.; endosperm homogeneous, embryo basal. Eophyll bifid. (Figs 1–6).

SPECIMENS EXAMINED: PAPUA NEW GUINEA. West Sepik Province. Bewani Mts., Nuli River, 3°58.53' S, 141°10.98' E, 120 m, 12 Feb. 1998, J. L. Dowe 514 (with M. D. Ferrero & A. Bapa) (Holotype BRI; isotypes K, LAE). Bewani Mts., Asai, near Apambo village, 13 Feb. 1998, M. Mewa s.n. (LAE).

DISTRIBUTION AND HABITAT. Papua New Guinea, West Sepik Province, Bewani Mts, in rainforest at 100–300 m. Locally uncommon, as an understorey element in undulating terrain that is very wet and otherwise prone to prolonged seasonal inundation, a habitat referred to as *brubinei* in Bewani language, and grows in association with *Sommieria affinis* Becc. and *Linospadix albertisiana* Becc.

ETYMOLOGY. The specific epithet is from the Latin *cariosus* – withered or decayed – in reference to the distinctive decayed appearance of the petals of the pistillate flower immediately prior to and during receptivity. This feature may be an adaptation to pollination by flies or other insects that are attracted to apparently decaying vegetative matter.

VERNACULAR NAME. *Fili awoi yamu*: the literal translation is as follows: *fili* – leaf; *awoi* – rounded; *yamu* – stick, stem or the name used for *Linospadix albertisiana*. This name is applied to the palm by the Bewani people and their respective clan groups of Iduli, Apambo, Raun haus, Somboi and Amoi. Nambis and Iliup villages are neighboring unrelated clans who also use the Bewani name.

USES. The palm is 'tended' in the forests at Bewani. Leaves are periodically harvested for wrapping

sago and other food stuffs, for journeys into the bush when carrying the food or for important village functions where the leaves are used in the same way but judiciously so. Stems are used by children for practice bows to shoot arrows. It is an offense to touch, break or harvest another person's *filiawoi yamu* and is punishable under customary tribal law, which is accepted in courts of law in Papua New Guinea.

Gronophyllum cariosum is similar to a number of other small understorey clustering species, including *G. flabellatum* (Becc.) Essig & Young, *G. pleurocarpum* (Burret) Essig & Young and *G. rhopalocarpum* (Becc.) Essig & Young. *Gronophyllum cariosum* differs in the obovate-shaped leaf that is either simple or once divided, in which the proximal segments are much smaller than the distal, the spicate or 1-branched inflorescence, the staminate flower with lavender petals, the pistillate flower with recurved petals that are brown papillose-warty on the adaxial surface, and the fruit that is relatively shorter and broader. The condition of the pistillate petals, as described above, appears unique in the genus and is assumed to have some significance in attracting pollinators. The staminate flowers at anthesis have an odor that resembles grape-flavored Hubba-Bubba® bubble-gum. Table 1 provides a list of comparative characters for *G. cariosum* and related taxa.

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1 (facing page; top left). *Gronophyllum cariosum*: habit. Near Nuli River, Bewani Mts, West Sepik Province, Papua New Guinea.

2 (top right). *Gronophyllum cariosum*: leaf detail, segmented form.

3 (bottom left). *Gronophyllum cariosum*: leaf detail, entire form.

4 (bottom center). *Gronophyllum cariosum*: staminate flowers.

5 (bottom right). *Gronophyllum cariosum*: pistillate flowers.

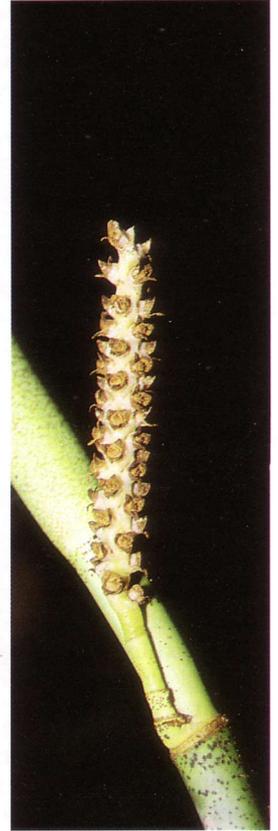


Table 1. Comparison of *Gronophyllum cariosum* with similar species.

	<i>G. cariosum</i>	<i>G. flabellatum</i>	<i>G. rhopalocarpum</i>	<i>G. pleurocarpum</i>
Height	to 4 m	to 4 m	to 1.5 m	to 1.5 m
Leaf	obovate-bifid; or once divided	cuneate-bifid simple	irregularly pinnate; pinnae clustered sigmoid to cuneate	regularly pinnate; pinnae lanceolate
Inflorescence	spicate or 1- branched with 2 rachillae	spicate or 1- branched with 2 rachillae	1-branched with 2 rachillae	1-branched with 2-6 rachillae
Staminate flower	lavender; papillose on adaxial surface	color?; smooth on adaxial surface	pink	pink
Fruits	ellipsoidal, obovoid or fusiform	ellipsoidal or bullet-shaped	ellipsoidal, obovoid, fusiform or bullet-shaped	ellipsoidal, obovoid, fusiform or bullet- shaped