

FLORA OF THE VENEZUELAN GUAYANA—II

JULIAN A. STEYERMARK¹

ABSTRACT

A total of 18 species, four subspecies, and one variety are newly described from the Venezuelan Guayana, nearly one-half of them originating from Cerro Marahuaca of Territorio Federal Amazonas, while the others are from Cerro de la Neblina, Guaiquinima, Huachamacari, Auyan-tepui, Ptari-tepui, and Sipapo. The following new taxa are included: *Brocchinia oliva-estevae* (Bromeliaceae); *Peperomia gentryi*, *P. marahuacensis*, and *Piper gentryi* (Piperaceae); *Euphronia acuminatissima* (Vochysiaceae); *Ilex liesneri* (Aquifoliaceae); *Sauvagesia marahuacensis*, *S. guianensis* subsp. *sipapoensis* and subsp. *guaiquinimensis* (Ochnaceae); *Bonnetia bolivarensis*, *B. guaiquinimae*, *B. ptariensis*, and *B. tristyla* subsp. *nervosa* (Theaceae); *Lissocarpa stenocarpa* (Lissocarpaceae); *Chomelia stergiosii*, *Coccocypselum croatii*, *Pagameopsis maguirei* subsp. *neblinensis* var. *pirapucuensis* and subsp. *pusillus*, *Psychotria guanchezii* and *P. ronaldii*, *Schradera marahuacensis*, and *Sipanea setacea* (Rubiaceae); and *Gongylolepis terramarae* (Compositae). A reevaluation of *Euphronia* gives evidence for the maintenance of three species, instead of one as previously treated by Lleras, and provides a key to the known species. A study of the variation in *Sauvagesia guianensis* (Ochnaceae) reveals the occurrence of five morphologically closely related but geographically separated subspecies isolated on different sandstone table mountains. A key to the subspecies and the newly described *Sauvagesia marahuacensis* is provided, as well as a key to the newly described species of *Bonnetia*.

BROMELIACEAE

Brocchinia oliva-estevae Steyermark & Lyman B. Smith, sp. nov. TYPE: VENEZUELA. Bolívar: summit of Auyan-tepui, extreme north end above Angel Falls, Dec. 1984, *Francisco Oliva Esteva s.n.* (holotype, VEN). Figure 1.

Planta parva caulescens florifera 3.7 dm alta, caule erecto folioso 13 cm alto; foliorum laminis majoribus ligulato-lanceolatis acutis mucronatis 10 cm longis, 1.7–1.8 cm latis, inferioribus ovatis acuminatis 1.5–2.8 cm longis, 1–1.4 cm latis, ca. 10-nervatis, nervis paullo obscuris; scapo folioso, scapi bracteis lanceolato-ligulatis 6–8 cm longis, 1.4–1.7 cm latis; inflorescentia erecta laxe bipinnatim paniculata 2.1 dm longa tenui, rhachidi sparsim brunneo-furfuracea oblecta, axibus lateralibus gracillimis racemosis brevibus 3.5–6 cm longis, quoque axe 15–17-flora; bracteis primariis ad 3 cm longis, 0.8 cm latis; bracteis florigeris lanceolatis acutis vel acuminatis 3–3.5 mm longis, 0.7 mm latis; floribus adscendentibus brevipedicellatis, pedicellis 1–2 mm longis minute furfuraceis; petalis albidis lanceolatis subacutis vel obtuse acutis haud unguiculatis 3 mm longis, 1 mm latis; antheris suborbiculari-oblongis 0.5 mm longis; ovario inferiore subclavato-cylindrico 3 mm longo; ovulis extremitatibus appendicibus caudatis.

Caulescent, small, herbaceous plant, flowering 3.7 dm tall; stem erect, 13 cm tall. Leaves ascending, pale dull green both sides with about 10 parallel, slightly darker longitudinal lines becoming bronzy where entering sheath, submembranous, flexible, concave above, convex below,

not contracted at base, the larger ones ligulate-lanceolate, acute, mucronate, 10 cm long, 1.7–1.8 cm wide, lower leaves ovate, acuminate, 1.5–2.8 cm long, 1–1.4 cm wide, the upper ones longer than the internodes, minutely pale lepidote. Scape foliose, scape bracts lanceolate-ligulate, 6–8 cm long, 1.4–1.7 cm wide. Inflorescence erect, laxly bipinnately paniculate, 2.1 dm long; rachis slender, covered with a scattered brown furfuraceous indument, with 5 short, racemose, lateral axes 3.5–6 cm long, each axis 15–17-flowered, the uppermost part of the inflorescence elongated to 10 cm; primary bracts subtending the lower three axes ascending, lanceolate, acute, 3 cm long, 0.8 cm wide, entire; floral bracts lanceolate, acute to acuminate, 3–3.5 mm long, 0.7 mm wide at the base. Flowers shortly pedicellate, pedicels 1–2 mm long, minutely furfuraceous. Sepals pale green, lanceolate, acute, 3–4.5 mm long, 1 mm wide, dorsally sparsely furfuraceous in lower half. Petals white, lanceolate, subacute or obtusely acute, not unguiculate, 3 mm long, 1 mm wide. Anthers suborbicular-oblong, 0.5 mm long, basally bilobed; filaments white, 1.2 mm long. Ovary inferior, pale green, subclavate-cylindric, 3 mm long, 1 mm wide at summit, 0.7 mm wide at base, pale brown furfuraceous; ovules caudate-appendaged at both ends.

This species of *Brocchinia* is characterized by its bipinnate inflorescence with lepidote, simple,

¹ Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299.

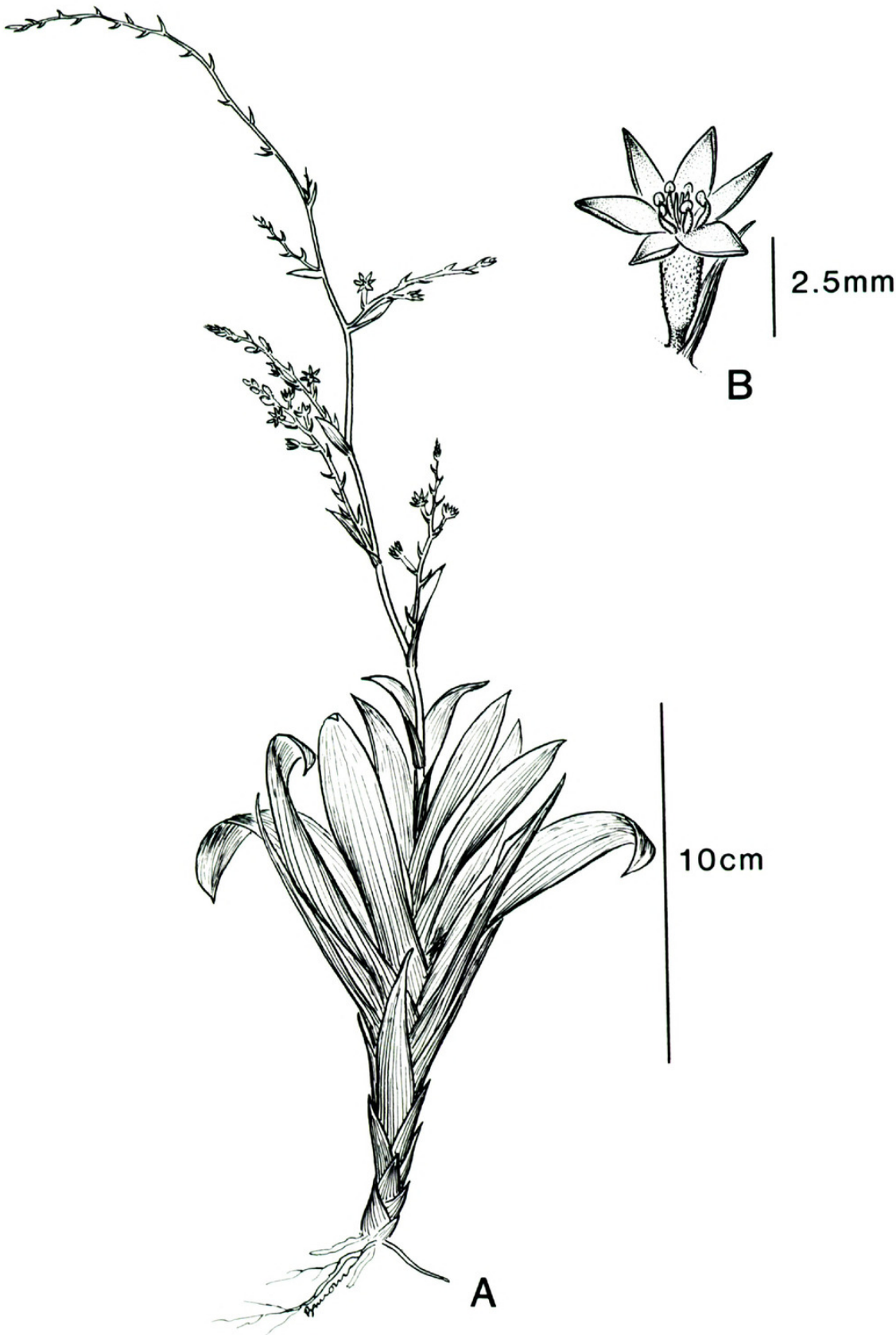


FIGURE 1. *Brocchinia oliva-estevae*. —A. Habit.—B. Flower with bract.

racemose axes, primary bracts extending from $\frac{1}{4}$ to $\frac{1}{2}$ the length of the rachis, shortly pedicellate flowers, non-unguiculate petals, and narrow submembranous, slightly nerved, short leaves only 10 cm long by 1.8 cm wide, which are not contracted toward the base. It is most closely related to *B. cowanii* L. B. Smith of Cerro Moriche, Terr. Fed. Amazonas, Venezuela, in having a bipinnate inflorescence with non-unguiculate petals, but differs from that taxon in the scape bracts shorter than the internodes and in the shorter sepals and petals.

It is a pleasure to name this interesting species for Mr. Francisco Oliva Esteva, Venezuelan landscape architect, an avid student of Bromeliaceae, and author of several books on ornamental plants of Venezuela.

PIPERACEAE

Peperomia marahuacensis Steyerl., sp. nov.

TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, summit, in a zanjón, "Sima" south and southeast of Summit Camp, $3^{\circ}37'N$, $65^{\circ}23'W$, 2,520–2,620 m, 26–27 Feb. 1985, *Julian A. Steyermark & Bruce Holst 130742-A* (holotype, MO; isotype, VEN). Figure 2C.

Herba effusa; caulibus elongatis 8 dm longis, 2.5–3 mm latis praeter apices dense pubescentes ramorum juvenalium sparsim puberulis; foliis alternis orbiculari- vel triangulari-ovatis apice acuminatis basi truncatis vel late rotundatis, majoribus 3–4.5 cm longis, 2.5–4 cm latis, palmatim 5-nervis, nervis tribus conspicuis nervis duobus lateralibus inconspicuis, supra nervis principalibus pilosulis, demum glabris, subtus nervis sparsim pilosulis pilis patentibus 0.2–0.5 mm longis ceterum glabris vel glabratis, marginibus parte suprema $\frac{1}{4}$ – $\frac{1}{2}$ ciliolatis ceterum glabris; petiolis 5–20 mm longis, laminis 2–3-plo brevioribus pilosis.

Sprawling herbaceous plant with stems elongated to 8 dm, 2–3 mm diam., sparsely puberulous except at the densely pubescent younger tips. Leaves alternate, orbicular- to triangular-ovate, acuminate at apex, truncate or broadly rounded at base, larger blades 3–4.5 cm long, 2.5–4 cm wide, palmately 5-nerved with 3 of them conspicuous and 2 lateral nerves faint, glabrous on the upper surface except pilosulous along the main nerves, lower surface glabrous or glabrate, but the nerves sparsely pilosulous with spreading hairs 0.2–0.5 mm long; leaf margins ciliolate in the uppermost $\frac{1}{4}$ – $\frac{1}{2}$, elsewhere glabrous; petioles 5–20 mm long, $\frac{1}{3}$ – $\frac{1}{2}$ length of leaf blade, pilose.

From the related *P. foveolata* Steyerl. of Cerro de la Neblina, the new taxon differs in the palmately five-nerved leaves, which are pubescent along the nerves of the upper and lower surfaces, and in the shorter, pubescent petioles, which are proportionately shorter in relation to the length of the leaf blade. Compared with *P. peltoides* Kunth, it differs in the non-peltate, non-sulcate leaves with pilosulous nerves on the upper surface, but mainly glabrous below on the leaf surface itself, with leaf margins ciliolate only in the uppermost $\frac{1}{4}$ – $\frac{1}{2}$, and in the petioles shorter than the leaf blades.

Peperomia gentryi Steyerl., sp. nov. TYPE:

VENEZUELA. Territorio Federal Amazonas: Cerro de la Neblina, Camp V, valley north base of Pico Cardona, $0^{\circ}49'N$, $66^{\circ}0'W$, 1,250 m, 21–24 Mar. 1984, *Ronald Liesner & Brian Stannard 16901* (holotype, MO; isotype, VEN).

Herba repens; foliis alternis late ovatis vel subrhombico-ovatis apice acutis vel subacutis basi truncatis vel late obtusis 4.5–9 cm longis, 3–5.5 cm latis a 5–11 mm infimis 5–7-plinerviis praeter margines superiores ciliatos glabris; spicis geminis 2–3.5 cm longis; drupis ellipsoideo-ovoideis rostratis.

Repent herb with elongated glabrous stems 2 mm diam.; internodes 4–9 cm long. Leaves alternate, broadly ovate to subrhombic-ovate, acute to subacute at apex, truncate to broadly obtuse at base, 5–7-plinerved, the innermost lateral nerves forking off the midrib within the lowermost 5–11 mm, 4.5–9 × 3–5.5 cm, moderately pilose-ciliate on the upper margins; petiole 3.5–7 cm long. Inflorescence with paired spikes; primary peduncle 2.8–5 cm long, minutely puberulent; secondary peduncle subtending the spike 1.5–2 cm long, sparsely puberulent basally or glabrous; spikes 2–3.5 cm long, 1.5–2 mm diam. Fruit basally attached, ellipsoid-ovoid, rostrate, the body 0.5 × 0.3 mm, the beak 0.2–0.3 mm long; stigma anterior near base of beak.

Paratype. Same locality as type, 12 Apr. 1984, *Gentry & Stein 46542* (MO, VEN). Figure 2A, B.

This species is related to both *P. distachya* and *P. schwackei*. From *P. distachya* (L.) A. Dietr. this species differs in the 5–7-plinerved broadly ovate to subrhombic-ovate leaves, which are acute to subacute instead of acuminate at the apex and truncate to broadly obtuse at the base.

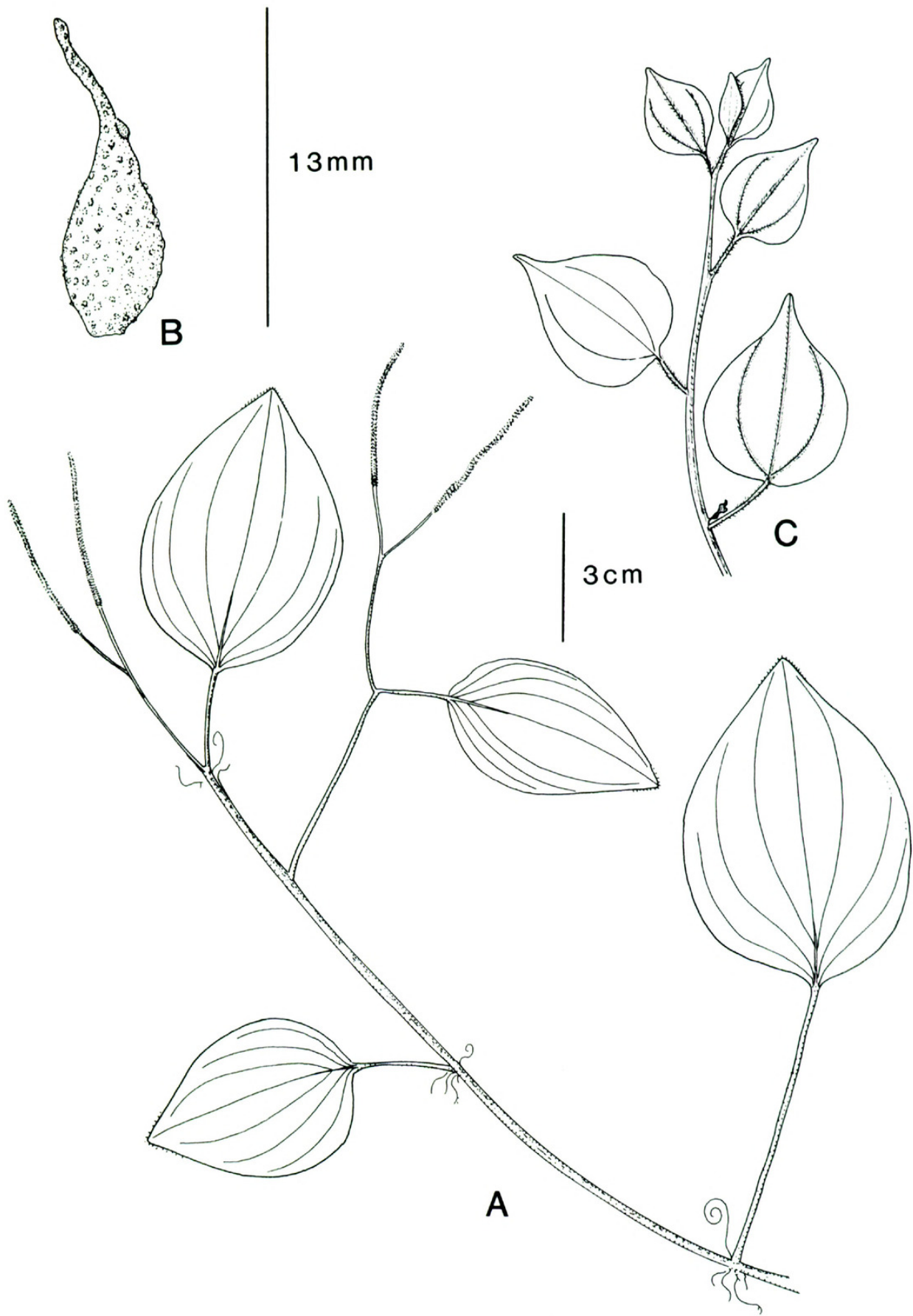


FIGURE 2. *Peperomia*. A, B. *P. gentryi*.—A. Habit.—B. Beaked fruit.—C. *P. marahuacensis*.—Habit.

From *P. schwackei* C. DC. of southern Brazil, it differs in the 5–7-plinerved, acute to subacute leaves and longer secondary peduncle, which supports the spike.

Piper gentryi Steyermark, sp. nov. TYPE: VENEZUELA.

Territorio Federal Amazonas: Cerro Neblina, trail due south from Base Camp, stunted swampy forest, alt. 140 m, 23 Apr. 1984, *Alwyn Gentry & Bruce Stein 46887* (holotype, MO).

Frutex 1.5-metralis, internodiis 2–3.5 mm diam. glabris; foliis grosse rugosis lanceolato-ellipticis vel oblongo-ellipticis apice acutis vel acuminatis basi subaequilateraliter acutis vel subacutis 17–22 cm longis, 5.5–7.5 cm latis supra glabris subtus ad nervos hirsutulis ceterum glabris, nervis lateralibus utroque latere 11–15 totis pinnatim venosis; petiolis 5–12 mm longis breviter hirsutulis; spicis 2 cm longis, 6–7 mm latis; pedunculis 3 mm longis glabris; bracteis floriferis fimbriatis.

