

# Flora of the Venezuelan Guayana

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VOLUME 9

RUTACEAE-ZYGOPHYLLACEAE

VOLUME EDITORS

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Key to the Species of *Thurnia*

1. Inflorescence with a single large head 3–7 cm diameter ..... *T. sphaerocephala*  
 1. Inflorescence racemose, with several smaller heads, each 1.2–2.5 cm diameter ..... *T. polycephala*

***Thurnia polycephala*** Schnee, Bol. Soc. Venez. Ci. Nat. 8: 243. 1943.

Aquatic herb rooted to the substrate; leaf margins serrate; heads numerous in a racemose inflorescence, each head 1.2–2.5 cm diameter; stamens and perianth parts white. In colonies rooted in river beds on sand bars or shallow rock surfaces, 50–300 m; Amazonas (Caño Cabeza de Manteco tributary of Río Autana, Caño Cañame, Caño Pimichín, Caño San Miguel, Caño Yagua near Cucurital, lower slopes of Cerro Sipapo, south of Puerto Ayacucho, Río Atabapo, Río Atacavi, Río Cataniapo, Río Guasacavi, Río Sipapo, Río Temi). Southeastern Colombia, northern Brazil. ♦Fig. 280.

Flowering plants observed by Gerrit Davidse along the lower Río Cataniapo had heads with white stamens and perianth parts. These heads were visited by small bees, which may be pollinators of this species.

***Thurnia sphaerocephala*** (Rudge) Hook. f. in Hook., Icon. Pl. pl. 1407. 1883.

—*Mnasion sphaerocephala* Rudge, Pl. Guian. t. 12. 1805. —Dewaado (Yekwana), Maraca.

Aquatic herb forming clumps, submerged much of the year but emergent in the dry season; flowering heads solitary, 3–7 cm diameter; stamens and perianth white. In and along streams and rivers in open or forested swampy areas, *Mauritia* palm swamps, 50–1500 m; Bolívar (Caño Anacapá, El Paují, near Las Bonitas, Río Acanán, Río Apacará, Río Aparamán, Río Chicanán, Río Chizca, Río Caura, Río Icabarú, between lower Río Kamay and Río Aranac, Río Kanarakuni, Río Pacairao near Kavanayén, Río Tirica above Techiné-merú, Río Uaiparú), Amazonas (Caño Galipero, Cerro Sipapo, Coromoto, Río Cataniapo, Río Cuao, Río Cunucunuma, Río Gavilán at main road crossing, upper Río Orinoco, upper Río Yudi, Río Siapa above Raudal Gallineta, Sabana de Huachapana, Samariapo, near San Fernando de Atabapo). Southeastern Colombia, Guyana, Suriname, French Guiana, northern Brazil. ♦Fig. 279.

## THYMELAEACEAE

by Zachary S. Rogers, Paul E. Berry, and Julian A. Steyermark

Trees, shrubs, or lianas. Leaves alternate or opposite, simple, margins entire; venation usually brochidodromous (except for *Lophostoma* in the flora area); stipules absent. Inflorescences axillary or terminal, capitate, umbellate, or racemose, often compound; bracts and bracteoles present or absent, foliaceous or modified. Flowers tubular (Thymelaeoideae) or nontubular (Octolepidoideae), actinomorphic, hypogynous, bisexual or unisexual; unisexual flowers often with staminodes or pistillodes. Floral tube when present long to short, usually cylindrical or urceolate, lower portion persistent around base of fruit or caducous, articulation above ovary absent (in the flora area); calyx lobes 4 or 5, usually imbricate; petals usually reduced to squamiform scales or absent. Stamens 1–many (4, 8, or 10 in the flora area), in 2 whorls at different heights (4 stamens in a single whorl in *Schoenobiblus*); filaments fused with tube when present, upper whorl of filaments included or exserted, lower whorl usually included; anthers 4-sporangiate, usually basifixed and introrse;

extragynoecial disk present or absent, composed of small free scales or fused into a cup-shaped structure. Ovary superior, usually 1- or 2-locular (Thymelaeoideae), to 12-locular (Octolepidoideae), sessile or stipitate, with 1 anatropous suspended ovule in each carpel; style terminal or lateral; stigma capitate, papillate. Fruits drupaceous. Seeds usually with a crustaceous seed coat; endosperm absent to copious.

