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RESEARCH ARTICLE

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Three new species and a new name in Southeast Asian *Gomphandra* (*Stemonuraceae* / *Icacinaceae* s.l.)

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Key words

Gomphandra
Icacinaceae
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Abstract Three new species of *Gomphandra* (*Stemonuraceae* / *Icacinaceae* s.l.) are described from Malesia, and a new name is proposed for a misidentified species. *Gomphandra palustris* is known from peat swamp forests in Borneo, Sarawak, *G. halconensis* is known from the Philippines, Mindoro, Mt Halcon, and *G. conklinii* from the Philippines, Ifugao Province, Banaue. *Gomphandra rarinervis* is offered as a new name for *Stemonurus puberulus*, which was incorrectly synonymised with *G. papuana* by Sleumer. This commonly collected taxon is known from Madang and Morobe Provinces in Papua New Guinea and does not overlap in distribution with *G. papuana*.

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INTRODUCTION

*Gomphandr*a Wall. ex Lindl. is a genus of approximately 65 species of small trees and shrubs distributed from Sri Lanka and India to China, Indo-China, and throughout Southeast Asia to the Solomon Islands. The genus was revised by Sleumer in 1969 prior to its inclusion in Flora Malesiana (Sleumer 1971). Although it was traditionally placed in *Icacinaceae*, Kårehed (2001) provided evidence that the family is polyphyletic and placed *Gomphandra* in the segregate family *Stemonuraceae*. *Gomphandra* is the largest genus in the family, with 33 species previously recognized (Sleumer 1969) and approximately 30 new taxa. The genus is characterized by functionally dioecious flowers, a large sessile stigma, and fruit with longitudinal inner mesocarp ridges. Other genera in the family that share these characteristics also have laterally compressed fruit, usually with a fleshy lateral appendage, both of which are absent in *Gomphandra*. The site of appendage attachment may correspond to a distinctive pair of ridges and grooves flanking a central ridge on one side of the inner mesocarp in *Gomphandra*, a feature we refer to as a sulcus because the immediate impression is of a groove on the inner mesocarp (Fig. 1). The term 'pseudohilum' was considered for this feature, but it has already been used to refer to a feature of the seeds of *Sapindaceae* (Weckerle & Rutishauser 2005). The sulcus is not visible in fresh fruit but can be pronounced on dried mature fruits, though the ridges vary in prominence depending upon the species. Sleumer (1971) and others referred to the endocarp being ridged, but the ridges represent sclerified bundles of the inner mesocarp.

Many species of *Gomphandra* have a poor collection record, and a few are known only from the type collection. Ideally, a new species publication would include descriptions of pistillate flowers, staminate flowers, and mature fruit. However, for the poorly known species of *Gomphandra*, complete reproductive material is usually lacking. Nonetheless, new species can be described if their morphologies are distinctive enough to preclude confusion with previously described taxa. Two of the species described below were recognized as new by Sleumer (1969), but he did not choose to describe them at the time. Very few additional specimens have been collected since, and it is unlikely that more material will be collected in the future, as all three species described below are probably either extinct or critically endangered by habitat loss.

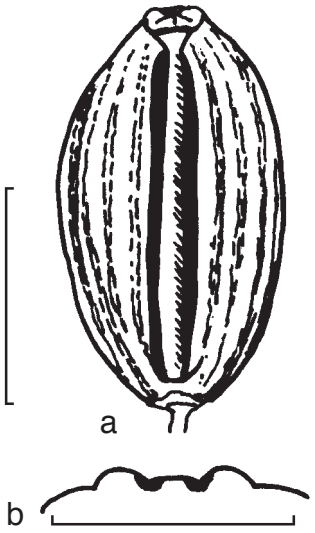

Fig. 1 Sulcus. a. The stigma is displaced toward a pair of parallel grooves (emphasized here as thick black lines) divided by a ridge, all of which is here referred to as a sulcus. The longitudinal ribs of the inner mesocarp are visible to either side; b. sulcus in profile. The thick black bars correspond to the thick lines shown in the lateral view. The ridges and grooves of the sulcus are not more prominent than those of the longitudinal ridges in this species (*G. luzoniensis*, *Reynoso et al. PPI 17155*). — Scale bars = 1 cm.

1. *Gomphandra palustris* Schori, *sp. nov.* — Fig. 2; Map 1

Arbor ad 25 m alta. Folia coriacea, ovata-ellipsoidea ad obovata vel fere orbiculata, 5.6–13.0 cm longa, 2.6–6.7 cm lata, nervis secundariis 4–5(–6) utrinque, desuper impressis, superioribus ante marginem confluentibus. Inflorescentiae ignotae. Infructescentiae cymosae, ramis primariis usque quatuor, axillares aut terminales. Fructus 1.9–2.1 cm longi, 0.9 cm lati, ellipsoidei sed latissimi in partem superiorem; putamen protrusum ultra

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excentricum stigma, valde porcatum. — Typus: *Haji Bujang S.30259* (holo A; iso K, L), Malaysia, Sarawak, 3rd Division, Batang Igan, Sungai Tutus Logging Camp, 6 Sept. 1970.