Shrub 1.5 m tall, internodes 2–3.5 mm diam., glabrous. Leaves lance-elliptic or oblong-elliptic, acute to acuminate at apex, subequally acute or subacute at base, 17–22 cm long, 5.5–7.5 cm wide, broadest at the middle, pinnately nerved throughout to apex, glabrous above, punctate, glabrous below on leaf surface but hirsutulous with short, spreading hairs on the midrib and lateral nerves, grossly rugose both sides, venation sulcate above, elevated below, the areoles formed by the tertiary veins averaging 5–7 mm diam.; lateral nerves 11–15 each side, spreading at an angle of 15–20°, sulcate above, subelevated below, anastomosing at 5–10 mm from the margin; petioles 5–12 mm long, shortly hirsutulous, vaginate to the base of the blade. Spikes erect-ascending, 2 cm long, 6–7 mm wide; peduncle 3 mm long, 1 mm wide, glabrous, erect. Floral bracts triangular at the summit, 1.5 mm across the summit, ciliate on margins. Fruit round from above, depressed at summit, 2 mm diam., glabrous.

This species is related to *P. holtii* Trel. & Yuncker, from which it differs in the glabrous stems and peduncles, more numerous lateral nerves, and floral bracts conspicuously fimbriate.

VOCHYSIACEAE

A REEVALUATION OF THE GENUS *EUPHRONIA* (VOCHYSIACEAE)

In his publication on a revision and taxonomic position of the genus *Euphronia*, Lleras (1976)

showed that the generic name *Lightia* must be replaced by the earlier *Euphronia*. Furthermore, he transferred the genus from the Trigoniaceae, where it had been placed previously, to the Vochysiaceae, the family he considered as showing the closest affinity.

Although two species had previously been recognized under *Lightia* in Warming's treatment of the genus (1875), Lleras considered these taxa as constituting one variable taxon, which he designated *E. hirtelloides* Martius ex Martius & Zucc. His decision in considering this a polymorphic species was based on what he judged as extreme variability in leaf morphology and lack of geographical or other "consistency."

While preparing a taxonomic treatment for the flora of the Venezuelan Guayana, I have concluded that three distinct taxa are involved worthy of specific recognition. Consistent differences have been found in characters such as type of inflorescence, length of pedicels, apex of calyx lobes, and quality of pubescence present on the exterior of the calyx lobes and pedicels. Moreover, the three taxa demonstrate distinct geographical areas to which they are limited.

KEY TO THE SPECIES OF *EUPHRONIA*

- 1a. Calyx lobes caudate-acuminate, the exterior portion covered by a dense, uniform, appressed, lanuginose tomentum; inflorescence subfasciculate; flowers 1–6, crowded near the upper portion of the rachis; pedicels 7–8 mm long, nearly equaling the calyx, covered with an appressed lanuginose tomentum *E. acuminatissima*
- 1b. Calyx lobes acute, subobtusate, or subrotundate at apex, the exterior portion with loose, ascending to spreading hairs throughout or at least on midrib; flowers 3–23, racemose, the pedicels arising along an elongated rachis; pedicels 1.5–5 mm long, shorter than the calyx, with loosely ascending to spreading pubescence 2
- 2a. Floriferous portion of rachis usually conspicuously elongated beyond the leafy branch, mainly (7–)15–23-flowered, 4–10 cm long; leaf blades 4.5–7.5 cm long, mainly lance- to oblong-elliptic, generally acute to subacute at apex, 2–2.5 times longer than broad; calyx lobes (dried state) more or less uniformly gray-green; exterior of calyx lobes with loose sericeous or ascending hairs along midportion, elsewhere with shortly appressed tomentum *E. hirtelloides*
- 2b. Floriferous portion of rachis only shortly elongated, mainly 3–8-flowered, 1–4 cm long; leaf blades (0.6–)1.5–3(–4.8) cm long, mainly ovate to ovate-elliptic, gen-

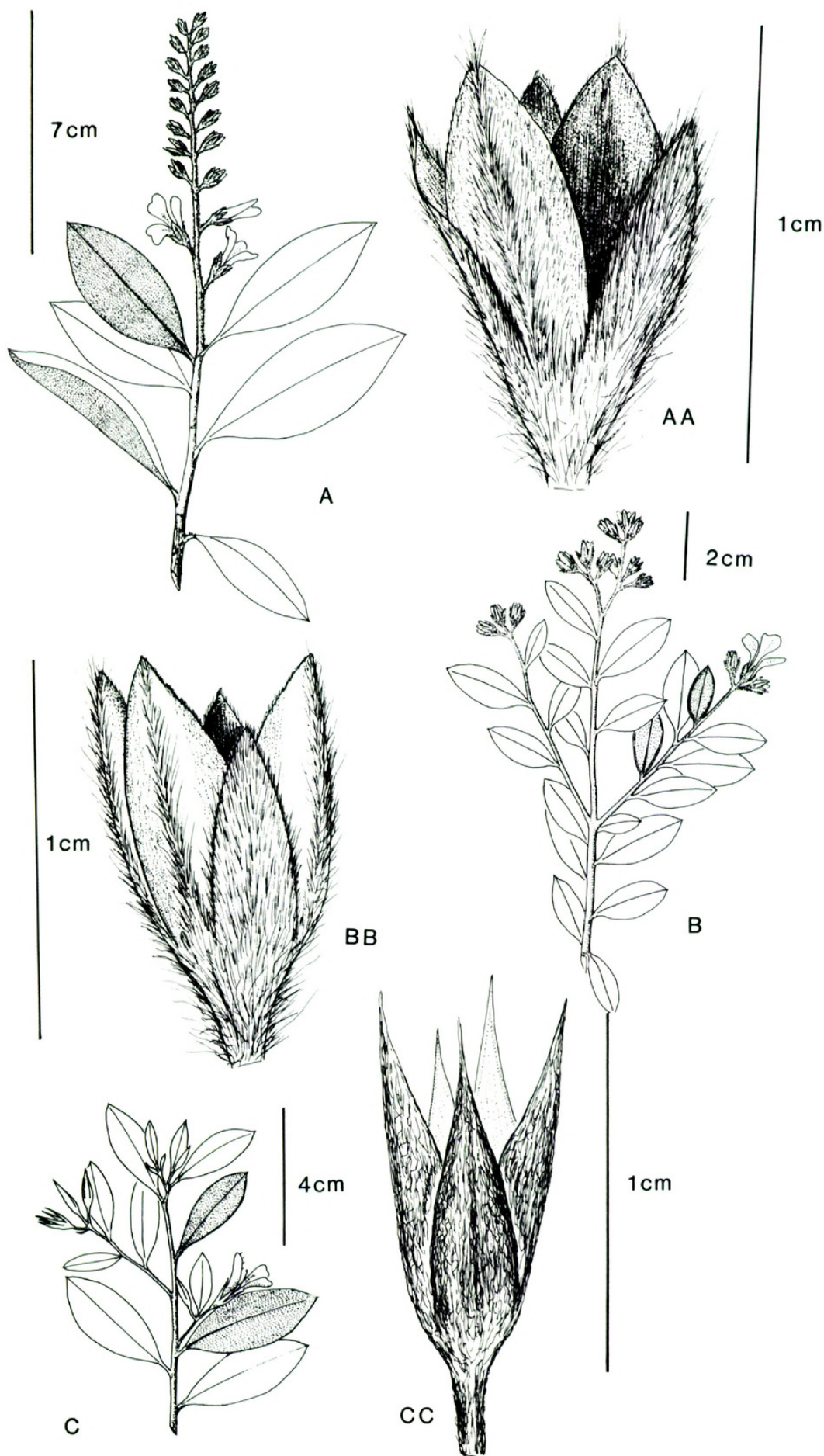


FIGURE 3. *Euphronia*.—A. *E. hirtelloides*.—A. Habit of flowering branch.—AA. Calyx.—B. *E. guianensis*.—B. Habit of flowering branch.—BB. Calyx.—C. *E. acuminatissima*.—C. Habit of flowering branch.—CC. Calyx.

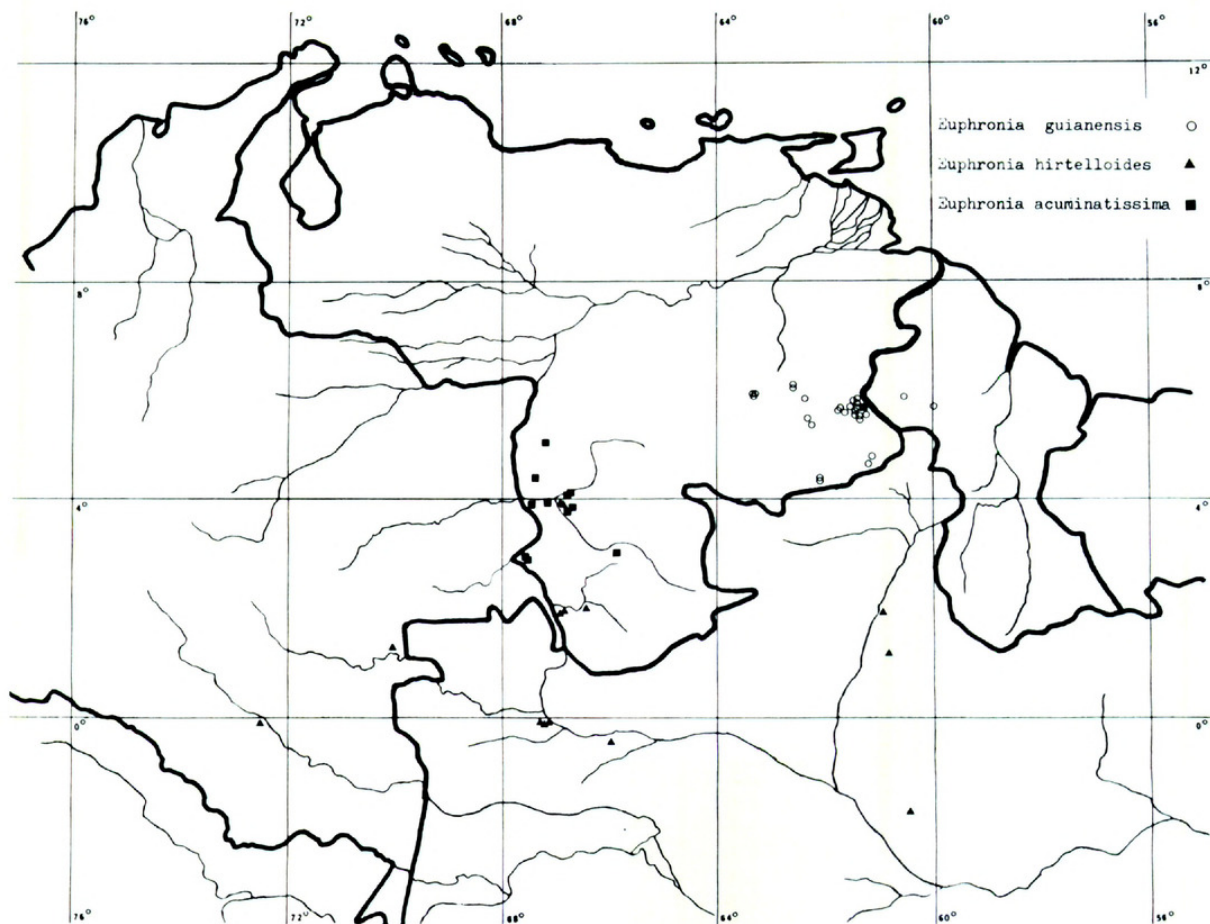


FIGURE 4. Map showing distribution of *Euphronia*.

erally rounded to obtuse at apex, 1.75–2 times longer than broad; inner calyx lobes (dried state) with conspicuous broad white borders; exterior of calyx lobes with dense, loosely ascending to spreading hairs over the entire surface *E. guianensis*

***Euphronia acuminatissima* Steyerl., sp. nov.**

TYPE: VENEZUELA. Territorio Federal Amazonas: Río Orinoco, Sabana Cumare on right bank of Caño Cumare, Río Atabapo, 20 km above San Fernando de Atabapo, 125–150 m, 5 Aug. 1959, *John J. Wurdack & L. S. Adderley* 43762 (holotype, MO; isotype, NY). Figures 3C, CC, 4.

Frutex vel arbuscula 0.2–5-metralis; foliis oblongo-ellipticis vel lanceolato-ellipticis apice rotundatis vel obtusis abrupte cuspidatis basi acutis vel subacutis 2–4.5 cm longis, 1–2 cm latis; inflorescentia subfasciculata plerumque (2–)3–6-flora pedunculata, pedunculo 7–8 mm longo; pedicellis 7–8 mm longis, indumento lanuginoso pilis adpressis munitis; calycis lobis anguste lanceolatis apice caudato-acuminatis 7–9 mm longis, indumento lanuginoso pilis adpressis munitis.

Subshrub to small tree 0.2–5 m tall; stems gray-white lanuginose, becoming glabrescent or

glabrous on older or lower portions. Leaves coriaceous, dark green above, white below, oblong-elliptic to lance-elliptic, rounded to obtuse at the abruptly cuspidate apex, acute to subacute at base, 2–4.5 cm long, 1–2 cm wide, 2.6–3 times longer than broad, gray-floccose above on young leaves, becoming glabrous on older leaves, white-pan-nose below; petioles 2–6 mm long, gray-white lanulose. Inflorescence terminal or axillary, subfasciculate, sessile or shortly pedunculate, (2–)3–6-flowered, the flowers crowded at or near the summit of the abbreviated rachis; peduncle 0.5–1 cm long, together with the rachis gray-white lanuginose. Bracts subtending pedicels subulate, caudate-acuminate, 3.5–4 mm long, 0.4–1 mm wide, lanuginose, more persistent than in other species. Pedicels 7–8 mm long, nearly equaling the calyx, densely gray-white lanuginose with appressed, more or less uniform indument. Calyx 10–12 mm long, densely gray-white lanuginose without, the hairs closely appressed; tube campanulate-turbinate, 2.5–4 mm long, 3–5 mm wide at summit; lobes narrowly lanceolate, tapering to a long caudate acuminate apex, 7–9 mm long,

1.5–2.5 mm wide, gray-white lanuginose without, minutely sericeous within. Petals lavender or lilac, spatulate, rounded at apex, unguiculate, (15–)18–23 mm long, (4–)6–9 mm wide near summit, 1.5 mm wide at or below middle, loosely pilose within along middle, glabrous elsewhere, sericeous without, bearing shorter hairs in upper portion, glabrous elsewhere. Anthers oblong, rounded, above bilobed basally, 2.5 mm long; filaments 9–11 mm long, the sterile one retrorsely pilose, the others glabrous. Style 10 mm long, antrorsely pilosulous. Fruit cylindric, 13–14 mm long, gray-white lanuginose.

Distribution. Mainly on white sand savannas of the Territorio Federal Amazonas, Venezuela, at altitudes of 100–150 meters.

Paratypes. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Río Guainía, Sabana El Venado, left bank of Caño Pimichín, 2 km above Pimichín, 120–140 m, 10 Oct. 1957, *Maguire, Wurdack & Keith 41813* (MO, NY); same locality, *Maguire & Wurdack 35638* (NY); base of Cerro Yapacana, 125–130 m, *Maguire, Cowan & Wurdack 30479-A, 30509* (NY); Bajo Río Ventuari, alrededores de Canaripó, a unos 20 km al E de la confluencia con el Río Orinoco, 4°03'N, 66°49'W, 98 m, *Huber 1070, 1877* (NY, VEN); Río Ventuari, frente al caserío de Canaripó, 4°09'N, 66°50'W, 100 m, *Huber 2441* (NY, VEN); Río Orinoco, poco más río abajo de Santa Barbara, 4°02'N, 67°15'W, 100 m, *Huber 2471* (NY, VEN); E del Caño Perro de Agua, a unos 30 km al SE de la confluencia Orinoco-Ventuari, 3°47'N, 67°00'W, 100 m, *Huber & Tillett 2824* (NY, VEN); 10 km al S del Río Autana, 15 km al SW del Cerro Autana, 4°44'N, 67°33'W, 100 m, *Huber 4063* (NY, VEN); Caño San Miguel between Limoncito and Caño Ikebeme (about 70 km from river mouth), 100–140 m, *Wurdack & Adderley 43249* (NY); middle Caño Yagua, NE and E base of Cerro Cucurito, 3°36'N, 66°34'W, *Huber & Tillett 2925* (VEN); 20 km NW of Yavita, headwaters of Caño Pimichín, 3°1'N, 67°33'W, 120 m, *Huber & Medina 5947* (VEN); 4 km west of Serranía del Cuao, 4°59'N, 67°32'W, *Huber & Tillett 5293* (VEN); Río Sipapo, 4–6 km downstream from mouth of Río Guayapo, 4°32'N, 67°36'W, 90–100 m, *Guanchez 2571* (MO, TFAV); 15–20 km S of Tama-Tama, 90 m, *Guanchez 2021* (MO, TFAV). BOLIVAR: Uarupata, *Maguire 33282* (NY).

This species differs markedly from both *E. hirtelloides* and *E. guianensis* in the longer, caudate-acuminate calyx lobes and fewer-flowered, subfasciculate inflorescence with longer pedicels. The pubescence, moreover, is quite different from either of the other species, with both pedicels and the exterior of the calyx lobes covered by a short, appressed, finely lanuginose indument, the other two taxa having a pubescence of longer, loose, spreading to ascending hairs on the ped-

icels and on a part or whole of the outer surface of the calyx lobes.

Euphronia guianensis (R. H. Schomb.) H. Hallier, *Meded. Herb. Leid.* 35: 13. 1918, in obs.: *Lightia guianensis*. *Lightia guianensis* Schomb. in *Linnaea* 20: 757. 1847; Warm. in *Martius's Flora Brasiliensis* 13(2): 122. 1875. Figures 3B, BB, 4.

Shrub or tree (0.2–)2–10 meters tall, branches gray-lanuginose, becoming glabrous below or in age. Leaves coriaceous, gray to silvery white below, shortly petiolate to sessile, mainly ovate to subovate, generally rounded or obtuse at a minutely mucronate apex, less frequently subacute, chiefly rounded to obtuse at base, (0.6–)1.5–3(–4.8) cm long, (0.5–)1–2(–2.5) cm wide (rarely sterile shoots of juvenile branches elliptic-oblong, 7 × 3–3.5 cm), revolute, densely white tomentose below with elevated tomentose midrib, young leaves gray-white floccose above, older ones mainly glabrous above with narrowly sulcate midrib, sometimes white-tomentose along upper midrib; petioles 1–4 mm long, densely gray tomentose. Inflorescence terminal or axillary, mainly simple and short racemose or occasionally the axis with a branch at base, 2–6 cm long including the peduncle, the flowering portion 1–4 cm long, 1–2 cm wide, 3–8-flowered; peduncle 0.6–2.5(–4) cm long, together with the rachis densely tomentose. Bracts subulate, 4–5 mm long, tomentose, caducous. Pedicels 1–5 mm long, shorter than the calyx, densely tomentose with subspreading to loosely ascending hairs. Calyx 6–9 cm long, tube shallowly campanulate, 1.5–3 mm long, 3–4 mm wide at summit, densely gray tomentose with short spreading-ascending hairs; calyx lobes slightly unequal, broadly lanceolate to oblong-lanceolate, acute, the outer lobes dull gray nearly throughout with narrow paler margins, the inner lobes with conspicuous broad white margins and a narrow gray-green median zone, the longer inner lobes 6.5–7 mm long, 3 mm wide, the shorter outer lobes 4.5–5.5 mm long, 2.5–3 mm wide. Petals bluish, purplish, or rose (varying according to different collectors), spatulate, rounded at apex, unguiculate, 10–15 mm long, 4–7 mm wide, shortly and inconspicuously appressed-pubescent without to glabrescent, conspicuously long pilose within except near apex. Anthers narrowly oblong, 2–2.5 mm long; filaments 10–11 mm long, the sterile one retrorsely pilose, the others glabrous. Style 8–10

mm long, antrorsely pilose. Fruit oblong-cylindric, 9–20 mm long, gray short-tomentose.

Common name. “Curataquilla”; “sacaraiyek” (arekuna dialect).