Widespread in temperate and tropical regions of both hemispheres; 40–45 genera and ca. 700–800 species, 4 genera and 10 species in the flora area.

Thymelaeaceae are easily recognized in the field by their fibrous, exstipulate leaves with entire margins, their strong fibrous bark, and their usually tubular flowers and single-seeded drupaceous fruits in the flora area.

The family is now considered to be a basal member of Malvales based on molecular data (Alverson et al. 1998; Fay et al. 1998; Bayer et al. 1999; Savolainen et al. 2000), and has recently been recircumscribed by Herber (2003) to include two subfamilies: Thymelaeoideae (ca. 40 genera, 700 species) and Octolepidoideae (ca. 8 genera, 50 species). Molecular (Wurdack and Horn 2001) and morphological (Horn 2004) data now suggest that *Tepuianthus*, a small genus nearly endemic to the flora area (treated as a monogeneric family in this volume), is sister to Thymelaeaceae, and could be recognized as a basal subfamily within Thymelaeaceae. This interpretation clearly makes morphological sense considering the shared similarities between *Tepuianthus* and the paleotropical members of the ancestral subfamily Octolepidoideae (e.g., nontubular flowers, multicarpellate capsular fruits, noncrotonoid pollen grains).

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## Key to the Genera of Thymelaeaceae

1. Lianas or scrambling shrubs; leaves opposite (rarely alternate on fast growing shoots); venation composed of many close-together parallel veins ..... 3. *Lophostoma*
1. Upright shrubs or trees; leaves alternate; venation composed of brochidodromous vein loops ..... 2
- 2(1). Flowers bisexual; calyx lobes 5; stamens 10 ..... 2. *Lasidenia*
2. Flowers unisexual; calyx lobes 4; stamens 8 ..... 3
- 3(2). Floral tube longer than calyx lobes; stamens 8, included or slightly exerted; leaves 2–21 × 1–7 cm ..... 1. *Daphnopsis*
3. Floral tube much shorter than calyx lobes; stamens 4, conspicuously exerted; leaves 30–36 × 12–15 cm ..... 4. *Schoenobiblus*

1. **DAPHNOPSIS** Mart., Nov. Gen. Sp. Pl. 1: 65. 1824.

Shrubs or trees. Leaves alternate, petiolate, venation brochidodromous. Inflorescences axillary or terminal, capitate, umbellate, axes often compound. Flowers unisexual (plants dioecious), each sex usually with staminodes or pistillodes, pedicellate or sessile. Floral tube cylindrical, funnel-shaped, or urceolate, persistent or caducous; calyx lobes 4, usually spreading, shorter or rarely as long as floral tube; petals absent or scale-like, sometimes fused to form a small, lobed, membranous ring. Stamens 8, sometimes a few abortive, in 2 whorls of different heights; filaments usually short. Subgynoecial disk fused to form a cup-shaped ring, or composed of several distinct scales. Ovary 1-locular; style terminal. Fruits drupaceous; fruit wall fleshy or dry. Seeds with a crustaceous or membranous coat; endosperm scanty or absent.

Mexico, Central America, West Indies, Colombia, Venezuela, Ecuador, Peru, Brazil, Bolivia, Paraguay, Argentina, Uruguay; 50–65 species, 7 in Venezuela, 6 of these in the flora area.

Key to the Species of *Daphnopsis*

1. Inflorescences composed of sessile flowers in dense subsessile fascicles, usually borne on leafless portions of the stem ..... *D. steyermarkii*
1. Inflorescences pedunculate, arising from the leaf-bearing branches ..... 2
- 2(1). Leaf blades acuminate to caudate-acuminate at the apex and base; petioles 5–15 mm long; inflorescences usually dichotomously branched with elongated secondary axes; petals present, in the form of a connate ring ..... *D. americana*
2. Leaf blades rounded to obtuse, or at least not acuminate at the apex; petioles 2–6 mm long; inflorescences with flowers crowded at the end of a peduncle, generally without secondary branches, or without elongated secondary axes; petals absent ..... 3
- 3(2). Lower surface of blades glabrous; midrib on lower surface with some spreading trichomes; leaves drooping ..... *D. dircoides*
3. Lower surface of blades usually covered with appressed pubescence; midrib on lower surface with appressed trichomes only; leaves ascending or spreading ..... 4