Small tree to 25 m high and 40 cm diam; trunk fluted (to 2 m) or not. Twigs pubescent with minute, somewhat appressed hairs when young, eventually becoming glabrescent, 1.5–3.0 mm diam, terminal buds falcate, densely covered with light brown pubescence. *Leaves* coriaceous, ovate-elliptic to obovate or almost orbicular, frequently conduplicate, apex acute to shortly and abruptly acuminate, base acute, lamina shortly decurrent onto the petiole, margin flat to slightly revolute, glabrous above when mature, sparsely pubescent along the veins below, shining above when dried, matte below, 5.6–13.0 by 2.6–6.7 cm; midrib sunken above, raised below, secondary veins 4–5(–6) pairs, impressed above, weakly brochidodromous with the upper pairs joining 1–2 mm from the margin, concolorous above, darker than the leaf surface below and raised, tertiary veins generally not visible above, ± raised below, percurrent and perpendicular to the midrib; petioles grooved, initially tomentellous but glabrescent with age, 1.0–2.5 cm by 1.0–1.6 mm. *Inflorescences* and *flowers* not known. *Infructescences* with up to 5 fruits developing (out of perhaps 12 or more flowers), either terminal on sympodial branches, or axillary, when axillary, most often on the older, naked portion of the twigs, cymose with 2–3 degrees of branching, up to 4 branches borne on a common peduncle to 1.5(–2.0) cm long, branches to 1.2 cm long, fruit sessile or on short pedicels when more than one fruit develops per branch, all axes and calyx with minutely appressed pubescence. *Fruit* obovate-ellipsoid, widest in upper half, apex and base rounded, 1.9–2.1 by 0.9 cm, glabrous; subtended by persistent calyx 3 mm diam; inner mesocarp with c. 7 strong longitudinal ridges, stigma distinctly eccentric in dried fruit, 3 mm diam, facing away from sulcus.

Distribution — Only from Borneo, Sarawak.

Habitat & Ecology — Only collected from (peat) swamp forests at low elevations up to 3 m.

Field notes — Bark smooth to narrowly longitudinally fissured with a somewhat scabrous surface, grey or pale yellowish grey, inner bark orange. Fruit pinkish white, orangey-pink, or yellowish grey.

Notes — *Gomphandra palustris* is distinguished by its rounded, coriaceous leaves with impressed brochidodromous veins, and its strongly ridged, asymmetrical fruit. It is not similar to any other species in Borneo and is probably most closely related to the Philippine *G. luzoniensis* (Merr.) Merr. group, whose members have a similar infructescence structure, fruit size and colour. All collections, to date, are fruiting specimens collected from June through October. On specimens with immature fruit, the young ovaries are strongly cylindrical, with no evident asymmetry.

Fig. 2 *Gomphandra palustris* Schori. a. Habit of twig with fruit; b. fruit, sulcus not visible (*Haji Bujang S.30259*). — Scale bars = 1 cm.

Map 1 Distribution of *G. palustris* in Sarawak, Malaysia, Borneo.

This species was mentioned by Anderson (1963) as *Gomphandra* aff. *comosa* King, and he cited three additional specimens, which are presumably at SAR: *Anderson 3116* and *14502* (2nd Division, Triso P. F.), and *Anderson 4189* (4th Division, Sg. Dua); unfortunately, we have been unable to see and verify these collections. Using specimens we have seen to map the distribution, the species is known from peat swamp forests along the northern coast of Sarawak. Following IUCN (2001) guidelines to estimate threat, these collections have a small extent of occurrence (11 779 km^2) suggesting a conservation rating of Vulnerable (VU). However, using satellite imagery, most of the collections (apart from *Burley & Lee 353*) are now areas of plantation (probably oil palm), and, even with the additional collections we have not seen, a conservation of Endangered (EN B1ab(i, iii, iv)) is more appropriate for this species.

Label notes report the vernacular name as Kerak nasi but do not specify in which language.

Specimens examined. Malaysia, Sarawak, 5 km S of Lundu, near Batang Kayan (River), 18 Oct. 1987, *Burley & Lee 353* (A, F, K, L, US); Pulau Bruit in centre of island, 16 (or 10) June 1957, *Anderson 7914* (K, L); Betong District, Saribas F. R., 12 Aug. 1957, *Anderson 8517* (K, L); 3rd Division, Rejang Delta, Lassa Protected Forest, 26 Aug. 1971, *Hamdi S.27828* (A, E, K, L, SING n.v.); 3rd Division, Batang Igan, Sungai Tutus Logging Camp, 6 Sept. 1970, *Haji Bujang S.30259* (A, K, L).

2. *Gomphandra halconensis* Schori, *sp. nov.* — Fig. 3; Map 2

Arbor parva ad 8 m alta. Folia coriacea, plerumque oblanceolata-elliptica, 5.5–9.0 cm longa, 2.0–3.5 cm lata, basi acuta, apice acuminata vel caudata, ad marginem revoluta. Nervi secundarii vix manifesti, 4–8 utrinque, ante marginem arcuatim confluentes. Inflorescentiae ignotae. Infructescentiae axillares, cum pedunculis 1–2 cm longis, gerentibus fructus 2–5 in pedicellis 1.5–5.0 mm longis. Fructus globosi, luteo-eburnei, glabri, 1.0–1.3 cm longi, 0.8–0.9 cm lati; putamen circa 12 porculis anastomostantibus ornatum. — Typus: *Ridsdale, Coode & Reynoso 1702* (holo K; iso A, L (2 sheets), LBC, PNH non inveni), Philippines, Mindoro, Oriental Mindoro Province, Mt Halcon area near Paitan, Dulangan River, Ramayan village, c. 13°12' N, 121°12' E, 8 May 1986.

Small tree to 8 m tall and 20 cm diam. Twigs slender, slightly zigzag, 2.0–2.5 mm diam. Leaves and twigs initially covered with very short, rusty pubescence, quickly glabrescent and apparently glabrous but usually retaining some pubescence on the twigs, petioles, and leaf midribs below (visible under magnification). *Leaves* coriaceous, lanceolate-elliptic to ovate, mostly oblanceolate-elliptic, apex acuminate to caudate with an acumen c. 7 mm long, sometimes with a short mucro formed by the tip of the midrib, base acute, margins revolute, apparently glabrous, pale yellowish brown when dried, 5.5–9.0 by 2.0–3.5 cm; midrib slightly impressed above, raised below, secondary veins 4–8 pairs, flat or not evident above, scarcely evident below, brochidodromous, intersecondaries common, tertiary veins not evident on mature leaves; petiole grooved, 9–15 by 1.1–1.5 mm. *Inflorescences* unknown, probably borne on new flushes of growth. *Infructescences* with 2–5 fruits in a very reduced cyme, axillary, on previous season's growth, peduncle 1–2 cm long, pedicels 1.5–5.0 mm long, glabrescent. *Fruit* globose, slightly asymmetrical, glabrous, 1.0–1.3 by 0.8–0.9 cm; subtended by the persistent cupular calyx 2.0–2.5 mm diam; inner mesocarp with c. 12 faint ribs, stigma discoid, c. 2 mm diam, eccentric.

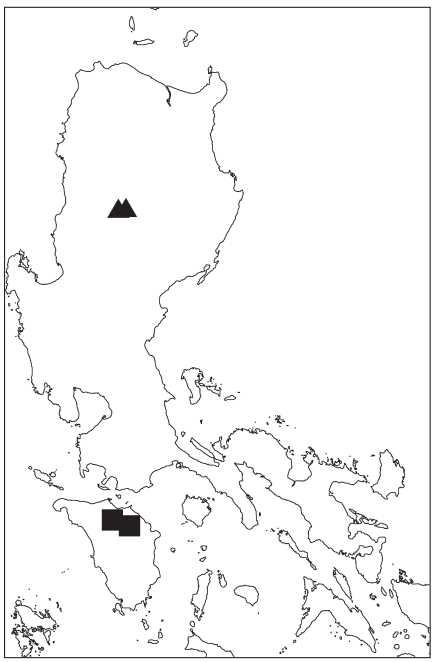
Distribution — Endemic to the Philippines, restricted to Mt Halcon on Mindoro.

Habitat & Ecology — On a ridge at 1 200 m, in a forest dominated by gymnosperms and *Tristania*, on gravel/sand, possibly from a quartz base, and from cloud forest at 1 350 m. Leaf galls are present on the A and K specimens. According to the Mangyan man who collected the specimen for Ridsdale et al., "bees" pollinated the flowers and birds ate the fruit. Fruit doves or hornbills might be able to swallow the fruit whole, but other birds would be limited to consuming the thin mesocarp.

Field notes — Outer bark smooth, brown and greenish, sometimes with short vertical lines of lenticels, inner layer of outer bark green, inner bark cream. Leaves dark green. Fruit yellow-cream to yellowish orange.

Notes — This species is most similar to *G. oligantha* Sleumer, but it differs in its coriaceous leaves with a revolute margin, obscure venation, longer petioles, and shorter acumen, and in its thick, shorter peduncle and globose fruit.

The herbarium label for *Ridsdale et al. 1702* indicates that duplicate collections were deposited in the Philippines at PNH and LBC. Despite considerable effort, we have not been able to confirm the presence of the specimen at PNH in either the accessioned or the unaccessioned material, and we have great concerns about the long-term conservation of the specimen in LBC due to housing conditions. Accordingly, to comply with



Map 2 Distributions of *G. halconensis* (■) in Mindoro and *G. conklinii* (▲) in Luzon, Philippines.

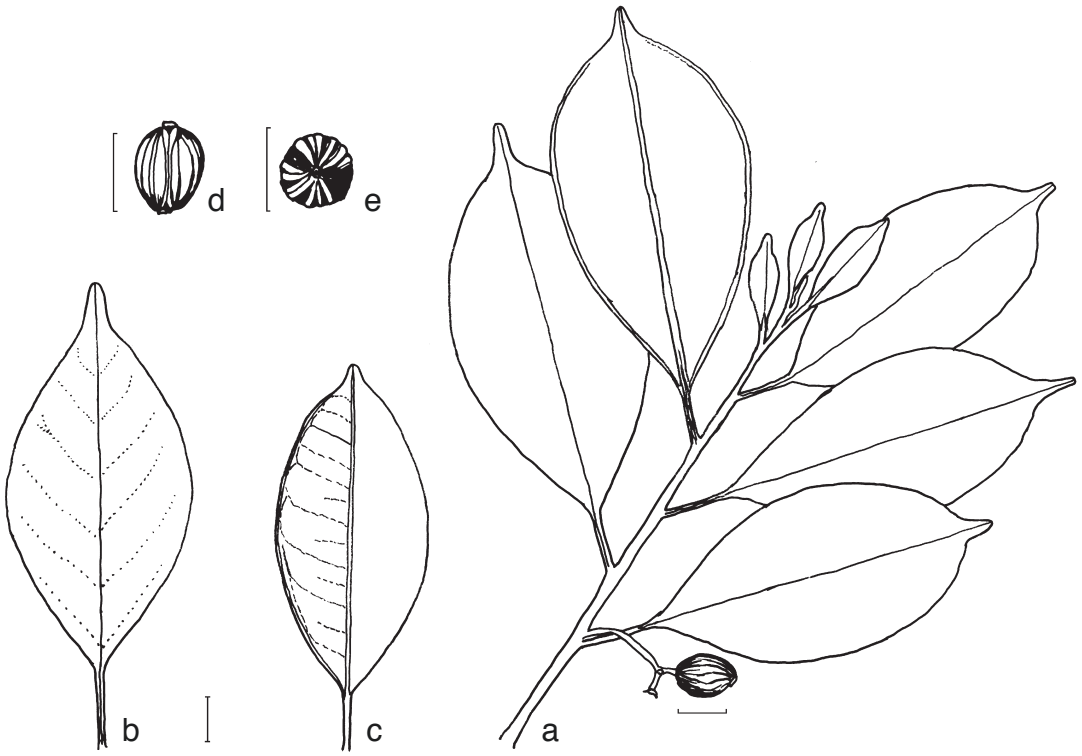


Fig. 3 *Gomphandra halconensis* Schori. a. Habit of twig with fruit; b. leaf, adaxial surface; c. leaf, abaxial surface; d. fruit in lateral view, sulcus at centre; e. fruit in apical view, sulcus at bottom (a, b, d, e: *Ridsdale, Coode & Reynoso 1702*; c: *Coode & Ridsdale 5757*). — Scale bars = 1 cm.

ICBN Rec. 7A we have not designated either of these duplicates as holotype.

Gomphandra halconensis is known from two fruiting collections from Mt Halcon. Mt Halcon is currently closed to all visitors and is now under ancestral lands jurisdiction. According to the Mangyan man who collected Ridsdale et al.'s specimens, only one tree was present in Ramayan village, and the tree has since been cut. Apparently much of the forest on Mt Halcon has been cut for charcoal production and slash-and-burn agriculture (kaingin), but perhaps this species can still be found on the mountain's slopes. Following IUCN (2001) guidelines, the limited number of localities and the small area of occupancy (extent of occurrence cannot be calculated for two points), together with known problems of habitat destruction on Mt Halcon, give a conservation rating of Critically Endangered (CR2ab(iii)).

The Mangyan have no common name for *G. halconensis*.

Specimens examined. Philippines, Oriental Mindoro, Mt Halcon area near Paitan, Dulangan River, Ramayan village, c. 13°12'N, 121°12'E, 8 May 1986, *Ridsdale, Coode & Reynoso 1702* (A, K, L, LBC, PNH non inveni); Ramayan to Mustning, Mt Halcon complex above Paitan on Dulangan River, 10 May 1986, *Coode & Ridsdale 5757* (K, L).

3. *Gomphandra conklinii* Schori, *sp. nov.* — Fig. 4; Map 2

Frutex vel arbor parva ad 8 m alta. Folia variabilia, ovata vel elliptica, 4.4–13.0 cm longa, 2.2–4.0 cm lata, apice acuminato, venatione variabili, nervis secundariis 1–5 utrinque. Inflorescentiae masculinae ignotae. Inflorescentiae femininae axillares, cymosae, 2 cm longae, 6 vel 7 flores gerentes. Flores sub anthesi ignoti. Staminodia et ovaria glabra. Fructus grandes, obovoidei, 2.2–3.1 cm longi, 0.9 cm lati, basi tumida; putamen 10 vel 11 porculis demissis ornatum. — Typus: *Banlugan et al. PNH 72486* (holo PNH; iso A, L), Philippines, Luzon, Mountain (nunc Ifugao) Province, Banaue, Amganad, 11 Sept. 1961.

Shrub or small, slender tree to 8 m tall and 20 cm diam. Twigs slender, almost straight, with minute appressed hairs near the apex, glabrescent, 1–2 mm diam, terminal buds small, falcate, rusty pubescent. *Leaves* coriaceous, ovate to elliptic, often conduplicate, apex acuminate, base rounded to tapered, often slightly asymmetrical, glabrous or with sparse pubescence below on the veins, drying brown on both sides, 4.4–13.0 by 2.2–4.0 cm; midrib sunken above, raised below, extending to tip, secondary venation highly variable, 1–5 pairs, somewhat obscure above, raised below, acrodromous to weakly brochidodromous with lowest pairs converging toward margin and upper pairs joining 1–2 mm from margin, tertiary veins not visible above, raised and distinctly percurrent below; petioles c. 0.5 cm long by 1.0–1.5 mm wide, grooved, glabrescent. *Staminate inflorescences* unknown. *Pistillate inflorescences* 6- or 7-flowered in an axillary reduced cyme on previous season's growth, to 2 cm long when mature, peduncle 0.5–0.7 cm long, with up to 5 branches, branches either serving as pedicels or bearing 2 or 3 flowers on pedicels 2 mm long, peduncle and pedicels pubescent. *Pistillate flowers*: calyx cupular, articulated at base, margin with minute teeth or ciliate, very sparsely pubescent to glabrous, 2–3 mm across, 1–2 mm high; petals 4 (or 5?), with very fine white hairs appressed along midveins or at petal apex on outside of buds, buds 3–4 mm long; staminodes glabrous (not seen at maturity); ovary cylindrical, glabrous, 4 by 2 mm, stigma apical, 2 mm wide, 5-lobed, edges undulate, capping ovary and slightly wider than it. *Fruit* oblong to obovoid, apex rounded, base swollen, 2.2–3.1 by 0.9 cm; inner mesocarp with 10–11 low ridges, stigma 2.5 mm diam, displaced toward sulcus.

Distribution — Ifugao Province, Luzon, Philippines.

Habitat & Ecology — On ridge at 1 705 m, on clay loam in secondary disturbed forest and slightly disturbed gully forest.

Field notes — Leaves glossy above and dull and paler below, midrib yellowish. Fruit yellowish or slightly pink (both specimens with submature fruit).

Etymology — The specific epithet honours Harold C. Conklin, an anthropologist at Yale University's Peabody Museum, who first collected this species as part of his research for what became the Ethnographic Atlas of Ifugao.

Notes — *Gomphandra conklinii* is distinguished by its relatively small, coriaceous leaves with irregular venation and by

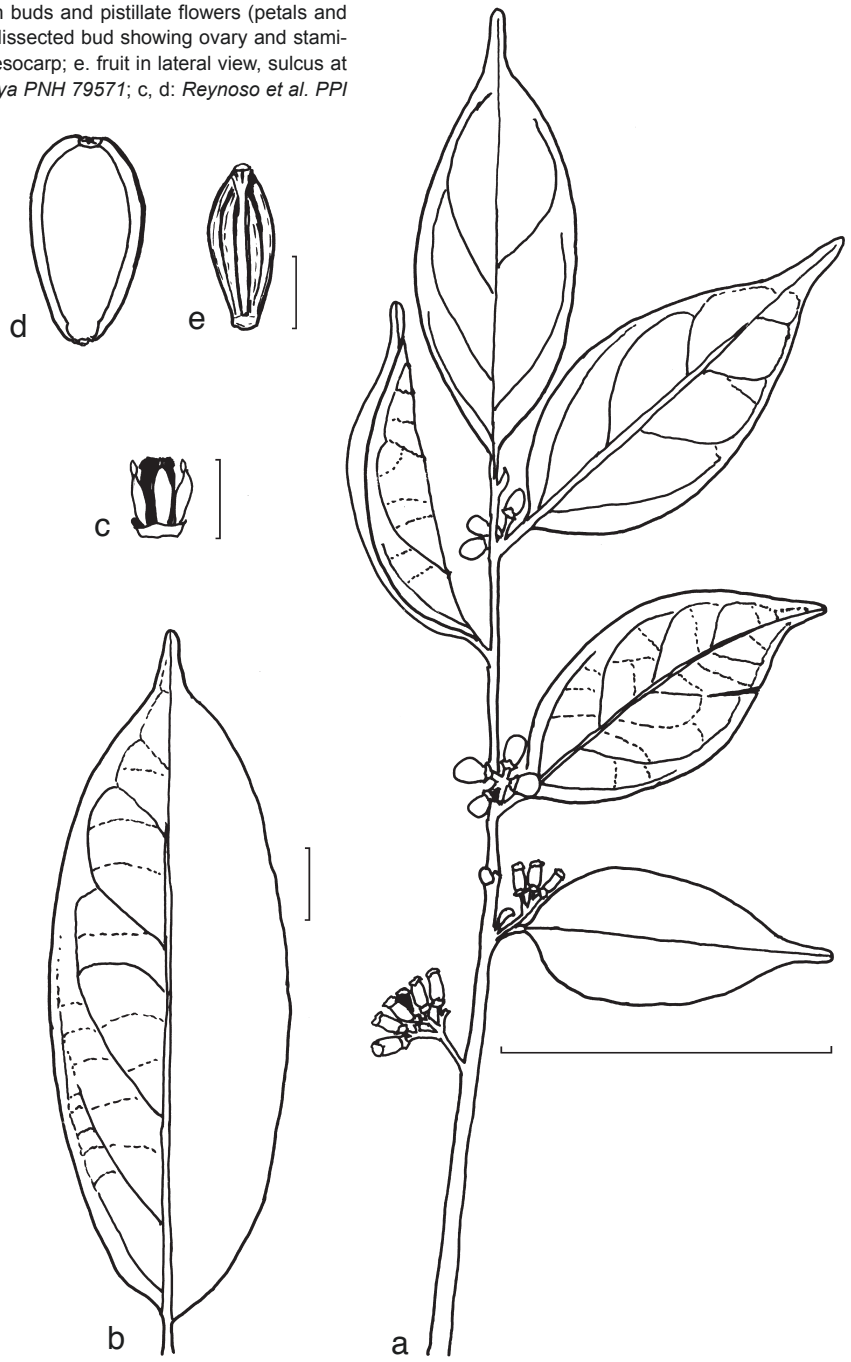


Fig. 4 *Gomphandra conklinii* Schori. a. Habit of twig with buds and pistillate flowers (petals and staminodes caducous); b. larger leaf, abaxial surface; c. dissected bud showing ovary and staminodes; d. outline of a fresh fruit showing the thin outer mesocarp; e. fruit in lateral view, sulcus at centre (a: *Banlugan et al. PNH 72486*; b: *Conklin & Buwaya PNH 79571*; c, d: *Reynoso et al. PPI 6987*). — Scale bars: a = 5 cm; b, d, e = 1 cm; c = 4 mm.

its fruits, which are the largest of any *Gomphandra* in the Philippines. PPI collectors (*12920*) did not see ripe fruit but reported that the fruit are purple when ripe. This anecdote is somewhat doubtful, given the fruit colours that are reported for other collections of this species, and considering that all observations of ripe fruit in other species of *Gomphandra* list the colour as white, ivory, yellow, pink, salmon, or red. Based on herbarium records, this species blooms in September and fruits from March to July.

Gomphandra conklinii was first collected in 1961 and has been found as recently as 1994. While Ifugao Province has retained its forested areas and in fact has more forest now than it did when Conklin collected this species, much of the forest is highly degraded. The 1990s collection sites have been extensively cut or converted to agriculture and then abandoned to grassland. The local forester in Banaue did not recognize photos of herbarium specimens of this species. There are also reports that previously common species have become very scarce or even extirpated in the past generation, presumably as a result of overharvesting. Applying IUCN (2001) standards, especially the geographic range which is extremely small (e.g., area of occupancy is only 4 km^2), and taking into account forest degradation, this species is Critically Endangered (CRB2ab(iii)).

Conklin's collector, Ballogan (Banlugan is a spelling variation), reported the Ifugao common name 'halipan' for this species and said that the branches were used as a supplement to betel nuts. However, in 2007, when the first author visited Banaue, 'hali-pon' referred exclusively to *Ficus* spp., and no one could recall using twigs of any plant along with betel nuts. Mr. Ballogan said that while collecting for Conklin, he would ask locally about common names, and a common name was reported on the herbarium label if three people gave the same identification. On his own collection, Conklin reported 'lungi' as a common name and said that the timber was used for house construction. This use is much more in line with other reports of economic uses of *Gomphandra*, but we have not had an opportunity to search for this species under this other common name.

Specimens examined. Philippines, Ifugao, Banaue, Barangay Dalikan, Mt Bukung, 30 July 1992, *Reynoso, Sagcal & Garcia PPI 6987* (CAHUP, L, PNH, US, 2 other duplicates, n.v.); Barangay Batad, Mt Borbor, 1705 m

(16°56.0'N, 121°09.8'E), 6 Apr. 1994, *Barbon et al. PPI 12920* (L, PNH, 3 other duplicates, n.v.); Banaue, Amganad, 11 Sept. 1961, *Banlugan et al. PNH 72486* (A, L, PNH); Banaue, Bayninan, steep slope, 5000 ft., 6 Mar. 1963, *Conklin & Buwaya 79571* (K, L).

4. *Gomphandra rarinervis* Schori, *nom. nov.* — Fig. 5; Map 3

Stemonurus puberulus K.Schum. & Lauterb. in K.Schum., Fl. Schutzgeb. (1900) 414, haud *Gomphandra puberula* Ridl. (1915) 142. — Typus: *Lauterbach 2204* (B†; lectotypus, hic designatus L!; iso WRSL, n.v.), Papua New Guinea, Madang Province, Astrolabe Plain near Erima Village.

Small tree to 15 m high and 32 cm diam. *Twigs* usually zigzag, with spreading tawny to light brown pubescence, 2.5–3.0 mm diam, terminal buds falcate, densely pubescent. *Leaves* chartaceous to thinly coriaceous, ovate, often somewhat asymmetrical, widest at or just below the middle, apex abruptly and shortly acuminate, base tapered, velutinous below, glabrescent above, (12–)18–26 by (6–)10–13.5 cm; midrib sunken above, raised below, secondary veins 6–8 pairs, flat to slightly raised above, raised below, widely spaced (upper veins 1–3 cm apart), converging towards margin and upper few pairs ± brochidodromous, tertiary veins obscure above, flat to slightly raised below, percurrent and perpendicular to the midrib; petiole 0.8–1.1 cm by 2.0–2.6 mm. *Inflorescences* axillary, 1 or 2 per axil, from older leafy or leafless portion of twigs. *Staminate inflorescences* with up to c. 12 flowers, to 2 cm long, peduncle to 0.5 cm long, usually bearing 2 branches, flowers crowded, sessile or on pedicels 1–3 mm long. *Staminate flowers*: calyx pubescent, entire to slightly toothed, cupular, 4–5 mm diam; petals 5, upper half of corolla pubescent abaxially, 5–6 mm long; stamens white, exserted, 8 mm long, filaments pubescent with short clavate hairs on both sides; ovary rudiment ovoid, apex acute, with a few hairs. *Pistillate inflorescences* 1- or 2- (or 3-)flowered, to 1.6 cm long, peduncle short, to 0.6 cm long, pedicels 0.4–0.6 cm long, axes densely pubescent with spreading hairs. *Pistillate flowers* incompletely known, calyx pubescent, evidently entire, cupular, 4–5 mm diam; ovary 4–5 mm long, sparsely pubescent, glabrescent, stigma lobed and ridged, 3.0–3.5 mm diam. *Fruit* ovoid to obovoid, somewhat asymmetrical, apex curved and prominently beaked, 3–4 by 1.5–1.7 cm; stigma displaced toward sulcus, inner mesocarp with c. 8 sharp, prominent ridges.

Distribution — East Sepik, Madang, and Morobe Provinces, Papua New Guinea.

Habitat & Ecology — Primary and secondary rain forest, lower montane *Castanopsis* forest zone, lowland rain forest dominated by *Anisoptera*, tall alluvial forest and flood plain forest, on steep to moderate slopes, along streams, in riverine swamp forest, at forest edges, in a limestone area and on ultrabasic alluvial soil, and in disturbed forest on flat, well-drained land, 5–500 m elevation.

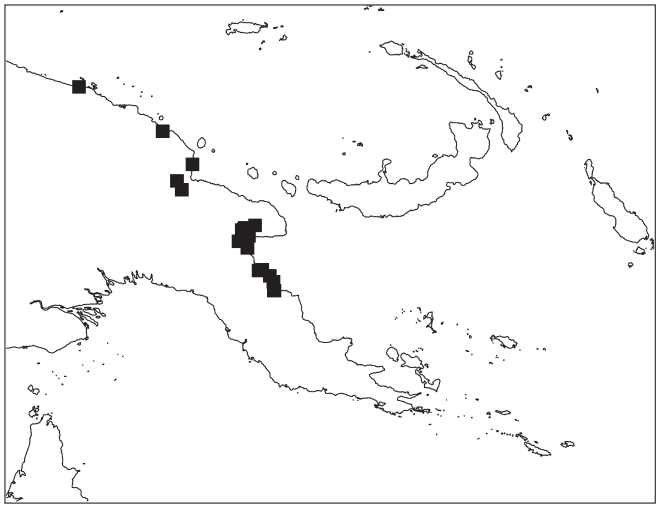
Field notes — Bark grey, grey-green, greenish brown, smooth or with pustular lenticels. Leaves dark to medium green and matte or shiny above, paler or yellow green and matte below. Calyx (staminate flowers) green, petals light green. Fruit reportedly yellow or orange when ripe (no collections of ripe fruit).

Notes — *Gomphandra rarinervis* is one of the most easily recognized *Gomphandra* species in New Guinea, with large leaves, widely spaced veins, a long, prominently ribbed drupe, and spreading pubescence on both the twigs and leaves.

Specimens of this species have most often been identified as *G. papuana* (Becc.) Sleumer, or less frequently as *G. montana* (Schellenb.) Sleumer. *Gomphandra rarinervis* has been collected from the northern part of Papua New Guinea, and it does not appear to overlap in distribution with *G. papuana*, which occurs in Irian Jaya, Western, Gulf, Chimbu, Central, and Northern Provinces, with a disjunct population in West Sepik Province near Vanimo. *Gomphandra papuana* has similar leaves, but the pubescence on the leaves and twigs is very tightly appressed, and while the fruits are a similar size, the inner mesocarp seldom develops, so no ribs are evident, the stigma is much smoother, and the epicarp has a granular texture. *Gomphandra montana* was described from East Sepik Province, and unfortunately all the fruiting syntypes appear to have been destroyed at B, but the staminate specimens have much smaller leaves with close parallel veins, and a long-peduncled inflorescence that is multiply branched. Material from Central Province, originally described as *G. carrii* Sleumer, probably belongs to *G. montana*. The fruits are up to 3 cm long (matching Schellenberg's description), but they lack the beak of *G. rarinervis*, have more numerous and less prominent ridges, and are borne on a long-peduncled, multiply branched infructescence.

Gomphandra rarinervis matches type material of *Stemonurus puberulus*, but the epithet '*puberula*' was used in *Gomphandra* by Ridley (1915), so a replacement name is needed. The epithet '*rarinervis*' has been chosen in reference to the widely spaced veins on the leaves. The syntypes of *Stemonurus puberulus* were at B, and Sleumer inappropriately designated *Lauterbach 2204* as a lectotype in 1969, after the specimen had been destroyed. The other specimen cited in the protologue of *S. puberulus*, *Lauterbach 2483*, evidently did not have any duplicates. The curator at WRSL did not respond to inquiries about their duplicate of the *Lauterbach 2204* specimen, which Sleumer also cited, but a fragment at Leiden (ex WRSL), confirmed the identity of the basionym and must be chosen as the lectotype.

To date, *G. rarinervis* has been collected from 22 localities in Morobe and Madang Provinces and is given a conservation rating of Least Concern (LC) using IUCN (2001) guidelines. However, the extent of occurrence (39 241 km^2) is large, and above any of the IUCN threat thresholds, because of a couple of 'outlier' collections (especially *Robbins 2033b*, but also *Kiapranis et al. LAE 87104*). If either of these localities no longer held viable habitat for *G. rarinervis* then a rating of Near Threatened (NT) is more appropriate.



Map 3 Distribution of *G. rarinervis* in Papua New Guinea.

Specimens examined. Papua New Guinea, East Sepik, *Robbins 2033b* (CANB). – Madang, *Regalado & Katik 1116* (BISH, F, GH, L, MO); *Simaga 1813* (A n.v., CANB (3 sheets), K, L (2 sheets), LAE n.v.); *Lauterbach 2204* (L, WRSL n.v.); *Hoogland 5076* (A, BRI, L); *Schlechter 17021* (A, B†, L, P, UC); *Henty NGF 28033* (A, BO n.v., BRI n.v., CANB, K, L, PNH, SING n.v., SYD n.v., UH n.v.); *Kiapranis et al. LAE 87104* (K, L, US). – Morobe, *Lovave 129* (A n.v., BRIT n.v., CANB, K non inveni, L); *Rau 542* (K, L (2 sheets)); *Womersley NGF 3203* (A, BRI, CANB); *Okada & Katik 4324* (BRI, KYO n.v.,

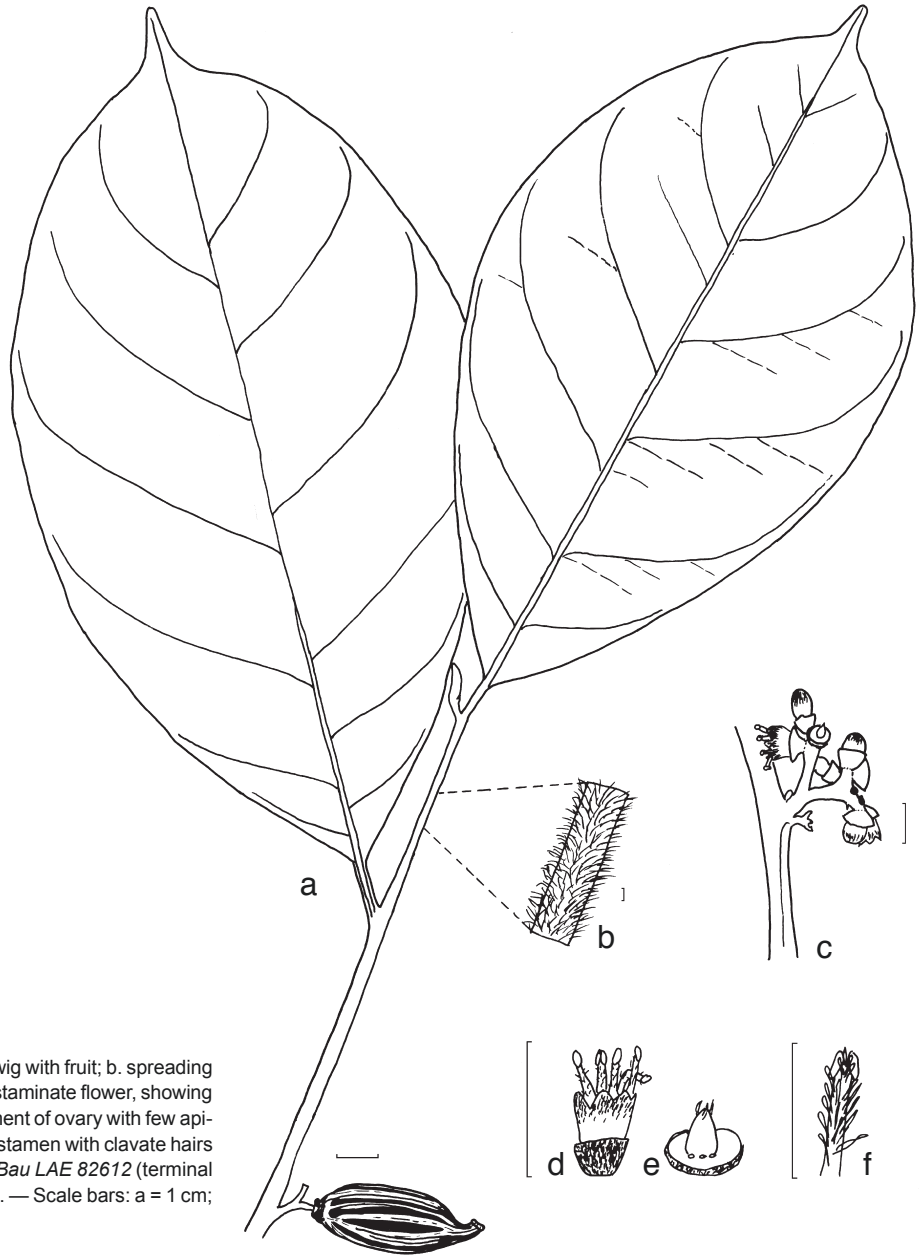


Fig. 5 *Gomphandra rarinervis* Schori. a. Habit of twig with fruit; b. spreading pubescence on twig; c. staminate inflorescence; d. staminate flower, showing pubescence on calyx, petals, and stamens; e. rudiment of ovary with few apical hairs (scars at base from detached stamens); f. stamen with clavate hairs (a, b: *Kerenga et al. LAE 73883* (leaves and twig), *Bau LAE 82612* (terminal bud), *Katik NGF 46772* (fruit); c–f: *Hoogland 5076*). — Scale bars: a = 1 cm; b = 1 mm; c–f = 5 mm.

LAE n.v., U n.v.); *Takeuchi & David 5935* (A, BISH, CANB, K (2 sheets), L); *Takeuchi & David 6963* (A, BISH, CANB, L); *Hartley 10282* (A, BRI, CANB, K, L); *Hartley 10282 A* (BRI, CANB); *Hartley 11037* (A, CANB, K, L); *Millar NGF 12225* (A, CANB, K, L); *Henty NGF 12407* (CANB, K, L, PNH, SING); *Takeuchi & Ama 16229* (A, CANB (2 sheets), K, L); *Takeuchi & Ama 17110* (A, L); *Gillison NGF 22260* (A n.v., BO n.v., BRI n.v., CANB, K, L, PNH n.v., SING n.v., SYD n.v., UH n.v.); *Streimann NGF 24342* (A n.v., BO n.v., BRI n.v., CANB, K, L); *Ridsdale NGF 31689* (A, BO n.v., BRI n.v., CANB n.v., K non inveni, L); *Womersley NGF 37107* (CANB, K (2 sheets), L (2 sheets)); *Katik NGF 46772* (A, BISH n.v., BO n.v., BRI, CANB, K, L, PNH n.v., SING n.v., SYD n.v., US); *Katik & Larivita LAE 62056* (A, BISH, BRI (2 sheets), CANB, E, K, L, PNH n.v., SYD n.v., US); *Kerenga et al. LAE 73883* (A, BISH, BRI, CANB, E, K, L, MO, NSW n.v., UPNG n.v., US); *Lovave LAE 82339* (A, K, L); *Bau LAE 82612* (A n.v., CANB, E, K, L (2 sheets), NSW n.v., PNH n.v., UPNG n.v., US); *Bau LAE 82682* (K n.v., L (2 sheets)).

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