Distribution. Rocky savannas and open sandstone exposures of the eastern portion of Bolívar in the Venezuelan Guayana from the region of the Gran Sabana at Cerro Roraima westward to the summit of Cerro Guaiquinima, and in the adjacent Pakaraima Mountains of Guyana, at altitudes of 300–1,200 m, ascending to 1,600 m on the slopes of Ptari-tepui. [Cardona 2726 from the summit of Auyan-tepui at an altitude of 2,500 meters was cited as *Euphronia hirtelloides* by Lleras (1976). It is actually *Myrtus alternifolia* Gleason, as cited in Flora of Auyan-tepui (Steyermark, 1967).]

Specimens examined. GUYANA. Mt. Ayanganna, Pakaraima Mountains, between Chinowieng and Chichi Landing, 1,000 m, Maguire, Bagshaw & C. K. Maguire 40647 (NY); Kamarang Station, Pakaraima Mountains, 500 m, Maguire & Fanshawe 32614 (NY).

VENEZUELA. BOLÍVAR: Gran Sabana, El Dorado-Sta. Elena road, 2.5 km before turnoff at San Rafael, 1,030 m, Luteyn, Lebrón-Luteyn & Steyermark 6294 (MO, NY); km 146 along El Dorado-Sta. Elena road, 1,280 m, Luteyn, Lebrón-Luteyn & Steyermark 6291 (MO, NY); between Santa Teresita de Kavanayen and base of Ptari-tepui, 1,220 m, Steyermark 60307 (F, NY); between Ptari-tepui and Sororopán-tepui, 1,615 m, Steyermark 60274 (F, MO); Cerro Manacauaray, headwaters of Río Caroní, basin of Río Yuruguani, 1,130 m, Cardona 3024 (NY); Río Ambetere, Alto Caroní, 420 m, Cardona 2583 (NY); slopes of Auyan-tepui, 1,100 m, Cardona 2609 (NY); alrededores de Sta. Elena de Uairén, Lasser 1273 (NY, VEN); Gran Sabana, 27 km N of Kama-Merú, carretera El Dorado-Sta. Elena road, 5°30'N, 61°20'W, 1,300 m, Holst, Steyermark & Manara 2222 (MO); 5 km east of Kavanayen, 1,200 m, Maguire 33717 (NY); Uarupata, Maguire 33283 (NY); Kamarang head, Gran Sabana, 800–950 m, Maguire 33293 (NY); región de los ríos Icabaru, Hacha y cordillera sin nombre, 450–850 m, Bernardi 2626, 2679 (NY); cumbre del Cerro Guaiquinima, 5°44'4"N, 63°41'8"W, 730–900 m, Steyermark, Berry & Dunsterville 117285 (NY, VEN); same locality, Steyermark, G. C. K. & E. Dunsterville 113455, 113119-A (NY, VEN); km 150, valley of Río Uarama, NE of Luepa, 1,220 m, Steyermark & Nilsson 581 (NY, VEN); km 175 south of El Dorado, 1,200 m, Steyermark 111296 (NY, VEN); Urimán, 300 m, Steyermark 75330 (F, MO, NY); Río Caroní below Urimán, 393 m, Steyermark & Wurdack 3 (F, MO, NY); región of Canaima, 6°15'N, 62°47'W, 200–500 m, Agostini 258 (NY, VEN); Hacha Falls, Canaima, Prance 16550 (NY, US); between Luepa and Kavanayén, 1,317–1,375 m, Badillo & Holmquist 6255 (MY); km 135–137 south of El Dorado, Badillo & Holmquist 6196 (MY); 148 km south of El Dorado, 1,350–1,400 m, Steyermark & Dunsterville 104162 (MY, VEN); Cerro Akurimá, Sta. Elena,

Tamayo 2699 (US); between Parupa and Kavanayén, Ramírez 792 (VEN); 7.5 km NE of Santa Elena, 4°40'N, 61°4'W, 880 m, Steyermark & Liesner 127592 (MO, VEN).

This species is characteristic of the eastern portion of the Venezuelan Guayana in the state of Bolívar, where it is a common shrub on rocky open sandstone outcrops and savannas.

Warming (1875) gave only a brief description of *Lightia guianensis*, mentioning a few salient characters such as “*foliis minoribus, ovatis v. obovatis, basi rotundato-cuneatis; racemis brevissimis 4-6-floris*” in differentiating this species from *Lightia licanioides* (= *Euphronia hirtelloides*). However, his reference to “*staminibus glabris*” has been found to be incorrect. Careful examination of specimens from eastern Venezuela shows the filaments of the fifth sterile stamen to be retrorsely pilose and the four fertile stamens as glabrous, characteristic of the genus.

Although united by Lleras with *E. hirtelloides* (loc. cit.), *E. guianensis* is amply distinct not only in its shorter, fewer-flowered racemes and smaller, differently shaped leaves, as mentioned by Warming, but also in the hairs of the outer part of the calyx lobes and pedicels uniformly loosely ascending to spreading. Moreover, dried specimens manifest broad white marginal zones on the inner calyx lobes with only a relatively narrower gray-green central midrib. This latter character is in contrast to the more uniformly gray-green calyx lobes of *E. hirtelloides* with only the central median portion with a loose, dense, ascending sericeous pubescence.

The specimens of Prance 16550 and Agostini 258 from the Canaima region need some comment. The material of Prance is sterile with the leaves larger than usual, and that of Agostini has inflorescences (up to 7 cm long) and peduncles (3.5–4 cm long) longer than usual, thus attaining dimensions similar to those of *E. hirtelloides*. However, the short flowering portion (2–3 cm) is like that of *E. guianensis*.

***Euphronia hirtelloides* Martius, Nov. Gen. et Sp.**

1: 121, t. 73. 1825. *Lightia licanioides* Spruce ex Warm. in Martius's Flora Brasiliensis 13(2): 121. 1875. *Euphronia licanioides* (Spruce ex Warm.) H. Hallier, l.c. in obs.: *Lightia licanioides*. Figures 3A, AA, 4.

Shrub or tree mainly 2–10 m tall, branches gray lanuginose, becoming glabrous below. Leaves coriaceous, gray-green above, white be-

low, shortly petiolate, lance- to oblong-elliptic or ovate, shortly acute at apex, acute to obtuse at base, 4.5–7.5 cm long, 1.5–4 cm wide, densely and closely white tomentose below with elongated midrib, glabrous above or sometimes white-tomentose in the sulcate groove; petioles 5–7 mm long. Inflorescence terminal or axillary, simply racemose, or with 1 or 2 lateral axes branching from the base, 5–11.5 cm long including the peduncle, flowering portion 4–10 cm long, 2–2.5 cm wide, (7–)15–23-flowered; peduncle 1–4 cm long, together with the rachis gray-lanulose. Bracts lanceolate, acute, 3.5–4 mm long, 0.8–1 mm wide, sericeous without, caducous. Pedicels 1.5–5 mm long, mainly shorter than the calyx, with dense, loosely ascending to spreading hairs. Calyx 6–9 mm long, tube shallowly campanulate, 2 mm long, 2–4 mm wide at summit, gray-tomentellose, lobes unequal, inner ones oblanceolate-obovate, shortly acute, broader than the outer and broadened above the middle, outer ones broadly lanceolate, more narrowed above the middle, (2.5–)5–8 mm long, 2–3 mm broad, sericeous both sides, more abundantly long-sericeous with longer, looser hairs on outer midrib, rather uniformly gray-sericeous elsewhere, externally with shorter appressed hairs. Petals rose, purplish, or lavender, the limb spotted with violet (fide Clark and Maquirino), spatulate, rounded at base, unguiculate, short-sericeous or sometimes glabrescent, long pilose within at base and median portion, glabrous elsewhere at apex. Anthers 1.8–2.5 mm long; filaments 10–11 mm long, the sterile one retrorsely pilose, the others glabrous. Style 11–12 mm long, antrorsely pilose. Fruit cylindrical, 15–23 mm long, 5–6 mm wide, subobtusely trigonous, gray lanate.

Distribution. Amazonian Brazil in Estado Amazonas and Territorio do Roraima, Amazonian Colombia in Vaupés and Caquetá, and Territorio Federal Amazonas of southern Venezuela, at altitudes of 100–150 meters.

Specimens examined. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: ad flumina Casiquiari, Vasiva et Pacimoni, 25–26 Feb. 1854, *Spruce 3413-x* (type of *Lightia licanoides*; isotype, NY; photo of type, F, MO); San Carlos de Rio Negro, 1°56'N, 67°03'W, 119 m, *Clark & Maquirino 7338, 7363* (NY); NW base of Cerro Yapacana, 150 m, *Maguire & Wurdack 34525* (MO, NY), *34546* (NY); Savanna No. 3, Cerro Yapacana, *Maguire, Cowan & Wurdack 30594* (NY).

COLOMBIA. AMAZONAS: Río Caquetá, Araracuara savannas, *Maguire, C. K. Maguire & Fernandez 44153* (MO, NY); Vaupés: lower Río Paraná-pichuna, at Mitú, *Zarucchi 1986* (GH).

BRAZIL. AMAZONAS: Rio Curicuriary, affluent Rio Negro, *Ducke 337* (GH, MO, NY, US); same locality, *Ducke 159-A, 23869* (NY, US); Manaus-Caracarai Road (BR-174), km 115, campina adjacent to Igarapé Lajes, *Zarucchi, Almeida & Coelho 2544* (NY); Rio Negro, Preto, *Frões 22753* (MO, NY, US); Rio Uneixi, 100–200 km above mouth, basin of Rio Negro, *Prance et al. 15502* (NY, US); Rio Negro, *Nascimento 608* (NY). Territorio Federal Roraima: Rio Branco, São José de Anauá, *Silva 4514* (NY); estrada Manaus-Caracarai, km 350, north of Rio Brancinho, *Steward et al. 86* (MO, NY, US); Caracarahy, Rio Branco, *Ducke 1407* (GH, NY, US); Rio Negro, Rio Tea 40 km above mouth, village Bacuri, *Kubitzki et al. 79-240* (US).

In his description of *Lightia licanoides* (= *Euphronia hirtelloides*), Warming (1875) incorrectly described all five filaments of the stamens as retrorsely pilose, and plate 22 (1875) depicts three of the stamens with retrorse pubescence. However, dissection of specimens pertaining to this taxon reveals the retrorse pilosity present only on the fifth sterile filament, while the other four fertile ones are glabrous. As indicated in the present key to the species and in comments under *E. guianensis*, *E. hirtelloides* is distinct in having a more elongated, many-flowered inflorescence; larger, more acutely tipped leaves; and the pubescence of pedicel and outer surface of calyx lobes of a different type. It should be noted here that the calyx of *Euphronia* is gamophyllous [Lleras (1976) describes the calyx as consisting of five sepals], consisting of a calyx tube and five lobes, as originally defined by Martius and Zuccarini (1826), Robert Schomburgk (1847, as *Lightia*), and Warming (1875, as *Lightia*).

AQUIFOLIACEAE

Ilex liesneri Steyerf., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, 1–2 km N of "Sima" Camp, 3°43'N, 65°31'W, 1,100 m, 8–9 Mar. 1985, *Ronald Liesner 18469* (holotype, MO; isotype, VEN).

Frutex 1–2 m altus glaber; foliis anguste elliptico-lanceolatis ad apicem obtuse attenuateque angustatis ad basin acutate attenuateque angustatis 4.5–9 cm longis, 0.5–1.5 cm latis subtus sparsim punctulatis, ad margines crenato-serrulatis, utroque latere 5–13-crenulato; inflorescentiis axillaribus et lateralibus solitariis trichotome cymosis pedunculatis, cymis plerumque 7-floris; pedunculis 0.8–1.5 cm longis gracilibus; inflorescentiae pedicellis filiformibus sub anthesi 4–5 mm longis sub fructu 4–8 mm longis; floribus 4-meris; floribus ♂: calycis lobis suborbicularibus rotundatis 1.8 mm longis, 1.5 mm latis; floribus ♀: calycis lobis 0.5

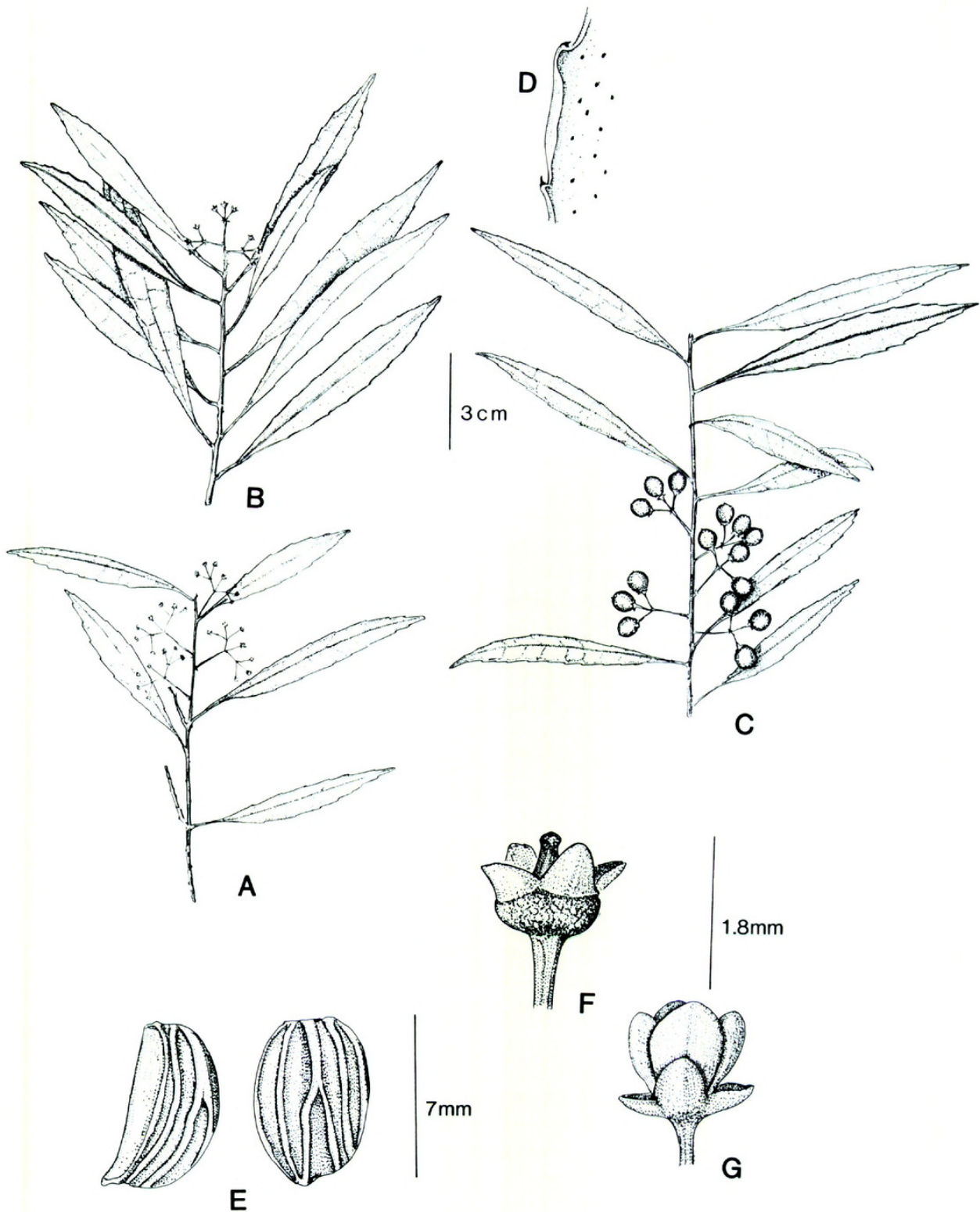


FIGURE 5. *Ilex liesneri*. —A. Habit of flowering branch showing axillary inflorescences. —B. Habit of flowering branch showing terminal inflorescence. —C. Habit of fruiting branch. —D. Detail of portion of lower leaf surface showing punctation, revolute margin, and crenulations. —E. Pyrenes, lateral view, left; dorsal view, right. —F. Pistillate flower. —G. Staminate flower.

mm longis, 1.2 mm latis; petalis suborbicularibus rotundatis 1.5 mm longis, 2 mm latis; fructu subgloboso vel ovoideo-subgloboso 7 mm longo, 7 mm lato; pyrenis 4–5 trigonis 5 mm longis, 3.5–5 mm latis, dorso 3–5-costatis.

Shrub 1–2 m tall with slender branches. Leaves narrowly elliptic-lanceolate, narrowed above to a long obtuse apex, narrowed below to a long acute base, 4.5–9 cm long, 0.5–1.5 cm wide,

sparsely punctate below, midrib narrow, sulcate above, slightly elevated below, lower surface enervate, upper surface 7–8-nerved on each side of midrib, subhorizontally spreading, anastomosing 1–2 mm from margin, remotely crenulate-serrulate with 5–13 depressed crenulations on each margin. Petioles 5–15 mm long. Inflorescence axillary and lateral, solitary, trichotomously cymose, pedunculate; cymes simple or compound, few-flowered (usually 7) when simple with one flower on the central axis and three each on the two lateral axes, when compound each of the axes 2–3-flowered, the axes divaricately spreading, 1–3 mm long; pedicels 4–8 mm long. Bracts subtending pedicels spreading, 0.1 mm long. Peduncle slender, 0.8–1.5 mm long. Flowers 4-merous. Staminate flowers: calyx lobes suborbicular, rounded, 1.8 mm long, 1.5 mm wide; anthers suborbicular, 0.8×0.8 mm; filaments 0.8 mm long; pistil rudiment ovoid, 1 mm long. Pistillate flowers: calyx lobes 0.5 mm long, 1.2 mm wide; petals suborbicular, rounded, 1.5 mm long, 2 mm wide; ovary ovoid or subglobose, 1–1.5 mm long, constricted slightly at summit into a short style 0.2–0.3 mm long; stigma prominent, ovoid-capitate. Fruit subglobose or ovoid-subglobose, 7×7 mm; pyrenes 4–5, trigonous, 5 mm long, 3.5–5 mm wide, dorsally 3–5-costate.

Paratypes. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Depto. Atabapo, Cerro Marahuaca, Río Yameduaka arriba, $3^{\circ}38'N$, $65^{\circ}28'W$, 1,225 m, *Liesner 17604* (MO, VEN); “Sima” Camp, southcentral portion along eastern branch of Cerro Negro, Cerro Marahuaca, $3^{\circ}43'N$, $65^{\circ}31'W$, 1,140 m, *Steyermark & Holst 130575*, *130422*, *130424* (MO, VEN). Figure 5.

This species is distinguished by the narrowly lance-elliptic, crenulate, punctate leaves, which are long attenuate at each end, the 3–5-dorsally ribbed pyrenes, the slender, solitary peduncles from both axillary and lateral buds, and the filiform pedicels on trichotomous cymose inflorescences.

OCHNACEAE

Tyleria apiculata Sastre (Fig. 6A–G)

This species was recently described by Sastre (*Phytologia* 59: 313–314. 1986) with only a brief description based upon a single specimen, which I collected. A later expedition in 1985 to Cerro Marahuaca by Bruce Holst, Ronald Liesner, and

me resulted in the collection of more ample material. In view of these additional collections, the following more detailed description can be furnished.

Shrub or small tree 2–3 m tall. Leaves erect, crowded, those on sterile branches clustered at the apex, scattered below the inflorescence on fertile branches, subobtusate at apex, sometimes with a minute mucro 2 mm long, the apically clustered leaves on sterile branches 7–8 cm long, 5–10 mm wide, those on fertile branches often shorter and 6–13 mm wide, gradually narrowed to the sessile base, glabrous on both surfaces, margins finely serrulate-ciliate with closely ascending purplish hairs 0.5–0.7 mm long, lateral nerves finely parallel from base to apex, strongly ascending to apex. Stipules ovate-triangular or lanceolate, obtuse to acute, 4–10 mm long, 2 mm wide, finely parallel-veined. Inflorescence paniculate, terminal, many-flowered, 12–14 cm long, 5–7.5 cm wide in the basal half, 3.5–4 cm wide in upper half; flowers pedicellate, pedicels filiform, 10–13 mm long, articulate 1–2 mm above base, dilated below apex, spreading in fruit. Sepals membranous, ovate or elliptic-ovate, obtuse, 8 mm wide, 5 mm long. Petals pink, obovate, rounded at apex, narrowed to the base, 15 mm long, 11 mm wide. Anthers linear-oblong, 4 mm long, acutely apiculate, subsessile; filaments 0.3 mm long. Staminodes spatulate, rounded at apex, 7 mm long, 2.5 mm wide above, adnate 1 mm above the base with dimorphic lateral appendages, the longer appendage deeply cut into an elongated subulate, simple, distal segment 5.5–6 mm long attached to a ligulate multifimbriate portion, and an inner proximal shorter appendage 5 mm long with lateral fimbriate segments. Pistil 9 mm long; style subulate, 5 mm long; ovary narrowly conic, 4 mm long, 1 mm wide. Capsule oblong-conic, 10–11 mm long.

Specimens examined. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Depto. Atabapo, Cerro Marahuaca, below Salto Los Monos on tributary of headwaters of Río Iguapo, $3^{\circ}35'N$, $65^{\circ}23'W$, 1,500–1,600 m, 11 Mar. 1985, *Liesner 18511* (MO, VEN); Río Yameduaka arriba, $3^{\circ}38'N$, $65^{\circ}28'W$, 1,225 m, 17–18 Feb. 1985, *Liesner 17624* (MO, VEN); “Sima Camp,” southcentral portion of forested slopes along eastern branch of Caño Negro, $3^{\circ}43'N$, $65^{\circ}31'W$, 21–22, 24 Feb. 1985, *Steyermark & Holst 130565* (MO, VEN); below Salto Los Monos on tributary of headwaters of Río Iguapo, $3^{\circ}35'N$, $65^{\circ}23'W$, 1,500 m, 13–14 Oct. 1983, *Steyermark 129649* (P, holotype; MO, VEN, isotypes).

Sastre notes that the species is well marked by its

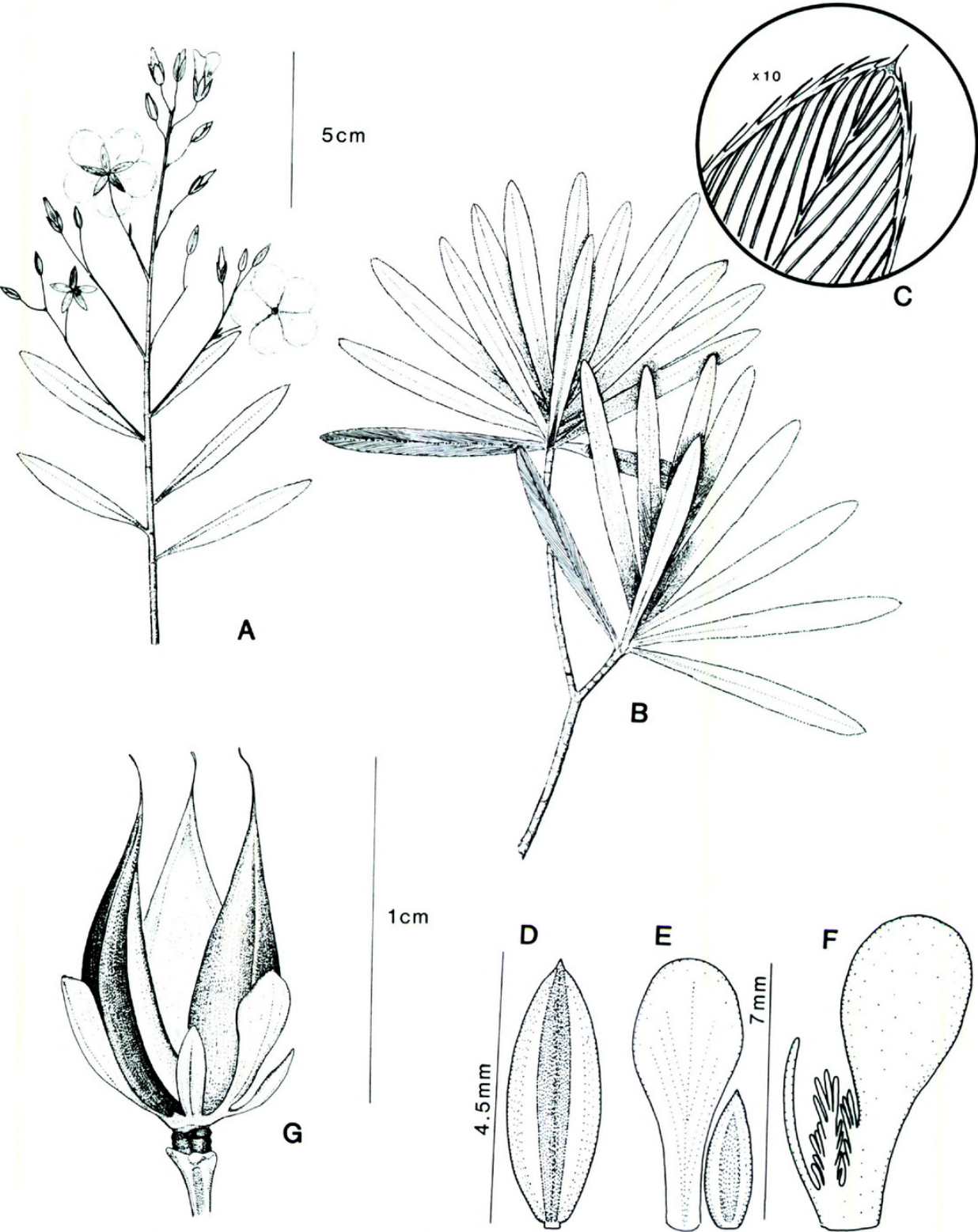


FIGURE 6. *Tyleria apiculata*.—A. Habit of flowering branch.—B. Sterile leafy branch showing terminal clusters of leaves.—C. Detail of leaf apex, lower surface.—D. Anther.—E. Anther and staminode, ventral view.—F. Staminode, dorsal view.—G. Capsule.

apiculate anthers and contrasts it with *T. spectabilis* Mag. & Wurd. and *T. floribunda* Gl. because of its shorter leaves. It also resembles *T. linearis* Gl. of adjacent Cerro Duida in leaf shape but differs from that

species in the elongate pedicels in terminal panicles, broader and longer leaves with a subobtuse apex, shorter petals, and larger fimbriate lateral appendages of the staminodes.

Sauvagesia marahuacensis Steyerl., sp. nov.

TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, Río Yameduaka arriba, 3°38'N, 65°28'W, 1,225 m, *Ronald Liesner 17677-A* (holotype, MO; isotype, VEN). Figure 7.

Suffrutex 0.5-metralis, caulibus virgatis; foliis sessilibus anguste linearibus vel subulatis apice cuspidatis basi inconspicue angustatis 10–13 mm longis, 0.8–1 mm latis, 10–15-plo longioribus quam latioribus, marginibus revolutis minute glanduloso-serratis 10–11 glandulis adpressis 1 mm longis praeditis, pagina supra depressionibus numerosis praedita, subtus nervis elevatis striatis; floribus ad apices ramulorum axillaribus numerosis pedicellatis, pedicellis 3–3.5 mm longis; sepalis lanceolatis acutis 5–5.5 mm longis, 1.7 mm latis; petalis albidis obovatis apice rotundatis basi subcuneiformibus 7–7.5 mm longis, supra medium 4–5 mm latis; staminibus 5 corone squamulis alternis; corona 1-seriata basi cum filamentis in columnam brevem 0.3–0.4 mm latam coalita, squamulis quinque 1.2–1.5 mm longis, laminis subulato-spathulatis apice rotundatis 0.7–0.9 mm longis in stipitem 0.5 mm longum, 0.2 mm latum attenuatis; antheris linearibus 2.1–2.7 mm longis, 0.2–0.25 mm latis.

Virgate subshrub 0.5 m tall. Stems dichotomously branched or 3–6-verticillate, densely foliose toward the apex, leafless for most of the length below, 2–3 mm diam. Stipules densely crowded, overlapping, rufous-brown, lanceolate, 2.5–3 mm long, 1 mm wide, dorsally carinate, conspicuously pectinate from base to apex with 15–18 subulate appendages on each side, each one tipped by a filiform, white cilium 1 mm long, lower appendages often deciduous. Leaves sessile, coriaceous, narrowly linear or narrowly subulate, 10–13 mm long, 0.8–1 mm wide, 10–15 times longer than broad, cuspidate at apex, inconspicuously narrowed at base, margins revolute, minutely glandular serrulate, each margin with 10–11 minute, appressed-ascending teeth 0.1 mm long, upper surface marked with small transverse depressions. Flowers numerous near the apex, conspicuously pedicellate; pedicels 3–3.5 mm long. Sepals lanceolate, acute, 5–5.5 mm long, 1.7 mm wide. Petals white, obovate, rounded above, narrowed to a subcuneiform base, 7–7.5 mm long, 4–5 mm wide. Stamens 5; anthers linear, 2.1–2.7 mm long, 0.2–0.25 mm wide; filaments 0.6 mm long. Staminodes 5, subulate-spatulate, rounded at apex, 1.2–1.5 mm long, narrowed basally, the claw 0.5–0.7 mm long, 0.2 mm wide, the laminar portion 0.7–0.9 mm long, the summit of the laminar portion attaining one-third to one-quarter length of anther. Ovary ovoid, 1 mm long; style subulate, 2.9–3 mm long.

This species differs from *S. guianensis* (Eichl.) Sastre and varieties in the narrower linear-subulate leaves 10–15 times longer than broad with depressed areas on the upper surface and in the long-pedicellate, more numerous flowers conspicuous at the ends of the leafy stems as contrasted with the solitary, sessile or barely pedicellate flowers largely hidden amongst the leaves of *S. guianensis*.

SAUVAGESIA GUIANENSIS AND VARIATIONS

A study of *Sauvagesia guianensis* (Eichl.) Sastre (1970) reveals much variation not only in details of leaf morphology but in those of staminodial form as well. This taxon (sensu lato) is distributed in the region of the Guayana Shield, with its greatest concentration in the Venezuelan Guayana, but with outliers in adjacent Guyana and Colombia (Sastre, 1970).

It was originally described by Eichler as *Leitgebia guianensis* (op. cit.), based upon a collection by Richard Schomburgk from the savannas of Guyana. Gleason (1931) referred collections of Tate from the summit of Cerro Duida to this taxon. In 1946 Lasser described a Steyermark collection, also from the summit of Duida, as *Leitgebia gleasoniana*. At this time Lasser (1946) associated a Phelps collection from Cerro Paraque (Sipapo) as conspecific with the Steyermark type.

Sastre (1970) eventually transferred *Leitgebia guianensis* to *Sauvagesia* and referred later collections originating from various parts of the Venezuelan Guayana as one taxon. The variability of this taxon becomes obvious upon more detailed study. It is noted that specimens originating from the Gran Sabana of eastern Venezuela and adjacent Guyana near the type locality have leaves relatively fewer times longer than broad, relatively shorter and with shorter-pointed apices than those from the summits of various table mountains westward in Venezuela. Moreover, the staminodes of specimens from the eastern sector of the range have shorter laminar portions. Additionally, a surprising degree of variation is shown between plants collected from various sandstone table mountains. For example, plants from the summit of Cerro Guaiquinima in Bolívar have leaves with only 2–4 glands on each margin that appear in the upper three-fourths only; whereas specimens from other parts of the range manifest 6–14 glands on each margin, which are distributed from one-fourth to

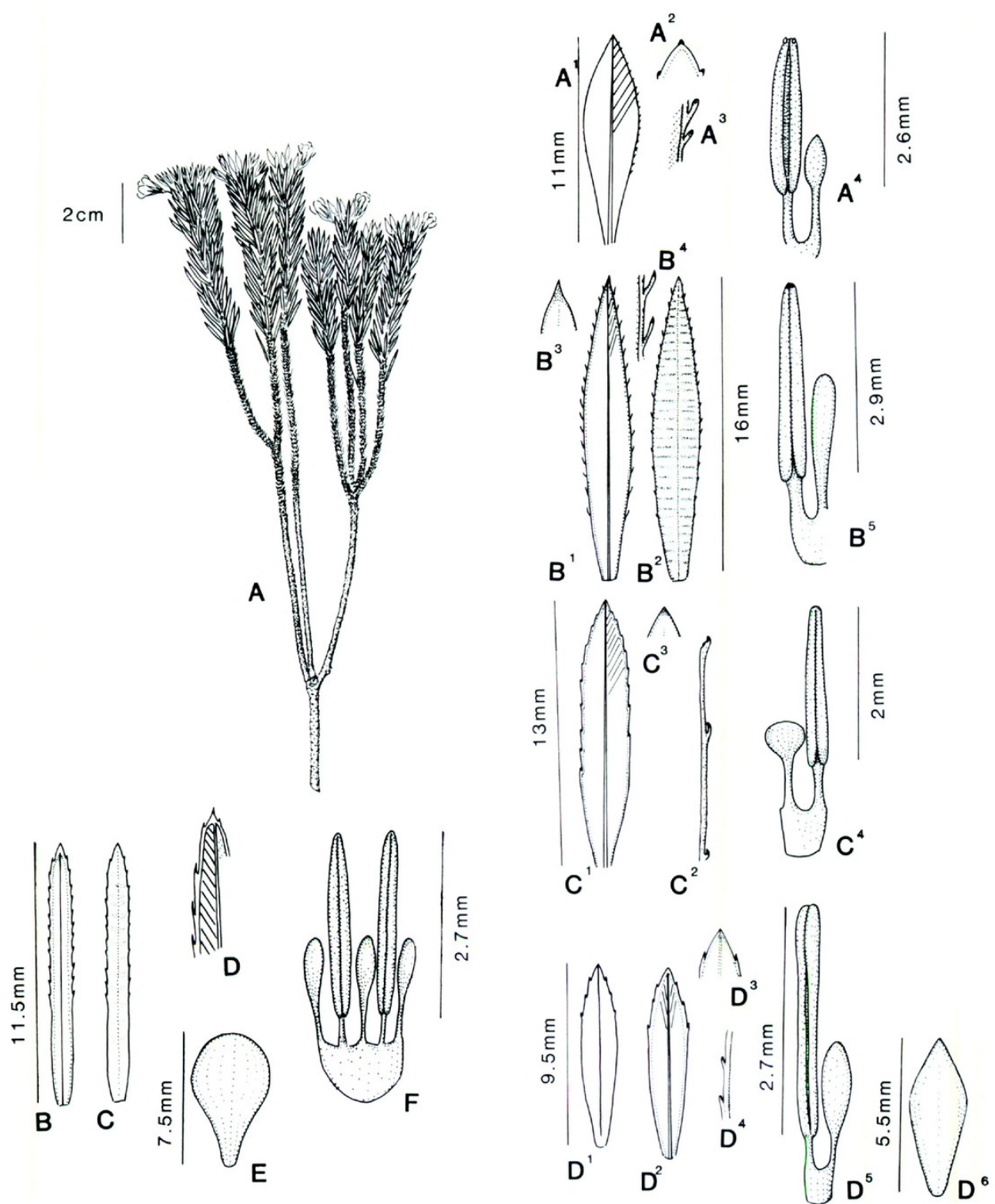


FIGURE 7. A–F. *Sauvagesia marahuacensis*. —A. Habit. —B. Leaf, lower side. —C. Leaf, upper side. —D. Detail of upper apical portion of lower side of leaf. —E. Petal. —F. Portion of stamens and staminodes attached to membrane. —A¹–A⁴. *Sauvagesia guianensis* subsp. *guianensis*: —A¹. Leaf, lower side. —A². Apical portion of leaf. —A³. Marginal leaf glands. —A⁴. Portion of androecium showing anther and staminode. —B¹–B⁵. *S. guianensis* subsp. *gleasoniana*: —B¹. Leaf, lower side. —B². Leaf, upper side. —B³. Apical portion of leaf. —B⁴. Marginal leaf glands. —B⁵. Portion of androecium showing anther and staminode. —C¹–C⁴. *S. guianensis* subsp. *sipapoensis*: —C¹. Leaf, lower side. —C². Marginal leaf glands. —C³. Apical portion of leaf. —C⁴. Portion of androecium showing anther and staminode. —D¹–D⁶. *S. guianensis* subsp. *guaiquinimensis*: —D¹. Leaf, upper side. —D². Leaf, lower side. —D³. Apical portion of leaf. —D⁴. Marginal leaf glands. —D⁵. Portion of androecium showing anther and staminode. —D⁶. Petal.

halfway up the leaf margin to the apex. Furthermore, petals of the Cerro Guaiquinima plants have acute to subacute apices, whereas those on specimens elsewhere are rounded. Moreover, in contrast to the usually encountered elongated, linear-ligulate, narrowly spatulate, or narrowly elliptic laminar portion of the staminode, plants from the summit of Cerro Sipapo (Paraque) have developed a suborbicular type about as broad as long.

Results obtained from a study of the available material in NY and VEN herbaria indicate that *Sauvagesia guianensis* has undergone differen-

tiation in various portions of its geographical range resulting in populations showing a divergence in various characters. This geographical isolation on several of the sandstone table mountains is recognized in the present study as correlated with taxonomic characters sufficiently distinct as to be considered of subspecific significance.

The following key encompasses the principal differences by which these variations may be recognized within *S. guianensis* as well as distinguishing them from the related *S. marahuacensis*.

KEY TO *SAUVAGESIA GUIANENSIS* AND SUBSPECIES, AND RELATED *SAUVAGESIA MARAHUACENSIS*

- 1a. Flowers on pedicels 3–3.5 mm long, numerous and conspicuous near apices of the leafy stems; leaves linear-subulate, 0.8–1 mm wide, 10–15 times longer than broad; upper leaf surface with transversely depressed areas *S. marahuacensis*
- 1b. Flowers subsessile or on pedicels to 2 mm long pedicellate, few and mainly concealed amidst the leaves; leaves linear-oblongate, 1–3 mm wide, 3–10 times longer than broad; upper leaf surface without transversely depressed areas 2
- 2a. Staminodes 3–3.5 mm long, 1–1.5 mm wide; Colombia 1e. *S. guianensis* subsp. *araracuarensis*
- 2b. Staminodes 1–1.9 mm long, 0.2–0.5 mm wide; Venezuela and Guyana 3
- 3a. Foliar glands 2–4 on each margin, the lowest starting at $\frac{1}{4}$ the distance below the apex; petals subacute to acute at apex 1d. *S. guianensis* subsp. *guaiquinimensis*
- 3b. Foliar glands 6–14 on each margin, the lowest starting from $\frac{1}{2}$ – $\frac{3}{4}$ the distance below the apex; petals rounded at apex 4
- 4a. Laminar portion of staminode suborbicular, about as broad as long, 0.5×0.4 – 0.5 mm; upper surface of leaf blade with a conspicuous punctulate appearance 1c. *S. guianensis* subsp. *sipapoensis*
- 4b. Laminar portion of staminode elongated, longer than broad, linear-ligulate, elliptic-spatulate, or narrowly spatulate, 0.8 – 1.9×0.2 – 0.3 mm; upper surface of leaf blade lacking a punctulate appearance 5
- 5a. Foliar glands 6–11 on each margin; leaves oblanceolate or narrowly oblanceolate, 8–11 mm long, 1.5–3 mm wide, 3–4 times longer than broad; leaf apex shortly acute to bluntly pointed; laminar portion of staminode 0.8–0.9 mm long 1a. *S. guianensis* subsp. *guianensis*
- 5b. Foliar glands 11–14 on each margin; leaves linear or linear-lanceolate, 10–18(–22) mm long, 1–2 mm wide, 7–10 times longer than broad; leaf apex prolonged, acuminate; laminar portion of staminode 1.2–1.9 mm long 1b. *S. guianensis* subsp. *gleasoniana*

1a. ***Sauvagesia guianensis*** (Eichl.) Sastre subsp. ***guianensis***. *Sauvagesia guianensis* (Eichl.) Sastre, *Caldasia* 10: 570. 1970. *Leitgebia guianensis* Eichl. in Martius's *Flora Brasiliensis* 13(1): 413. pl. 83, fig. 2. 1871. TYPE: Guyana. *Rich. Schomburgk 1553*. Figure 7A¹–A⁴.

Leaves oblanceolate, acute to bluntly pointed at apex, 6–11 mm long, 1.5–3 mm wide, 3.5–4 times longer than broad, foliar glands (6–)7–11 along each margin, appressed to ascending outwardly, short; upper surface with fine transverse lines. Flowers solitary, few, hidden and inconspicuous among the leaves, subsessile to 2 mm

long pedicellate. Petals obovate, rounded at apex, 6.8–7.5 mm long, 5 mm wide. Anthers 2.5–3 mm long. Staminode lamina narrowly to broadly elliptic-spatulate, rounded to subacute, 0.8–0.9 mm long, 0.3 mm wide, the narrower lower portion about equaling the lamina in length.

Distribution. Guyana and adjacent southeastern Venezuela, Bolívar.

Additional specimens examined. VENEZUELA. BOLÍVAR: km 177, S of El Dorado, just N of Río Sacaicá, 1,200 m, *Steyermark 111302* (MO, VEN); 52 km N of Kama-merú, carretera El Dorado-Sta. Elena, 5°40'N, 61°25'W, 1,300 m, *Holst, Steyermark & Manara 2201* (MO, VEN).

- 1b. *Sauvagesia guianensis* subsp. *gleasoniana* (Lasser) Steyererm., comb. nov. *Leitgebia gleasoniana* Lasser, Bol. Acad. Ci. Venez. 9: 246. 1946. TYPE: VENEZUELA. Territorio Federal Amazonas: Cerro Duida, summit, Savanna Hills, Aug. 1944, *Steyermark* 58248 (holotype, VEN; isotype, F). Figure 7B¹–B⁵.

Leaves linear or linear-lanceolate, aristate long-pointed at apex, 10–18(–22) mm long, 1–2 mm wide, 7–10 times longer than wide; foliar glands 11–14 each margin, ascending outwardly from margin, elongated, 0.3–0.5 mm long; upper surface usually marked with fine transverse striations. Flowers solitary, few, hidden and inconspicuous among the leaves, subsessile to 1–2 mm pedicellate. Petals obovate, rounded at apex, 8 mm long, 4.5 mm wide. Anthers 2.3–2.9 mm long. Staminode 1.2–1.9 mm long, the laminar portion linear-ligulate or narrowly spatulate, obtuse or rounded, 0.3–1.2 mm long, 0.2 mm wide, much longer than wide, the lower stipitate portion 0.5–1.3 mm long.

Distribution. Summits of Cerro Duida and Huachamacari, Territorio Federal Amazonas, Venezuela.

Additional specimens examined. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Cerro Duida, 3°40'N, 65°45'W, 1,500 m, *Steyermark, Brewer-Carias & Liesner* 124569 (MO, VEN); plateau of Huachamacari, 3°50'N, 65°43'W, 1,720 m, 1 Mar. 1985, *Liesner* 18057 (MO, VEN); Savanna Hills, Cerro Duida, *Steyermark* 58248 (F, VEN).

- 1c. *Sauvagesia guianensis* subsp. *sipapoensis* Steyererm., subsp. nov. TYPE: VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Serrania Sipapo, cumbre, sección septentrional, 5°N, 67°30'W, 1,500 m, *Steyermark, Brewer-Carias & Liesner* 124530 (holotype, MO; isotype, VEN). Figure 7C¹–C⁴.

A subsp. *guianense* squamulorum laminis suborbicularibus apice late rotundatis 0.5 mm longis, 0.4–0.5 mm latis, foliis supra conspicue cellulosis recedit.

Leaves linear-lanceolate, ending in a long cuspidate apex, 10–13 mm long, 2–2.5 mm wide, 5–6 times longer than broad; foliar glands short, 7–10 each margin, incurved-appressed, the lowest ones beginning $\frac{2}{3}$ the distance below the apex; upper surface with a conspicuous cellular appearance. Flowers solitary, few, subsessile, inconspicuous among the leaves. Petals obovate, rounded at apex, 5.5 mm long, 4 mm wide. An-

thers 2–2.5 mm long. Staminode with the laminar portion suborbicular, broadly rounded, 0.3–0.5 mm long, 0.4–0.5 mm wide, stipitate lower portion 0.7–0.8 mm long.

Distribution. Summit of Cerro Sipapo, Territorio Federal Amazonas, Venezuela.

- 1d. *Sauvagesia guianensis* subsp. *guaiquinimensis* Steyererm., subsp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Cerro Guaiquinima, cumbre, sector occidental, cerca del borde cubierto con bosque bordeando una sabana, 5°45'N, 63°43'W, 1,540 m, 27 May 1978, *Steyermark, Berry, G. C. K. & E. Dunsterville* 117498 (holotype, MO; isotype, VEN).

A subsp. *guianense* atque ceteris petalis apice acutis vel subacutis, foliorum glandulis marginalibus utroque latere 2–4 secus longitudinem superiorem $\frac{3}{4}$ insertis recedit.

Leaves linear-oblongate, acute at apex, 6–9.5 mm long, 1.5–2 mm wide, 4–6 times longer than wide; foliar glands 2–4 each margin, inserted along the upper $\frac{3}{4}$ of the margin, appressed, short; upper surface with few or no transverse lines but with a cellular appearance. Flowers solitary, few, hidden and inconspicuous among the leaves, subsessile. Petals obovate, acute at apex, 5.5 mm long, 2 mm wide above middle. Anthers 2.7 mm long. Staminode 1.6 mm long, the laminar portion ligulate-oblong or ligulate-obovate, rounded or subobtusate at apex, 1.1 mm long, 0.3–0.4 mm wide, narrowed to a stipitate portion 0.5 mm long.

Distribution. Known only from the summit of Cerro Guaiquinima, Bolívar, Venezuela.

Paratypes. VENEZUELA. Cerro Guaiquinima, cumbre, sector suroeste, 5°38'N, 63°45'W, 1,650 m, *Steyermark, Berry, G. C. K. & E. Dunsterville* 117434 (MO, VEN); Cerro Guaiquinima, cumbre, sector suroeste-central, 5°45'N, 63°35'W, 950 m, *Steyermark, Berry, G. C. K. & E. Dunsterville* 117474 (MO, VEN). Figure 7D¹–D⁶.

- 1e. *Sauvagesia guianensis* subsp. *araracuarensis* (Sastre) Steyererm., stat. nov. *Sauvagesia guianensis* var. *araracuarensis* Sastre, Bull. Mus. Nat. Hist. Paris 35: 37. 1978. TYPE: COLOMBIA. Com. Amazonas: Río Caqueta, Araracuara, camino a La Sabana, segunda sabana de Tibeyes, 500–600 m, 5 Jan. 1977, *Sastre & Reichel* 5139 (holotype, P; isotypes, COL, G).

Staminodes larger than in the other subspecies, 3–3.5 mm long, 1–1.5 mm wide.

Distribution. Known only from savannas over sandstone soils at the type locality.

THEACEAE (BONNETIACEAE)

Since the publication of "Flora of the Venezuelan Guayana—I" (Steyermark, 1984), the following additional new taxa are described in *Bonnetia*.

Bonnetia bolivarensis Steyermark, sp. nov. TYPE: VENEZUELA. Bolívar: Ptari-tepui, cumbre, 5°47'N, 61°47'W, 2,400 m, 19 Nov. 1984, *Otto Huber 9818* (holotype, VEN; isotype, MO).

Frutex 1-metralis; foliis dense rosulatis subsessilibus oblongo-lanceolatis apice obtuse acutis basi obtusis (2–) 2.5–5 × 0.8–1.7 cm; sepalis 11–12.5 × 4–5 mm; petalis 21–22 × 14–16 mm; stylis tribus 3–3.5 mm longis fere usque ad basem divisis.

Leaves crowded at summit of branches, oblong-lanceolate, subsessile, narrowed to an obtusely acute apex, obtuse at base, (2–)2.5–5 × 0.8–1.7 cm, faintly impressed-nerved on both sides or the lateral nerves not evident, midrib slightly elevated below. Flowers solitary, sessile or subsessile; bracts immediately subtending flower oblong-lanceolate, acute to obtuse, 11–12 × 4.5 mm, dorsally carinate, setulose marginally with dark setae 1 mm long; sepals lance-oblong, subacute, 11–12.5 × 4–5 mm, obtusely dorsally keeled basally and apically; petals white, subcuneately obovate, subtruncate apically with unequally rounded sides, narrowed to the base, 21–22 mm long, 14–16 mm wide at summit, 4 mm wide at base. Stamens numerous, multiseriate; filaments 5 mm or less long; anthers 0.5–0.8 × 0.6 mm; pistil 9 mm long; styles 3, 3–3.5 mm long, divided about $\frac{2}{3}$ way down.

The larger flowers and larger, subacute leaves differentiate this taxon from *B. chimantensis* Steyermark, *B. tepuiensis* Kobuski & Steyermark, and *B. toronoensis* Steyermark. In its deeply 3-parted style it differs from *B. tepuiensis*.

Bonnetia guaiquinimae Steyermark, sp. nov. TYPE: VENEZUELA. Bolívar: Cerro Guaiquinima, cumbre, sector SE, 5°40'N, 63°26'W, 1,250 m, 26 May 1978, *Julian A. Steyermark, Paul Berry & G. C. K. & E. Dunsterville 117421* (holotype, VEN; isotype, MO).

Frutex 1.5-metralis; foliis subpetiolatis oblongo-lanceolatis vel oblanceolatis apice acutis basi subobtusis vel obtusis 5–6.6 × 1.3–1.6 cm subtus enervatis integerrimis; sepalis minute mucronatis 10–12 × 6–8 mm; petalis 20 × 15–20 mm; filamentis 3.5–7 mm longis; stylo subulato apice leviter 3-lobato.

Leaves coriaceous, entire, oblong-lanceolate to oblanceolate, acute at apex, gradually narrowed to a subacute or subobtuse base, 5–6.5 × 1.3–1.6 cm, enervate below, the midrib subimpressed below, lateral nerves elevated above; petiole 1–2 mm long. Sepals coriaceous, suborbicular-obovate, rounded at a shortly cuspidate apex, 10–12 mm long, 6–8 mm wide above the middle, 3–4 mm wide at base; petals white, obovate, narrowed to a subunguiculate base, 20 mm long, 15–20 mm wide at the summit, 2–3 mm wide at base; filaments distinct, 3.5–7 mm long. Anthers 1.5–1.8 × 0.7 mm; pistil 9 mm long; style merely 3-lobed at apex.

This taxon is characterized by the shallowly 3-lobed style, entire, oblong-lanceolate, acute leaves, which are enervate beneath. It may be distinguished from *B. chimantensis* Steyermark by the larger petals, shallowly 3-lobed style and larger leaves enervate below. From *B. toronoensis* Steyermark it differs in the larger sepals and petals and larger, entire leaves enervate below, while from *B. tepuiensis* and subsp. *minor* Steyermark it is separated by the larger, minutely mucronate sepals, longer filaments, and entire leaves.

Bonnetia ptariensis Steyermark, sp. nov. TYPE: VENEZUELA. Bolívar: Ptari-tepui, cumbre, 5°45'N, 61°45'W, 2,360–2,420 m, 23 Feb. 1978, *Steyermark, Carreño, McDiarmid & Brewer-Carias 115645* (holotype, VEN; isotype, MO).

Frutex 2.5 m; foliis sessilibus lanceolatis apice acutis majoribus 3.5–4.5 × 1–1.5 cm minute obscureque serrulatis; floribus solitariis breviter pedunculatis, pedunculis teretibus vel subteretibus 4–6 mm longis; sepalis lanceolatis vel suboblanceolatis acutis 12–13 × 3–5 mm; petalis luteis obovatis apice rotundatis 16–18 × 12 mm; antheris 0.8 × 0.7 mm; stylis tribus 6 mm longis fere usque ad basem divisis.

Leaves coriaceous, lanceolate, acute at apex, slightly narrowed to the base, the larger ones 3.5–4.5 × 1–1.5 cm, obsoletely pinnately nerved, midrib slightly elevated below, microscopically and obscurely serrulate. Flowers solitary, short-pedunculate; peduncle terete or subterete, 4–6 mm long; bracts immediately subtending flower narrowly oblanceolate, acute, 11–12 × 3–4 mm;

sepals subcoriaceous, lanceolate or suboblanceolate, acute, 12–13 × 3–5 mm, 10-striate, minutely ciliolate, obtusely carinate; petals yellow, obovate, rounded above, 16–18 mm long (pre-anthesis), 12 mm wide near apex, 2 mm wide at base. Filaments 1.5–3.5 mm long (pre-anthesis); anthers 0.8 × 0.7 mm; pistil 10 mm long; 3 styles 6 mm long, free nearly to the base.

From the yellow-flowered *B. wurdackii* Maguire, this species differs in the larger, lanceolate, and acute leaves, longer sepals, larger petals (even in bud), longer filaments, and longer style branches. The leaves, furthermore, do not manifest the pale punctate stomata that are clearly shown in *B. wurdackii*. From *B. tristyla* Gleason it is easily distinguished by the short pedicels, smaller floral parts and smaller leaves; while from *B. huberiana* Steyermark it is well separated by the larger, lanceolate leaves, shorter pedicels, and larger floral parts.

***Bonnetia tristyla* Gleason subsp. *nervosa* Steyermark, subsp. nov.** TYPE: VENEZUELA. Territorio Federal Amazonas: Cerro Yapacana, below summit, 3°45'N, 66°45'W, 825 m, 5 May 1970, Julian A. Steyermark & George Bunting 103153 (holotype, VEN).

Frutex vel arbor 1.5–4-metralis; foliis supra costa media necnon nervis lateralibus nonnullis conspicue manifesteque elevatis, nervis lateralibus supra inaequaliter prominentibus; petalis 25–38 × 15–22 mm.

Leaves suboblong, oblong-ob lanceolate, or oblong-obovate, obtuse to rounded at apex, narrowed to a subobtusate or subacute base, 4–8 × 1.5–3.5 cm, midrib of upper surface and 6–8 pairs of lateral nerves conspicuous and elevated, other intermediate pairs of lateral nerves less conspicuous and lightly impressed, nerves on lower surface subequal and lightly impressed. Petiole absent or 1–2 mm long. Peduncle 3–4.3 (–6.5) cm long. Sepals 12–20 mm long, the outer 12–15 mm long, the inner 15–20 mm long. Petals 25–38 × 15–22 mm.

Paratypes. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Cerro Yapacana, summit, 1,000–1,200 m, 5 May 1970, Steyermark & Bunting 103103 (VEN); Cerro Yapacana, 2 Jan. 1951, Maguire, Cowan & Wurdack 30632 (NY, VEN); Cerro Yapacana, 1,200 m, Maguire, Cowan & Wurdack 30665 (NY, VEN); Cerro

Vinilla, 30 km al SSW de Ocamo, 2°31'N, 65°23'W, 440–600 m, 1–2 Mar. 1984, Steyermark, Berry & Delascio 130405 (MO, VEN); Cerro de la Neblina, Caño Grande SSW of Cumbre Camp, 1,050–1,100 m, 25 Dec. 1957, Maguire, Wurdack & C. K. Maguire 42498 (NY, VEN); Cerro de la Neblina, summit, Caño Grande slopes E of Cumbre Camp, 1,200–1,300 m, Maguire, Wurdack & C. K. Maguire 42235, 42179 (NY, VEN); Cerro Avispa, Río Siapa, summit, 1°30'N, 65°51'W, 1,510 m, G. C. K. & E. Dunsterville s.n. (VEN); same locality and data, Cardona 3098 (VEN); Serranía de Vinilla, 20 km SW of Ocamo, 2°20'N, 65°22'W, 760 m, Huber 6168 (VEN); E side of Río Siapa, 1°36'N, 65°41'W, 600 m, Huber 6006 (VEN).

This taxon differs from typical *B. tristyla* Gleason in having smaller petals, upper surface of the leaf blade with the midrib prominently elevated, and unequally prominent pairs of lateral nerves, with 6–8 of the pairs prominently elevated alternating with finer, lightly impressed intermediate ones. In *B. tristyla* subsp. *tristyla* the large petals 35–42 × 27–30 mm contrast with the smaller ones of subsp. *nervosa*. Moreover, in subsp. *tristyla* the upper midrib is shallowly depressed, not elevated, and all the lateral nerves of the upper surface of the leaf are equally inconspicuous and lightly impressed. The leaf blades in typical *B. tristyla* tend to be larger (5–8–15 × 2.5–5.0 cm as contrasted with 4–8 × 1.5–3.5 cm in subsp. *nervosa*. The base of the leaf blade in *B. tristyla* subsp. *tristyla* is cuneately narrowed, whereas that of subsp. *nervosa* is usually slightly obtusely curved or rounded above the junction with the petiole.

The geographical ranges of the two subspecies are distinct. Typical *B. tristyla*, described originally from Cerro Duida, occupies the northeastern sector of the range, from Cerro Duida and Marahuaca east to the Meseta de Jaua and Sari-sariñama in Bolívar. *Bonnetia tristyla* subsp. *nervosa*, in contrast, is found in the more western sector, ranging from Cerro Yapacana south to Cerro Vinilla, Avispa, Aracamuni, and Neblina.

The only other species of *Bonnetia* having large yellow petals, *B. steyermarkii* Kobuski, is easily distinguished from *B. tristyla* by the larger acute sepals subtended by 4–6 large sepaloïd bracts and the broader, acutely angled ancipital peduncle.

The following key incorporates the newly described taxa of *Bonnetia* with those previously described by the author in 1984.

KEY TO THE SPECIES AND SUBSPECIES OF *BONNETIA*

1a. Style undivided.

2a. Lateral nerves of upper leaf surface elevated, impressed on lower surface; leaf blades mainly 2–4

× 1.5–2.5 cm *B. tepuiensis* subsp. *tepuensis*

- 2b. Lateral nerves of upper leaf surface faintly impressed, mostly not evident on lower surface; leaf blades 1–2 × 0.8–1.4 cm *B. tepuiensis* subsp. *minor*
- 1b. Style divided into 3 branches nearly or all the way to the base, or shallowly 3-lobed at the apex.
- 3a. Style shallowly 3-lobed *B. guaiquinimae*
- 3b. Style divided into 3 branches, parted halfway or more to the base.
- 4a. Petals white or pink.
- 5a. Petals 21–22 mm long; sepals subacute, 11–12.5 mm long; leaves obtusely acute at apex, the larger 4–5 × 1.2–1.7 cm *B. bolivariensis*
- 5b. Petals 9–12 mm long; sepals obtuse or rounded at apex, 8–9 mm long; leaves acute to subacute, 1.2–3.1 × 0.5–1.3 cm.
- 6a. Leaves in a terminal rosette; upper leaf surface enervate or nerves faint; petals 4–6 mm broad *B. chimantensis*
- 6b. Leaves imbricately extending on the branch below its tip; upper leaf surface impressed-nerved; petals 9–10 mm broad *B. toronoensis*
- 4b. Petals yellow.
- 7a. Peduncle elongate, 3–9 cm long, often surpassing the leaves, ebracteate.
- 8a. Petals 3.5–4.2 × 2.7–3 cm; lateral nerves of upper leaf surface equally impressed but not elevated; upper midrib shallowly depressed *B. tristyla* subsp. *tristyla*
- 8b. Petals smaller, 2.5–3.8 × 1.5–2.2 cm; lateral nerves of upper leaf surface unequally impressed, 6–8 pairs prominently elevated; upper midrib elevated *B. tristyla* subsp. *nervosa*
- 7b. Peduncle lacking or at most 1.6 cm long, usually hidden among the leaves or much shorter.
- 9a. Leaves linear-oblongate, 2.5–7 mm wide; petals 8 mm long; peduncle 8–16 mm long *B. huberiana*
- 9b. Leaves broadly lanceolate, obovate, or oblong-oblongate, 8–15 mm wide (leaves on vegetative shoots sometimes wider); peduncles 3–6 mm long.
- 10a. Leaves broadly oblong-lanceolate, acute, only slightly narrowed at the base, nearly the same width for most of length, 3.5–4.5 × 1–1.5 cm; leaves finely impressed-nerved beneath, not pale punctate beneath, stomata not manifest; sepals 12–13 mm long *B. ptariensis*
- 10b. Leaves oblanceolate or obovate, obtuse, rounded, or subacute at apex, conspicuously narrowed to the base, broadest above the middle, 1–3.5 × 0.4–1(–1.5) cm; leaves mainly enervate beneath, pale punctate beneath, the stomata manifest; sepals 9–10 mm long *B. wurdackii*

LISSOCARPACEAE

Lissocarpa stenocarpa Steyerl., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, riverine forest upstream from "Sima" Camp, along branch of Caño Negro, southcentral portion, 3°43'N, 65°31'W, 28 Feb.–1 Mar. 1985, 1,140 m, *Steyerl. & Holst 130880* (holotype, MO; isotype, VEN).

Arbor 10-metralis glabra; foliis subcoriaceis oblongo-ellipticis vel elliptico-ovatis apice obtuse acuminatis basi obtusis vel subacutis 7.5–13 cm longis, (2–) 3–5.5 cm latis, nervis lateralibus numerosis tenuibus, venulis tertiariis laxe tenuiterque reticulatis; petiolis 5–13 mm longis; floribus solitariis bibracteatis supra axillaribus vel axillaribus pedicellatis, pedicellis 3–3.5 mm longis; bracteis ovatis apice rotundatis 2.5 mm longis, 2–2.2 mm latis; corollis cylindricis (alabastro maturo) 8.8 mm longis, basi 1.5 mm latis, medio 2.5 mm latis, lobis 4 ligulato-oblongis rotundatis 4 × 2 mm, coronae segmentis lanceolatis acutis 1.5–2 mm longis; calyce hypanthioque 6 mm longo, calyce 5 mm longo, 1.5–2 mm lato, lobis 4 suborbicularibus rotundatis 2 mm longis, 2 mm latis, minute glandulari-ciliolatis; fructu anguste elliptico-oblongo in prominentiam obtuse

triangularem abrupte angustato basi rotundato 3–3.3 cm longo, 1.2–1.7 cm lato, 2.2–2.5 plo longiore quam latiore.

Tree 10 m tall, glabrous throughout. Leaves subcoriaceous, dark green above, paler below, oblong-elliptic to elliptic-ovate, obtusely acuminate at apex with acumen 0.8–1.2 cm long, obtuse to subacute at base, 7.5–13 cm long, (2–) 3–5.5 cm wide, glabrous both sides; midrib elevated above, impressed or less elevated below; lateral nerves numerous, faint, about equally prominent on both sides as the loosely tertiary reticulate venation; petiole 5–13 mm long. Flowers solitary, superaxillary or axillary on new or old branches, pedicellate, bibracteate at base; pedicels 3–3.5 mm long; bracts ovate, rounded at apex, 2.5 mm long, 2–2.2 mm wide. Corolla green, tubular, 8.8 mm long in mature bud, 2.5 wide at the middle, 1.5 mm wide at base, the constricted basal part 2 mm long; 4 corolla lobes ligulate-oblong, rounded, 4 mm long, 2 mm wide; 8 coronal divisions lanceolate, acute, 1.5–2 mm long. Calyx and hypanthium 6 mm long; calyx

5 mm long, 1.5–2 mm wide, the cylindric tube 4 mm long, 1.5 mm wide; 4 lobes suborbicular, rounded at apex, 2 mm long, 2 mm wide, minutely glandular-ciliolate on margins. Style 1.5 mm long, upwardly thickened to a subtruncate-capitate stigma. Fruit yellow-green, narrowly elliptic-oblong, abruptly narrowed to a bluntly triangular protuberance at apex, rounded at base, 3–3.3 cm long, 1.2–1.7 cm wide, the subtending bracts more or less persistent.

This species differs from *L. benthamii* in the differently shaped fruit which is 2.2–2.5 times longer than broad and narrowly elliptic-oblong, and in the solitary flower instead of the few- to several-flowered, subracemose inflorescence. Additionally, its occurrence in the montane forest on the slopes of Marahuaca at an elevation of 1,140 m is in contrast to the lower altitudes where *L. benthamii* has been collected.

The differences suggested by Gleason (1926) to differentiate *L. guianensis* Gl. from *L. benthamii* cannot be maintained with respect to the more prominent upper midrib and conspicuously reticulate veinlets on both surfaces, supposedly characteristic of *L. guianensis*. Examination of material collected by Liesner from San Carlos de Río Negro, Venezuela, type locality for *L. benthamii*, indicates variation in these characters, some specimens showing prominently raised upper midribs but with only obscure tertiary venation on the lower foliar surface (Liesner 8692; Liesner & Clark 9083), while others (Ducke 1117) have more prominently reticulate veinlets on the lower surface. Similarly, specimens determined by White as *L. guianensis* (Maguire 34618, 34907) show only obscure venation on the lower surface.

The leaves of the Marahuaca specimens are prominently reticulate-veined on both surfaces with the upper midrib manifestly elevated. The leaves are relatively small in size as compared with either *L. guianensis* or *L. benthamii*.

Although *L. benthamii* and *L. guianensis* cannot be well separated on vegetative characters, the larger flowers of *L. guianensis* may be the best difference in distinguishing the two taxa. Pending further collections of flowering material, the two taxa may at present be considered as separate species.

RUBIACEAE

Chomelia stergiosii Steyerm., sp. nov. TYPE: VENEZUELA. Bolívar: Anacoco, Río Cuyuní,

entre puesto de la Guardia Nacional Acarabisi and Anacoco, 2 Aug. 1981, *Basil Stergios & Gerardo Aymard 2804* (holotype, VEN; isotype, PORT).

Arbor 8-metralis, ramulis glabris; foliis elliptico-ovatis vel lanceolato-ellipticis apice obtuse acutis basi acutis vel subobtusis supra glabris subtus praeter axillas nervorum barbellatas glabris 4.5–7 cm longis, 2–4 cm latis; inflorescentia ebracteata longipedunculata, pedunculo 2.5 cm longo glabro; floribus sessilibus; calycis lobis foliaceis inaequalibus, duobus majoribus patulis vel reflexis oblongo-spathulatis apice rotundatis 3–5 mm longis (1–)1.7–1.8 mm latis, intus dimidio inferiore sparsim pilosulis; hypanthio extus sparsim pilosulo; corolla hypocrateriformi, tubo 20 mm longo, 0.7–1 mm lato ubique glabro, lobis lineari-ligulatis 4 mm longis, 1.2–1.5 mm latis.

Tree 8 m tall, branches slender, glabrous, spines axillary, 18–19 mm long. Leaves membranous, elliptic-ovate to lance-elliptic, obtusely acute at apex, acute to subobtuse at base, glabrous above, glabrous below except barbellate in the leaf axils and sometimes sparsely pilosulous along some of the lateral nerves, 4.5–7 cm long, 2–4 cm wide, with minute dark dots moderately scattered beneath; lateral nerves 4–5 each side, slender, slightly sulcate above, faintly impressed below, ascending, faintly anastomosing near margin; petiole 4–5 mm long, ciliate on upper margins, elsewhere glabrous, canaliculate above. Stipules triangular-ovate, acute, appressed-pubescent without, ciliolate at apex, 2–3 mm long. Inflorescence terminal, long-pedunculate, congested-cymose with 3–6 flowers, ebracteate; peduncle 2.5 cm long, filiform, glabrous; flowers sessile, the central one solitary and sessile, the others on short lateral axes 0.5 mm long. Calyx lobes 4, unequal, the two larger ones oblong-spatulate, rounded at apex, narrowed in the basal third, 3–5 mm long, (1–)1.7–1.8 mm wide in upper part, 1 mm wide in lower third, spreading to reflexed, sparsely minutely pilosulous within in lower half, glabrous without, two smaller lobes ligulate, obtuse, 2 mm long, 0.8 mm wide, spreading to reflexed; hypanthium clavate-turbinate, 2 mm long, 1 mm wide above middle, sparsely pilosulous with loosely spreading hairs. Corolla salverform, tube 20 mm long, 1 mm wide just below summit, 0.7 mm wide at base, glabrous within and without, lobes linear-ligulate, rounded at apex, 4 mm long, 1.2–1.5 mm wide, glabrous within, strigillose without mainly above middle. Anthers slightly exerted, linear, 2 mm long, 2 mm wide, glabrous. Style 13.5 mm long, glabrous.

This species is sympatric with *C. delascoi* Steyererm. but is distinguished from that taxon in the much longer corolla, foliaceous, manifestly unequal, and spreading calyx lobes, which are sparsely pilosulous on the interior surface of the larger pair, and larger leaves. It differs from *C. polyantha* Blake in the glabrous exterior of the corolla tube, the longer corollas, and the longer, spreading calyx lobes.

I take pleasure in naming this species for Dr. Basil Stergios, director of the herbarium of PORT, who has activated a well-organized collecting program in Venezuela and, together with his colleagues, has established an important herbarium in the Venezuelan Llanos of Edo. Portuguesa.

Coccocypselum croatii Steyererm., sp. nov. TYPE: VENEZUELA. Bolívar: vicinity of Icabarú, 4°19'N, 61°44'W, 600 m, 25 Jul. 1982, Thomas B. Croat 54112 (holotype, MO).

Herba radicans, caulibus repentibus 2 mm diam. glabris; stipulis praeter vaginae marginem ciliatam glabris, subulatis elongatis 8–10 mm longis glabris; foliis petiolatis, petiolis 3–4 mm longis, marginibus superioribus setoso-ciliatis ceterum glabris; laminis obtusis vel rotundatis 4–4.5 cm longis, 1.5–3 cm latis supra costam mediam pilis setosis munitis atque marginibus dense adpresso-setoso-ciliatis, ciliis 0.5–0.7 mm longis ceterum glabris, nervis lateralibus utroque latere 7–9 arcuato-adscententibus subtus elevatis; inflorescentiis longipedunculatis 5–7-floris, pedunculo 2.5–3 cm longo glabro; floribus subsessilibus; hypanthio glabro, post anthesim 1–1.5 mm longo; calycis lobis lineari-lanceolatis acutis 2.5–3 mm longis, 0.7–0.9 mm latis omnino glabris; bacca (immatura) coerulea 4 mm longa, 7 mm lata glabra.

Creeping herbaceous plant with rooting glabrous stems 2 mm diam.; stipular sheath glabrous except densely ciliate on the summit, prolonged into a glabrous, elongated, subulate appendage 8–10 mm long. Leaves petiolate; petioles 3–4 mm long, upper margins setose-ciliate, otherwise glabrous; leaf blades ovate, shortly acute at apex, obtuse or rounded at base, 4–4.5 cm long, 1.5–3 cm wide, upper midrib setose-ciliate, margins densely appressed setose-ciliate, the incurved hairs 0.5–0.7 mm long, elsewhere glabrous; lateral nerves 7–9 each side, arcuate-ascending, elevated below. Inflorescence long pedunculate, 5–7-flowered; peduncle 2.5–3 cm. Flowers subsessile; hypanthium and calyx glabrous; hypanthium in post-anthesis 1–1.5 mm long; calyx lobes linear-lanceolate, acute, 2.5–3 mm long, 0.7–0.9 mm wide, glabrous through-

out. Fruit blue, 4 mm long, 7 mm wide, glabrous.

This species is related to *C. condalia* R. & P. of Peru, from which it differs in the larger ovate leaves, shorter petioles, more elongate setose cilia on the leaf margins, and more numerous, arcuately curved lateral nerves.

Pagameopsis Steyererm.

Recent collections of *Pagameopsis* have necessitated a reevaluation of the specific and subspecific elements within the genus.

Pagameopsis maguirei Steyererm. subsp. **pusillus** Steyererm., subsp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Río Negro, Cerro de la Neblina, Camp III, NW Plateau, 13.5 km ENE of Base Camp, 0°54'N, 66°4'W, 1,750–1,850 m, 16–18 Feb. 1984, Ronald Liesner 16013 (holotype, MO; isotype, VEN). Figure 8.

Suffrutex 0.1–0.2-metralis; foliis ad apices ramorum congestis rosulatis anguste lanceolato-ellipticis vel lanceolatis apice obtusis vel subobtusis subsessilibus 1–2.5 cm longis, 4–7 mm latis, supra dense adpresso-hirsutulis subtus marginibus dense hirsutulis, nervis lateralibus non manifestis; petiolis 2–3 mm longis dense hirsutulis; stipularum vaginae crebris dense hirsutostrigosis 1.5–2 mm longis apice dense hispidis, pilis erectis 1.5–2.5 mm longis munitis; inflorescentiis subhemisphaericis 7–30 mm longis, 20–30 mm latis pedunculatis; pedunculo erecto 2.5–4.5 cm longo 1–1.5 mm crasso, dense hirsutulo; floribus glomeratis ad apices 4–5 ramorum brevium inflorescentiae, quoque glomerulo 3–4-floribus; corollis 4–5-meris 4 mm longis, tubo lobisque extus praeter basin glabram dense strigosis, lobis 4–5 ligulato-lanceolatis subobtusis 2 mm longis intus dense lanulosis; calycis lobis 4–5 lineari-lanceolatis acutis extus dense strigoso-hirsutis intus glabris in sinubus una glandula nigra munitis.

Dwarf ligneous plant 0.1–0.2 m tall. Leaves densely crowded in an apical rosette, narrowly lance-elliptic or lanceolate, narrowed to an obtuse or subobtuse apex, narrowed to a subsessile base, 1–2.5 cm long, 4–7 mm wide, densely appressed-hirsutulous above, densely hirsutulous below and on margins; midrib elevated below, not evident above; lateral nerves not manifest; petiole 2–3 mm long, scarcely distinguishable from the leaf base. Stipular sheaths closely crowded, 1.5–2 mm long, densely hirsute-strigose, the summit densely loosely hispid with prominent hairs 1.5–2.5 mm long. Inflorescence subcapitate-subcorymbose, many-flowered, 7–30 mm long, 20–30 mm wide, pedunculate, bearing 4–5 short axes, the lowest axes 8–15 mm long,

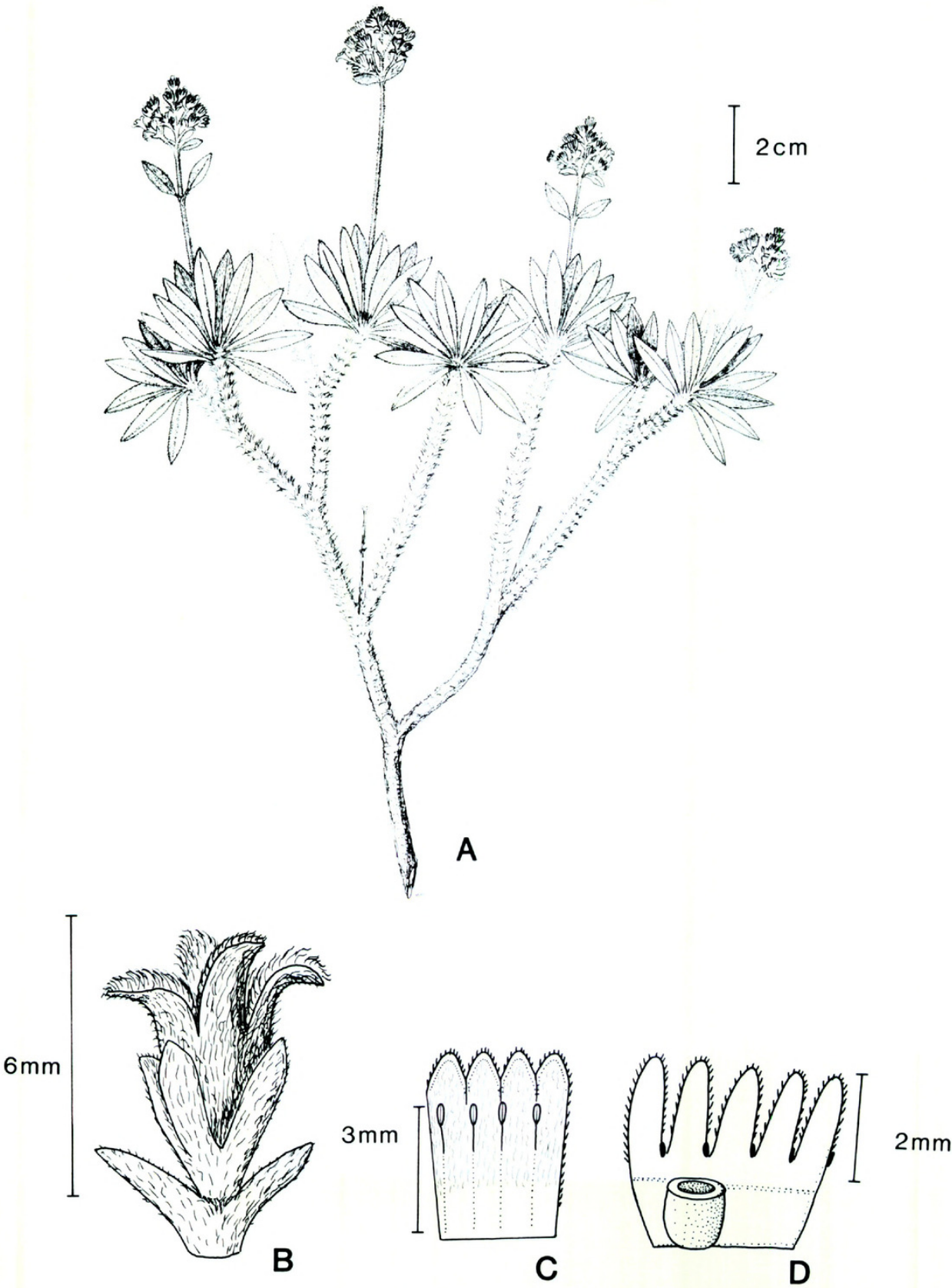


FIGURE 8. *Pagameopsis maguirei* subsp. *pusillus*.—A. Habit.—B. Flower, with subtending bracts.—C. Corolla, interior view.—D. Calyx and hypanthium, with pistil detached from calyx, interior view.

densely hirsute; rachis with 1–3 pairs of horizontally spreading bracts 3 mm long, 1 mm wide, hirsutulous without, glabrous, the inflorescence bibracteate at base with the bracts foliose, linear to oblong-lanceolate, subobtusate, 8–15 mm long, 2–3 mm wide, densely pubescent above, sparsely or moderately so below. Peduncle 2.5–4.5 cm long, 1–1.5 mm thick. Flowers in dense nearly sessile glomerules of 3–4 at the ends of short axes; 2 bracts subtending the base of the calyx navicular, oblong-lanceolate, 1.5–1.8 mm long, 0.8–1 mm wide, glabrous and glandular within. Calyx lobes slightly unequal, 4–5, linear-lanceolate, acute, 1.5–2 mm long, 0.5–0.6 mm wide, densely strigose-hirsute without and on margins, glabrous within with 1 gland between the sinuses of the lobes. Corolla 4 mm long, densely strigose without except where glabrous at base; tube 2 mm long; lobes 4–5, ligulate-lanceolate, subobtusate at apex, 2 mm long, densely lanulose within.

This taxon differs from the other known taxa of *Pagameopsis* in the very small, narrow, densely hirsute leaves and dwarf habit. It is closely related to *P. maguirei* Steyererm. subsp. *neblinensis* in having apical leaf clusters, but differs in the smaller inflorescences with 3–5 axes, and in the dense pubescence.

A glabrous variation of subsp. *pusillus* has been found on nearby Cerro Avispa of Venezuela.

Pagameopsis maguirei* subsp. *pusillus* var. *glabrus Steyererm., var. nov. A subsp. *pusillus* var. *pusillus* foliis glabris recedit. TYPE: VENEZUELA. Territorio Federal Amazonas: summit of Cerro Avispa, Río Siapa, 1°30'N, 65°51'W, 1,510 m, 5 Dec. 1972, Cardona 3096 (holotype, NY; isotype, VEN).

Another variation of *Pagameopsis maguirei* from adjacent northern Brazil is here described.

Pagameopsis maguirei* subsp. *neblinensis Steyererm. var. ***pirapucuensis*** Steyererm., var. nov. TYPE: BRAZIL. Serra Pirapucú, 1,300 m, 26 Jan. 1966, Nilo T. Silva & Umbelino Brazao 60880 (holotype, NY).

Frutex; foliis caulinis dispersis haud omnino apicalibus, longitudinem caulis 2.5–4 cm occupantibus, oblanceolatis apice subacutis 8–8.5 cm longis, 1.3–1.5 cm latis supra adpresso-pubescentibus vel saltem parte inferiore costae mediae pilosis, subtus costa media abundanter substrigosis vel pilosis ceterum sparse puberulis; petiolis utrinque abundanter strigosis vel substrigosis; stipularum vaginis elongatis 7–10 mm longis, 4–8 mm latis, moderatim vel dense strigosis, apice dense hirsutis.

Shrub; leaves arranged along the uppermost length of the stem, not wholly apical, oblanceolate, subacute at apex, 8–8.5 cm long, 1.3–1.5 cm wide, appressed-pubescent above or at least pilose on the lower part of the midrib, abundantly substrigose or pilose below, otherwise sparsely puberulous; petioles abundantly strigose or substrigose throughout. Stipular sheaths elongated, 7–10 mm long, 4–8 mm wide, moderately to densely strigose, the summit densely hirsute.

This taxon differs from the other varieties of subsp. *neblinensis* in the more densely strigose stipular sheaths, which are more densely hirsute at the summit. From var. *neblinensis* it differs in having the leaves dispersed along the stem length for 4 cm, and in the pilose petioles and lower surface. From subsp. *neblinensis* var. *angustifolius* it differs in the leaves pubescent below and above at least along the midrib or surface. From subsp. *maguirei* var. *maguirei* it may be differentiated by the pubescent upper midrib and lower leaf surface.

In order to accommodate the above newly described taxa, the following revised key to *Pagameopsis* is offered.

KEY TO THE SPECIES, SUBSPECIES, AND VARIETIES OF *PAGAMEOPSIS*

- 1a. Cauline leaves spaced along the upper part of stem for 2.5–11 cm; stipular sheath elongated, usually longer than broad or as long as broad, 3–15 mm long 2
- 2a. Cilia of leaf margins very conspicuous and dense, the hairs extending divaricately or subascending, 0.5–1 mm long; inflorescence with usually 3–5 densely flowered glomerules on 1–2 pairs of lateral axes, the whole inflorescence 1.5–4 cm long, 2–4 cm wide; leaves mainly $1\frac{2}{3}$ – $3\frac{1}{2}$ times longer than broad *P. garryoides*
- 2b. Cilia of leaf margins inconspicuous, appressed or subappressed to ascending, less than 0.5 mm long; inflorescence branched into numerous small glomerules borne on 7 or more branched axes, the whole inflorescence 5–11 cm long, 3–6 cm wide; leaves mainly $(2\frac{7}{8})$ –3–6 times longer than broad 3
- 3a. Lower leaf surface glabrous or mainly so, sometimes pubescent; upper leaf surface glabrous 4
- 4a. Petiolar base short-strigose throughout; calyx lobes densely hirtellous with spreading hairs; corolla lobes ca. 2 mm long, 1–1.25 mm wide *P. maguirei* subsp. *maguirei* var. *maguirei*
- 4b. Petiolar base glabrous above, glabrous to sparsely pubescent below; interior of calyx lobes

- with short strigose pubescence, the exterior with ascending hirtellous pubescence; corolla lobes 2.2–3 mm long, 0.7–1 mm wide *P. maguirei* subsp. *neblinensis* var. *angustifolius*
- 3b. Lower leaf surface pubescent; upper leaf surface pubescent or glabrescent, the midrib pubescent *P. maguirei* subsp. *neblinensis* var. *pirapucuensis*
- 1b. Leaves apically congested, occupying the uppermost 0.5–1.5 cm length of stem; stipular sheath contracted, broader than long or as broad as long, 1–6 mm long 5
- 5a. Leaves 2–10 cm long, 0.7–1.8 cm wide; bracts subtending base of inflorescence 15–55 mm long, 4–17 mm wide; inflorescence branching into numerous small glomerules borne in 7 or more branched axes, the whole inflorescence 5–11 cm long, 3–6 cm wide; shrub 0.3–2 m tall *P. maguirei* subsp. *neblinensis* var. *neblinensis*
- 5b. Leaves 1–2.5(–3) cm long, 0.4–0.7 cm wide; bracts subtending base of inflorescence 8–15 mm long, 2–3(–5) mm wide; inflorescence with only 3–5 densely clustered glomerules borne on 1–2 pairs of lateral axes, the whole inflorescence 0.7–3 cm long, 2–3 cm wide; depressed ligneous plant 0.1–0.2 m tall 6
- 6a. Upper and lower leaf surfaces densely hirsute *P. maguirei* subsp. *pusillus* var. *pusillus*
- 6b. Upper and lower leaf surfaces glabrous *P. maguirei* subsp. *pusillus* var. *glabrus*

Psychotria guanchezii Steyerm., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Río Sipapo junto a la comunidad indígena de la etnia Piaroa, 15 Nov. 1984, *Francisco Guanchez 3644* (holotype, VEN; isotype, TFAV). Figure 9.

Suffrutex 1.5-metralis, ramis glabris; stipulae vagina 2–2.5 mm longa, 1.8–2 mm lata glabra in duobus dentibus subulatis utroque latere 3 mm longis minute ciliolatis desinenti; petiolis 3–9 mm longis glabris; foliorum laminis anguste lanceolatis apice acutis basi acutis utrinque glabris 4–9.5 cm longis, 0.8–2 cm latis, costa media subtus elevata supra impressa, nervis lateralibus 16–20 utroque latere divaricate patentibus; inflorescentia terminali pedunculata, pedunculo gracili erecto 4–4.3 cm longo, 1 mm lato minute sparsimque puberulenti; inflorescentia parva umbellata cymosa 1.2–1.8 cm longa, 1.3–1.8 cm lata, axibus principalibus quatuor, lateralibus tribus patentibus 5–6-floris, 4–6 mm longis, 0.5–1 mm latis, uno axe centrali erecto 7–8-flora, omnibus moderatim vel abundanter puberulentibus; bracteis duobus sub inflorescentia patentibus subulatis 2.5–2.7 mm longis minute moderatimque puberulentibus; bracteis sub fasciculis florum ligulatis vel lanceolatis 2.5–3 mm longis utrinque minute denseque puberulentibus; calyce hypanthioque 1.5–2 mm longo; calycis lobis deltoideis obtusis 0.3 mm longis, 0.8 mm latis; corolla subinfundibuliformi 5–6 mm longa extus praeter basim glabram ipsa dense puberulenti pilis patentibus 0.1–0.2 mm longis munita intus dimidia parte superiore puberula ceterum glabra.

Slender subshrub 1.5 meters tall, branches glabrous. Stipular sheath 2–2.5 mm long, 1.8–2 mm wide, glabrous, terminating on each side in 2 subulate minutely ciliolate teeth 3 mm long. Leaf blades narrowly lanceolate, acute at apex and base, glabrous both sides, 4–9.5 cm long, 0.8–2 cm wide, midrib elevated below, impressed above; lateral nerves 16–20 each side, divaricately spreading at an angle of 5–10°, faintly anastomosing at 1–2 mm from margin; petiole 3–9 mm long, glabrous. Inflorescence small, cy-

mosely umbellate, terminal, 1.2–1.8 cm long, 1.3–1.8 cm wide, on erect, slender peduncle 4–4.3 cm long, 1 mm wide, minutely and sparsely puberulent; axes of inflorescence 4, three lateral ones spreading, 4–6 mm long, 0.5–1 mm wide, one central axis erect and longer, 7–8 mm long, 1 mm wide, all moderately to abundantly puberulent with spreading unequal puberulence, the longest hairs 0.1 mm long; 3 lateral axes 5–6-flowered, 4th axis 7–8-flowered. Bracts subtending base of inflorescence divaricately spreading, subulate, 2.5–2.7 mm long, 0.3 mm wide, minutely and moderately puberulent; bracts subtending flower clusters ligulate to lanceolate, acute to obtuse, 2.5–3 mm long, 0.7 mm wide, minutely densely puberulent on both sides. Calyx and hypanthium 1.5–2 mm long; hypanthium shallowly campanulate, 1 × 1 mm; calyx 1 mm long, 1.2 mm wide, shallowly lobed; lobes deltoid, obtuse, 0.3 mm long, 0.8 mm wide. Corolla infundibuliform, 5–6 mm long; tube 2.2–3.5 mm long, 0.8 mm wide at base, 1.3 mm wide at orifice, densely puberulent, except at very base, with short spreading hairs 0.1–0.2 mm long, pubescent in upper half within from staminal insertion to orifice, elsewhere within glabrous; lobes 4, lanceolate, subacute, 1.7–2.5 mm long, 1.3 mm wide, densely puberulous without. Anthers linear, 1.1–1.2 mm long, included in uppermost part of corolla tube; filaments 0.8 mm long, inserted halfway up corolla tube. Style 4.2 mm long, papillate; stigmas rhomboid, dilated, exserted, 0.8 mm long.

This species is related to *P. capitata* R. & P. but is reduced in the size of all parts. Moreover, the densely puberulous calyx and minute, puberulous corollas, small inflorescence with slender peduncle, and narrow leaves are noteworthy distinguishing characters of the taxon. From *P. piresii* Steyerm. of Amapá, Brazil, it is differen-

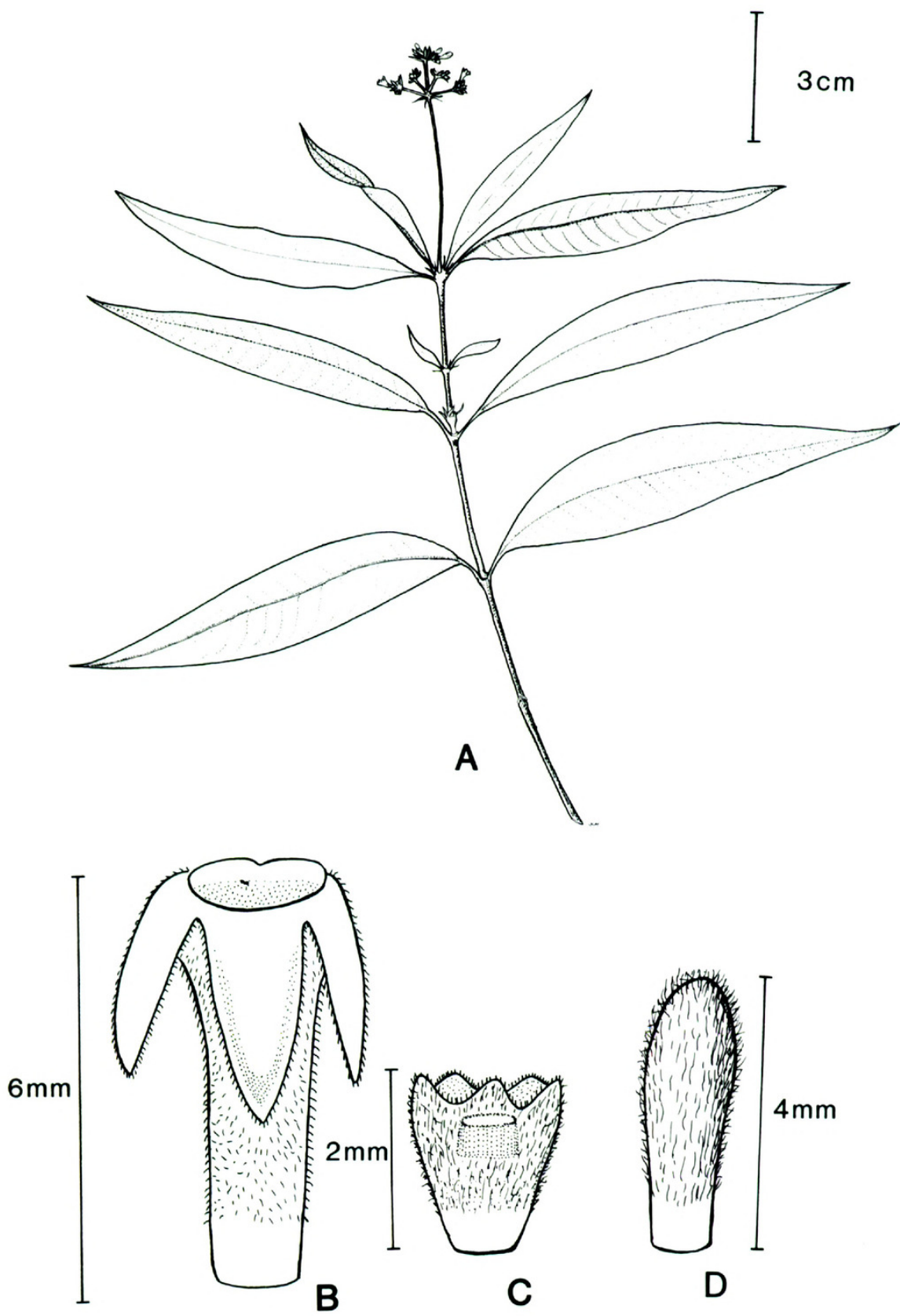


FIGURE 9. *Psychotria guanchezii*.—A. Habit.—B. Corolla.—C. Calyx and hypanthium, with position of disk indicated.—D. Corolla, pre-anthesis.

tiated by the smaller, 5-merous corollas, shorter stipular teeth, and smaller inflorescence with fewer axes.

Psychotria ronaldii Steyerl., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Huachamacari, forested slope, 3°39'N, 65°42'W, 600–750 m, 4 Mar. 1985, *Ronald Liesner 18214* (holotype, MO; isotype, VEN). Figure 10.

Frutex 2-metralis, caulibus glabris; stipularum vaginis apice late subrotundatis vel interdum paullo subacutis 2.5 mm altis interiusque pubescentibus; foliis late elliptico-obovatis apice caudato-acuminatis acumine 2 cm longo, ad basim acute angustatis decurrentibusque 22–30 cm longis, 8–10.5 cm latis utrinque glabris, nervis lateralibus utroque 14–17 late patentibus; petiolis 1–1.5 cm longis glabris; inflorescentia terminali paniculata parva subhemisphaerica paullo latiore quam longiore 2 cm longa, 2.5–3 cm lata, axibus lateralibus 4–6 patentibus, axium cicatricibus basi fimbriato-pubescentibus; pedunculo erecto 1.8–2.5 cm longo, 1–1.5 mm crasso glabro; floribus sessilibus, bracteis ut videtur nullis; hypanthio calyceque 2.1 mm longo glabro, calyce breviter 5-lobato, dentibus late deltoideis vel fere truncatis; corolla subinfundibuliformi 4.5 mm longa extus glabra, intus infra insertionem filamentorum pilosulo ceterum glabro, lobis 5.

Shrub 2 m tall; stems glabrous. Stipular sheaths broadly semicircular, rounded or slightly acute at apex, buff-pubescent within and on the apical margins, 2.5 mm high, 5 mm wide. Leaves broadly elliptic-obovate, caudate-acuminate at apex with acumens 2 cm long, acutely narrowed to a decurrent base, 22–30 cm long, 8–10.5 cm wide, glabrous both sides; lateral nerves 14–17 each side, widely spreading at an angle of 15°–20°, elevated below, tertiary venation beneath finely grossly reticulate. Petioles 1–1.5 cm long, glabrous. Inflorescence terminal, paniculate, subhemispheric, slightly broader than long, 2 cm long, 2.5–3 cm wide at base; lateral axes divaricately spreading, the lower ones 7–8 mm long, the upper 2–4 mm long; base of axes with fimbriate-pubescent scars; axes terminating in 7–10-flowered clusters. Peduncle erect, 1.8–2.5 cm long, 1–1.5 mm thick, glabrous. Flowers in groups of 7–10. Calyx and hypanthium 2.1 mm long, glabrous; hypanthium 1 mm long, 1 mm wide; calyx 1 mm long, 1.2 mm wide, the border shallowly toothed; calyx teeth broadly deltoid to nearly truncate. Corolla cream-colored, subinfundibuliform, 4.5 mm long, 2 mm wide above, 1 mm wide at base, glabrous without, glabrous within except for a pilosulous zone at the antheriferous

level; lobes 5, oblong-lanceolate, subacute, 1.5 mm long, 1 mm wide.

The immediate relationship of this taxon with other species of the genus is not apparent. The species is characterized by the small corollas, glabrous leaves, inflorescence, and stems, and fimbriate pubescence of the scars on the inflorescence axes.

The species is named for Ronald Liesner, who made important collections on Cerros Huachamacari and Marahuaca during the expedition in 1985 sponsored by the Terramar Foundation.

Remijia marahuacensis Steyerl., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, "Sima" Camp, southcentral portion of forested slopes along eastern branch of Caño Negro, 3°43'N, 65°31'W, 1,140 m, 21–22, 24 Feb. 1985, *Julian A. Steyermark & Bruce Holst 130440* (holotype, MO; isotype, VEN). Figure 11.

Frutex 2 m altus, ramis dense adpresso-hirsutulis; foliis anguste lanceolatis vel lineari-lanceolatis apice longiacuminatis basi acutis vel subacutis 11–18 cm longis, 2.5–5 cm latis, adultis supra glabris subtus costa media nervis lateralibusque adpresso-pubescentibus axillibus barbellatis ceterum glabris, nervis lateralibus utroque latere 9–11; petiolis 0.5–1.5 cm longis adpresso-pubescentibus; inflorescentia axillari sub anthesi capitata 2 cm longa, 1.5 cm lata bracteis foliosis oblongo-ovatis obtusis vel subobtusis 1.7–2 cm longis, 0.8–1.1 cm latis extus adpresso-pubescentibus subtenta; infructescencia breviter racemosa 2–4 cm longa, 3 cm lata elongata; rhachidi dense hirsutula; pedunculo 6–15 cm longo, 2 mm lato, dense adpresso-hirsutulo; floribus heterostylis sub anthesi brevipedicellatis, pedicellis 1.5 mm longis dense hirsutulis, sub fructu 5–7 mm longis; calyce hypanthioque 4–5 mm longo, hypanthio 3–4 mm longo; calyce apice fere truncato extus sericeo-strigoso, intus glabro-eglanduloso; corolla 15–21 mm longa, tubo 10–15 mm longo, 2.5 mm lato, extus dense lanuginoso pilis erectis subadpressis munito, lobis 5 lanceolatis subobtusis 5–6 mm longis extus dense lanuginosis; capsulis maturis cylindricis 1.5–2.3 cm longis, 5–6 mm latis, adpresso-pubescentibus deorsum dehiscentibus, valvis apice solutis; seminibus alatis ligulato-oblongis extremitatibus rotundatis 5 mm longis, corpusculo ovali 1.7–2 mm longo, 1.5 mm lato, alis late oblongis rotundatis 1.5–2.5 mm longis, 1.5 mm latis.

Shrub 2 m tall, young stems densely appressed-hirsutulous. Stipules ligulate-lanceolate, subacute, 1.5–3 cm long, 4–7 mm wide, appressed pubescent without, midrib densely pubescent. Leaf blades subcoriaceous, dark green above, pale green below, linear-lanceolate to narrowly lanceolate, long acuminate at apex, acute to sub-

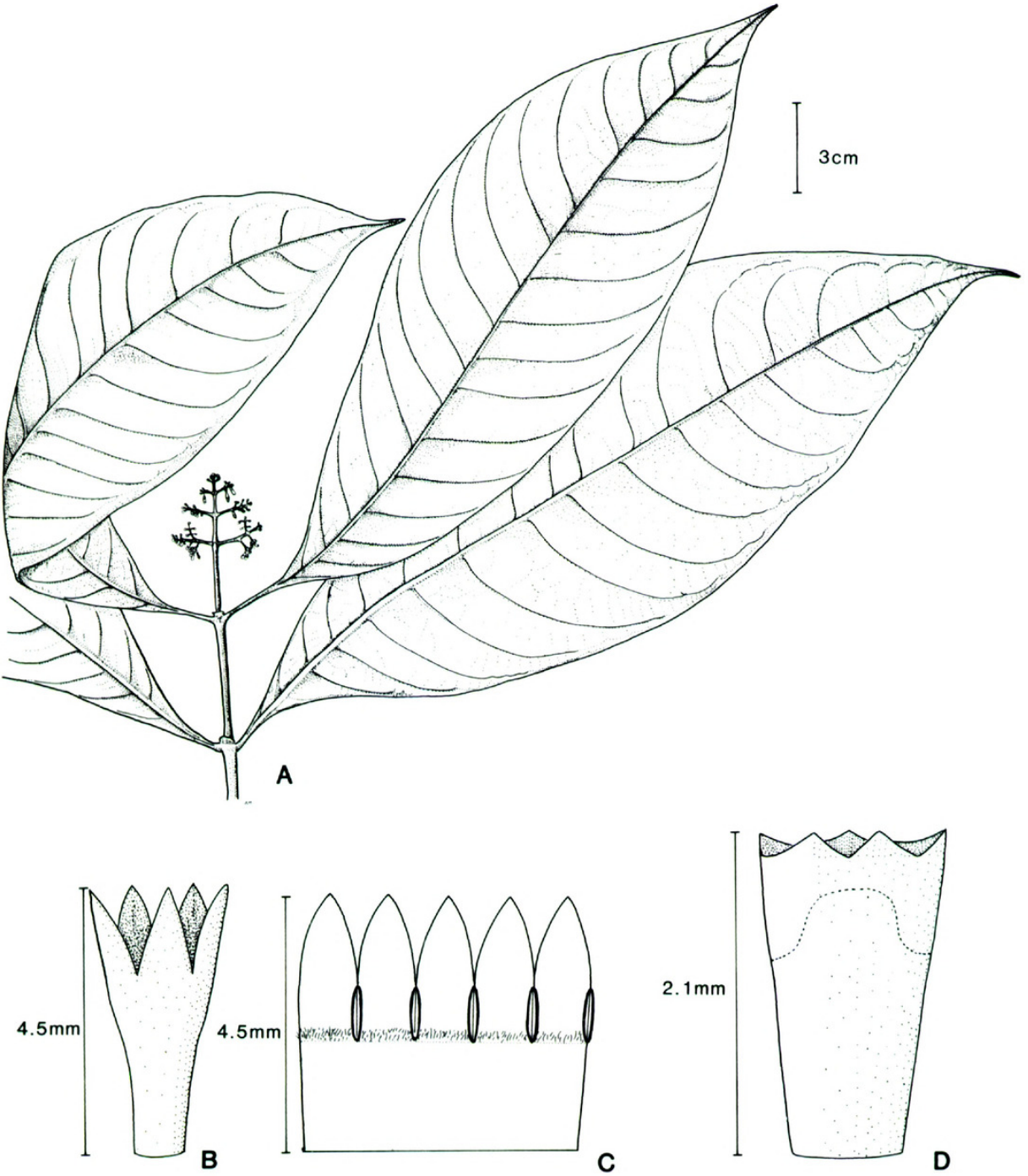


FIGURE 10. *Psychotria ronaldii*.—A. Habit.—B. Corolla.—C. Corolla, interior view.—D. Calyx and hypanthium, with position of disk indicated.

acute at base, 11–18 cm long, 2.5–5 cm wide, glabrous above on mature leaves, lower surface appressed-pubescent on midrib and lateral nerves, barbellate in axils of nerves beneath, lower surface otherwise mainly glabrous; lateral nerves 9–11 each side, sulcate above, elevated below, ascending at an angle of 45–50°, curving into the margin, tertiary venation finely reticulate below. Inflorescence axillary, capitate in an-

thesis, 2 cm long, 1.5 cm wide, 6–10-flowered, subtended by 2 foliose, oblong-ovate, obtuse or subobtuse bracts 1.7–2 cm long, 0.8–1.1 cm wide, appressed-pubescent without. Infructescence racemose, 2–4 cm long, 3 cm wide, rachis densely hirsutulous, up to 1.5–2 cm long in fruit. Peduncle 6–15 cm long, 2 mm thick, densely appressed-hirsutulous. Flowers heterostylous, short-pedicellate, in anthesis pedicels 1.5 mm long, in

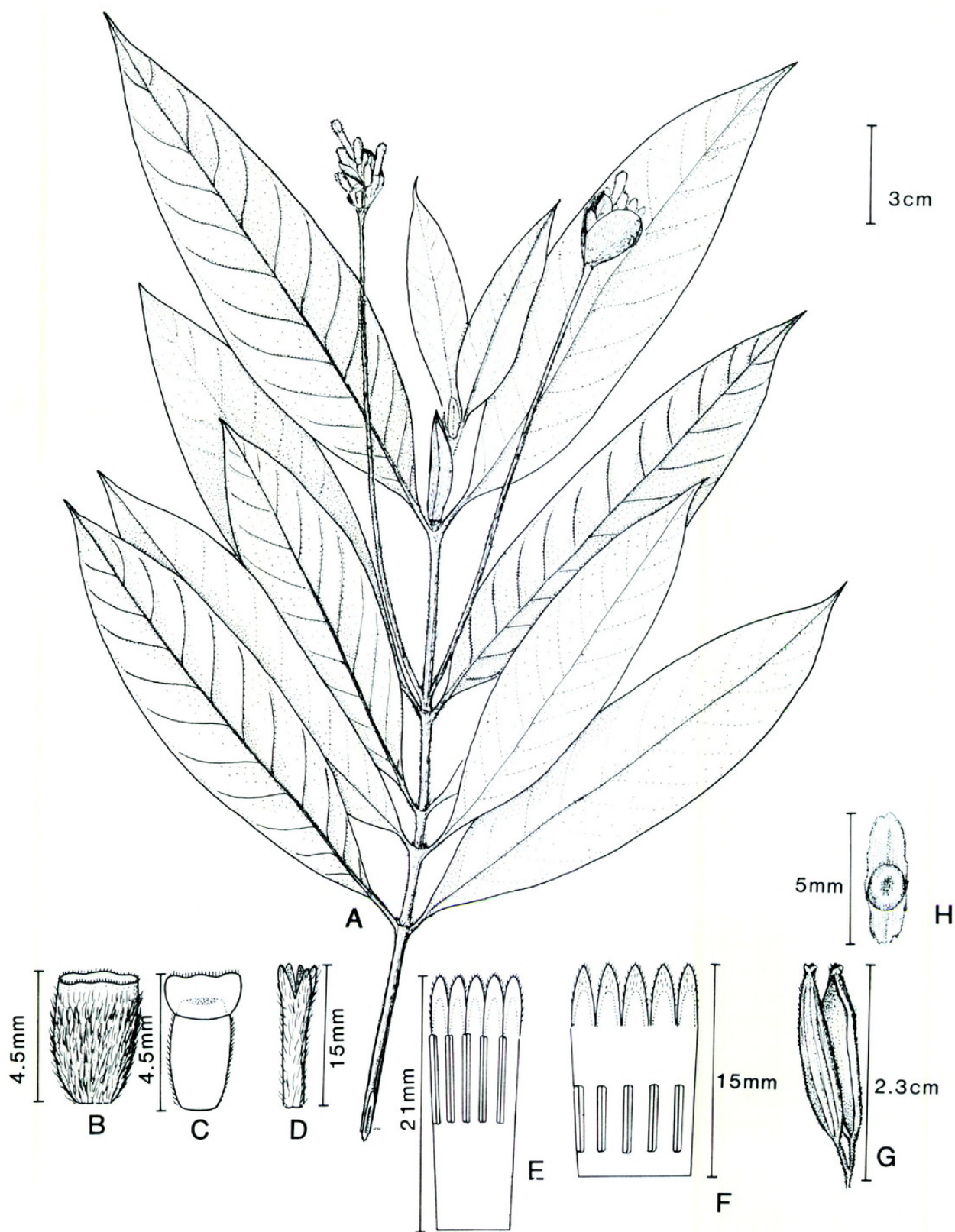


FIGURE 11. *Remijia marahuacensis*.—A. Habit.—B. Calyx and hypanthium, external view.—C. Calyx and hypanthium with disk, internal view.—D. Corolla.—E. Short-styled corolla.—F. Long-styled corolla.—G. Fruit-
ing capsule after dehiscence.—H. Seed.

fruit 5–7 mm long, densely hirsutulous. Calyx and hypanthium short-cylindric, 2.5 mm wide, densely lanuginose without with cream-colored, erect-ascending hairs; calyx 1–1.3 mm long, 2.5 mm wide, truncate or shallowly cupulate, strigose-sericeous without, ciliate on margins, glabrous and eglandular within. Corolla pink, subhypocrateriform, densely buff lanuginose without, 15–21 mm long, tube 10–15 mm long, 2.5 mm wide, glabrous within; lobes 5, lanceolate, subobtusate, 5–6 mm long, 1.2–2 mm wide. Anthers linear, 5.3 mm long, in short-styled flowers inserted in the upper half of the corolla tube, in long-styled flowers inserted 2–3 mm above base of corolla tube. Style 5.5–9 mm long. Mature capsules cylindric, 1.5–2.3 cm long, 5–6 mm wide, appressed pubescent. Seeds ligulate-oblong, winged, 5 mm long, the body pale brown, oval, 1.7–2 mm long, 1.5 mm wide, wings broadly oblong, rounded, 1.5–2.5 mm long, 1.5 mm wide.

Distribution. Forested slopes of Cerro Marahuaca, Territorio Federal Amazonas, Venezuela, at an altitude of 1,140–1,220 meters.

Paratype. Cerro Marahuaca, Upper Río Yameduaka, 3°38'N, 65°28'W, 1,225 m, 22 Feb. 1985, *Liesner 17818* (MO, VEN).

This species is related to *R. maguirei* of Cerro de la Neblina, from which it differs in the smaller seeds, much shorter corolla, eglandular interior of calyx tube, glabrous petioles, lower leaf surface, and densely pubescent branches.

Of the 20 species of *Remijia* presently known from the Guayana, six are endemic to different sandstone table mountains (*R. pilosinervia* from Chimantá, *R. maguirei* from Neblina, *R. argentea* from Yapacana and Moriche, *R. steyermarkii* from Duida, and *R. roraimae* from Roraima and Chimantá). *Remijia densiflora* is widespread on several table mountains and surrounding areas of Bolívar and Territorio Federal Amazonas. *Remijia marahuacensis* becomes the seventh species to add to the list of endemic taxa of this genus.

***Schradera marahuacensis* Steyerl., sp. nov.**

TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, "Sima" Camp, southcentral portion of forested slopes along eastern branch of Caño Negro, 3°43'N, 65°31'W, 1,140 m, 25 Feb. 1985, *Julian A. Steyermark & Bruce Holst 130721* (holotype, MO; isotype, VEN).

Suffrutex epiphyticus glabrus, stipulis non visis; foliis petiolatis 5–16 mm longis; laminis coriaceis oblongo-ellipticis apice obtusis vel subobtusis basi acutis 9.5–13 cm longis, 2.5–5.5 cm latis, costa media subtus elevata supra paulo anguste sulcata, nervis lateralibus utroque latere 11–12 adscendentibus subtus subprominulis supra obsoletis; capitulis hemisphaericis 10–20-floris 2.5–3 cm diam., 1.5–2 cm altis; pedunculo solitario terminali 3.5–5.5 cm longo, 2–2.5 mm lato infra apicem paulo dilatato; involucre 7–8 mm alto lobato, lobis suborbicularibus 8 mm longis, 10 mm latis; calyce hypanthioque 10 mm longis, 4–5 mm latis; calyce cylindrico-campanulato breviter lateque deltoideo-dentato vel subtruncato; corolla cylindrica 12 mm longa extus glabra intus pilosula, lobis 5 lanceolatis subacutis 5 mm longis, 1.8–2 mm latis; staminibus prope basin tubi corollae insertis.

Woody glabrous epiphyte. Leaf blades coriaceous, oblong-elliptic, obtuse to subobtusate at apex, acute at base, 9.5–13 cm long, 2.5–5.5 cm wide; midrib elevated below, slightly narrowly sulcate above, lateral nerves ascending, 11–12 each side, faint or at most slightly prominulous below, obsolete above. Petioles 5–16 mm long. Inflorescence hemispheric, 10–20-flowered, 2.5–3 cm diam., 1.5–2 cm high. Peduncle solitary, terminal, 3.5–5.5 cm long, 2–2.5 mm wide, slightly dilated below summit. Involucre 7–8 mm high, lobed, lobes suborbicular, 8 mm long, 10 mm wide. Calyx and hypanthium 10 mm long, 4–5 mm wide, calyx cylindric-campanulate, shortly and broadly deltoid-toothed or subtruncate. Corolla fleshy, cylindric, 12 mm long; tube 6 mm long, pilosulous internally; lobes 5, lanceolate, subacute, 5 mm long, 1.8–2 mm wide. Stamens 5, inserted near base of corolla tube; anthers linear, 3.5 mm long, 0.7 mm wide. Pistil 6.5 mm long; stigmas 2, linear.

Distribution. Known only from forested slopes of Cerro Marahuaca, 1,140–1,225 m, Territorio Federal Amazonas, Venezuela.

Paratype. VENEZUELA. TERRITORIO FEDERAL AMAZONAS. Cerro Marahuaca, upper Río Yameduaka, 3°38'N, 65°28'W, 1,225 m, 22 Feb. 1985, *Liesner 17818* (MO, VEN).

***Sipanea setacea* Steyerl., sp. nov. TYPE:**

VENEZUELA. Bolívar: Dtto. Piar, Cerro El Venado, 20 km E of Canaima, 6°17'N, 62°41'W, 1,300 m, 31 Aug. 1983, *Otto Huber, G. T. Prance & C. Alarcon 8246* (holotype, NY).

Herba repens, caulibus tenuibus dense pilosulis pilis patentibus 0.2 mm longis praeditis; stipulae appendice setiformi 2–3 mm longa; foliorum laminis ovatis vel

elliptico-ovatis apice acutis basi obtusis vel subacutis 1.2–2 × 0.9–1.2 cm utrinque dense subadpresso-pilosis, petiolis 3.5–4.5 mm longis; inflorescentia pedunculata triflora, pedunculo terminali 1–1.7 cm longo dense pilosulo pilis patentibus praedito; floribus subsessilibus, pedicellis ad 0.5 mm longis; corolla purpurea 7.5 mm longa, tubo 4 mm longo, lobis 3.5 mm longis extus pilosulis.

Herbaceous plant; stems creeping, slender, 0.5 mm diam., densely pilosulous with spreading or loosely ascending hairs 0.2 mm long; internodes 1–1.8 cm long. Stipules setaceous, 2–3 mm long, 0.1 mm wide, densely pilosulous. Petioles 3.5–4.5 mm long, 0.5–0.7 mm wide, densely pilosulous with spreading hairs. Leaf blades ovate to elliptic-ovate, acute at apex, obtuse to subacute at base, 1.2–2 cm long, 0.9–1.2 cm wide, densely subappressed-pilose both sides with hairs 0.2–0.5 mm long. Inflorescence terminal, pedunculate, 3-flowered, the peduncle slender, 1–1.7 cm long, densely pilosulous with spreading hairs. Flowers subsessile; pedicels to 0.5 mm long. Bracts subtending inflorescence 2, subulate, acuminate, 2.2 cm long, 0.1 cm wide, glabrous within, setose-ciliate with hairs 0.3–0.5 mm long. Calyx lobes subulate or subsetaceous, 2.2–2.5 mm long, 0.3–0.4 mm wide, densely pilosulous with hairs 0.4 mm long; hypanthium pyriform, densely villosulous with spreading white, non-tuberculate hairs 0.4–0.5 mm long. Corolla "purple" (fide Huber et al.), subsalverform, 7.5 mm long, the tube 4 mm long, shortly pilosulous with hairs within near the base of the stamens; lobes narrowly oblong, obtuse, 3.5 mm long, 1.2 mm wide, moderately pilose without. Anthers linear-oblong, 1.3 mm long, 0.3 mm wide. One setiform squamella 0.15–0.2 mm long situated in each sinus of the calyx lobes.

In its setaceous stipules and pubescent exterior of the corolla lobes, this species differs from other members of sect. *Virecta* subsect. *Cryptotricha*, but resembles them in habit, slender stems, and small leaves. From *S. ovalifolia* Bremek. var. *ovalifolia* and var. *villosissima* Steyermark. it differs in the shorter peduncle and petioles, longer corolla and corolla lobes, 3-flowered inflorescence on a shorter peduncle, shorter, non-tuberculate hairs of the hypanthium, narrower leaves, and purple instead of white corollas. From *S. micrantha* Sandw. it may be distinguished by the spreading pubescence of stems and peduncles, broader ovate leaves with pubescent upper surface, loosely pubescent calyx lobes, and 3-flowered inflorescence. From *S. gleasonii* Steyermark. it

is differentiated by the subsessile flowers, shorter petiole, calyx lobes, hypanthium, and corolla tube, smaller leaf blades, shorter foliar pubescence, and non-tuberculate hairs of the hypanthium. Finally, from *S. cowanii* Steyermark. it differs in the densely spreading hairs of the hypanthium, the shorter corolla and calyx lobes, and the 3-flowered inflorescence.

COMPOSITAE

Gongylolepis terramarae Steyermark., sp. nov. TYPE: VENEZUELA. Territorio Federal Amazonas: Depto. Atabapo, Cerro Marahuaca, forested steep sandstone SE-facing slopes and bluffs, above branch of Caño Negro, southcentral portion of meseta, downstream from "Sima" Camp, 3°43'N, 65°31'W, 1,220–1,350 m, 23–24 Feb. 1985, Julian A. Steyermark & Bruce Holst 130629 (holotype, MO; isotype, VEN).

Arbor 3–4-metralis, caulibus vegetativis ad apices lanulosis, internodiis infra petiolos atque ad nodos minus lanulosis, caulibus floriferis vetustioribusque sparsim pilosulis vel glabris; foliis lanceolato-ellipticis vel oblanceolatis apice obtusis basi angustatis ad petiolum longe decurrentibus 9–24 cm longis, 3–6 cm latis, supra costa media laxe pilosa vel glabrescenti, subtus costa media adpresso-pilosa pilis elongatis munita ceterum utrinque sparsim adpresso-pilosulis vel glabris, venulis tertiariis subtus vix manifestis supra magis prominulis; pedunculis corymbosis 1.5–3 cm longis bracteatis breviter pubescentibus; capitulis aliquot campanulatis maturis 3–3.5 cm longis, 2–2.5 cm latis 21-floris; involucri 3 cm longo 5–6-seriato, phyllariis glabris apicibus marginibusque scariosis; pedunculi bracteis ovatis apice acutis 2.5–4 mm longis dorsaliter puberulis vel glabrescentibus; corollis bilabiatis, tubo 11 mm longo, 3 mm lato, lobo exteriore ligulato 14 mm longo, 3.5 mm lato, lobo interiore 2-fisso, segmentis linearibus; achaeniis anguste linearibus nigris 9.5 mm longis, 1.4 mm latis costatis.

Tree 3–4 m tall; tips of vegetative stems lanulose, the internodes below the petioles and at the junction of the petioles sparsely lanulose, the flowering and older stems sparsely pilosulous to glabrous. Leaves coriaceous, dark green above, pale green below, lance-elliptic to oblanceolate, obtuse at apex, narrowed to an acute long-decurrent base, 9–24 cm long, 3–6 cm wide, midrib above loosely pilose to glabrescent, below usually appressed pilose with elongate hairs, elsewhere sparsely pilosulous to glabrous on both surfaces; lateral nerves at an angle of 35–45°, faint on both sides for $\frac{2}{3}$ – $\frac{3}{4}$ distance to the margin, becoming obsolescent; tertiary venation beneath scarcely



Steyermark, Julian A. 1987. "Flora of the Venezuelan Guayana-II." *Annals of the Missouri Botanical Garden* 74, 85–116. <https://doi.org/10.2307/2399265>.

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