- 4(3). Floral tube reddish white, lobes white; subgynoecial scales 4, with a dark reddish zone below the blunt apex; interior of floral tube with sparsely pubescent patches about  $\frac{1}{3}$  of the distance from the base of the tube ..... *D. nevlingiana*
4. Floral tube and lobes yellow or pale gray-green; subgynoecial scales 8, uniformly pale or straw-colored; interior of floral tube either uniformly densely pubescent in lower  $\frac{1}{2}$  or with elongated trichomes extending moderately from base to apex ..... 5
- 5(4). Tertiary venation of upper leaf surface consisting of a fine twisted, contorted, irregular insculpted pattern (best seen under magnification); subgynoecial disk with filiform lobes of uniform width throughout; interior of floral tube densely sericeous in lower  $\frac{1}{2}$  (at least in the staminate flowers) ..... *D. guaiquinimae*
5. Tertiary venation of upper leaf surface consisting of a subelevated reticulate pattern, not as above; subgynoecial disk with linear-lanceolate lobes (lobes often bifid and of unequal lengths), tapering from a broadened triangular base to a narrow, acicular apex; interior of floral tube nearly glabrous in the staminate flowers, moderately or sparsely pubescent with elongated trichomes from base to summit in the pistillate flowers ..... *D. longipedunculata*

**Daphnopsis americana** (Mill.) J.R. Johnst., Contr. Gray Herb. 34: 242. 1909.  
—*Laurus americanus* Mill., Gard. Dict. ed. 8, no. 10. 1768.

Shrub or tree to 15 m tall; leaves 3–21 × 1–8 cm; inflorescences terminal or axillary, umbellate, 10–75-flowered (staminate), 10–25-flowered (pistillate), branching dichotomously 1–9 times; peduncles 2–45 mm long; pedicels 1.5–8.5 mm long; petals in the form of a connate ring; fruits 6–15 × 3–9 mm. Mexico, Central America, West Indies, Colombia, Venezuela, Ecuador; 7 subspecies, 1 in Venezuela and the flora area.

**D. americana** subsp. **caribaea** (Griseb.) Nevling, Ann. Missouri Bot. Gard. 44: 315. 1959. —*Daphnopsis caribea* Griseb., Fl. Brit. W. I. 278. 1860.

Tree 8–15 m tall, young stems densely pubescent; leaves caducous on mature stems, blades lanceolate to elliptic or oblanceolate, 5–22 × 1.5–7 cm, subcoriaceous, upper surface glabrous, lower surface densely pubescent, apex caudate-acuminate or acuminate, base attenuate-cuneate; midrib raised below, densely pubescent; petioles 5–15 mm long, pubescent; pedicels 1.5–3.5 mm long; floral

tube obconic or suburceolate, 3–4.5 mm long (staminate); 1.5–2 mm long (pistillate); subgynoecial disk composed of 0.25 mm tall scales, divided nearly to base; pistillode glabrous; ovary 1.5–2 mm long; fruits 6–7 × 3–4 mm. Lower montane forests, forests bordering savannas, 400–500 m; Bolivar (Altiplanicie de Nuria east of Miamo). Aragua, Falcón, Nueva Esparta; Central America, West Indies, Colombia.

*Daphnopsis americana* subsp. *caribaea* is recognized in the flora area by its larger leaves (attaining 22 × 7 cm), longer petioles (5–15 cm versus 5 cm or less), and by the presence of petals, which form a connate ring near the mouth of the floral tube. The species also occurs at lower elevation compared to other *Daphnopsis* in the area (400–500 m versus 1100 m and above).

**Daphnopsis dircoides** Steyerl., Fieldiana, Bot. 28: 420. 1952.

Shrub to 2 m tall, bark lenticellate; leaves drooping, caducous on mature stems, blades oblong-elliptic or ovate-oblong, 5.5–12.5 × 1.5–6 cm, coriaceous, upper surface glabrous and dull green, lower surface silvery-colored, apex obtuse or rounded, base obtuse; vena-



tion on upper surface contorted, loosely and inconspicuously reticulate, strongly raised on lower surface, pubescent; petioles 3–6 mm long. Tepui scrub on slopes and tepui summits, 1900–2300 m; Bolivar (slopes of Ilú-tepui, summit of Sororopán-tepui). Endemic.

According to Steyermark, the habit of *Daphnopsis dircooides* resembles that of *Dirca palustris* L. (North American leatherwood). *Daphnopsis dircooides* is distinguished from other species in the flora area by its drooping leaves with dull green upper and silver lower leaf surfaces with purple venation. This species may only be known from the two sterile examined collections.

***Daphnopsis guaiquinimae*** Steyermark, Ann.

Missouri Bot. Gard. 74: 652, fig. 9. 1987.

Shrub ca. 1.5 m tall; bark conspicuously covered with orbicular lenticels, young stems densely pubescent; leaves caducous on mature stems, blades broadly elliptic or ovate-elliptic, 3–6 × 1–3 cm, subcoriaceous, upper surface glabrous, lower surface moderately pubescent, apex rounded or obtuse, base cuneate-attenuate; midrib raised on lower surface, densely pubescent; venation pubescent, higher orders reticulate; petioles 2–3 mm long, pubescent; inflorescences terminal or axillary, capitate-umbellate, 4–9-flowered; peduncles 1–2 cm long, pubescent; flowers tan-gray; pedicels 1–2 mm long; floral tube cylindrical, 5–7 mm long, pubescent externally, densely pubescent in lower 1/2 internally, otherwise glabrous; calyx lobes oblong-elliptic or suborbicular, 1–1.5 mm long, 0.5–0.8 mm wide, erect, pubescent on both surfaces, apex obtuse or rounded; ovary densely pubescent. Tepui summit scrub, 1600–1700 m; Bolívar (Cerro Guaiquinima). Endemic.

*Daphnopsis guaiquinimae* is recognized by its fine contorted tertiary venation on the upper leaf surface, short peduncles, and subgynoecial disk with 8 long filiform lobes that resemble the teeth of a comb. It is known only from the type collection.

***Daphnopsis longipedunculata*** Gilg ex

Ule & Domke, Notizbl. Bot. Gart. Berlin-Dahlem 12: 723. 1935. —Waramiku-yek (Pemón).

Shrub or treelet to 6 m tall; bark lenticellate, young stems glabrescent; leaves caducous on mature stems, blades broadly oblong-elliptic, 3.5–11 × 1–5 cm, chartaceous, upper surface pubescent or glabrescent, lower surface densely pubescent, apex rounded or obtuse tip, often slightly apiculate or emarginate, base rounded or cuneate-attenuate; midrib raised below, densely pubescent on both sides; petioles ca. 6 mm long, pubescent; inflorescences terminal or axillary, umbellate, 5–15-flowered; peduncles 1.5–9 cm long, pubescent; floral tube greenish 4–6 mm long, moderately to sparsely pubescent externally (pistillate), nearly glabrous internally (staminate); calyx lobes ovate, 0.7–1.5 × 0.7–1.2 mm, pubescent on both surfaces, apex obtuse or rounded; ovary ovoid, 1.5–3.5 mm long, pubescent. Montane scrub, 1100–1400 m; Bolivar (between Kavanayén and Carrao-tepui, base of Roraima-tepui, Sorochoyoyen in Río Caroní basin). Guyana side of Mt. Roraima. ♦Fig. 282.

*Daphnopsis longipedunculata* is distinguished from others in the flora area by the pubescent adaxial leaf surfaces, peduncles reaching 9 cm long, and by the very narrow triangular lobes of the subgynoecial disk.

***Daphnopsis neulingiana*** Steyermark, Ann.

Missouri Bot. Gard. 74: 653. 1987.

Tree ca. 3 m tall; bark not lenticellate, young stems densely pubescent; leaves caducous on mature stems, blades broadly oblong-elliptic or obovate, 4–7.5 × 2–4.5 cm, coriaceous, upper surface glabrous, lower surface densely pubescent, apex rounded, base rounded or cuneate-attenuate; midrib pubescent above, raised and densely pubescent below; petioles 3–4 mm long, moderately pubescent; floral tube reddish white, cylindrical, ca. 5 mm long, densely pubescent externally, mostly glabrous internally; calyx lobes red with white apices, ovate-elliptic or suborbicular, 1 × 0.7–0.8 mm; ovary ovoid, ca. 2.4 mm long, densely pubescent; style ca. 1.5 mm long. Tepui summit scrub, 1200–1400 m; Bolívar (Cerro Sarisariñama). Endemic.

*Daphnopsis neulingiana* has a distinctive reddish white floral tube and a dull yellow subgynoecial disk with thickened lobes.

Fig. 281. *Daphnopsis steyermarkii*

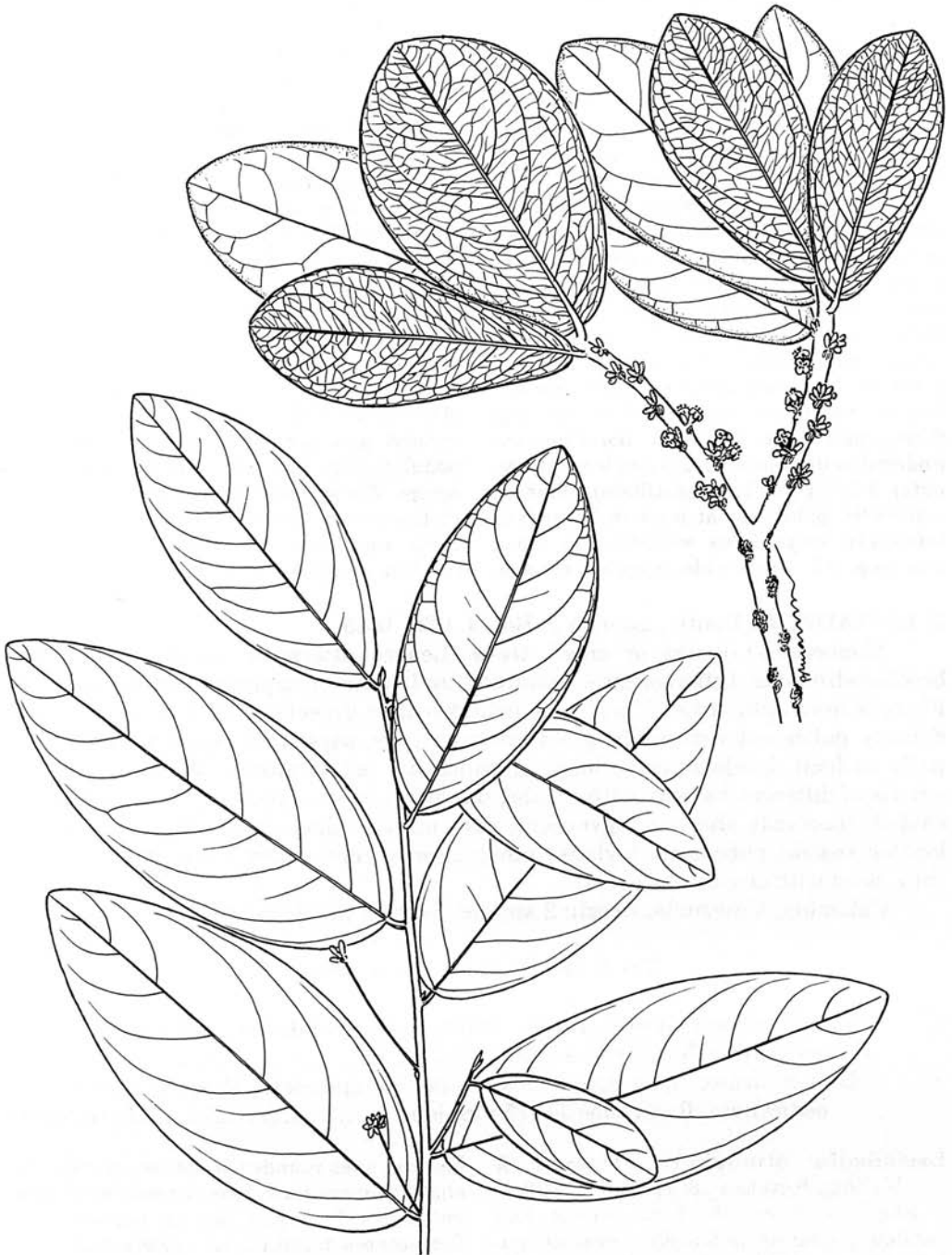


Fig. 282. *Daphnopsis longipedunculata*



**Daphnopsis steyermarkii** Nevling, Mem. New York Bot. Gard. 17(1): 452, fig. 5. 1967.

Small shrub or tree to 6 m tall; bark not lenticellate, usually covered by lichens, young stems glabrous, mature stems conspicuously covered with nodules of old inflorescences; leaves caducous on mature stems; blades broadly obovate or elliptic, 3–13.5 × 1–7 cm, coriaceous, both surfaces glabrous, apex obtuse or subacute, margin often strongly revolute, base rounded or cuneate, sometimes subcordate; midrib glabrous, strongly raised below; venation strongly raised on both surfaces; petioles ca. 2 mm long, glabrous; inflorescences 2–8-flowered, usually borne on defoliated portion of stem, fasciculate or nearly so; peduncles 0–7 mm long; flowers pale green, subsessile, floral tube cylindrical or urceolate, ca. 2.5 mm long (staminate), 1.5–3.1 mm long (pistillate), glabrous externally, pubescent at least in lower half internally; calyx lobes suborbicular, 0.5–1 mm long, 0.7–1 mm wide, erect or reflexed,

glabrous on both surfaces except densely pubescent at apex, apex obtuse or rounded; ovary ovoid, ca. 1 mm long, sparsely pubescent or glabrescent, stipitate; stipe 0.5–0.7 mm long; fruits green-white, ovoid, ca. 9 × 7 mm, glabrescent with a pubescent apex, surrounded at base by remains of tube; style persistent. Streamsides and rocky outcrops on tepui slopes and summits, 1700–2600 m; Bolívar (Cerro Jaua, Macizo del Chimantá), Amazonas (Cerro Marahuaka, Sierra de la Neblina, Sierra de Maigualida). Guyana. ♦Fig. 281.

*Daphnopsis steyermarkii* differs markedly from the other species in the flora area by the densely congested many-flowered fasciculate inflorescences borne on the defoliated portion of the stems. Older stems are often lichen encrusted and always possess characteristic nodular scars left behind from old inflorescences. The species can be distinguished vegetatively from others in the flora area by its thick, coriaceous leaf blades with strongly revolute margins.

## 2. LASIADENIA Benth., London J. Bot. 4. 632. 1845.

Monoecious shrubs or small trees. Leaves alternate, petiolate; venation brochidodromous. Inflorescences terminal, umbellate or capitate; peduncles short. Flowers hermaphroditic. Floral tube cylindrical or urceolate, distinctly 10-ribbed, densely pubescent externally, glabrous internally, persistent, splitting longitudinally as fruit develops; calyx lobes 5, imbricate; petals absent. Stamens 10, in 2 whorls of different heights within tube, upper whorl near opening, lower whorl included; filaments short. Subgynocelial disk minute, densely pubescent. Ovary 1-locular, sessile, pubescent; style terminal, shorter than ovary. Fruit wall hard and thin. Seed with crustaceous coat.

Colombia, Venezuela, Brazil; 2 species, both in the flora area.

### Key to the Species of *Lasiadenia*

1. Leaves oblong-elliptic, rarely ovate; apex rounded or obtuse; flowers subsessile; floral tube 5–7 mm long ..... *L. ottohuberi*
1. Leaves ovate; apex acute, acuminate, or apiculate; flowers distinctly pedicellate; floral tube 11–15 mm long ..... *L. rupestris*

**Lasiadenia ottohuberi** Plowman & Nevling, Brittonia 38: 114, pl. 1. 1986.

Shrub to 3 m tall, bark usually lenticellate; young stems densely to sparsely pubescent; leaf blades oblong-elliptic, rarely ovate, 3–6 × 1.2–3.2 cm, coriaceous, upper surface glabrous, lower surface densely pu-

bescent, apex rounded or obtuse, apiculate or slightly emarginate, base cuneate-attenuate; petioles ca. 3 mm long, densely pubescent; inflorescences terminal or subterminal, capitate, 6–15-flowered; peduncles 1–2 mm long, densely pubescent; flowers subsessile, tan-gray or gray; floral tube urceolate (rarely

suburceolate), 5–7 mm long; calyx lobes ovate-elliptic or suborbicular, 3–3.5 mm long, 2–2.5 mm wide, pubescent, apex obtuse or rounded; subgynoecial disk minute, cup-shaped, densely pubescent. Seasonally flooded black-water riparian thickets and white-sand savannas, 100–200 m; Amazonas (base of Cerro Yapacana, Río Guasacavi, Santa Cruz). Adjacent Colombia (Guainía).

*Lasiadenia ottohuberi* is characterized by oblong-elliptic or rarely ovate leaves, rounded or obtuse apices, and sessile 5–7 mm long flowers.

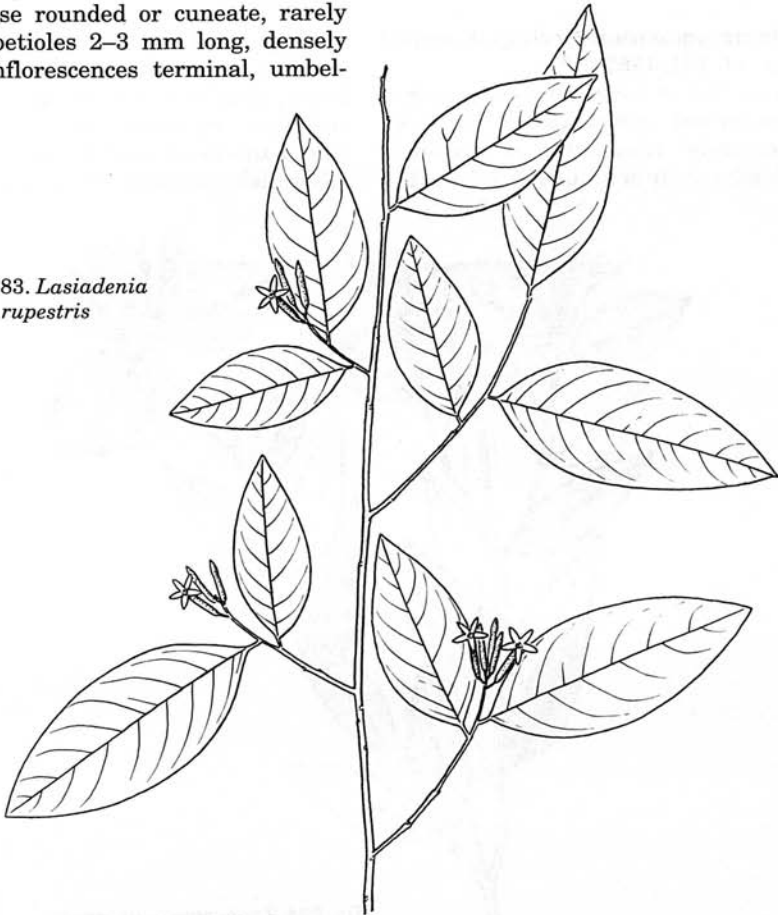
**Lasiadenia rupestris** Benth., London J. Bot. 4: 632. 1845.

Shrub to 2.5 m tall, bark often lenticellate; young stems densely to sparsely pubescent; leaf blades ovate, (2–)3.3–9.4 × 1.5–3.3 cm, chartaceous, apex acute or acuminate, often apiculate, base rounded or cuneate, rarely subcordate; petioles 2–3 mm long, densely pubescent; inflorescences terminal, umbel-

late, 5–10-flowered; peduncles 3–26 mm long, densely pubescent; flowers white or white-yellow, borne on 2–4 mm long densely pubescent pedicels; floral tube 11–15 mm long; calyx lobes narrowly ovate-triangular, pubescent on both surfaces, 7–8 × ca. 2 mm, apex obtuse or rounded; subgynoecial disk composed of ca. 4 densely pubescent fused or free scales. Sandy or rocky white-water or black-river banks, 50–200 m; Bolívar (Puerto Ordaz, Río Parhueña, San Félix), Amazonas (Pimichín, