

FLORA OF THE VENEZUELAN GUAYANA—V¹

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ABSTRACT

In the preparation of various families for the Flora of the Venezuelan Guayana, many new taxa have been detected. These include specimens collected from recently completed expeditions and earlier herbarium material. The following new taxa are described: *Portulaca insignis*, *P. pygmaea* (Portulacaceae); *Maytenus huberi*, *M. insculpta*, *M. longistipitata*, *M. neblinae*, *M. pustulata*, *Zinowiewia aymardii* (Celastraceae); *Matayba affinis*, *M. longipes subsp. yutajensis*, *M. oligandra var. occidentalis*, *M. yutajensis*, *Talisia amaruyana*, *T. caudata*, *T. glandulifera*, *T. heterodoxa*, *T. pentantha*, *T. sancarlosiana*, *Toulicia anomala* (Sapindaceae); *Gouania wurdackii*, *Rhamnus longipes*, *R. sipapoensis* (Rhamnaceae); *Pochota ewelii*, *P. fuscolepidota*, *P. gracilis subsp. bolivarensis*, *P. liesneri*, *P. mawarinumae*, *P. redmondii*, *P. tepuiensis* (Bombacaceae); *Schefflera simplex*, *S. yutajensis* (Araliaceae); *Symbolanthus huachamacariensis*, *S. yaviensis* (Gentianaceae); *Remijia sessilis*, *Simira ignicola* (Rubiaceae). In addition, comments are supplied, where pertinent, on the affinities of various taxa in the several families treated.

PORTULACACEAE

PORTULACA

Portulaca insignis Steyermark, sp. nov. TYPE: Venezuela. Bolívar: laja granítica con bosque y matorral seco, cerca del afluente del Río Aro, carretera Ciudad Bolívar–Maripa, 100 km W of Ciudad Bolívar, 100–200 m, 26 Feb. 1980, G. Morillo & G. Carnevali 8260 (holotype, VEN). Figure 1.

Planta herbacea annua diminutiva 4.5–10 cm alta, radice palari elongata; caulibus aliquot procumbentibus vel erecto-adscendentibus vel curvatis e basi exorientibus a pilis lanosis albis 8–15 mm longis omnino densissime obtectis absconditisque; foliis per longitudinem vel apicem versus dense confertis, alternis carnosus applanatis, laminis lanceolato-linearibus apice obtusis basi in petiolum angustatis 4.5–6 mm longis 0.5–1 mm latis; petiolis 0.8 mm longis 0.6 mm latis; foliis involucribus 10–12 foliorum caulinarum similaribus; sepalis 4 mm longis; petalis 4–5 mm longis; staminibus 13–15; lobis stigmatosis quatuor; capsulis 2.5 mm longis 1.5 mm diam. prope medium circumscissilibus; seminibus numerosis lenticularibus 0.5–0.6 mm diam., a latere compressis conspicue tuberculatis, tuberculis apice subacutis anguste elevatis basi 4–5 radiatis angustis ornatis.

Herbaceous diminutive annual, 4.5–10 cm tall with an elongated slender tap root. Stems several, procumbent to erect-ascending or curving, simple or sparingly branched, densely foliose up to the apex, densely covered and nearly concealed by a dense, white, woolly mass of elongate hairs 8–15 mm long; internodes conspicuously abbreviated.

Leaves alternate, densely imbricate to the apex of the stem, fleshy, flattened, lance-linear, obtuse at apex, 4.5–6 mm long, 0.5–1 mm wide, base attenuate. Petioles 0.8 mm long, 0.6 mm wide. Involucral leaves 10–12, similar to the cauline, 4–7 mm long, 1 mm wide. Sepals 4 mm long, subacute. Petals 4–5 mm long, slightly connate at base. Stamens 13–15; filaments ca. 2 mm long, attached 0.5–0.8 mm above base of petals. Stigmatic lobes 4; style filiform, 0.8 mm long. Capsules 2.5 mm long, 1.5 mm diam., circumscissile near the middle. Seeds numerous, lenticular, 0.5–0.6 mm diam., laterally compressed, conspicuously tuberculate, the tubercles with a subacute apical projection, at the base with 4–5 spreading narrow rays.

Paratype. VENEZUELA. BOLÍVAR: Dist. Paez, Laguna Larga, 8 km SE of Upata, sabanas con chaparrales, 350 m, July 1978, Delascio & Liesner 6882 (MO, VEN).

In this species the entire plant is more or less concealed by a dense cover of white, woolly or cottony hairs up to 15 mm long. It differs from *Portulaca elatior* Mart. in its much smaller size, shorter stems, shorter cauline and involucrial bracts, fewer stamens, 4-fid style, and much denser woolly covering over the entire plant.

Portulaca pygmaea Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: 1 km E of Hotel Amazonas, Puerto Ayacucho, gravel pockets

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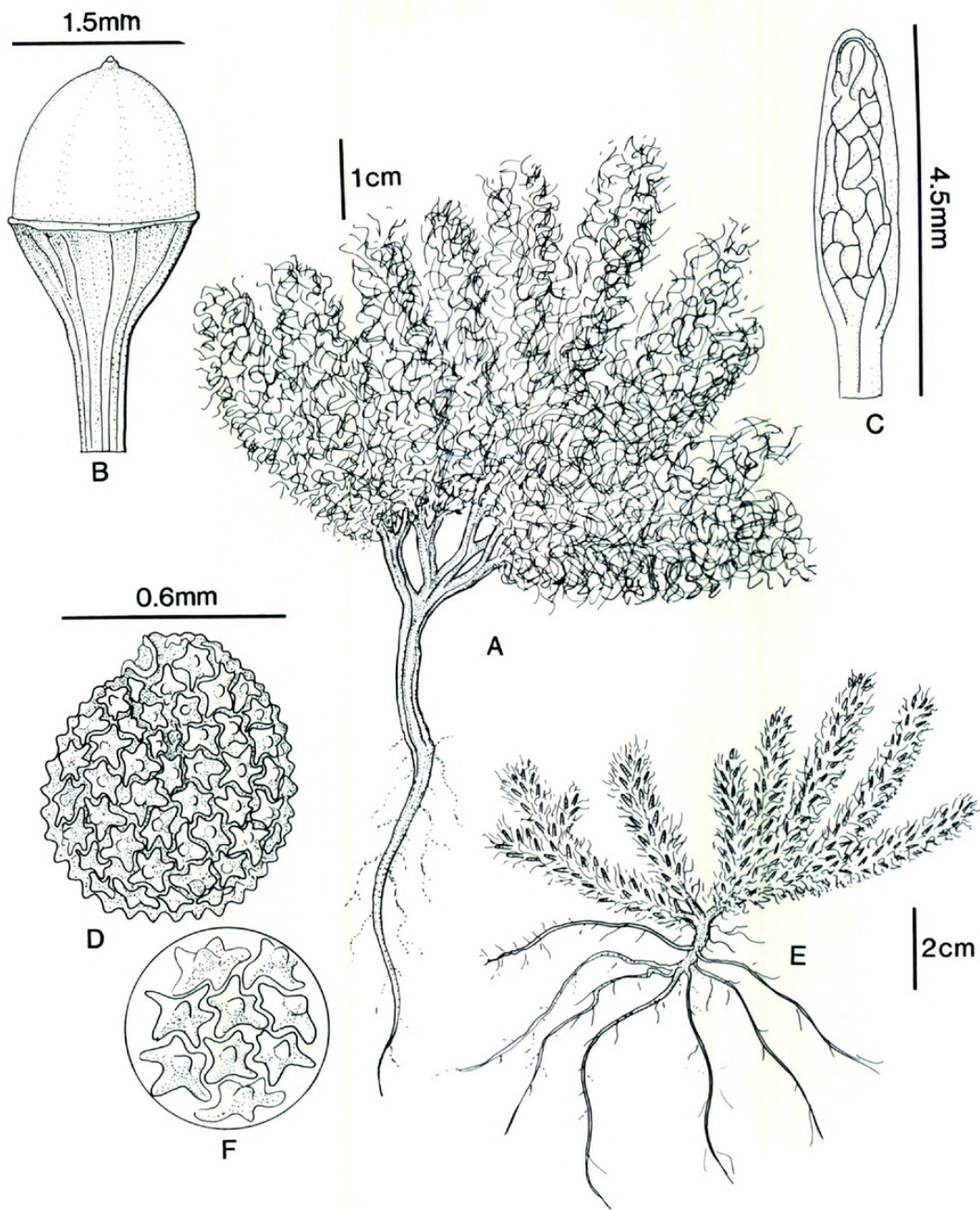


FIGURE 1. *Portulaca insignis*.—A. Habit of fully mature plant with woolly aspect.—B. Capsule, exterior view.—C. Single leaf, detached, the venation as seen in transparent light.—D. Seed with small projecting tubercles.—E. Habit of younger plant.—F. Detail of surface of seed showing tubercle raised at apex above stellate rays.

on laja, along contact between laja and Orinoco gallery forest, 100 m, 12 Nov. 1953, Bassett Maguire, John J. Wurdack & George S. Bunting 36188 (holotype, NY). Figure 2.

Planta herbacea diminuta 2–3 cm alta glabra vel fere; foliis sub capsulis oppositis aliter alternis, laminis suborbicularibus suborbiculari-obovatis ovalisque apice rotundatis basi acutis vel subacutis 1.5–4(–6) mm longis 1.5–3 mm latis glabris vel interdum pilis in axillis plerumque desunt vel interdum axillaribus inconspicuis 0.2–0.6 mm longis; petiolis 0.7–1 mm longis; sepalis suborbicularibus obtusis, 3 × 3 mm; petalis luteis 4.5–5 mm longis; capsulis

depresso-hemisphaericis prope basem circumscissilibus 1.5–2.3 mm longis 1.7–2.3 mm latis; seminibus griseis 0.5 mm diam., superficie tuberculato, tuberculis tessellatis haud projectantibus marginibus arcte contiguis.

Diminutive herbaceous plant 2–3 cm tall, glabrous or nearly so; roots napiform, the short tuberous root 1–1.5 cm long, 4–8 mm thick. Leaves subtending the capsules opposite, otherwise alternate; leaf blades suborbicular, oval, or obovate, rounded at the apex, acute at base, 1.5–6 mm long, 1.5–3 mm wide, glabrous or sometimes with minute hairs present in the axils; petioles 0.7–1

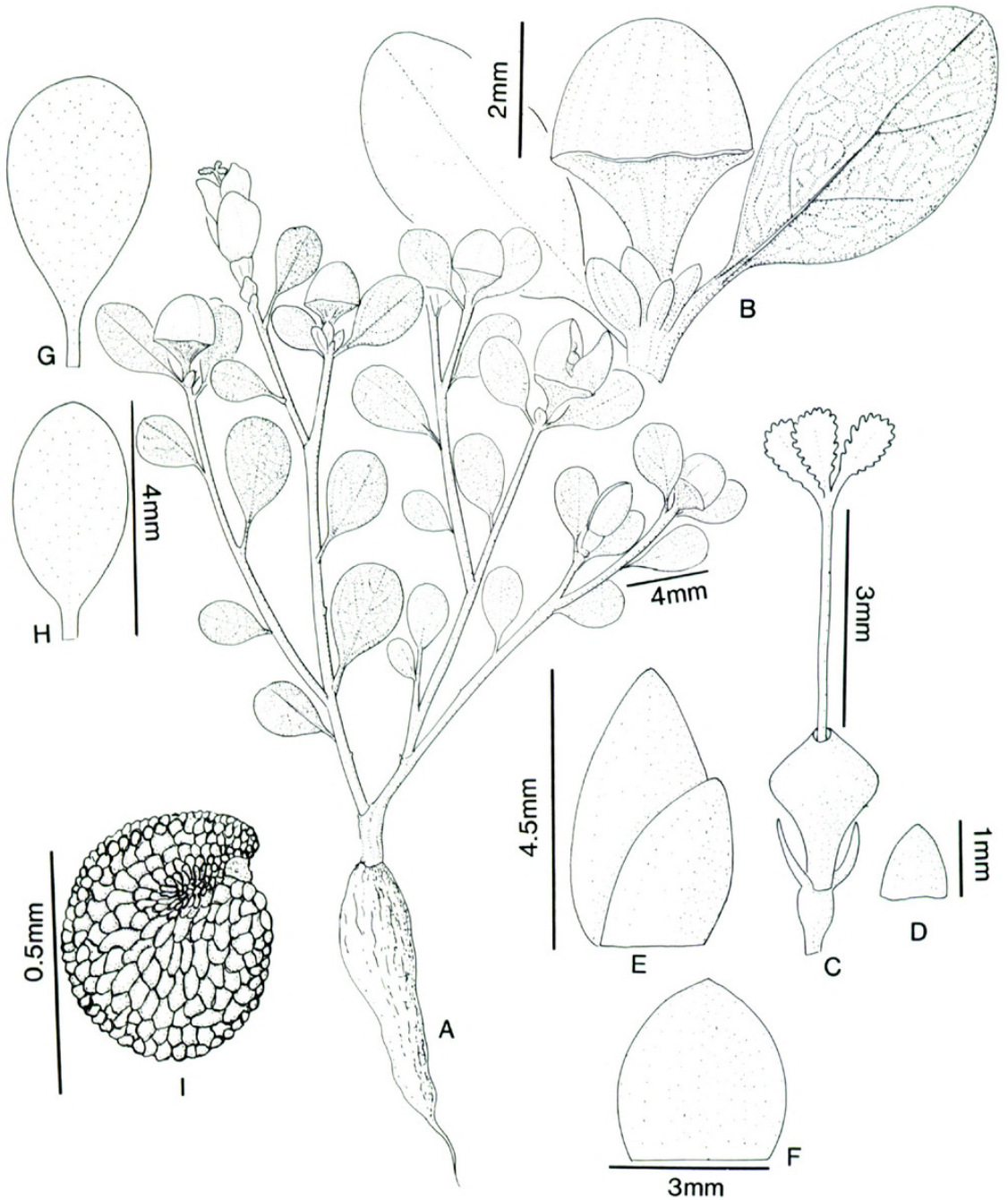


FIGURE 2. *Portulaca pygmaea*.—A. Habit, showing tuberoid root.—B. Capsule subtended by uppermost opposite leaves.—C. Pistils subtended by bracts.—D. Ovate-triangular bracteole.—E. Petal subtended by sepal, lateral view.—F. Sepal, dorsal view.—G, H. Leaves, showing different shapes.—I. Seed, showing platelike, subflattened tubercles.

mm long. Flowers bibracteate, slightly substipitate, the bracts 1 mm long. Sepals suborbicular, broadly obtuse, 3×3 mm. Petals yellow, ligulate-oblong, rounded at the apex, 4.5–5 mm long, 2 mm wide in the upper half, 0.7–1 mm wide at the base. Stamens 5; filaments 2.7 mm long; anthers suborbicular, 0.5×0.5 mm. Style 3 mm long; stigmas 3, spatulate, 1.2 mm long. Capsules hemispherical, subdepressed at the apex, 1.5–2.3 mm long, 1.7–2.3 mm wide, circumscissile near the base.

Seeds gray, 0.5 mm diam., tessellate-tuberculate, the tubercles scarcely projecting, their margins strongly contiguous.

This is a rarely collected species, occurring on the lajas in the vicinity of Puerto Ayacucho with *Portulaca pusilla* H.B.K. and *P. sedifolia* N. E. Brown. It differs from the very similar dwarf *P. pusilla* in the yellow petals; napiform, short, thickened tuberous root; 5 stamens; longer and broader

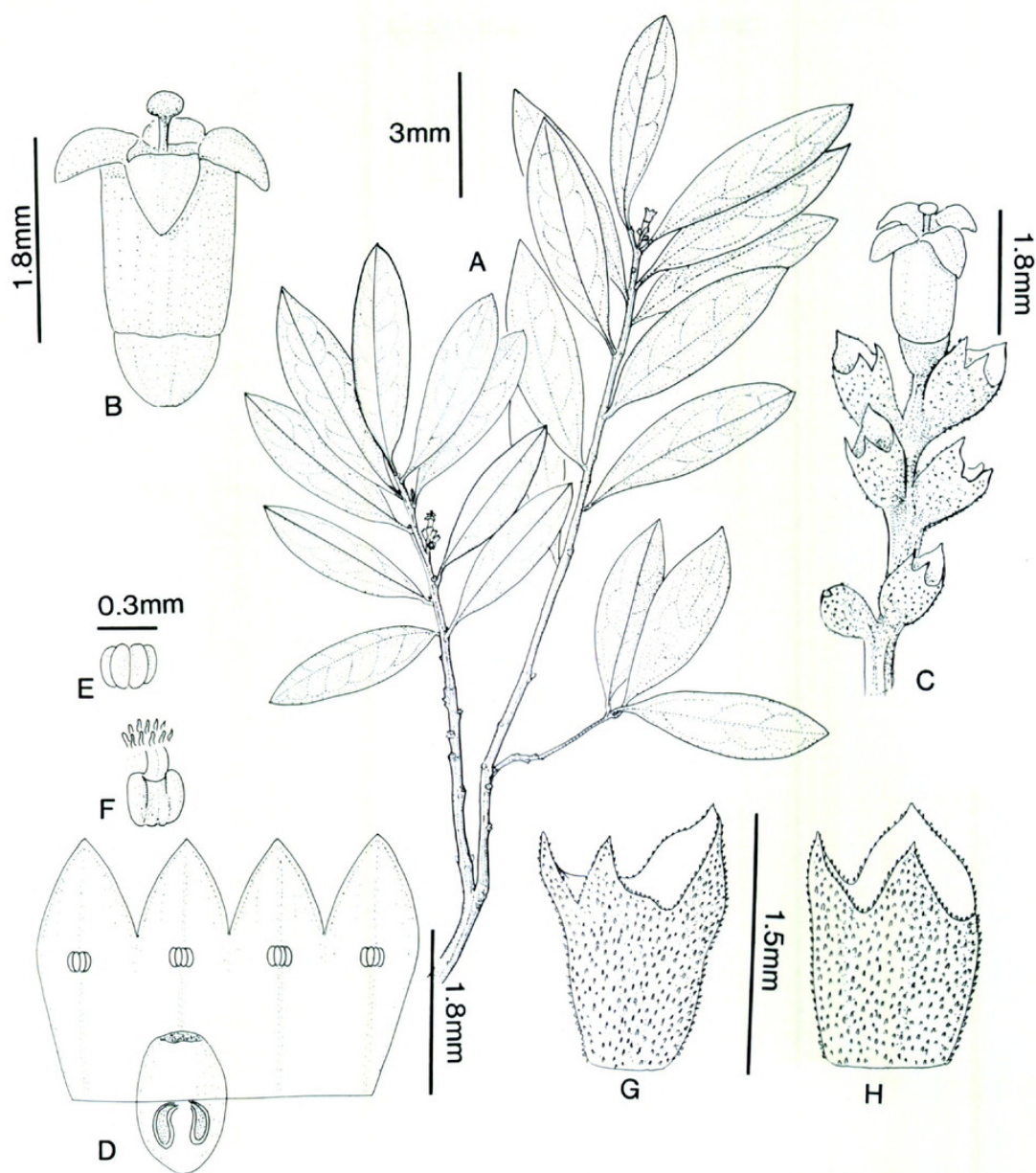


FIGURE 3. *Schoepfia clarkii*.—A. Habit of flowering branch.—B. Flower.—C. Inflorescence.—D. Interior of corolla with disk and longitudinal section through ovary in position.—E. Anther, ventral view.—F. Stamen turned back to show minute puberulence on corolla tube.—G, H.—United bracteoles and bract (epicalyx), two views.

leaf blades; depressed-hemispherical capsule opening very close to the base; and seeds with gray, flattened, contiguous tubercles that do not protrude above the general surface contour. It differs from *P. sedifolia* and *P. teretifolia* H.B.K. in its general glabry and leaf shape.

OLACACEAE

SCHOEPFIA

Schoepfia clarkii Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Mari's bana (low Amazon caatinga), 10.8 km NE of San Carlos on Solano road, 1°56'N, 67°3'W, 119 m, 16

Aug. 1987, H. L. Clark 8111 (holotype, MO). Figure 3.

Frutex 2 m; foliorum laminis anguste lanceolato-ellipticis apice acutis vel subacutis base cuneatim acutis, 4.5–5 cm longis 1.2–1.5 cm latis glabris integerrimis; nervis lateralibus obsoletis utroque latere 3–4; petiolis 4–5 mm longis; inflorescentia axillari spiciformi simplici usque ad 7-flora 6–7 mm longa; pedunculis ut videtur solitariis; floribus sessilibus; bracteolis bracteisque (epicalyce) supra medium connatis 1.5–1.8 mm longis apicem versus 1.5 mm latis extus dense papillato-puberulentibus; corolla late cylindrico, tubo 1.8–2 mm longo 1.6 mm lato glabro, lobis 1.2 × 1.2 mm; ovario infero 0.8 mm longo.

Shrub 2 m tall. Leaf blades narrowly lance-elliptic, acute or subacute at apex, cuneately acute

at base, 4.5–5.5 cm long, 1.2–1.5 cm wide, glabrous, entire; lateral nerves obsolete, 3–4 each side; petioles 4–5 mm long. Inflorescence axillary, spiciform, simple, up to 7-flowered, 6–7 mm long; peduncle solitary, 2 mm long. Flowers sessile. Bracts and bracteoles (epicalyx) connate more than half-way, forming a 3-lobed involucre 1.5–1.8 mm long, 1.5 mm wide, narrowing to 0.9 mm wide at base, densely papillate-puberulent without; 1 larger lobe broadly triangular-ovate, abruptly acute at apex, 0.8 mm long, 0.9 mm wide at base; 2 smaller lobes narrower, broadly triangular, slenderly acuminate-attenuate, 0.5 mm long, 0.4 mm wide; tube of epicalyx shallowly campanulate, 1 mm long, 1 mm broad at summit, 0.6 mm broad at base. Corolla greenish yellow, thick-cylindric, the tube 1.8–2 mm long, 1.6 mm wide, glabrous without, glabrous within except for a minute tuft of papillate hairs behind the anthers; lobes 4, spreading-squarrose, broadly triangular-ovate, obtusely acute or subacute at apex, 1.2×1.2 mm. Stamens 4, subsessile, suborbicular, 0.2 mm long, 0.3 mm wide; filaments 0.2 mm long. Disk depressed-subglobose, fleshy, annular, 0.7 mm long, 1 mm wide. Ovary inferior, 0.8 mm long, 1.3 mm broad at the truncate summit, narrowed at base to 0.3 mm wide. Style 1.8 mm long; stigma capitate, 0.4 mm long, 0.7 mm wide.

This taxon is characterized by small corollas with a short tube 1.8–2 mm long, bracts and bracteoles of the epicalyx upwardly connate more than half-way, narrowly lance-elliptic leaf blades up to 1.5 cm wide, and spiciform solitary inflorescence with sessile flowers on a short rachis.

CELASTRACEAE

MAYTENUS

In preparing an account of the genus *Maytenus* for the *Flora of the Venezuelan Guayana*, the near uniformity of the floral structures and general inflorescence types has necessitated greater reliance on vegetative characters, especially those of leaf venation. In the majority of the taxa studied, the calyx lobes are uniformly suborbicular and rounded with erose-fimbriate or ciliolate margins. Rarely, as in *M. apiculata* Steyermark and *M. kanukensis* A. C. Smith, they are acute or apiculate. Likewise, the fruit does not vary sufficiently to separate taxa. In a few cases, such as in *M. apiculata*, the apex is noticeably prolonged to form a more prominent beak, while in *M. longistipitata* Steyermark the base is greatly extended into a longer stipitate portion. In both *M. longistipitata* and *M.*

oblongata Reiss., the fruit is larger than in the other species studied. In *M. neblinae* Steyermark the leaves are smaller, while the leaf margins are more prominently dentate with more numerous teeth than in the other taxa examined. An insculpted type of venation characterizes the leaves of *M. insculpta* Steyermark, whereas a pustulate lower leaf surface is characteristic of *M. laevis* Reiss., *M. huberi* Steyermark, and *M. pustulata* Steyermark. In *M. sieberiana* Krug & Urban, the upper leaf surface has a finely lineolate-striolate character.

A partial treatment of the genus was published by Reissek (1861) for the Brazilian species. An account of the West Indian taxa by Urban (1904), together with descriptions of additional South American species by Briquet (1919) and A. C. Smith (1939a, b) contain the remainder of the known species from South America and the West Indies. The numerous collections from the Venezuelan Guayana have yielded the new taxa described here.

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Maytenus huberi Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Dept. Atures, cuenca del Río Manapiare, sabanas situadas en los cerros ubicados entre el Cerro Morrocoy al sur y Serranía Colmena al Norte, 5°21'N, 66°10'W, 200–300 m, 29 Jan. 1977, *Otto Huber 441* (holotype, VEN).

Frutex 2–6 metralis; foliorum laminis crasso-coriaceis saepe pruinosis vel subglaucis oblongis elliptico-lanceolatisque vel ovato-oblongis apice late obtusis vel obtuse acutis basi rotundatis subcordatis subobtusiusculis vel rarer acutis (4.5–)6–15.5 cm longis (2.5–)3–9 cm latis integerrimis, nervis lateralibus obsoletis vel inconspicuis utroque latere 8–10, venulis tertiariis obsoletis, in superficiebus amabus folii pustulatis; inflorescentia 1–8-flora fasciculata, pedicellis sub anthesi 1–5 mm longis sub fructu 3.5–5 mm longis; calycis lobis suborbicularibus rotundatis ciliolatis; capsulis majoribus obovoideis apice rotundatis 10–11 mm longis 7–8 mm latis.

Shrub 2–6 m tall. Leaf blades thick-coriaceous, often pruinose or subglaucous on one or both surfaces, oblong, elliptic-lanceolate, or ovate-oblong, broadly obtuse or obtusely acute at the apex,

rounded, subcordate, subobtusate, or rarely acute at the base, (4.5–)6–15.5 cm long (2.5–)3–9 cm wide, entire; lateral nerves obsolete or inconspicuous, 8–10 each side; tertiary venation obsolete; both surfaces pustulate. Petioles 4–11 mm long, 1.5–2 mm wide. Inflorescence 1–8-flowered, fasciculate; pedicels 1.5 mm long in anthesis, 3.5–5 mm long in fruit. Calyx lobes suborbicular, rounded, ciliate. Petals broadly ligulate-oblong, rounded apically, 1.1–1.5 mm long, 0.8–1 mm wide. Capsules obovoid, rounded at summit, mature ones 10–11 mm long, 7–8 mm wide.

Paratypes. VENEZUELA. ATURES: cuenca del Río Manapiare, sabanas al pie de los cerros al N de Cerro Morrocoy, alrededores del sitio Pozo de la Carolina, 12 km W de San Juan de Manapiare, 5°19'N, 66°6'W, 225 m, *Huber 1223* (MO, VEN); 4.5 km N de Puerto Venado, E de Sanariapo, 5°15'N, 67°47'W, 85 m, *Huber & Tillett 16764* (MO, VEN); vegetación de laja sobre afloramiento granítico en raudal Perezá en el Río Autana, 4°48'N, 67°18'W, 100–115 m, *Guánchez & Melqueiro 3403* (MO, TFAV).

This species is distinguished by the thick-coriaceous, pustulose or verruculose leaf blades; these are usually pruinose on one or both surfaces, often drying discolored, and have scarcely evident or obsolete venation adaxially. It differs from the newly described *M. pustulata* Steyermark in the pruinose leaf blades, inconspicuous or obsolete nervation of the upper leaf surface, and the mainly rounded or subcordate leaf base.

Maytenus insculpta Steyermark, sp. nov. TYPE: Venezuela, T. F. Amazonas: Dept. Atures, cuenca del Río Manapiare, sabanas al pie de los cerros al N del Cerro Morrocoy, alrededores del sitio "Pozo de la Carolina," 12 km W of San Juan de Manapiare, 05°19'N, 66°6'W, 225 m, 16 Oct. 1977, *Otto Huber 1229* (holotype, VEN; isotype, MO).

Frutex 3-metralis, ramulis juvenilibus teretibus tenuiter corrugatis; foliorum laminis elliptico-oblongis apice obtuse acuminatis basi subobtusis vel subacutis 11–18 cm longis 5–7 latis, marginibus haud revolutis integerrimis, nervatione ubique omnino insculpta, nervis lateralibus utroque latere 7–10 obsolete, nervatione tertiaria ubique tenuiter insculpta-reticulata, in superficiebus amabus folii pustulatis, inconspicue decurrentibus; petiolis 6–9 mm longis; inflorescentia pauciflora breviter pedunculata, pedunculis 1.5–2.5 mm longis; pedicellis 1 mm longis; calycis lobis suborbicularibus rotundatis 0.8 × 0.8 mm valde ciliato-erosis; petalis ligulato-oblongis 1.5 mm longis 0.8 mm latis.

Shrub 3 m tall, the young stems terete, finely corrugated. Leaf blades subcoriaceous, drying colorless, elliptic-oblong, obtusely acuminate at

apex, the acumen 3–7 mm long, 3–4 mm wide, subobtusate or subacute at base, 11–18 cm long, 5–7 cm wide, the margins not revolute, entire; both lateral and tertiary nervation completely finely insculpted on both sides; lateral nerves very faint, 7–10 each side; lower and upper surfaces pustulate. Petioles 6–9 mm long, the base of leaf blade inconspicuously decurrent. Inflorescence few-flowered, shortly pedunculate; peduncles 1.5–2.5 mm long; pedicels 1 mm long. Calyx lobes suborbicular, rounded, 0.8 × 0.8 mm, strongly erose-ciliate. Petals ligulate-oblong, 1.5 mm long, 0.8 mm wide.

This species is distinct in having the venation of both sides of the leaf blade delicately insculpted with a prominent pustulate surface between the veins. It is related to *Maytenus nitida* of Brazil, from which it differs by having rounded, suborbicular, strongly ciliate calyx lobes, and by having larger leaf blades that are more conspicuously pustulose on the lower surface.

Maytenus laevis Reissek, in Mart., Fl. Bras. 11(1): 27. 1861.

This taxon, as Reissek noted, has the upper portion of the young stems distinctively carinate-angled and leaves "sub lente marginatis repandisque" and "subtus opacis scrupulosis." The leaves, petioles, and the young branches often take on a grayish color upon drying. While many of the specimens can be satisfactorily delimited by the application of such vegetative differences, one encounters atypical specimens on the higher slopes and summits of the table mountains in the Territorio Federal Amazonas and Estado Bolívar that indicate possible introgression from another source, such as *Maytenus guianensis* Kl. Specimens from the summit of Cerro Guaiquinima, Estado Bolívar (*Steyermark et al. 113333, 113424, 113428, 117216*), from Cerro Sarisariñama, Estado Bolívar (*Steyermark et al. 109252*—type of *M. juaensis* Steyermark.), and from Cerro Yutaje, Territorio Federal Amazonas (*Maguire & Maguire 35441, 35455; Holst & Liesner 3272, 3357; Liesner & Holst 21807*) generally preserve the grayish dried leaf blades, petioles, and young stems as well as the thickened repand leaf margins, but the carinate-angled young stem is either lacking or scarcely apparent. These specimens may represent a variation of this taxon at higher altitudes, or may indicate introgression from *M. guianensis*, which possesses terete young stems and occurs in the Paragana and the Caura river basins, where Cerro Guaiquinima and Cerro Jaua are located, respectively.

Maytenus longistipitata Steyermark, sp. nov.

TYPE: Venezuela. Bolívar: Cerro Uroi, summit, north portion, Río Uroi, Río Chicanán, 700 m, 12 Sep. 1962, *B. Maguire, J. Steyermark & C. K. Maguire 53731* (holotype, VEN; isotype, MO).

Arbor 10 metralis, foliorum laminis lanceolato-ellipticis apice basique acutis 15–18 cm longis 5.5–6 cm latis integerrimis; nervis lateralibus principalibus utroque latere 8–10 tenuibus supra impressis subtus paullo elevatis, venatione tertiaria tenui laxe irregulariter reticulatis; petiolis 8–9 mm longis; pedicellis fructiferis fasciculatis 9–10 mm longis; capsulis late obovoideis apice rotundatis 21–26 mm longis 12–14 mm latis conspicue longistipitatis, stipite 5–7 mm longo.

Tree 10 m tall. Leaf blades lance-elliptic, acute at apex and base, 15–18 cm long, 5.5–6 cm wide, entire; main lateral nerves 8–10 each side, with finer intermediate nerves, impressed above, slightly elevated below, arcuate-ascending at an angle of 35–45°, scarcely anastomosing; tertiary venation fine, laxly irregularly reticulate and subelevated below, inconspicuous above. Petiole 8–9 mm long. Fruiting pedicels fasciculate, 9–10 mm long. Capsules broadly obovoid, rounded at summit, 21–26 mm long, 12–14 mm wide at and above the middle, conspicuously long-stipitate, the stipitate portion 5–7 mm long.

The conspicuously stipitate fruit readily distinguishes this species from *Maytenus oblongata* Reiss.

Maytenus neblinae Steyermark, sp. nov. TYPE:

Venezuela. T. F. Amazonas: Cerro de la Neblina, ridge at divide between Brazil and Venezuela, 26 km ENE of Base Camp, wet cloud forest on steep SW-facing slopes, 0°53'N, 65°56'W, 2,000 m, 15 Apr. 1984, *Timothy Plowman & Wayt Thomas 13610* (holotype, MO; isotypes, F, MO, VEN).

Arbor 8-metralis; foliorum laminis ovatis vel elliptico-ovatis vel oblongo-ellipticis apice obtusis vel obtusiusculis basi acutis vel subacutis 4.5–9.5 cm longis 2.5–3.5 cm latis, utroque margine uniformiter 30–40 crenulato-dentatis praedito, dentibus 7–8 per cm conspicuis 1–1.5 mm latis; nervis lateralibus utroque latere 8–13 supra impressis vel subelevatis subtus vix manifestis; venatione tertiaria supra manifesta subtus paullo manifesta; pagina inferiore subpustulata; petiolis 6–9 mm longis.

Tree 8 m tall. Leaf blades coriaceous, ovate or elliptic-ovate or oblong-elliptic, obtuse at apex, acute or subacute at base, 4.5–9.5 cm long, 2.5–3.5 cm wide; margins uniformly 30–40-crenulate-dentate, the dentations 7–8 per cm, conspicuous, 1–1.5 mm wide. Lateral nerves 8–13 each side, im-

pressed or subelevated and more conspicuous on the upper side, scarcely evident beneath, ascending at an angle of 45–50°, anastomosing 3–6 mm from the margin. Petioles 6–9 mm long.

This taxon differs from some of the variations of *Maytenus guianensis* Kl. and *M. ficiformis* Reiss. with crenulate margins, in the smaller, differently shaped leaf blades with more numerous teeth per centimeter.

Maytenus pustulata Steyermark, sp. nov. TYPE:

Venezuela. T. F. Amazonas: Cerro de la Neblina, north branch of river in canyon, Camp IV, 15 km NNE of Pico Phelps, 0°51'N, 65°57'W, 780 m, 5 Mar. 1984, *Ronald Liesner 16720* (holotype, MO; isotype, VEN).

Arbor 5-metralis; foliis elliptico-oblongis apice obtusis, acumine 3–4 mm lato, basi obtusis vel subacutis 14–17 cm longis 6–7.5 cm latis integerrimis; nervis lateralibus utroque latere 9–13 supra paullo elevatis subtus obsoletis; venatione tertiaria ubique obsoletis, in superficie inferiori folii pustulatis; petiolis 11–18 mm longis; pedicellis fructiferis 6–10 mm longis; fructu ellipsoideo-obovoideo 15–16 mm longo 8–9 mm lato, apice rotundato.

Tree 5 m tall. Leaf blades coriaceous, 14–17 × 6–7.5 cm, elliptic-oblong, narrowed to an obtuse apex with an acumine 3–4 mm wide, obtuse to subacute at base, decurrent on the petiole; lateral nerves 9–13 on each side, slightly elevated on upper surface, obsolete on lower surface; tertiary veins obsolete both sides, the lower surface pustulate. Petiole 11–18 mm long, strongly canaliculate, 2–2.5 mm wide. Fruiting calyx lobes 0.5 mm long, rounded, unequally long-ciliate around apex. Fruiting pedicels 6–10 mm long, 1–1.5 mm wide. Fruit ellipsoid-obovoid, 15–16 mm long, 8–9 mm wide toward summit, narrowed to 2.5 mm wide basally, rounded at summit.

The pustulate lower leaf surface, obsolete tertiary venation, large leaf blades, and stout pedicels distinguish this species from *Maytenus huberi* Steyermark, in which the tertiary and lateral nerve venation is insculpted.

ZINOWIEWIA

Zinowiewia aymardii Steyermark, sp. nov. TYPE:

Venezuela. Bolívar: Dist. Sifontes: bosques húmedos intervenidos por actividades mineras del sector “La Hoya” (Peray-tepuy), 7 km NW of Caserio El Pilón, 58 km W of Sta. Elena de Uairén, 4°40'N, 61°33'W, 850 m, 21 Oct. 1986, *Gerardo Aymard 4631* (holotype, MO; isotype, PORT).

Arbor 10–45 metralis, foliorum laminis ovatis vel lanceolato-ellipticis apice obtuse acuminatis basi attenuato-acutis vel acuminatis decurrentibus 5.5–10 cm longis 2.5–3.5(–4.5) cm latis; nervis lateralibus utroque latere (5–)8–12 supra subelevatis, venatione tertiaria ubique manifestis grosse reticulatis; petiolis 4–10 mm longis; inflorescentia cymosa axillari terminalique 5–6-plo ramosa 2.5 cm longa 4–6 cm lata, axibus primariis 3–9 mm longis; floribus 5-meris; pedicellis 1–1.5 mm longis; calycis lobis suborbicularibus rotundatis 0.5 mm longis 0.7 mm latis; fructu oblique obovato 14–20 mm longo apicem versus 7–9 mm lato arcte venoso; seminibus anguste ellipsoideis 6.5–7 mm longis 2–3 mm latis.

Tree 10–45 m tall. Leaf blades ovate or lance-elliptic, obtusely acuminate at apex, narrowly acute to acuminate at the shortly decurrent base, 5.5–10 cm long, 2.5–3.5(–4.5) cm wide; lateral nerves (5–)8–12 each side, ascending at an angle of 45–60°, anastomosing 3–5 mm from margin, conspicuous and impressed or subelevated above, less conspicuous below; tertiary venation manifest both sides, grossly reticulate, more conspicuous below; midrib impressed above with a slender narrow ribbonlike border on each side. Inflorescence cymose, axillary and terminal, 5–6 times branched, 2.5 cm long, 4–6 cm wide, the primary axes 3–9 mm long. Flowers 5-merous, the pedicels 1–1.5 mm long. Bracts subtending opposite pairs of the dichotomous axes. Calyx papillose-pustulose without, the lobes suborbicular, rounded, 0.5 mm long 0.7 mm wide, margins slightly uneven but eciliate, the apex ending slightly higher than the lateral margins and crowned by 3 darker minute appendages. Petals broadly ovate-oblong, rounded at apex, 1.1 mm long, 0.5–0.8 mm wide. Anthers orbicular, 0.2–0.3 mm × 0.2–0.3 mm; filaments 0.3–0.4 mm long, slightly wider basally. Disk annular-cupuliform, lance-deltoid, acute, 0.5–1 mm long, the margins with dark squamellate appendages. Fruit obliquely obovate, broadly rounded at apex, 14–20 mm long, 7–9 mm wide toward the distal end, about 3 times longer than broad, strongly venose, the main nerves at first parallel. Seeds narrowly ellipsoid, 6.5–7 mm long, 2–3 mm wide.

Paratype. VENEZUELA. BOLÍVAR: lower portion of Quebrada Oparumá, tributary to Río Pacairao, below Santa Teresita de Kavanayén, 915–1,065 m, 25 Nov. 1944, *Steyermark 60580* (F, VEN). T. F. DELTA AMACURO: bosque pluvial, E of Río Grande, ENE of El Palmar, near limits of Bolívar, 13 Jan. 1965, *Marciano Berti 562* (MER, MO, NY, VEN).

Common names. Ata-caramá-yek (Arekuna); guatacare montanero.

This taxon differs from *Zinowiewia australis* Lundell of the northern Coastal Range of Venezuela in the more numerous flowered, larger inflorescence with longer primary and secondary axes,

and especially in the shorter seed body and shorter fruit with the wing narrower in proportion to the width. Also the leaf blades are more shortly and less abruptly decurrent.

RHAMNACEAE

GOUANIA

Gouania wurdackii Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Dist. Cedeño: Cerro San Borja, middle Orinoco River, 100–300 m, 12 Dec. 1955, *J. J. Wurdack & J. V. Monachino 39810* (holotype, MO; isotypes, NY, VEN).

Frutex scandens; foliorum laminis discoloribus anguste ovatis vel oblongo-ovatis apice acutis vel subacutis basi cordatis vel subcordatis 4–7 cm longis 2.5–4 cm latis supra tenuiter rugulosis sulcineriviis sulcis adpresso-pubescentibus subtus densissime arcte cinereo-vel stramineo-tomentellis, marginibus arcte serratis, dentibus utroque margine 15–20 late deltoideis subacutis apice in glandulis callosis obtusis parvis paullo incrassatis terminantibus; costa media supra nervis lateralibus tertiariisque sulcatis subtus manifeste elevatis, nervis lateralibus utroque latere 6–8; petiolis 5–10 mm longis; floribus extus dense cinereo-tomentosis; calycis lobis ovatis subacutis 1.2 mm longis extus albido-pilosis intus glabris; disco dense minuteque pubescenti, circa stylum elevato pilis setosis munito, lobis triangulari-lanceolatis ad apicem attenuatis subemarginatis subobtusis 0.5 mm longis; capsulis suborbicularibus alatis 9–10 × 9–10 mm, omnino dense pilosulis alis sublunatis longioribus quam latioribus 9–10 mm longis 2.5–4 mm latis.

Woody vine or climbing shrub with striate, densely fulvous-tomentellose branches. Leaf blades discolored (dry), olive green above, cinereous or stramineous below, narrowly ovate or oblong-ovate, acute to subacute at apex, cordate or subcordate at base, 4–7 cm long, 2.5–4 cm wide, finely rugulose and sulcate-nerved above, minutely appressed-pubescent in the sulcations, below densely tomentellose with cinereous or stramineous hairs completely covering the surface and nerves, the hairs on the lower surface densely intertwining and matted, the margins closely and rather uniformly serrate with 15–20 broadly deltoid, subacute teeth 2–4 mm wide and averaging 4 per cm, terminating in a small, brown or maroon-brick-colored, thickened callosity, glabrous on the lower side and with axillary hairs on the upper leaf surface; lateral nerves 6–8 each side, sulcate above; midrib and lateral and tertiary nerves conspicuously elevated, the tertiary ones conspicuously transverse between the finer elevated veinlets. Petioles 5–10 mm long, densely pubescent with stramineous or pale yellow-brown hairs. Inflorescence interruptedly spiciform, the lower inflorescences simple and axillary, the upper becoming paniculately branched; rachis

deeply stramineous or pale brown pubescent. Flowers sessile or nearly so. Calyx lobes $\pm$ densely pilose without, with pale hairs, ovate, subacute, 1.2 mm long, 1.2–1.3 mm wide at the base, glabrous within; hypanthium obconic, 1.2 mm long, densely pubescent. Petals cucullate, about length of calyx lobes. Disk completely and densely short pubescent, elevated into an annulus near the style, where densely setose; disk lobes triangular-lanceolate, attenuate to a subobtuse subemarginate apex ca. 0.5 mm long, about $\frac{1}{3}$ the width of the calyx lobe. Capsules fulvous brown or gray-brown, sessile or up to 2 mm pedicellate, suborbicular, about as broad as long, $9-10 \times 9-10$ mm, $\pm$ densely pilosulous throughout; axis of fruit 7–9 mm long, the wings sublunate, longer than broad, 9–10 mm long, 2.5–4 mm wide, about as wide as the central body.

Paratypes. VENEZUELA. BOLÍVAR: Dist. Cedeño: east slopes of Cerro Pijigao, N end of Serranía Suapure, above Pijigao, ca. 70 km from mouth of Río Suapure, 110–520 m, 19 Jan. 1956, *Wurdack & Monachino 41310* (MO, NY, VEN). T. F. AMAZONAS: Dpto. Atures, 18 km al SE de Puerto Ayacucho, laja cerca de la Piedra con Petroglifos, $\pm$ 2 km al N del pueblo de Pintado, $5^{\circ}32'N$, $67^{\circ}32'W$, 1,000 m, 8 Dec. 1977, *Huber 1370* (NY, VEN).

This taxon is distinguished vegetatively from the common and widely distributed *Gouania mollis* H.B.K. by the narrowly lance-ovate, acute leaves with conspicuous discolored nerves on the stramineous lower surface and by the finely rugulose sulcate nerves of the upper surface. Also, the tertiary venation abaxially is conspicuously elevated and prominent transversely and the marginal teeth are closer together, shorter, narrower, and terminate more abruptly in smaller callosities. The taxon is restricted to the granitic sector of the Distrito Cedeño of northwestern Estado Bolívar and adjacent northwestern Territorio Federal Amazonas, a region of high endemism.

RHAMNUS

Rhamnus longipes Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Serranía Parú, cumbre, SSE to edge of descent, to tributary of Caño Asisa, mostly rocky sabanita open areas, 2,000 m, 10 Feb. 1951, *R. S. Cowan & John J. Wurdack 31388* (holotype, NY).

Frutex 2-metralis, ramulis juvenilibus sparsim pilosulis; foliorum laminis ovatis vel oblongo-ovatis apice acutis vel subacuminatis basi obtusis majoribus 5–6.5 cm longis 2.5–3.2 cm latis obscure repando-crenatis, costa media subtus sparsim pilosula, aliter ubique glabris; nervis lateralibus utroque latere 5–8; petiolis 4–8 mm longis paulo

pilosulis; calyce fructifero sparsim pilosulo pilis adpressis munito; infructescentia 1–2-fructifera; pedunculo fructifero maturo 10–15 mm longo sparsim pilosulo; pedicellis fructiferis maturis 10–15 mm longis sparsim pilosulis; fructibus subglobosis 5–7 mm longis 6–7 mm latis.

Shrub 2 m tall. Young stems sparsely pilosulous with pale hairs. Leaf blades ovate or oblong-ovate, acute to subacuminate at apex, obtuse at base, the larger ones 5–6.5 cm long, 2.5–3.2 cm wide, the margins subrevolute, obscurely repand-crenulate with ca. 3 depressed crenulations per cm, the leaf surface glabrous both sides; midrib above sulcate, glabrous, below sparsely pilosulous with pale hairs. Principal lateral nerves 5–8 each side, inconspicuous above, slightly elevated below; tertiary venation slightly sulcate above, more conspicuously so below. Petiole 4–8 mm long, slightly pilosulous with pale hairs. Fruiting calyx sparsely pilosulous, the lobes triangular-lanceolate, subacute, 1.3 mm long. Infructescence with 1–2 fruits; mature fruiting peduncle and pedicels 10–15 mm long, pilosulous with pale hairs. Fruit subglobose, 5–7 mm long, 6–7 mm broad, glabrous.

This species is characterized by the relatively elongated, sparsely pilosulous fruiting peduncle with 1–2 elongate, sparsely pilosulous pedicels 10–15 mm long; subrevolute, shallowly repand-crenulate leaf margins with an average 3 crenulations per cm; and the slightly elevated tertiary venation of the lower leaf surface.

Rhamnus sipapoensis Steyermark, sp. nov.

TYPE: Venezuela. T. F. Amazonas: Cerro Sipapo (Paraque), rim head of South Basin, occasional in woodland, rugged terrain, 1,970 m, 26–28 Jan. 1949, *Bassett Maguire & Louis Politi 28656* (holotype, NY; isotype, MO).

Arbor 3-metralis, ramulis junioribus dense brunneo-tomentosis; stipulis haud persistentibus; foliorum laminis oblongis elliptico-oblongis vel ovato-oblongis apice obtuse acutis vel abrupte breviter acutis mucronatis basi rotundatis vel obtusis 2.5–7.5 cm longis 1.5–3.8 cm latis, supra glabris subtus pallido-stramineis dense velutinis, marginibus revolutis integerrimis vel fere integerrimis; costa media nervisque supra sulcatis subtus dense tomentellis; nervis lateralibus utroque latere 7–11; petiolis 4–10 mm longis dense tomentellis; inflorescentia epedunculata vel pedunculo usque ad 6 mm longo; pedicellis sub anthesi 6–9 mm longis post anthesim usque ad 11 mm longis dense brunneo-pubescentibus; calyce 3.5–4 mm longo extus dense brunneo-tomentelloso; ovario dense pubescenti.

Tree 3 m tall, the young branches densely dull brown tomentellous. Stipules not persistent. Leaf blades oblong, elliptic-oblong, or ovate-oblong, mu-

cronate at the obtusely acute to abruptly short acute apex, obtuse to rounded at base, 2.5–7.5 cm long, 1.5–3.8 cm wide, glabrous above, densely pale buff velutinous below with the tomentum concealing the leaf surface; margins revolute, entire or nearly so; midrib and lateral nerves sulcate above, below densely brown tomentellous. Lateral nerves 7–11 each side, spreading-ascending at an angle of 25–45°, ending at margins. Petioles 4–10 mm long, densely tomentellous. Inflorescence epedunculate or with a peduncle up to 6 mm long. Pedicels 6–9 mm in anthesis, up to 11 mm long after anthesis, densely brown pubescent. Calyx campanulate, 3.5–4 mm long, 3.2–3.5 mm broad, densely brown tomentellous; lobes 5, lanceolate-ovate, acute, 1.5–2.1 mm long, 1–1.5 mm wide. Petals unguiculate, bilobate, 1.5 mm long, the lamina suborbicular-obovate, 0.8 mm long, 1.3 mm wide. Anthers oblong-subquadrangular, 0.5 mm long; filaments 1 mm long, glabrous. Ovary subglobose, 1.5 mm long, densely pubescent; style 0.4 mm long, glabrous.

This species has a close affinity with *Rhamnus marahuacensis* Steyermark & Mag., from which it differs in the mainly epedunculate inflorescence, or the peduncle may be developed to 6 mm in length. It differs further in the densely tomentose calyx, pedicels, and stems; the mainly entire leaf margins; the obtusely acute to abruptly short-acute, mucronate leaf blades; and the more densely tomentose lower leaf surface.

SAPINDACEAE

MATAYBA

Matayba affinis Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Dept. Atabapo. Curital de Caname, southern bank of the middle part of Caño Caname, 3°40'N, 67°22'W, 100 m, 30 Apr.–1 May 1979, *Gerrit Davidse, Otto Huber & Stephen Tillett 17011* (holotype, MO; isotype, VEN). Figure 4.

Arbor 4-metralis; foliis 3 dm longis, foliolis 3–5 oblongo-obovatis vel elliptico-oblongis apice rotundatis vel obtuse acutis basi acutis majoribus 14–15 cm longis 6–7 cm latis, praesertim secus costam mediam nervos lateralesque glandulis microscopicis rufis obsitis aliter glabris integerimis; calycis lobis late suborbicularibus apice rotundatis vel subacutis 1–1.2 mm longis 1.2–1.5 mm latis; antheris pilosis; disco sparsim piloso; stylo elongato 1.2 mm longo; ovario 3-loculari.

Tree 4 m, the branches strongly lenticellate. Leaves, including the petiole, 3 dm long. Petioles 3–4 cm long, microscopically puberulent. Leaflets

3–5, alternate, oblong-obovate to elliptic-oblong, rounded to obtusely acute at apex, acutely narrowed at the base, the upper larger ones 14–15 cm long, 6–7 cm wide, the lower smaller ones 7–11 cm long, 3–5 cm wide, glabrous except for the microscopic rufous glands especially abundant along the midrib and lateral nerves, entire; lateral nerves 6–8 on each side, inconspicuous, ascending at an angle of 45–50°; tertiary venation finely and obscurely reticulate both sides; petiolule 5–6 mm long, glabrous. Panicle terminal, 15–18 cm long; rachis moderately puberulent with 2–4 unbranched axes 2.5–7 cm long, bearing numerous sessile clusters of pedicellate flowers. Pedicels 1.5–3 mm long, densely puberulous. Calyx moderately appressed-puberulous without, the margins cut $\frac{2}{3}$ the length; calyx lobes broadly suborbicular-deltoid, rounded or subacute at apex, 1–1.2 mm long, 1.2–1.5 mm wide at the base. Petals narrowly oblong-ovate, obtuse, 1.2 mm long, 0.4 mm wide; petaliferous scales rhomboid-oblong, rounded, slightly exceeding the petal, 1.3–1.5 mm long, 0.5 mm wide, densely villous as is the petal. Anthers suborbicular, 0.5 × 0.5 mm, densely pilose; filaments 2 mm long, pilose except in uppermost portion. Disk sparsely pilose. Style 1.2 mm long, elongated, sparsely strigillose. Ovary ovoid-subglobose, trigonous, 2 mm long, 1.5 mm wide, 3-celled, moderately strigillose.

This species is allied to *Matayba macrostylis* Radlk., but the anthers are pilose, the disk is sparsely pilose, the calyx lobes are rounded or subacute, the ovary is 3- instead of 2-celled, the petals are shorter, and the leaflets are rounded or obtusely acute, and only 3–5.

Matayba longipes Radlk., Sitzungsber. Bayer. Akad. IX. 536. n. 479. p. 626. n. 7. 1879; in Engler, Das Pflanzenreich, Heft 98e (IV. 165). Sapindaceae. 1085. 1933. *Matayba towarensis* Radlk., Sitzungsber. Bayer. Akad. IX. 536. n. 494. p. 626. n. 8. 1879.

Radlkofer (1933) distinguished *Matayba towarensis* Radlk. from *M. longipes* Radlk., both described from the area of Colonia Tovar, Venezuela, on vegetative characters only, such as supposed differences in texture (membranous in *M. longipes* contrasted with coriaceous in *M. towarensis*), leaf shape (oblong- or subacute-lanceolate in *M. longipes* vs. lanceolate in *M. towarensis*), and degree of narrowing of the base of the leaflet blade into the petiole (abruptly attenuate in *M. longipes*, but gradually narrowed in *M. towarensis*). Study of type material and of additional col-

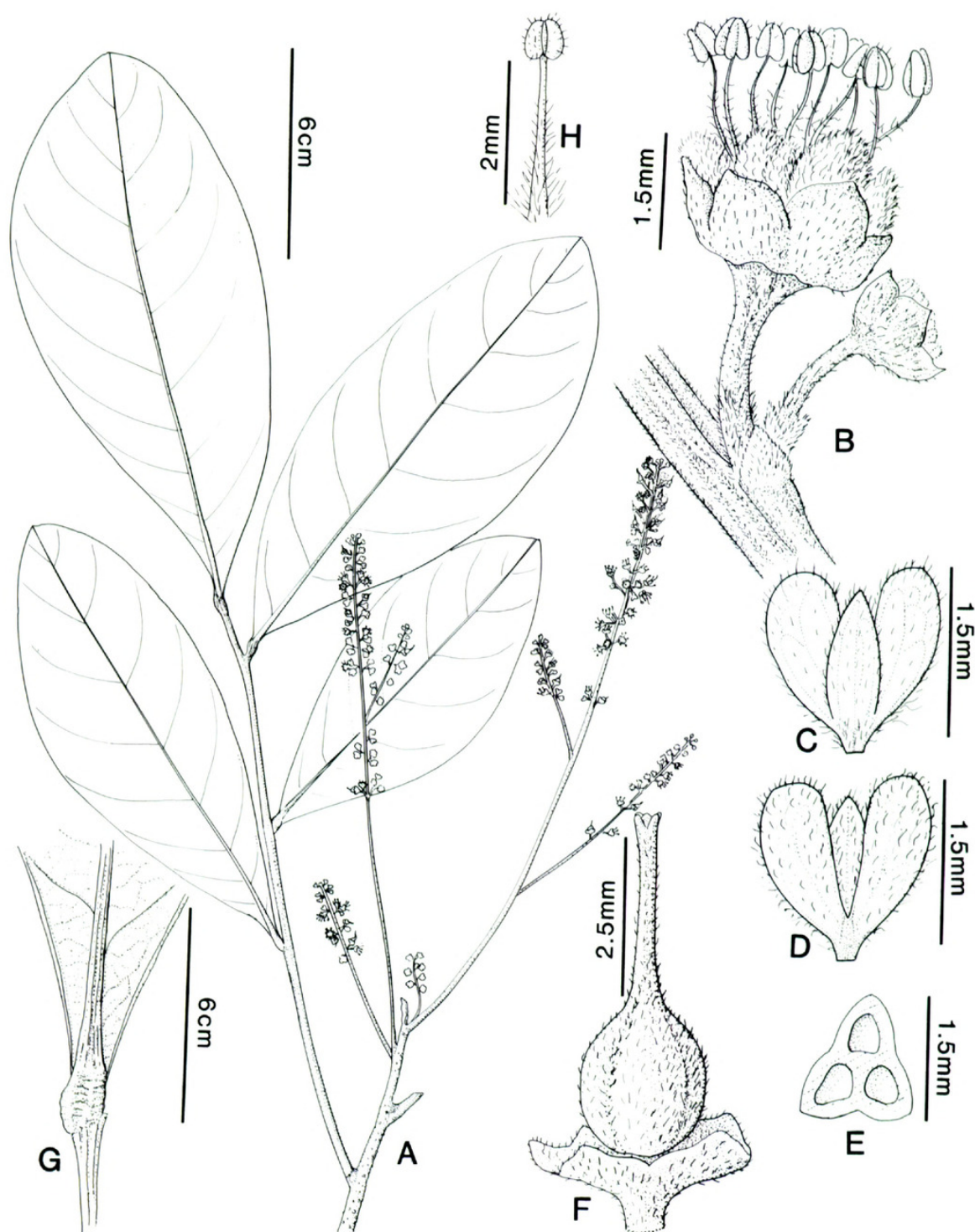


FIGURE 4. *Matayba affinis*.—A. Habit of flowering branch.—B. Detail of small portion of flowering rachis.—C. Petal, dorsal view.—D. Petal, ventral view.—E. Diagrammatic transverse section through ovary.—F. Pistil and calyx.—G. Basal portion of leaf blade, abaxial view, with portion of petiole.—H. Stamen.

lections from near the type locality and elsewhere in the coastal mountains of northern Venezuela indicates that these differences break down and that the two taxa must be united. Even on the type specimen of *M. longipes* (Fendler 1748), a few leaflets show their bases gradually tapering into the petiole as in *M. towarensis*. The leaflet shape varies within a given population, and there appears to be

no difference in the texture of the two taxa. I am uniting them under *M. longipes*.

The fruit of *Matayba longipes* has a stipe described as being 1.8–2 cm long (Radlkofer, 1933). However, an isotype specimen at MO has stipes mostly only 1.5 cm long.

Fruiting specimens collected in the Venezuelan Guayana from Cerro Yutaje, Serraní Parú, and

the Brazilian side of the Cerro de La Neblina in Territorio Federal Amazonas agree in all essential respects with *Matayba longipes* of the Venezuelan coastal mountains, except for the constantly shorter fruiting stipe, only 5–9 mm long, whereas in typical *M. longipes* the length varies from 9–18 (–20) mm. Other minor differences are in the sometimes smaller number of leaflets, relatively larger length and width of the leaflets, and in their slightly longer, more slender leaf apex. This difference in foliage is somewhat more marked in the specimens from Serranía Yutaje and Neblina than those from the vicinity of Cerro Yutaje.

In view of the differences in stipe length and the geographically isolated distribution on the sandstone mountains of the Venezuelan Guayana, together with some tendency in foliar divergence, I consider that the Guayana population shows a sufficient degree of separation as to warrant a sub-specific status.

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Matayba longipes* Radlk. subsp. *tepuiensis Steyermark, subsp. nov. TYPE: Venezuela. T. F. Amazonas: Serranía Parú, Caño Asisi, Top Camp to Caño Camp, talus slopes, 1,400 m, 13 Feb 1951, R. S. Cowan & J. J. Wurdack 31450 (holotype, MO, as 2997923; isotype, NY).

A *M. longipes* praesertim fructus stipite 5–9 mm longo recedit; foliolis quattuor quinque vel sex 9–21 cm longis 3–8 cm latis; infructescentiis 2–12 cm longis.

Tree 8–20 m tall. Leaves 4–6-foliolate; leaflets elliptic-ovate to oblong-lanceolate, obtusely to slenderly acutely acuminate, 9–17(–21) cm long, 3–6.5(–8) (♂) wide, the acumen 1.5–2.5 cm long, abruptly to gradually acutely narrowed to the base; main lateral nerves 8–10(–12) each side, elevated below; tertiary venation prominently reticulate. Petiole 4–8 cm long; petiolule 2–10 mm long. Disk tomentose. Infructescence 2–12 cm long, the peduncle and rachis mostly densely strigose-pubescent. Fruiting pedicel 4–7 mm long, sparsely strigillose. Stipe of fruit 5–9 mm long, sparsely strigillose. Fruiting capsule lobed, horizontally divaricate, 7–12 mm high, 1.5–2.2 cm broad, glabrous or very sparsely puberulent without, the valves densely tomentose within. Style persistent in fruit, 2–3 mm long.

Paratypes. VENEZUELA. T. F. AMAZONAS: Depto. Atures, valley of Río Coro-Coro, west of Serranía de

Yutaje, east base of forested mountain 5 km W of river, 5°41'N, 66°9'30"W, 1,100 m, 10 Mar. 1987, *Holst & Liesner* 3405. BRAZIL: DEPARTAMENTO AMAZONAS: Serra da Neblina, between Palmito and Tatú Camp, 400–600 m, 19 Dec. 1965, *Silva & Brazão* 6069 (MO, NY).

Matayba oligandra* Sandwith var. *oligandra

Matayba oligandra Sandw., Kew Bull. 1935: 123. 1935. *Trichilia ptariana* Steyermark, Fieldiana, Bot. 28(2): 278. 1952.

Matayba oligandra var. *ptariana* (Steyermark), Bol. Soc. Venez. Ci. Nat. 26: 426. 1966.

Matayba jauaensis Steyermark, Bol. Soc. Venez. Ci. Nat. 33 (132/133): 347, fig. 15. 1976.

Matayba oligandra* Sandw. var. *occidentalis

Steyermark, var. nov. TYPE: Venezuela. T. F. Amazonas: West Mountain Caño Grande, Río Cuao, Río Orinoco, 125 m, 17 Jan. 1949, *Bassett Maguire & Louis Politi* 28399 (holotype, MO; isotype, NY).

A *M. oligandra* foliolis ovatis elliptico-ovatisve 2.5–4.5 cm latis (2.8–)3–3.6-plo longioribus quam latioribus, acumine longitudine $\frac{1}{4}$ – $\frac{1}{2}$ laminae partes aequanti recedit.

Leaves 10–12-foliolate. Leaflets ovate or elliptic-ovate, abruptly slenderly and obtusely acuminate at apex, acute at base, 5.5–10.5 cm long, 2.5–4.5 cm wide, (2.8–)3–3.6 times longer than broad, the acumen 10–20 mm long, $\frac{1}{4}$ – $\frac{1}{2}$ the length of the leaf blade; petiolules 5–10 mm long. Petioles (3–)5.5–8 cm long. Infructescence 9–17 cm long. Fruit 1.5–1.8 cm long, 1.5–2 cm diam., the valves glabrous without and within.

Paratypes. VENEZUELA. T. F. AMAZONAS: Cerro Sipapo, Campo Grande, 1,500 m, 8 Dec. 1948, *Maguire & Politi* 27558 (MO, NY); Cerro Araucaua, Río Yatua, 1°35'N, 66°10'W, 125–150 m, 12 Apr. 1970, *Steyermark & Bunting* 102560 (VEN).

Matayba oligandra Sandw. var. *oligandra*, described from Guyana (Sandwith, 1935: 123), has the leaflets principally oblong or oblong-lanceolate, 2–3.8 cm wide, chiefly 2.2–3 times longer than broad, and with an acumen $\frac{1}{6}$ – $\frac{1}{2}$ the length of the leaf blade. It is confined to Estado Bolívar in the eastern half of the Venezuelan Guayana. Var. *occidentalis*, on the other hand, is restricted to the western part of the Venezuelan Guayana in Territorio Federal Amazonas. *Matayba jauaensis* Steyermark and *M. oligandra* var. *ptariana* Steyermark appear to represent merely minor variations of leaflet size and cannot be maintained apart from var. *oligandra*.

The type collection of *Matayba oligandra* and *M. chimantensis* Steyermark, the latter possibly synonymous with *M. oligandra*, have only 4–6 sta-

mens, whereas *M. jauaensis* Steyerl. and *M. oligandra* var. *ptariana* have 8 stamens. However, no additional characters have been found to separate those collections having 8 stamens from typical *M. oligandra*.

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SANDWITH, N. Y. 1935. Contributions to the Flora of Tropical America: XXIII. Bull. Misc. Inform. 1935: 117–132.

Matayba yutajensis Steyerl., sp. nov. TYPE: Venezuela. T. F. Amazonas: Serranía Yutaje, Northwest Ridge, 1,400 m, 11 Feb. 1953, Bassett & C. K. Maguire 35143 (holotype, MO; isotypes, NY, VEN). Figure 5.

Arbor 3–5-metralis; foliis 2–4-foliolatis; foliolis alternis, oblongis vel oblanceolato-oblongis apice rotundatis retusisque 10–18 cm longis 2.5–8 cm latis; nervis lateralibus principalibus utrinque latere 8–15; venulis tertiariis utrinque conspicue elevatis reticulatisque; petiolis 1–1.7 cm longis; calyce 3.5–4 mm lato extus glabro; filamentis ubique dense pilosis; fructu 2 cm longo 2.3 cm lato extus glabro; endocarpio intus glabro.

Tree 3–5 m. Leaves 2–4-foliolate. Leaflets alternate, oblong to oblanceolate-oblong, rounded and retuse at apex, subacute to acute at base, 10–18 cm long, 2.5–8 cm wide, glabrous throughout; principal lateral nerves rather inconspicuous, 8–15 each side, spreading at an angle of 10–20°; tertiary venation prominently elevated and reticulate on both sides. Petioles 1–1.7 cm long, glabrous; petiolules 3–8 mm long, glabrous. Inflorescence terminal or subterminal, including the peduncle, 15–18 cm high, 5 cm wide, sparsely branched, the individual axes ascending, 2–5 cm long, sparsely strigillose. Rachis sparsely strigillose to glabrescent. Flowers pedicellate. Pedicels 1–1.5 mm long, sparsely strigillose. Bract subtending pedicels and axes lanceolate, acute, 0.7–1 mm long, sparsely strigillose. Calyx 3.5 mm long, 3.5–4 mm wide, glabrous without or sparsely strigillose near base; lobes suborbicular, rounded with narrowed to subacute apex, 1 mm high, 2 mm wide. Petal suborbicular-flabelliform, 1.5 mm long, 1.6–1.7 mm wide, glabrous without, pilose within; petaliferous scales obovate-oblong, rounded-truncate at summit, 1 mm long, 0.5 mm wide, with long brownish hairs, the margins (especially around the apex) lacinate-pectinate, pubescent both sides. Anthers suborbicular, basally bilobed, 0.7 × 0.7 mm; filaments 3 mm long, 0.3 mm wide at base, densely pilose throughout. Fruit 3-lobed, shortly stipitate, the stipe 3 mm long, 4 mm wide; fruit body 2 cm

long, 2.3 cm wide, glabrous without; endocarp glabrous within.

Paratypes. VENEZUELA. T. F. AMAZONAS: Serranía Yutaje, Cerro Yutaje, left hand fork of Caño Yutaje, 1,300–1,400 m, 15 Feb. 1953, B. & C. K. Maguire 35242 (MO, NY); 1–2 km E of Río Coro-Coro, W of Serranía Yutaje, 9 km N of Yutaje settlement, 5°42'N, 66°07'30"W, 500–730 m, 28 Feb. 1987, Liesner & Holst 21484 (MO, NY, VEN); valley of Río Coro-Coro, W of Serranía Yutaje, W of valley, 5°42'30"N, 66°10'W, 1,300 m, Holst & Liesner 3368 (MO, NY, VEN); Dept. Atabapo, Cerro Marahuaca, above branch of Caño Negro, S-central part of meseta, downstream from "Sima" camp, 3°43'N, 65°31'W, 1,220–1,350 m, 23–24 Feb. 1985, Steyerl. & Holst 130642, 130671 (MO, VEN); Cerro Marahuaca, Río Yameduaka, 3°38'N, 65°28'W, 1,225 m, 17–18 Feb. 1985, Liesner 17614 (MO, VEN).

This species is related to *Matayba atropurpurea* Radlk., from which it differs in the retuse, rounded apex of the leaflets; fewer leaflets; shorter petioles; filaments densely pilose throughout their length; and the much larger fruit. Further, *Matayba yutajensis* occupies higher altitudes of montane forest of the sandstone table mountains, whereas *M. atropurpurea* is a lowland tree.

TALISIA

Talisia amaruayana Steyerl., sp. nov. TYPE: Venezuela. Bolívar: Amaruay-tepui, 5°54'N, 62°15'W, 550–810 m, 26 Apr. 1986, Ronald Liesner & Bruce Holst 20394 (holotype, MO; isotype, VEN).

Arbor 3-metralis; foliis 12-foliolatis; foliolis lanceolatis apice acuminatis basi acutis vel subacutis 26–38 cm longis 4–8 cm latis praeter costam mediam subtus sparsim puberulentam glabris; nervis lateralibus utroque latere 16–25; panicula usque 8.5 dm longa; calycis lobis intus glabris extus puberulis longiciliatis; petalis 6 mm longis 2.5–2.8 mm latis longiciliatis; squamis petaliferis parte dorsali praeter margines inferiores dense sericeos glabra; staminibus 5; filamentis praeter partem superiorem pilosis; disco hirsutulo.

Tree 3 m, with simple unbranched stem. Leaves 12-foliolate. Leaflets chartaceous, lanceolate, acuminate at apex, acute to subacute at base, 26–38 cm long, 4–8 cm wide, glabrous except sparsely puberulent on the midrib below; lateral nerves 16–25 each side, conspicuously elevated beneath, impressed above, anastomosing 4–7 mm from margin; tertiary venation minutely reticulate above, grossly reticulate below with elevated veins. Petiolules 7–9 mm long, hirtellous. Panicle terminal, up to 8.5 dm long, the rachis and axes hirtellous. Axes simple or branched, 12–20 cm long. Flowers crowded in several-flowered fascicles, sessile. Calyx

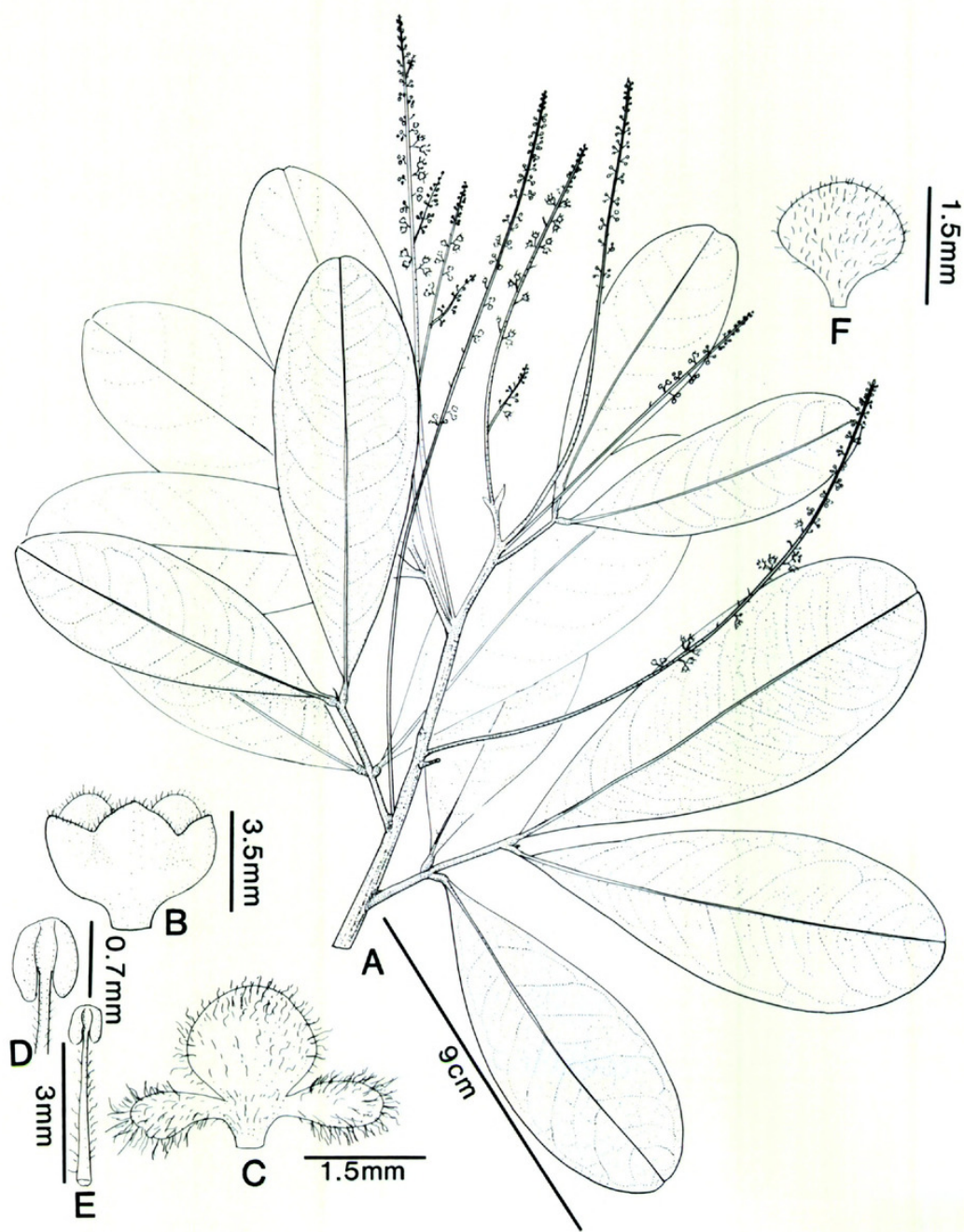


FIGURE 5. *Matayba yutajensis*.—A. Habit of flowering branch.—B. Calyx.—C. Petal with 2 scales spread out, ventral view.—D. Upper portion of stamen.—E. Stamen.—F. Petal, dorsal view.

3.5 mm long, cut $\frac{2}{3}$ way down; lobes ovate-oblong, rounded at summit, 2×2 mm, puberulous without, glabrous within, long-ciliate. Petals lance-oblong, obtuse at summit, 6 mm long, 2.5–2.8 mm wide below the middle, glabrous both sides, long-ciliate. Petaliferous scales lanceolate, obtuse-subtruncate, slightly shorter than the petal, 3–3.5 mm long, 2 mm wide at base, the ventral portion densely sericeous above the glabrous basal sector, the dorsal portion densely sericeous along the lower margins,

glabrous elsewhere. Stamens 5; filaments 1.3 mm long, pilose except in the uppermost part; anthers linear-oblong, 1.5–1.8 mm long, 0.2 mm wide, the appendage broadly lanceolate, acute, 0.3 mm long, the base bilobed. Disk shallowly undulate-lobulate, 2.8 mm diam., hirsutulous except on the outer concavities. Style 3 mm long, strigose. Fruiting pedicels 2 mm long, densely pubescent. Fruit ovoid-subglobose, 2 cm long, 1.7–1.8 cm wide, minutely appressed-puberulent.

Paratype. VENEZUELA. BOLÍVAR: Amaruay-tepui, 5°55'N, 62°15'W, 550–800 m, 20 May 1986, *Liesner & Holst 20935* (MO, VEN).

From the closely related *Talisia tiricensis* Steyer-m., *T. amaruayana* differs by having ciliate peti-als and puberulous lower midrib.

Talisia caudata Steyermark, sp. nov. TYPE: Ven-
ezuela. T. F. Amazonas: Cerro Sipapo, trail
from Base Camp, 125 m, 25 Jan. 1949, *Bas-
sett Maguire & Louis Politi 28615* (holotype,
MO; isotype, NY). Figure 6.

Arbor 2-metralis; foliis 6 dm longis, 25-foliolatis; foliolis alternis lanceolatis apice longicaudatis basi acutis 9.5–14 cm longis 2.5–3 cm latis, acumine 17–25 mm longo, subtus praeter costam mediam dense hirtellam glabris eglandulosis; nervis lateralibus utroque latere 14–17; rachidi dense puberula pilis divaricatis munita haud glandulosa; petiolulis 7–10 mm longis minute denseque puberulentibus pilis divaricatis praeditis; infructescencia paniculata 14 cm longa 7 cm lata, axibus 8–9 simplicibus 0.5–3 cm longis adpresso pubescentibus; fructibus obovoideo-oblongis apice rotundato-subtruncatis basi rotundatis 2.2–2.4 cm longis 1–1.2 cm latis obtuse trigonis adpresso puberulis; stylo sub fructu deciduo vel persistenti 2 mm longo dense strigoso.

Tree 2 m. Leaves 6 dm long, petiolate. Petiole 17 cm long, minutely and densely puberulent with divaricate hairs. Leaflets mainly alternate, 25, lanceolate, long-caudate at apex, asymmetrically acute at base, 9.5–14 cm long, 2.5–3 cm wide, the caudate portion 17–25 mm long, 3 mm wide at base, the upper surface glabrous with impressed or slightly raised, minutely puberulent midrib, the lower surface glabrous except for the densely minutely hirtellous, eglandular midrib. Lateral nerves 14–17 each side, slightly sulcate above, elevated below, slightly ascending at an angle of 25–30°, strongly anastomosing below 3–5 mm from margin; tertiary venation reticulate below, slightly elevated, inconspicuous and scarcely manifest on upper side. Leaf rachis densely puberulous with divaricate non-glandular hairs. Petiolules 7–10 mm long, minutely and densely puberulent with divaricate hairs. Infructescence paniculate, 14 cm long, 7 cm wide, the rachis densely appressed-pubescent; axes 8–9, unbranched, the lower and middle ones 2–3 cm long, the upper ones 0.5–1 cm long, densely appressed-pubescent. Fruit obovoid-oblong, rounded-subtruncate at summit, rounded at base, 2.2–2.4 cm long, 1–1.2 cm wide, obtusely trigonous, appressed-puberulous. Style in fruit deciduous or persistent, 2 mm long, densely strigose. Calyx lobes in fruit persistent, strigose without, ciliate.

This taxon differs from the related *Talisia erecta* Radlk. in the much longer caudate, lanceolate leaf-

lets with longer petiolules, more numerous lateral nerves, and eglandular pubescence without stipitate glands. The leaflets are longer than broad, but less so than in *T. erecta*, which has more closely spaced leaflets.

Talisia glandulifera Steyermark, sp. nov. TYPE:
French Guiana. Saul: Monte La Fumée,
3°37'N, 53°12'W, 200–400 m, 1 Oct. 1982,
Scott Mori et al. 15027 (holotype, MO; iso-
type, NY). Figure 7.

Arbor usque 15 m altis; foliis 25–40 cm longis; foliolis 4–7-jugis plerumque oppositis elliptico-lanceolatis apice longiacuminatis basi acutis majoribus 10–18 cm longis 3.5–5 cm latis, costa media supra impressa subtus elevata minute puberulenti pilis divaricatis praedita; petiolulis 2–5 mm longis; calyce 3.5 mm longo extus dense glanduloso-piloso, lobis ovato-oblongis apice rotundatis; petalis sub-ovato-oblongis apice rotundatis extus glabris intus sparsim prope basim secus mediumque sparsim adpresso-glanduloso-puberulentibus; filamentis glabris; disco dense hispidulo.

Tree 15 m tall. Leaves 25–40 cm long, the petiole 6.5–10 cm long. Leaflets 4–7 pairs, mainly opposite, elliptic-lanceolate, long-acuminate at apex, asymmetrically acute at base, the larger ones 10–18 cm long, 3.5–5 cm wide, the midrib impressed above, elevated below, minutely puberulent with short, divaricate hairs, otherwise glabrous; lateral nerves 13–18 each side, conspicuous and elevated below, slightly ascending at an angle of 15–25°; tertiary venation finely reticulate above, more grossly reticulate below; rachis terete, minutely puberulent with a few glandular hairs; petiolule 2–5 mm long. Inflorescence subterminal, paniculate, densely flowered, 13–23 cm long, 8–20 cm wide, with 6–12 ascending axes, the lower ones 4–15 cm long, densely hirtellous intermixed with glandular hairs. Peduncle 1 cm long or none. Flowers pedicellate or subsessile; pedicels 1.5 mm long, densely hispidulous. Bracts ovate-lanceolate, acute, 0.75–1.5 mm long, densely hirtellous with some glandular hairs. Calyx 3.5 mm long, cut $\frac{2}{3}$ distance, densely glandular-pilose; calyx lobes ovate-oblong, rounded at summit, 2.5 mm long, 1.5–1.8 mm in upper half, ciliate. Petals subovate-oblong, rounded at summit, 5.5 mm long, 2.2 mm wide in upper half, glabrous without, ciliate in lower half, within sparsely appressed-glandular-puberulent near base and along median line; petaliferous scale about equaling or slightly shorter than petal, 3.5 mm long, 1.5 mm wide, densely barbate-villous for most of length on inner face, the outer face glabrous basally, pubescent in upper half, densely appressed-ciliate. Stamens 8; anthers oblong, obtusely apiculate, 1.3–1.4 mm long; filaments 3.8 mm long,

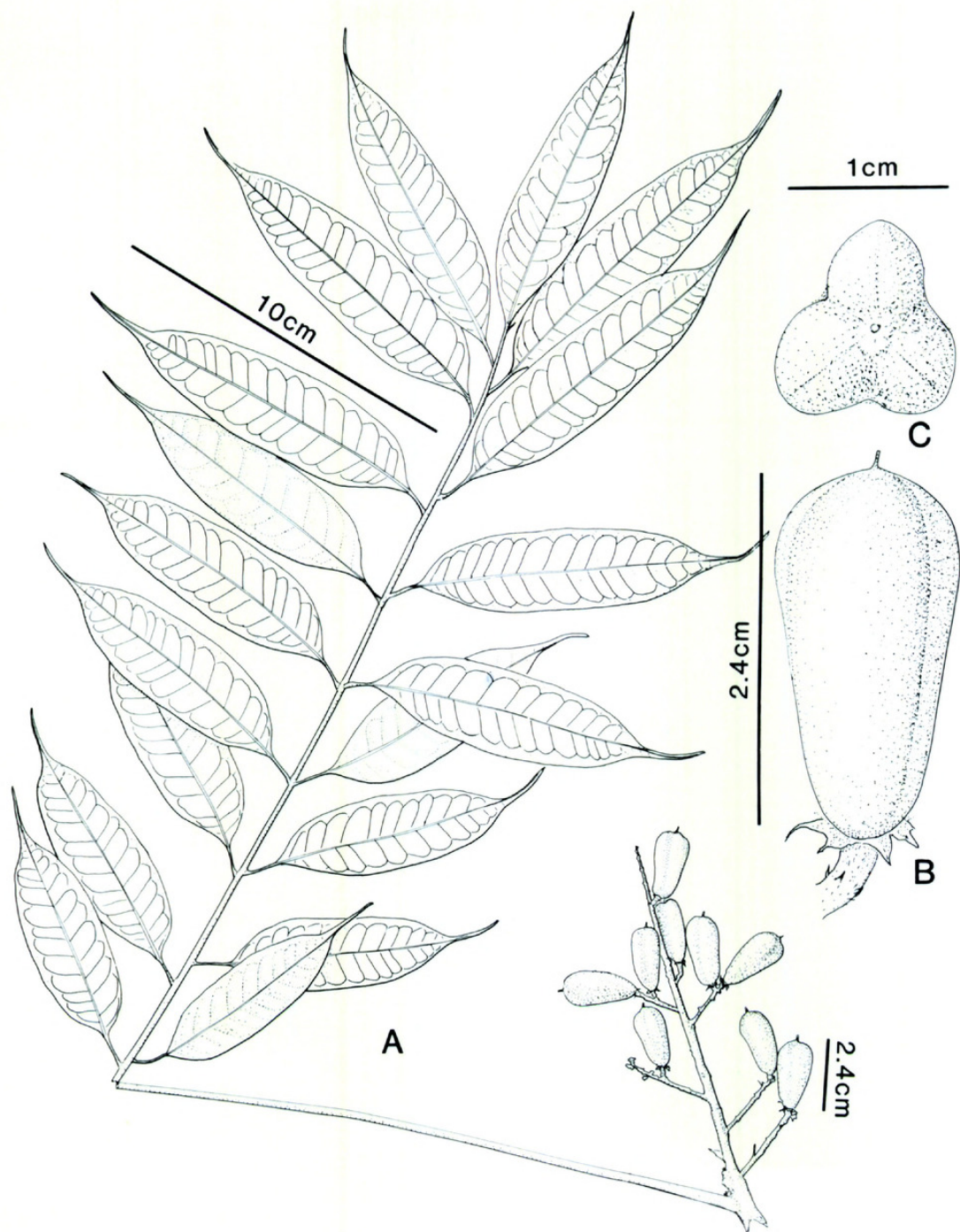


FIGURE 6. *Talisia caudata*.—A. Habit of fruiting branch.—B. Fruit, lateral view.—C. Fruit, apical view.

glabrous. Disk lobulate, 2 mm diam., densely hispid. Fruit not seen.

Paratypes. VENEZUELA. BOLÍVAR: El Paraiso Camp, 53 km NE of caserio Los Rosos, San Félix, 1–10 June 1965, *Luis Marcano-Berti* 677 (MER). FRENCH GUIANA. SAUL: Monte La Fumée, 3°37'N, 53°12'W, 200–400 m, 24 Sep. 1982, *Mori et al.* 14988 (MO, NY).

This species is apparently most closely related to *Talisia cupularis* Radlk. within the group of species 32–36 of Radlkofer's sect. III "*Eutalisia*" (sect. *Talisia*). It is characterized by calyx lobes

densely glandular externally, minutely puberulent rachis with a few gland-tipped hairs, glabrous outer surface of the petals, glabrous filaments, densely hirsutulous disk, and petals glandular on the inner surface. From *T. cupularis* Radlk. it may be differentiated by the glandular-puberulent inner surface of the petals and the strongly glandular pubescent outer surface of the calyx lobes.

Talisia heterodoxa Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Represa Guri, islands 6–

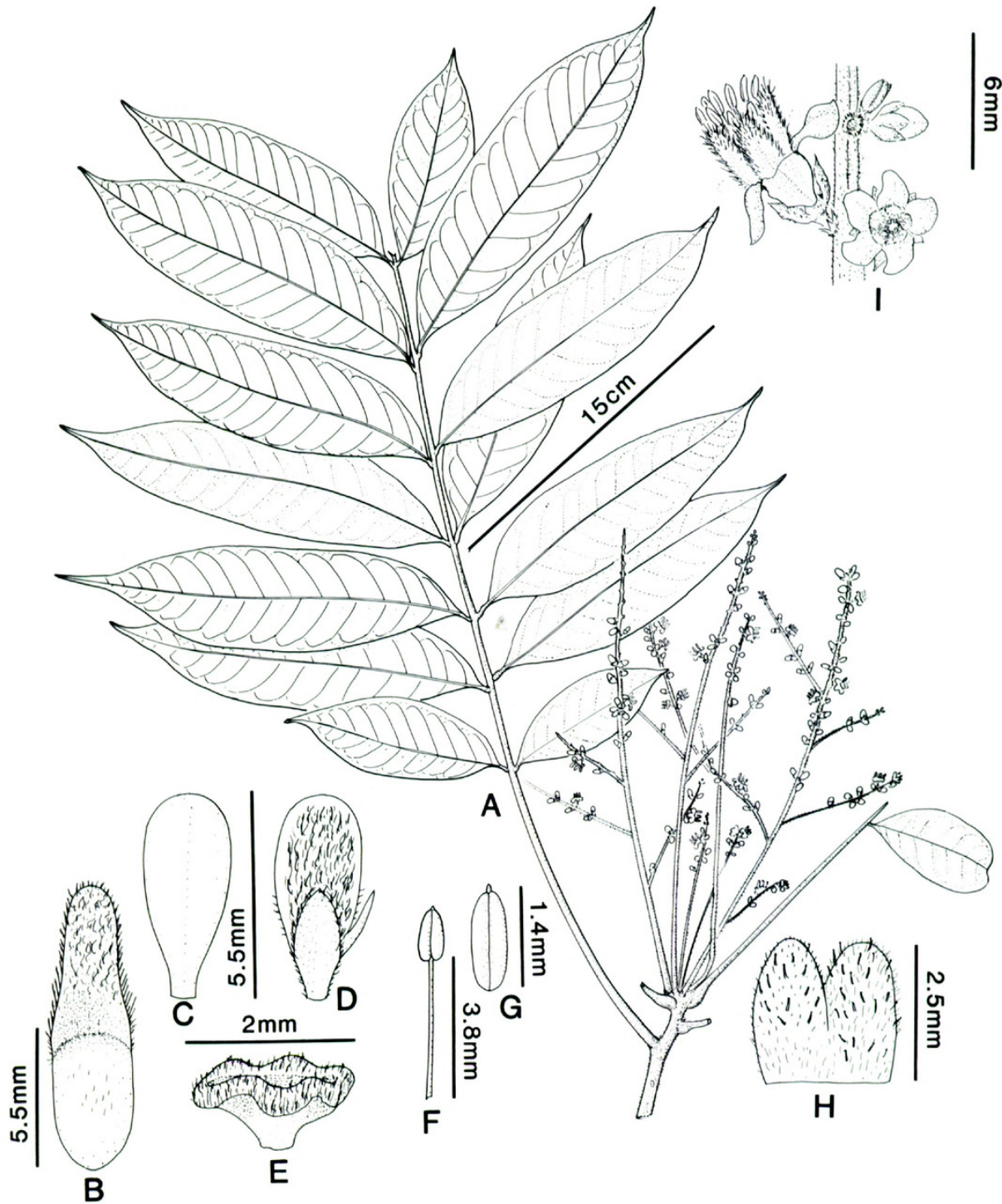


FIGURE 7. *Talisia glandulifera*.—A. Habit of flowering branch.—B. Pubescent scale with interior surface of petal reflexed.—C. Exterior view of petal.—D. Interior view of petal.—E. Disk.—F. Stamen.—G. Anther with apiculate connective.—H. Two of the calyx lobes showing glandular hairs, exterior view.—I. Portion of flowering branch.

18 km S of dam, 7°38'N, 62°58'W, 220–240 m, Ronald Liesner & Angel González 11151 (holotype, MO; isotype, VEN).

Arbor 10-metralis; foliolis 6–8 oppositis vel suboppositis elliptico-oblongis vel oblanceolato-oblongis apice rotundatis saepe retusis 9–16 cm longis 3.5–6.7 cm latis gla-

bris; petiolulis 5–6 mm longis glabris; calycis lobulis suborbiculari-ovatis dense ciliatis extus puberulis intus adpresso-puberulis; squamis petaliferis extus in quarta parte superiore pubescentibus prope basim glandulosus; staminibus 8, filamentis glabris; disco glabro.

Tree 10 m tall. Leaves 6–8-foliolate. Leaflets opposite, subopposite, or slightly alternate, elliptic-

oblong or oblanceolate-oblong, rounded and often retuse at apex, cuneate at base, 9–16 cm long, 3.6–6.7 cm wide, glabrous; lateral nerves slender, slightly ascending at an angle of 25–45°, 12–13 each side, finely prominulous both sides; intermediate nerves finer; tertiary venation finely reticulate both sides, the reticulations more elevated and larger below; rachis of leaf 7–15 cm long, minutely puberulous to glabrous. Petiolule 5–6 mm long, glabrous. Petiole 4–9.5 cm long. Inflorescence terminal, 38 cm long with 7–8 widely spreading, sparingly branched axes, the lower ones 10–16 cm long, 2 mm wide, minutely puberulous with short spreading hairs; peduncle 3–4 cm long. Calyx cut $\frac{3}{4}$ distance, the lobes suborbicular-ovate, rounded at summit, 2.2 mm long; 1.5–2 mm wide, densely ciliate, puberulous without, within appressed-puberulous $\frac{2}{3}$ distance upwards. Petals ovate-oblong, broadly rounded at summit, 4.5 mm long, 2.5 mm wide, glabrous both sides, the margins slightly papillate. Petaliferous scale ligulate, obtuse, 3.5 mm long, 1 mm wide, densely hirsutulous ventrally, pubescent within dorsally in the upper $\frac{1}{4}$ and pubescent basally, elsewhere glabrous. Stamens 8; anthers 1.5 mm long with a short, triangular, obtuse apical appendage, rounded at base; filaments 3 mm long, glabrous. Disk lobulate, glabrous. Fruit 3–3.5 cm long, 3 cm wide, subglabrous.

Paratype. VENEZUELA. BOLÍVAR: Represa Guri, islands 6–18 km S of dam, 7°38'N, 62°58'W, 220–240 m, Liesner & Gonzalez 11116 (MO, VEN).

This species is closely related to *Talisia retusa* Cowan but differs in having the interior of the calyx lobe pubescent only in the middle portion rather than densely sericeous throughout and in having the petals glabrous instead of partly or wholly retrorsely ciliate. Moreover, in *T. retusa* the petioles are mainly shorter, and the leaflets smaller and narrower.

Talisia pentantha Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Canaima, W of Avenza Camp, gallery forest, 500 m, 4 Oct. 1974, F. Ehrendorfer 74104-23 (holotype, VEN).

Arbor; foliis 10-foliolate; foliolis oppositis, lanceolato-ellipticis apice acutis basi acutis majoribus 13.5–16 cm longis 3.7–4.5 cm latis, infimis 8.5–10.5 cm longis 3.5 cm latis utrinque glabris; nervis lateralibus principalibus utrinque 8–11; inflorescentia 37 cm longa, pedunculo 8 cm longo; floribus pedicellatis; calyce extus sparsim puberula, lobis intus glabris; petalis minute ciliatis aliter glabris; squamis dorsaliter glabris; staminibus 5; antheris linearibus appendiculatis, apice subacuto 1.8 mm longis; disco profunde lobato glabro.

Tree. Leaves 10-foliolate. Leaflets opposite, lanceolate-elliptic, acute at apex, acute at the slightly asymmetric base, mostly 13.5–16 cm long, 3.7–4.5 cm wide, the lowest smaller, 8.5–10.5 cm long, 3.5 cm wide, glabrous both sides, ascending at an angle of 20–25°; tertiary venation inconspicuous. Inflorescence 37 cm long, bearing interrupted short groups of flowers borne on short axes 5–15 mm long; peduncle 8 cm long; rachis ridged, with vertical lines of spreading pilosity on the angles, 2.5 mm diam. Flowers pedicellate, pedicels 1 mm long, densely pilosulous with spreading hairs. Bracts of inflorescence lanceolate, subacute, 0.75 mm long, puberulous. Calyx 3 mm long, cut $\frac{3}{4}$ distance; lobes oblong-lanceolate, subacute or subobtuse, 2 mm long, 1 mm wide, sparsely puberulous without, glabrous within, imbricate, densely ciliate. Petals ligulate, obtuse, 4.5 mm long, 1.3 mm wide in late bud, minutely ciliate on the margins, otherwise glabrous; petaliferous scale 3 mm long, dorsally glabrous, densely sericeous ventrally. Stamens 5; anthers linear, appendiculate with a subacute lanceolate apex 0.2 mm long, 1.8 mm long. Disk deeply 5-lobed, glabrous.

The glabrous disk relates this species to *Talisia guianensis* Aubl., which, however, has eight stamens.

Talisia sancarlosiana Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: between San Carlos and Solano, 11–17 Mar. 1970, Luis Marciano-Berti & P. Alcedo 119-979 (holotype, MER).

Frutex; foliis 17-foliolatis foliolis suboppositis vel alternis, oblongo-lanceolatis apice acuminatis basi subacutis superioribus 30–35 cm longis 8.5–9 cm latis utrinque glabris; nervis lateralibus utrinque 7–9; petiolulis 3–8 mm longis; inflorescentia 13 cm longa 15 cm lata; calycis lobis ovato-oblongis late obtusis extus sparsim pubescentibus intus glabris manifeste ciliatis; petalis lanceolatis late obtusis 5–6 mm longis 1.5–1.8 mm latis extus glabris intus pilis glandulosis praeditis exterioribus ciliatis; squamis petaliferis ligulatis dorsaliter glabris; staminibus 5; filamentis glabris; antheris linearibus 2 mm longis apice obtuse appendiculatis; disco glabro.

Shrub. Leaves 17-foliolate. Leaflets subopposite or alternate, oblong-lanceolate, acuminate at apex, subacute at the base, the upper leaflets larger, 30–35 cm long, 8.5–9 cm wide, the smaller alternate lower ones 19 cm long, 6 cm wide, glabrous both sides; lateral nerves 7–9 each side, elevated below; rachis glabrous; petiolules 3–8 mm long, glabrous; petiole 13–15 cm long, glabrous. Inflorescence paniculate, widely branching, 13 cm long, 15 cm broad, the rachis minutely pubescent in lines. Calyx

lobes ovate-oblong, broadly obtuse, 2.3 mm long, 1.5 mm wide, sparsely pubescent without, glabrous within, conspicuously ciliate. Petals lanceolate, broadly obtuse at apex, 5–6 mm long, 1.5–1.8 mm wide below middle, glabrous without, glandular within, the outer ones ciliate. Petaliferous scale ligulate, 2.5 mm long above the glabrous basal 2-mm portion, densely sericeous ventrally, glabrous dorsally. Stamens 5; filaments 2.5 mm long, glabrous; anthers linear, 2 mm long, the obtusely oblong appendage 0.1 mm long, bilobed at base. Disk glabrous. Ovary obovoid, 3 mm long, glabrous; style 3.5 mm long, mainly glabrous, stigmatic in the apical 1.5 mm.

From *Talisia guianensis* Aubl. this species differs in having five stamens, short inflorescence, fewer lateral nerves, and pubescent inflorescence rachis.

TOULICIA

Toulicia anomala Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Río Suapure, Middle Orinoco, along river between Raudal Budare and Raudal Punta Brava (70–80 km from mouth), 110–120 m, 17 Jan. 1956, *J. J. Wurdack & J. V. Monachino 41253* (holotype, MO; isotype, NY).

Frutex vel arbor 2–3-metralis, ramulis glabris; foliis abrupte pinnatis, 6–10-foliolatis, foliolis oppositis vel alternis subsessilibus vel 1–2 mm petiolulatis lanceolatis apice acutis vel acuminatis basi asymmetricis acutis vel obtusis 4–8.5 cm longis 1.5–2.5 cm latis obscure repando-undulatis glabris; petiolis 1.5–4 cm longis 1 mm latis; inflorescentia 5–7 cm longa 2–3.5 cm lata, axibus 8–12 adpresso-pubescentibus 2–17 mm longis 3–8 floris; pedicellis 0.5 mm longis adpresso-pubescentibus; sepalis 4 inaequalibus, exterioribus minoribus suborbicularibus rotundatis 1–1.2 mm longis 1.2–1.5 mm latis extus glabris intus prope basin pubescentibus marginibus ciliatis; petalis 4 esquamatis obovatis 0.8–1 mm longis 0.7–1 mm latis 0.5 mm unguiculatis integris vel 2–3-lobatis, marginibus conspicue longifimbriatis pilis 0.5 mm longis ornatis; staminibus plerumque 6–7, filamentis 2.5 mm longis parte basali 1 mm pilosa; disco regulari leviter lobulato glabro; pistillodio 1 mm longo; pistillo 3.5 mm long 1.5 mm lato, stylis duobus, ovario 2-loculari, ovulo uno in quoque loculo.

Shrub or tree 2–3 m tall, the branches glabrous. Leaves abruptly pinnate, 6–10-foliolate, the leaflets opposite or alternate, subsessile or 1–2 mm petiolulate, chartaceous, lanceolate, acute to acuminate at apex, acute to obtuse at the asymmetrical base, 4–8.5 cm long, 1.5–2.5 cm wide, obscurely repand-undulate, glabrous; lateral nerves 10–12 each side, ascending at an angle of 15–25°, terminating near the margin, there anastomosing; ter-

tiary venation finely reticulate and prominulous on both sides; midrib elevated below, impressed or sulcate above, bordered by a slender, ribbonlike lateral extension 0.25 mm wide on each side; lower leaf surface often with foveolate depressions at the junction of the midrib and lateral nerves accompanied by thickened portions of the lower epidermis. Rachis glabrous, 1 mm wide. Petioles 1.5–4 mm long, 1 mm wide. Inflorescence paniculate, 5–7 cm long, 2–3.5 cm wide, with 8–12 short axes 2–17 mm long, the rachis and axes appressed-pubescent; axes 3–8-flowered, sparsely branched. Peduncle 0.7–3 cm long. Sepals 4, unequal, the outer ones smaller, suborbicular, rounded, 1–1.2 mm long, 1.2–1.5 mm wide, glabrous without, within pilose near the base, long-ciliate on margins. Petals 4, esquamate, unguiculate, obovate, 0.8–1 mm long, 0.7–1 mm wide, the unguiculate portion 0.5 mm long, entire, 2-cleft or 2–3-lobate, densely long-fimbriate with elongate hairs 0.5 mm long. Stamens usually 6–7; filaments hypogynous, 2.5 mm long, pilose in the basal 1 mm; anthers dorsifixed, suborbicular, 0.5 × 0.5 mm. Disk contiguous but not adnate to the ovary, regular, shallowly lobulate, glabrous, 2 mm across, 0.1–0.2 mm high. Pistillode ovate-elliptic, 1 mm long, 0.8 mm wide. Pistil 3.5 mm long, 1.5 mm wide; styles 2; ovary 2-locular, with 1 ovule in each cell.

This species is anomalous in having 4 sepals, and usually 6–7 stamens. The esquamate petals align it in the genus to section *Aphanolepis* Radlk. I thank Dr. Aaron Goldberg of the Smithsonian Institution for valuable help in critical observations and for comments.

BOMBACACEAE

POCHOTA

In Steyermark & Stevens (1988), the generic name *Pochota* was shown to have priority over *Bombacopsis*, and *Rhodognaphalopsis* A. Robyns was synonymized with *Bombacopsis*. Thus the following taxa are assigned to *Pochota*.

Pochota amazonica (A. Robyns) Steyermark & W. D. Stevens, Ann. Missouri Bot. Gard. 75: 396–398. 1988.

Bombacopsis amazonica A. Robyns, Bull. Jard. Bot. Etat 33: 186. 1963.

Bombacopsis wurdackii A. Robyns, Mem. N.Y. Bot. Gard. 17(1): 194. 1967.

Bombacopsis amazonica and *B. wurdackii* intergrade and cannot be maintained as two distinct taxa. In his original description of *B. amazonica*,

Robyns (1963: 186) stated that the pedicels vary from 3.5 to 9.5 cm long. This description was based on the US holotype. The isotype (*Foldats 3794*) at VEN, however, has pedicels only 2.5–3 cm long. Moreover, the calyx was described from the US holotype as 1–1.2 cm long and 1.6–1.8 cm wide, whereas the VEN isotype has the calyx only 1.1–1.2 cm wide. This disparity in the measurements of the holotype and isotype is manifested again in the measurements of the calyx of *B. wurdackii*, which are described from the MO holotype as 0.6 cm long, whereas the VEN isotype measures 0.8–1 cm.

Additionally, dimensions of leaflet blades (and their apex shapes), petioles, and petiolules overlap and real differences are not discernable. In both taxa the leaflet blades are thick-coriaceous with a prominent midnerve beneath. Both possess a fine reticulate tertiary venation on the lower surface of the leaflets. One of the principal characters employed by Robyns in separating *Bombacopsis wurdackii* from *B. amazonica* was the presence of glands on the receptacle in the former. Removal of the mass of stamens that had previously hidden the receptacle area on the VEN isotype of *B. amazonica* revealed glandular depressions, thus eliminating one of the key separating characters between the two taxa. Robyns differentiated *B. wurdackii* further from *B. amazonica* by the relatively smaller staminal tube of the former, which is described as "circa 5–7 mm long." Examination of the VEN isotype reveals a length closer to 8 mm.

LITERATURE CITED

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- STEYERMARK, J. A. & W. D. STEVENS. 1988. Notes on *Rhodognaphalopsis* and *Bombacopsis* (Bombacaceae) in the Guayanas. Ann. Missouri Bot. Gard. 75: 396–398.

Pochota ewelii Steyermark, sp. nov. TYPE: Brazil. Dept. Amazonas: near Venezuela frontier, camino al Cerro Neblina desde Rio Tucano (affluente del Rio Cauaburi), 1,250 m, 23 Apr. 1964, J. Ewel 135 (holotype, MY).

Arbor foliis 5-foliolatis, foliolis coriaceis late elliptico-ovatis apice acutis vel obtuse acutis basi obtusis vel rotundatis majoribus 9.5–12.5 cm longis 4.5–7 cm latis supra sparsim lepidotis basi conspicue petiolatis; petiolulis 9–12 cm longis; pedicellis 3 cm longis lepidotis; receptaculo conspicue glanduloso; calyce 10 mm longo 20 mm lato extus lepidoto intus sericeo-tomentoso; petalis linearibus acutis 12–12.5 cm longis 1.8–1.9 cm latis; stam-

inibus ca. 150, 8 cm longis; staminali tubo 13 mm longo basi glabro deinde superne stellato-piloso; stylo 10 cm longo glabro; ovario lepidoto.

Tree with glabrous branches. Leaves 5-foliolate, the leaflets thick coriaceous, broadly elliptic-ovate, acute to obtusely acute at apex, obtuse to rounded at base, the larger 9.5–12.5 cm long, 4.5–7 cm wide, the upper surface sparsely lepidote except the more densely lepidote midrib, the lower surface and midrib strongly lepidote; primary lateral nerves on each side 12–14, impressed below, inconspicuously above, anastomosing 5–8 mm from margin; tertiary venation reticulate and manifestly impressed or subelevated below, inconspicuous above; midrib prominently elevated below, slightly elevated above. Petiole 3.6 cm long, 3 mm thick; petiolules 9–12 mm long. Flowers solitary, axillary. Pedicels 3 cm long, 3 mm wide, moderately lepidote. Receptacle conspicuously glandular. Calyx 10 mm long, 20 mm wide at subtruncate summit, moderately lepidote without, densely sericeous within. Petals linear, acute, 12–12.5 cm long, 1.8–1.9 cm wide, minutely stellate-squamosa without, more densely stellate-puberulent within with slightly longer trichomes. Stamens numerous, ca. 150, 8 cm long, with 10 phalanges 1 cm long; staminal tube 13 mm long, glabrous below, moderately stellate-pilose above. Ovary lepidote; style 10 cm long, glabrous.

This taxon differs from *Pochota gracilis* (Robyns) Steyermark & W. D. Stevens in the pubescent upper part of the staminal tube, broader and shorter calyx, and the thick-coriaceous, longer and broader, conspicuously lepidote leaves. The leaflets resemble in their size and thickness those of *P. amazonica* (Robyns) Steyermark & W. D. Stevens, which, however, has narrower leaflets less rounded at the base, and shorter petals. The new species is dedicated to Dr. John Ewel, one of the early explorers of Cerro de La Neblina, who reached the summit from the Brazilian side.

Pochota fuscolepidota Steyermark, sp. nov.

TYPE: Venezuela. T. F. Amazonas: Dept. Atabapo, Cerro Marahuaca, forested slopes 1–2 km N of Sima Camp, 3°40'N, 65°31'W, 1,100 m, 8–9 Mar. 1985, Ronald Liesner 18452 (holotype, MO; isotype, VEN).

Arbor 5–8-metralis; foliolis 3–5 oblongo-ovatis vel elliptico-oblongis apice acutis basi obtusis vel subacutis 16–22 cm longis 7–10 cm latis supra glabris subtus densissime fusco-ferrugineo-lepidotis, marginibus subrevolutis; nervis lateralibus principalibus utroque latere 12–15 subtus manifeste elevatis; petiolis 5.5–9.5 cm longis; petiolulis 1–

2.5 cm longis; fructu pedicello fructifero 5 cm longo 5 mm lato densissime fusco-lepidoto; calyce fusco-lepidoto; fructu obovoideo apice rotundato densissime fusco-ferrugineo lepidoto 6 cm longo apice 3 cm lato basi 0.7 cm lato.

Tree 5–8 m tall, the young stems densely ferrugineous-fuscos lepidote. Leaflets 3–5, oblong-ovate or elliptic-oblong, acute at apex, obtuse or subacute at base, 16–22 cm long, 7–10 cm wide, glabrous above, densely dark brown–ferruginous below, glabrous above with impressed nerves, densely and thickly covered below by dark brown, ferruginous lepidote scales, the principal lateral nerves 12–15 each side, prominently elevated, anastomosing 7–15 mm from the margin; margins subrevolute; midrib subsulcate above, prominently elevated below. Petioles 5.5–9.5 cm long; petioles 1–2.5 cm long, densely fuscous lepidote. Flowers not seen. Fruiting pedicels 5 cm long, 5 mm thick, densely fuscous lepidote. Calyx tube in fruit 10 mm long, 17 mm wide, subtruncate at apex, dark lepidote without, densely buff sericeous within. Fruit obovoid, rounded above, 6 cm long, 3 cm wide at summit, 0.7 cm wide at base.

Paratypes. VENEZUELA. T. F. AMAZONAS: Dept. Atabapo, Cerro Marahuaca, Sima Camp, S-central portion of forested slopes along E branch of Caño Negro, 3°43'N, 65°31'W, 1,140 m, 21–24 Feb. 1985, *Steyermark & Holst 130515* (MO, VEN); 9.2 km NE of San Carlos on Solano road, 1°56'N, 67°3'W, 119 m, *Clark 6920* (MO, NY, VEN).

This species is well characterized by the large leaflets that are densely dark brown-ferruginous lepidote beneath, the prominently elevated lateral nerves on the lower leaf surface, and the densely dark brown lepidote fruits.

***Pochota gracilis* (Robyns) Steyermark & W. D. Stevens**

This species was originally described (Robyns, 1967) from specimens collected on the Río Pacimoni of the Territorio Federal Amazonas of Venezuela at an altitude of 100–140 meters. Subsequent collections manifest variations in the apex and shape of the leaflets, and in the abundance and distribution of scales on the lower leaflet surface. Specimens collected from the eastern portion of the range in Estado Bolívar, Venezuela, have leaflets narrowly obovate or elliptic-obovate with the apex emarginate and rounded-truncate. Additionally, the scales on the lower surface of the leaflets are dark and close together. Specimens having these characteristics all come from localities associated with the sandstone table mountains at

altitudes of 400–1,000 meters. In contrast, the collections originating from the Territorio Federal Amazonas all are found at low elevations of 95–140 meters in usually white sand savannas bordering streams of the lowland areas. The leaflets of these lowland populations are narrowly elliptic-oblong or narrowly oblong with broadly obtuse to rounded, rarely emarginate apex, and the scales on the lower surface are more scattered and less conspicuous than those of the Estado Bolívar populations. Since these differences can be segregated in eastern and western geographically separated populations, they may be considered to represent two subspecies as follows.

Pochota gracilis* subsp. *gracilis

Rhodognaphalopsis maguirei A. Robyns, Mem. N.Y. Bot. Gard. 17: 200. 1967.

Leaflets narrowly elliptic-oblong to narrowly oblong, broadly obtuse to rounded at apex, this rarely emarginate; scales on the lower surface of the leaflets small, scattered, rather noticeably separated.

Distribution. T. F. Amazonas, Venezuela, in usually white sand savannas bordering streams at altitudes of 95–140 meters.

Specimens examined. VENEZUELA. T. F. AMAZONAS: Río Pacimoni, 12 km below mouth of Río Yatua, 100–140 m, *Maguire, Wurdack & C. K. Maguire 41653* (holotype, MO; isotype, NY); Caño Caname del medio Río Atabapo, sabanita, 3°40'N, 67°27'W, 100 m, *Huber, Tillett & Davidse 3747* (VEN); bajo Río Ventuari, 10 km al NE de la desembocadura del Caño Marueta, 4°18'N, 66°16'W, 110 m, *Huber 6116* (MO); sabana, 1 km al E del caserío de Guarinuma, 3°37'N, 67°26'W, 95 m, *Huber 3350* (VEN); sabanita, 10 km al NE del Cerro Moriche, middle Río Ventuari, 4°48'N, 66°17'W, 120 m, *Huber 3437* (VEN); white sand savannas, Caño Caname, opposite Cucurital de Caname, 3°40'N, 67°22'W, 95 m, *Davidse, Huber & Tillett 17035* (MO, VEN); along lower Río Sipapo, *Maguire & Politi 27849* (NY).

***Pochota gracilis* subsp. *bolivarensis* Steyermark, subsp. nov.** TYPE: Venezuela. Bolívar: wooded knoll in savanna, Río Kanarakuni, southern base of Cerro Sarisariñama, Meseta de Jaua, 400 m, 17–29 Mar. 1967, *Julian Steyermark 98206* (holotype, VEN; isotype, NY).

Local name. Wanabana (Maquiritare).

A sp. *gracilis* foliis anguste obovatis vel elliptico-obovatis apice subtruncato-rotundatis emarginatis, subtus squamis lepidotis conspicuis fuscatis confertis recedit.

Leaflets narrowly obovate to elliptic-obovate, subtruncate-rounded at the emarginate apex; scales on the lower surface conspicuous, darker, and closer together.

Paratypes. VENEZUELA. BOLÍVAR: Cerro Guaiquima, summit, riverine forest, Salto de Río Szczerbanari (Río Carapo), 5°44'N, 63°41'8"W, central portion, 750 m, Steyermark, G. & E. Dunsterville 113236 (VEN); Auyan-tepui, 1,100 m, Tate 1155 (NY, VEN); upper Caura River, Cerro Marajanu, 550 m, Cardona 2951 (VEN).

Rhodognaphalopsis maguirei A. Robyns was originally described as having a calyx 15 mm long and 7 mm wide, while *R. gracilis* was described with a calyx 12 mm long and 5 mm wide. Yet on the NY isotype of *R. gracilis* the older calyces attain a width of 6–6.5 mm; those in bud are 4–5 mm wide. In the holotypes of both *R. maguirei* and *R. gracilis* the staminal tubes are glabrous. Although the style in *R. maguirei* is described as glabrous and that of *R. gracilis* as sparsely stellate-puberulous at the base, it is doubtful if this last character can be used to separate the two taxa, since in all other respects they are alike. The type collection of *R. maguirei* from the lower Río Sipapo occurs within the general range of *Pochota gracilis* subsp. *gracilis*.

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***Pochota liesneri* Steyermark, sp. nov.** TYPE: Venezuela. T. F. Amazonas: Dept. Atabapo, Salto Yureba, Cerro Yureba, lower Ventuari, 4°3'N, 66°1'W, 350 m, 14 Mar. 1985, Ronald Liesner 18637 (holotype, MO; isotype, VEN). Figure 8.

Arbor 15-metralis; foliis 5–6, foliolis rugulosis elliptico-obovatis apice abrupte acutis basi acutis majoribus 12–26 cm longis 8–11 cm latis supra praecipue per nervos laterales atque costam mediam glandulis fuscis praeditis, subtus molliter pilosis pilis stellatis fuscis 0.5–1 mm longis obtectis; nervis lateralibus principalibus utroque latere 14–20 subtus prominente elevatis supra sulcatis, venulis tertiariis manifeste grosseque reticulatis; petiolis 13–20 cm longis glabris, petiolulis 7–13 mm longis glabris; pedicello 3 cm longo 5–7 mm crasso; calyce 3.5–3.7 cm longo apice 2–2.5 cm lato extus densissime fulvo stellato-tomentoso; petalis 25–31 cm longis 1 cm latis ubique densissime stellato-tomentoso; staminibus numerosis 18–25 cm longis; tubo stamineo 6–7 cm longo parte superiori glabra dimidia parte inferiori 3.5–4.5 cm dense stellato-tomentoso in 10 phalangibus soluto; stylo 25–30 cm longo inferne dense stellato-villoso superne stellato-tomentoso; ovario conico 17 mm longo conspicue costato, costis dense ferrugineo-squamosis sulcis minute puberulis.

Tree 15 m tall. Leaves 5–6-foliolate, leaflets rugulose, elliptic-obovate, abruptly acute at apex, acute and long decurrent at base, the larger ones 12–26 cm long, 8–11 cm wide, upper surface with dark glandular dots dispersed more commonly along the lateral nerves and midrib, softly pilose below with brown stellate hairs 0.5–1 mm long on both the surface and nerves; principal lateral nerves 14–20 each side; tertiary veinlets prominently grossly reticulate below, subsulcate above. Petioles 13–20 cm long, glabrous; petiolules 7–13 mm long, glabrous. Flowers large, axillary, solitary, opposite on the stem. Pedicels 3 cm long, 5–7 mm thick, densely dark brown stellate-tomentose. Calyx tubular-campanulate, 3.5–3.7 cm long, 2–2.5 cm wide at the subtruncate, scarcely repand apex, densely fulvous stellate-tomentose without, the stellate tomentum with numerous small hairs and a few larger ones, densely buff-sericeous within. Petals tan (fide Liesner), linear, 25–31 cm long, ca. 1 cm wide, on both sides densely stellate-tomentose. Stamens about 50, 18–25 cm long; staminal tube 6–7 cm long, the upper portion glabrous, the lower portion 3.5–4.5 cm long with pale, minute, stellate tomentum, separating above into 10 phalanges 3–4 cm long. Style 25–30 cm long, densely stellate-pilosulous, especially in the lower half. Ovary conic, 17 mm long, 10 mm wide at base, conspicuously 5-costate, the ridges densely ferruginous squamose with minute pale appressed hairs in the sulcations.

This unusual species is at once distinguished by the softly brown long-pilose lower surface of the rugulose leaflets, relatively large flowers with markedly elongated petals and staminal tube, and minutely dense brown-stellate tomentose, elongated calyx tube. The collections of Ronald Liesner have contributed greatly to our knowledge of the rich flora of the Venezuelan Guayana.

***Pochota mawarinumae* Steyermark, sp. nov.**

TYPE: Venezuela. T. F. Amazonas: Dept. Río Negro, near Cerro de La Neblina Base Camp, Río Mawarinuma, 0°50'N, 66°10'W, 140 m, 2 Mar. 1984, Ronald Liesner 16355 (holotype, MO; isotype, VEN).

Arbor 15-metralis; foliis 5–7-foliolatis; foliolis coriaceis subtus glaucis argenteis late obovatis apice rotundatis minute mucronatis basi longiattenuatis 20–32 cm longis 8.5–10.5 cm latis subtus minute lepidotis, nervis lateralibus principalibus utroque latere (6–)8–10; petiolis 2.3–3.4 cm longis, petiolulis 1–4 cm longis; pedicellis 1.5–3.5 cm longis dense minuteque fulvo-stellato-puberulo; receptaculo manifeste glanduloso fulvo-stellato-puberulo; calyce breviter campanulato apice truncato 10–13 mm longo 15–20 mm lato extus dense minuteque fulvo-stel-

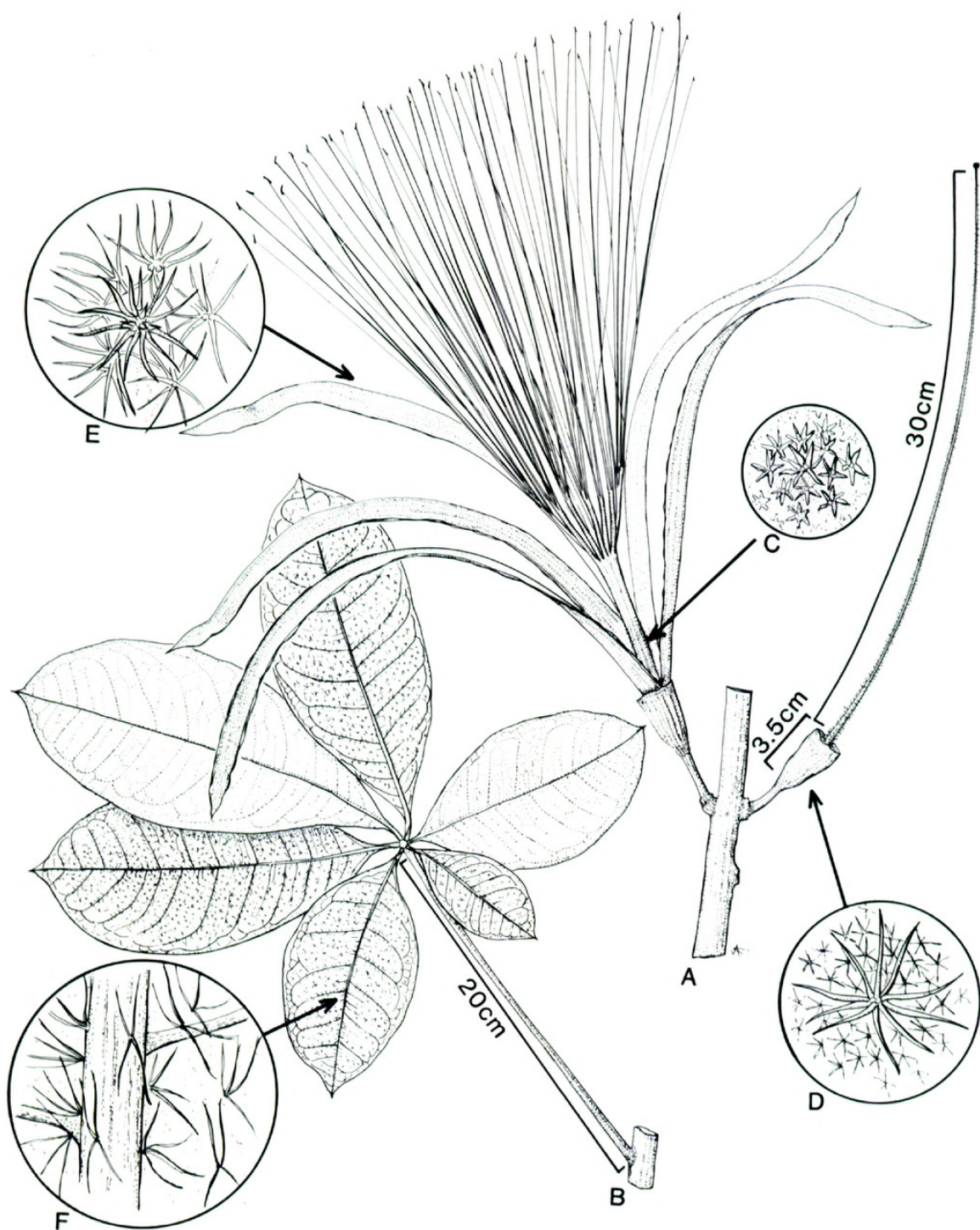


FIGURE 8. *Pochota liesneri*.—A. Portion of flowering stem.—B. Single leaf attached to stem.—C. Showing larger and smaller stellate hairs on staminal tube.—D. Showing one large and numerous smaller stellate hairs on calyx tube and receptacle.—E. Stellate pubescence on petal.

lato-puberulo intus dense sericeo-tomentoso; petalis linearibus 13–16.5 cm longis 1.3–2 cm latis; staminibus 8–13 cm longis, tubo stamineo 20 mm longo dense minuteque cinereo-stellato-puberulo; stylo parte basali 2.5 cm minute stellato-tomentoso aliter glabro; ovario superne dense sericeo tomentoso aliter minute puberulenti; capsula nondum visa.

Tree 15 m tall. Branches robust. Leaves 5–7-foliolate. Leaflets coriaceous, pale or glaucous be-

low, broadly obovate, rounded at the mucronate apex, attenuate to the acute base, the larger ones 20–32 cm long, 8.5–10.5 cm wide, minutely lepidote below. Petioles 2.3–3.4 cm long; petiolules unequal, 1–4 cm long. Principal lateral nerves (6–) 8–10 each side, arcuately ascending, conspicuously elevated on lower surface, subelevated on upper surface, branched, and anastomosing 1–2

cm from margin. Tertiary venation finely reticulate between larger areoles, impressed below. Midribs strongly elevated below. Flowers solitary, axillary. Pedicels in anthesis 1.5–3.5 cm long, densely brown stellate-tomentose. Receptacle conspicuously glandular, brown tomentose, 1 cm long, 1.5 cm wide. Calyx shortly campanulate, 10–13 mm long, 15–20 mm wide, densely brown tomentose without, sericeous within. Petals linear, 13–16.5 cm long, 1.3–2 cm wide, minutely densely tan stellate-tomentose without, densely and paler stellate-tomentose within. Stamens 8–13 cm long, numerous, ca. 80 in 10 phalanges 10 mm long; staminal tube 20 mm long, stellate-puberulent most of the length; anthers hippocrepiform-linear, 2.5–3.5 mm long. Style 10.5(immature)–14 cm long, glabrous most of the length, densely pale stellate-tomentose in the basal 2.5 cm. Ovary conic, 5-carinate, densely sericeous-tomentose in the upper $\frac{1}{3}$, minutely appressed-puberulent in the lower $\frac{2}{3}$ on the ridges and in the sulcations.

Paratype. VENEZUELA. T. F. AMAZONAS: Cerro de La Neblina, same data as type, 6 Mar. 1984, *Liesner 16460* (MO, VEN).

This species is most closely related to *Pochota obovata* (Robyns) Steyermark & W. D. Stevens but differs in the longer petals, completely stellate-pubescent staminal tube, manifestly glandular receptacle, predominantly larger glabrous portion of the style, and more rounded, merely mucronulate apex of the somewhat narrower leaflets. The Base Camp along the Río Mawarinuma of Cerro de La Neblina served as a working base for the numerous scientists who participated in the recent expedition to that sandstone table mountain, and is the locale of many noteworthy species new to Venezuela or new to science.

Pochota redmondii Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Dept. Atures: stream 0.5–2 km E of Río Coro-Coro, W of Serranía de Yutaje, 3 km N of Yutaje settlement, 5°38'N, 66°30'W, 200 m, 19 Feb. 1987, *Ronald Liesner & Bruce Holst 21248* (holotype, MO; isotype, NY, VEN).

Arbor 6 m; foliolorum laminis late obovatis apice rotundatis 10.5–48 cm longis 5.5–15 cm latis haud manifeste lepidotis subtus haud glaucis; floribus solitariis, pedicellis 1.5–3 cm longis glabris; calyce late campanulato 8–10 mm longo 8–13 mm lato subtruncato; petalis ligulato-spathulatis 8 cm longis superne 9–10 mm latis basi 4.5–5 mm latis; tubo stamineo 13 mm longo 2.5 mm lato lineatis, lineis 5 minute stellato-puberulentibus cum zonis latioribus glabris 0.9–1 mm latis alternantibus munito; ovario dense tomentoso.

Tree 6 m tall, the branches glabrous, the terminal portion 1–1.2 cm diam. Leaves 5-foliate; leaflets articulate, subcoriaceous, broadly obovate, rounded at apex, sometimes emarginate to abruptly cuspidate, cuneately acute and slightly decurrent at the base, 10.5–48 cm long, 5.5–15 cm wide, glabrous, not manifestly lepidote; lateral nerves 10–16 each side, impressed to subelevated above, subelevated below, anastomosing 5–8 mm from margin; tertiary venation conspicuously reticulate below, the larger areoles enclosing a minute network of elevated veins, less conspicuously reticulate above; petiole 18–22.5 cm long, 4 mm diam., glabrous, terete, not lepidote; petiolules unequal, 1–5 cm long, glabrous, articulate. Flowers solitary; pedicels 1.5–3 cm long, glabrous. Receptacle 5-glandular, glands oval, 1–1.5 mm long. Calyx broadly campanulate, 8–10 mm long, 8–13 mm wide at summit, truncate, densely buff stellate-tomentose without, densely pale sericeous within. Petals cream-tan, subcoriaceous, ligulate-spathulate, subobtusate at apex, 8 cm long, 9–10 mm wide in upper half, 4.5–5 mm wide at base, densely stellate-tomentose within, more densely stellate-tomentulose without. Staminal column 13 mm long, 2.5 mm wide, glabrous above and at base, with 5 vertical minutely stellate-puberulent lines in between alternating with broader glabrous zones 0.9–1 mm wide, branched into 10 phalanges, the main basal branches 10–13 mm long, each main basal branch again branched into several divisions with ultimate 18–24 filaments on each phalange, a total of ca. 240 filaments 4–4.5 cm long. Anthers linear-oblong, 2.5–3 mm long. Stigma 5-lobed, the lobes ovate-lanceolate, 1 mm long, 0.7 mm wide. Ovary suborbicular, densely tomentose.

Paratype. VENEZUELA: T. F. AMAZONAS: Dept. Atures, Río Coro-Coro, river and adjacent forested slopes, W of Serranía de Yutaje, 6–8 km N of Yutaje settlement, 5°41'N, 66°7'30"W, 23 Feb. 1987, 320 m, *Liesner & Holst 21337* (MO, VEN).

This species is related to *Pochota obovata* Robyns but differs in the shorter pedicels, narrower calyx and petals, alternately glabrous and stellate-pubescent vertical zones of the staminal tube, and nonlepidote, nonglaucous lower leaf surface. It is a pleasure to name this species for Parker Redmond, who kindly took care of the logistics for the expedition to the Serranía de Yutaje.

Pochota tepuiensis Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Meseta de Jaua, Cerro Sari-sariñama, summit, 4°41'40"N, 64°13'20"W, parte NE, afloramiento arenisco con zanjones

en formación de bosque achaparrado y árboles enanos, 1,380 m, 11–12 Feb. 1974, *Julian Steyermark, V. Carreño Espinoza & C. Brewer-Carias 108938* (holotype, VEN).

Arbor 2.5-metralis; foliolis 5 obovatis apice rotundatis emarginatisque basi cuneatim acutis 3–6 cm longis 1.5–2 cm latis subtus cinereis haud lepidotis valde revolutis; nervis lateralibus subhorizontalibus utroque latere 6–10; petiolis 1.3–2 cm longis glabris, petiolulis 2–3 mm longis glabris; pedicellis immaturis 4 mm longis; calycis tubo immaturo 5 mm longo apice 6 mm lato extus dense fusco-tomentoso intus sericeo; receptaculo conspicue glandulari; petalis immaturis dense fusco-sericeis.

Tree 2.5 m tall. Leaves 5-foliolate; leaflets obovate, rounded and emarginate at apex, cuneately acute at base, 3–6 cm long, 1.5–2 cm wide, grayish below, not lepidote below, 1.6–2.7 times longer than broad; lateral nerves subhorizontal, anastomosing near the margin, 6–10 each side, prominently impressed below, slightly sulcate above; tertiary venation prominent and impressed below. Petiole 1.3–2 cm long, 1.5–2.5 mm wide, glabrous, not lepidote; petiolules 2–3 mm long, glabrous, not lepidote. Pedicels (immature) 4 mm long, brown tomentose. Calyx (immature) 5 mm long, 6 mm wide at summit, densely brown stellate-tomentose without, tawny sericeous within. Receptacle (immature) prominently glandular. Petals in early bud densely brown sericeous.

This species is distinguished by the small size of the strongly revolute, apically rounded leaflets; cinereous nonlepidote lower leaf surface; and short petioles, petiolules, pedicels, and calyx. It is known only from the summit of the isolated Cerro Sari-sariñama.

ARALIACEAE

SCHEFFLERA

Schefflera simplex Steyermark & Holst, sp. nov.

TYPE: Venezuela. T. F. Amazonas: Cerro de La Neblina, ridge line on Venezuela–Brazil border, 1,900–2,100 m, 17 Apr. 1984, *Al Gentry & Bruce Stein 46694* (holotype, MO; isotype, VEN).

Arbor 6-metralis; foliis 4–5-foliolatis, foliolis oblongo-lanceolatis vel anguste elliptico-oblongis apice obtusis vel acutis, basi obtusis vel subobtusis 6.5–12 cm longis 2–5.5 cm latis supra praeter costam mediam minute pubescentem glabris subtus densissime velutinis; nervis lateralibus principalibus utroque latere 15–23; petiolulis inaequalibus 1–3 cm longis minute adpresso-pubescentibus; petiolis 9–14 cm longis minute adpresso-pubescentibus; inflorescentiis 2–4, brevipedunculatis, pedunculis sub anthesi 2.2–5 cm longis densissime tomentosis; inflorescentiis simplicibus solitariis capitatis, capitulis densi-

floris ca. 20-floris 9–12 mm longis 10–12 mm latis dense tomentosis; floribus sub alabastro sessilibus 2.5 mm longis dense pubescentibus; stylo 3-lobulato.

Tree 6 m tall. Leaves 4–5-foliolate; leaflets coriaceous, oblong-lanceolate to narrowly elliptic-oblong, obtuse to acute at apex, obtuse or subobtusate at base, 6.5–12 cm long, 2–5.5 cm wide, glabrous above except for the minutely pubescent midnerve becoming glabrous except at base, densely velutinous beneath; midrib elevated on both sides; principal lateral nerves 15–23 each side, 4–6 mm apart, extending to margin, subhorizontally spreading to slightly ascending at an angle of 10–20°, subsulcate above; tertiary venation subsulcate, subreticulate above. Petioles 9–14 cm long, 2.5–3 mm wide, minutely appressed-tomentulose. Petiolules unequal, 1–3 cm long, 2–2.5 mm wide, bicarinate above, minutely tomentulose. Peduncles 2–4, in anthesis 2.2–5 cm long, 3–4 mm wide, densely buff-tomentose; inflorescence simple, solitary, capitate, each one terminating a peduncle; heads densely ca. 20-flowered, 9–12 mm long, 10–12 mm wide, densely tomentose. Bracts subtending inflorescence deltoid-ovate, acute, 3–4 mm long, 2.5 mm wide at base, densely gray-buff tomentose without, glabrous within. Flowers in bud 2.5 mm long; calyx teeth acute, unequal, tomentose without, glabrous within; petals 2.5 mm long, 1.7–2 mm wide, ventrally carinate; style 1, shortly 3-lobulate.

This species is unusual among the Venezuelan Guayana taxa of *Schefflera* in having the inflorescence consisting of solitary heads terminating unbranched, short peduncles. *Schefflera globulifera*, a related taxon with capitate flowers, has a long-pedunculate inflorescence with the heads arranged in one or more verticils.

Schefflera yutajensis Steyermark & Holst, sp. nov.

TYPE: Venezuela. T. F. Amazonas: Dept. Atures, valley of Río Coro-Coro, west of Seranía de Yutaje, E base of forested mountain 5 km W of river, 5°41'N, 66°9'30"W, 1,100 m, 11 Mar. 1987, *Bruce K. Holst & Ronald L. Liesner 3426* (holotype, MO; isotype, MO).

Arbor 28-metralis; foliis 6–7-foliolatis, foliolis oblongo-lanceolatis vel late elliptico-oblongis apice abrupte breviter caudato-acuminatis, basi obtusis vel subobtusis 15–25 cm longis 7–12 cm latis supra glabris subtus minute densissimeque breviter sericeis; petiolulis inaequalibus 3–9 cm longis minute denseque breviter sericeis; petiolis maturis 49–50 cm longis 6 mm latis dense breviter sericeis; inflorescentiis late racemoso-paniculatis, pedunculis inclusis sub anthesi 15 cm longis 10–12 cm latis sub fructu 22–25 cm longis 14–25 cm latis, axibus lateralibus primariis

late divaricatis sub anthesi 5–11 cm longis sub fructu 6–15 cm longis racemose dispositis 15–30 umbellas simplices 10–20-flores gerentibus, omnino ferrugineo-sericeo-tomentellis; axibus umbelliferis sub alabastro 6–9 mm longis 1 mm latis sub fructu 3–6 cm longis; floribus sub alabastro subsessilibus 0.5 mm longis sub fructu 4–6 mm pedicellatis; inflorescentiarum pedunculis rachidibus axibus pedicellis minute denseque ferrugineo-sericeo-tomentellis; bracteis sub axibus primariis late lanceolato-ovatis acuminatis 3–5 mm longis extus dense ferrugineo-sericeo-tomentellis; stylis sub fructu 5; fructibus globosis in sicco conspicue 5-carinatis maturis 1.5×1.5 cm praeter apicem minute pubescentem glabris.

Tree 28 m tall, the bark slightly rough with longitudinal rows of elevated brown lenticels and widely separated petiolar scars. Leaves 6–7-foliate; leaflets coriaceous, dark green and shining above, bright copper-colored below when young, turning gray in age, oblong-lanceolate to broadly elliptic-oblong, abruptly short caudate-acuminate at apex, obtuse to subobtuse at base, 15–25 cm long, 7–12 cm wide, glabrous above, minutely and densely ferruginous-sericeous beneath. Lateral nerves 8–11 each side, forking 5–16 mm before reaching the margin. Petiolules unequal, 3–9 cm long, minutely and densely ferruginous-sericeous. Petioles of mature leaves 49–50 cm long, 6 mm wide, densely and minutely ferruginous-sericeous. Inflorescence paniculately branched with 10–13 widely spreading primary axes bearing 15–30 racemously arranged, simple umbels, each of these 10–20-flowered; inflorescence pedunculate, including the peduncle, 15 cm long, 10–12 cm wide in anthesis, 22–25 cm long, 14–25 cm wide in fruit, the peduncular portion 7.5 cm long in anthesis, 14–15 cm long in fruit, all parts of the inflorescence and infructescence densely ferruginous-sericeous. Primary lateral axes alternate to subverticillate, widely spreading, 5–11 cm in bud, 6–15 cm long in fruit; bracts subtending primary axes broadly lance-ovate, acuminate, 3–5 mm long, ferruginous-sericeous, umbelliferous secondary axes 6–9 mm long, 1 mm wide in bud stage, 3–6 cm long, 1–2 mm wide in fruit; umbels simple, 10–20-flowered. Flowers (staminate) subsessile in bud, 4–6 mm-long pedicellate in fruit; calyx in bud shallowly 5-denticulate, the teeth deltoid, acute, densely ferruginous-sericeous. Styles 5, in fruit spreading over the summit and appressed, 1 mm long. Fruit pale green when mature, globose, sharply 5-carinate when dried, 1.5×1.5 cm, the apex minutely pubescent, elsewhere glabrous, 5-celled.

Schefflera yutajensis of Territorio Federal Amazonas is allopatric with *S. quinquecarinata* Steyermark of eastern Venezuelan Guayana, having similar 5-carinately angled fruits with 5 styles and

a paniculately branched inflorescence. The former differs by having the primary axes bearing numerous racemously arranged many-flowered umbels, fruiting pedicels 4–6 (vs. 18–25) mm long, mostly glabrous (vs. tomentose) fruits, obtuse or subobtuse leaflet bases, and oblong-lanceolate or elliptic-oblong leaflets. The species inhabits seasonally dry, evergreen forested slopes of the Serranía Yutaje.

GENTIANACEAE

SYMBOLANTHUS

Symbolanthus huachamacariensis Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: Cerro Huachamacari, diagonal ledge, cumbre, 1,700 m, 4 Dec. 1950, B. Maguire, R. S. Cowan & John J. Wurdack 29859 (holotype, VEN; isotype, NY).

Planta herbacea 1-metralis, caulibus quadrangularibus; foliorum laminis lanceolato-ellipticis apice tenuiter acuminatis basi longiattenuatis cuneatis, majoribus 8.5–14.5 cm longis 3–5 cm latis; nervis lateralibus principalibus utroque latere duobus; petiolis 10–17 mm longis; bracteis sub pedicellis subulatis 9–13 mm longis 1–1.5 mm latis; calyce 30–32 mm longo, lobis lanceolatis acuminatis vel breviter caudatis sub anthesi 25–27 mm longis sub fructu usque ad 35 mm longis basi 10 mm latis; corolla hypocrateriformi 5.2–5.5 cm longa, tubo 3–4 cm longo 8–10 mm lato; lobis late ovato-suborbicularibus acutis 15–17 mm longis prope basin 15 mm latis.

Perennial herb 1 m tall. Stems quadrangular. Leaf blades lance-elliptic, slenderly acuminate at apex, long-attenuate cuneate at base, long-petiole, the larger 8.5–14.5 cm long, 3–5 cm wide; main lateral nerves 2 on each side, the uppermost pair arising about $\frac{1}{3}$ of the length of the leaf blade above its base; midrib and lateral nerves inconspicuous, at most impressed. Petiole 10–17 mm long. Flowers 2, terminal; pedicels slender, 15–35 mm long. Bracts at base of pedicels subulate, caudate at the apex, 9–13 mm long, 1–1.5 mm wide. Calyx 30–32 mm long, the lobes lanceolate, acuminate, or shortly caudate, 25–27 mm long in anthesis, elongating in fruit to 35 mm with caudate tips, 10 mm wide near the base. Corolla magenta-rose red with purple lines in the white throat, salverform, 5.2–5.5 cm long, the tube 3–4 cm long, 8–10 mm wide; lobes broadly ovate-suborbicular, acute, 15–17 mm long, 15 mm wide near the base. Anthers, including the subulate appendage, 7–8 mm long. Ovary lance-ovate, 11 mm long, 5 mm wide, with 5 squamellate truncate scales 1.5 mm long, 1.2 mm wide at base of ovary; style 3 cm long; stigmas ovate, obtuse, 3 mm long.

Paratype. VENEZUELA. T. F. AMAZONAS: Cerro Huachamacari, upper escarpment, 3 Dec. 1950, *Maguire, Cowan & Wurdack 29801* (NY, VEN); above diagonal ledge, Cerro Huachamacari, Camp II to escarpment and return, 1,200–1,500 m, 5 Dec. 1950, *Maguire, Cowan & Wurdack 29879* (NY, VEN).

This species is distinguished in having attenuate-acuminate calyx lobes that attain $\frac{2}{3}$ – $\frac{3}{4}$ the length of the corolla tube, and in having a relatively small, tubular corolla.

Symbolanthus yaviensis Steyermark, sp. nov.

TYPE: Venezuela. T. F. Amazonas: Dept. Atures, summit of Cerro Yaví, headwaters of Río Parucito, eastern affluent of Río Manapiare, 5°43'N, 65°52'W, 100 m, 24 Oct. 1986, *Otto Huber 11849* (holotype, MO; isotype, VEN).

Suffrutex 1–1.5-metralis, caule quadranguli 4–4.5 mm diam. glabro; foliorum laminis elliptico-ovatis apice subacutis basi cuneatim acutis 3–3.8 cm longis 1.2–1.6 cm latis ubique glabris; nervis lateralibus utroque latere duobus subtus elevatis in parte inferiori $\frac{1}{4}$ laminae exorientibus; petiolis 6–7 mm longis; floribus terminalibus solitariis, pedicello 6 mm longo; calyce 18 mm longo, tubo 4 mm longo 10 mm lato, sepalis late ovatis apiculatis appendice 0.2 mm longa praeditis, 15 mm longis 14 mm latis, marginibus scariosis integerrimis; corolla parte inferiori $\frac{2}{3}$ pallido verde, tubo intus roseato, lobis cremosis, late infundibuliformi 6.4 cm long (tubo 4.7 cm longo, parte basali angusta 12 mm longa 5 mm lata; lobis suborbicularibus minute cuspidatis 17 mm longis in medio 21 mm latis); tubo staminali 17 mm longo supra basin corollae 10–11 mm longo inserto, libero 5–6 mm; filamentis paullo inaequalibus 3–3.5 cm longis glabris, squamis late ligulatis apice truncatis late 2-denticulatis 4 × 4 mm; antheris 7 mm longis, appendicibus 0.5 mm longis; stylo 3.8 cm longo; ovario lanceolato-ovideo 9 mm longo 4.5 mm lato.

Suffruticose plant with subherbaceous stems, 1–1.5 m tall; stems quadrangular, 4–4.5 mm diam., glabrous. Leaves short-petiolate; leaf blades firmly membranous, elliptic-ovate, subacute at apex, cuneately acute at base, 3–3.8 cm long, 1.2–1.6 cm wide, glabrous both sides, decurrent; midrib sulcate above, elevated below; lateral nerves 2 on each side, arising within the lower $\frac{1}{3}$, elevated below, obsolescent above; tertiary venation obscure or obsolescent. Petioles 6–7 mm long. Flowers terminal, solitary; pedicel 6 mm long, 3 mm wide. Calyx 18 mm long; tube 4 mm long, 10 mm wide; sepals broadly ovate, apiculate with a minute appendage 0.2 mm long, 15 mm long, 14 mm wide, scarious-margined, entire. Corolla pale green in lower $\frac{2}{3}$, roseate within, creamy white on lobes, broadly infundibuliform, 6.4 cm long (tube and limb 4.7 cm long, the constricted basal portion 12 mm long, 5 mm wide; lobes depressed-suborbicular,

minutely cuspidate, 17 mm long, 21 mm wide at middle). Staminal tube 17 mm long, attached 10–11 mm above the base of the corolla tube, free 5–6 mm above the attachment; filaments somewhat unequal, the longer ones 3.5 cm long, the shorter 3 cm long, glabrous. Squamellate scales at base of filaments broadly ligulate, 2-denticulate at the truncate summit, 4 mm long, 4 mm wide. Anthers curved, 7 mm long, 1.7–1.8 mm wide, dorsifixed in the lower $\frac{1}{3}$, terminating in an attenuate appendage 0.5 mm long. Ovary lance-ovoid, 9 mm long, 4.5 mm wide; squamellate scales at base of ovary truncate, 1.5 mm long; style 3.8 cm long; stigmas ovate, 3 mm long.

From *Symbolanthus sessilis* Steyermark & Mag. of the Meseta de Jaua (Cerro Sarisariñama) of Estado Bolívar, Venezuela, this species differs in the smaller corolla, calyx, and leaves; shorter pedicels; entire calyx margins; corolla color; and leaf shape. It is distinguished from *S. calygonus* (R. & P.) Griseb. by the smaller corolla, calyx, and leaves; shorter pedicels and petioles; and minutely mucronate corolla lobes.

RUBIACEAE

REMIJIA

Remijia sessilis Steyermark, sp. nov. TYPE: Venezuela. T. F. Amazonas: southwest side of Cerro de La Neblina, hills 2.5 km SW of Base Camp, 00°49'N, 66°10'W, 400–500 m, 20 Feb. 1985, *M. Nee 30967* (holotype, MO; isotypes, NY, VEN). Figure 9.

Frutex 2-metralis, ramulis petiolis foliorum laminisque longihirsutis pilis brunneis praeditis; petiolis alatis inflatis bulliformibus 2.5–3 cm longis; laminis supra rugosis late obovatis apice breviter acuminatis basi conspicue attenuatis 36 cm longis 16 cm latis utrinque longihirsutis pilis 2.5–4.5 mm longis; nervis lateralibus utroque latere 13–14; inflorescentia sessili dense multiflora 2 cm longa 1.5–2 cm lata; floribus sessilibus; calycis tubo tubuloso-campanulato 3.5–5 mm longo 3.5–5 mm lato extus hirsuto, lobis lato triangularibus attenuatis 1–1.2 mm longis hirsuto-ciliatis; hypanthio obconico 5 mm longo 2–2.5 mm lato dense brunneo-hirsuto; capsulis loculicide dehiscentibus, valvis lineari-oblongis 3.2–3.8 cm longis 5–11 mm latis extus hirsutis intus glabris.

Hollow-stemmed shrub 2 m tall, the branches brown-hirsute. Petioles winged, inflated-bladdery, 2.5–3 cm long with long, brown hairs. Leaf blades rugose, especially above, firmly membranous, broadly obovate, shortly acuminate at apex, conspicuously attenuate to the base, 36 cm long, 16 cm wide, brown hirsute with spreading hairs 2.5–4.5 mm long; lateral nerves 13–14 each side. Inflorescence sessile, densely many-flowered, 2 cm

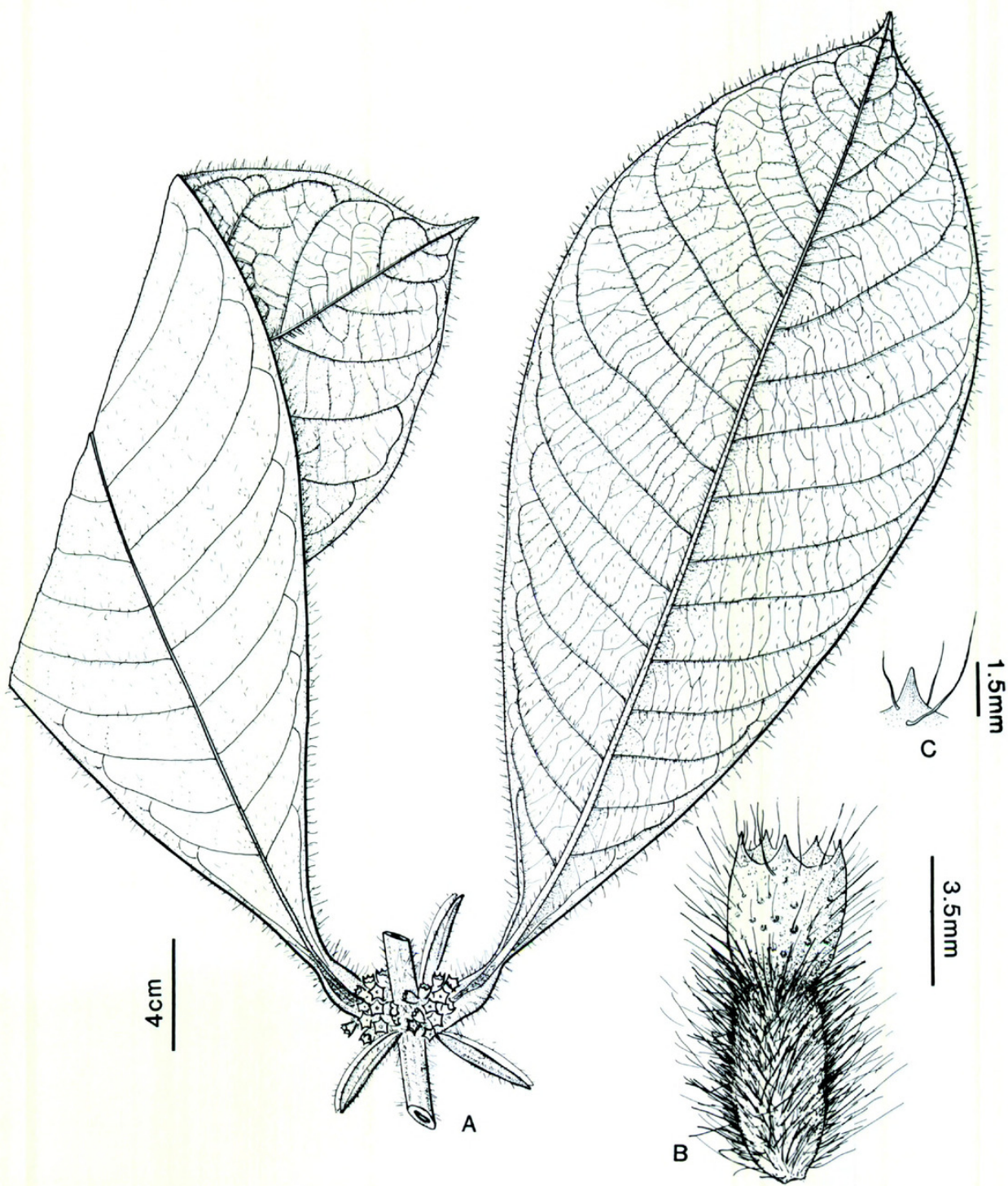


FIGURE 9. *Remijia sessilis*.—A. Portion of stem with infructescence.—B. Calyx and hypanthium in post-anthesis.—C. Calyx lobe.

long, 1.5–2 cm broad; flowers sessile, 12–15 in each cluster between the stem and base of petiole. Calyx tube campanulate, 3.5–5 mm long, 3.5–5 mm wide, brown hirsute with spreading hairs; lobes 5, broadly triangular, attenuate, 1–1.2 mm long, hirsute-ciliate. Hypanthium obconic, 5 mm long, 2–2.5 mm wide, densely brown hirsute. Capsules loculicidally dehiscent, the valves linear-oblong,

3.2–3.8 cm long, 5–11 mm wide, short-hirsute without, glabrous within.

This species is unique in the genus in having a congested, sessile inflorescence. It strongly simulates *Remija physophora* Benth. ex Schum. of the Río Vaupes, Colombia, in the conspicuous, long, brown-hirsute pubescence of the stem, petiolar leaf

blades, and calyx, as well as shape of leaves and bladderiform, inflated petioles, but that taxon has conspicuously long-pedunculate, shortly cymosely branched inflorescences with scattered flowers. The calyx lobes of *R. sessilis* are also relatively shorter and more broadly deltoid. Except for the differences in the inflorescence, the two taxa are strikingly similar.

SIMIRA

Simira ignicola Steyermark, sp. nov. TYPE: Venezuela. Bolívar: Dist. Cedeño: shaded canyon on igneous cerro, 1 km S of Quebrada La Flore, affluent of Río Ore, affluent of Río Paragaza, 6°17'N, 67°5'W, 85 m, 9 Sep. 1985, Steyermark, Holst & Manara 131659 (holotype, MO; isotype, VEN).

Arbor 15-metralis, foliis ovato-ellipticis apice acuminatis base cordatis 17–19 cm longis 11 cm latis subtus dense tomentosis, nervis lateralibus utroque latere 15–16; petiolis 12–16 mm longis dense tomentosis; inflorescentia trichotome cymosa, pedunculo 2–2.3 mm longo sparsim pubescenti; calyce hypanthioque in alabastro 2.5–3 mm longo; lobis calycinis 4 suborbicularibus; corolla in alabastro 3–3.2 mm longa 4-lobata extus minute hirtella.

Tree 15 m tall, the wood dull rose when cut. Leaves subcoriaceous, rugose above, dull green

below with elevated nerves. ovate-elliptic, acuminate at apex, cordate at base, 17–19 cm long, 11 cm wide, glabrous above, soft tomentose below, densely so on midrib and lateral nerves; lateral nerves 15–16 each side, slightly ascending at an angle of 25–45°, terminating near the margins without forming any common anastomosing nerve; tertiary veins subsulcate above. Inflorescence terminal, cymosely trichotomous with 3 main axes, 5–5.5 cm long, 5–6.5 cm broad; peduncle 2–2.3 cm long, 3–3.5 mm wide, sparsely pubescent; lower main axes 2.5–3 cm long, densely brown tomentose, the upper main axes 1.5 cm long, densely brown tomentose; ultimate axes 3–6-flowered. Calyx and hypanthium 2.5–3 mm long in bud; calyx 4-lobed, the lobes suborbicular, rounded, ciliate. Hypanthium 2 mm long, 1–1.2 mm wide, subclavate, minutely hirtellous without. Corolla urceolate, 3–3.2 mm long in bud, 4-lobed, minutely hirtellous without. Stamens 4; anthers oblong. Style 2 mm long in bud, glabrous.

The small flowers and the leaf shape resemble *Simira cordifolia*, but the leaf blades and petioles are densely pubescent. From *S. rubescens* the new taxon differs in the pubescence of leaves and floral parts.



Steyermark, Julian A. 1988. "Flora of the Venezuelan Guayana-V." *Annals of the Missouri Botanical Garden* 75, 1058–1086. <https://doi.org/10.2307/2399380>.

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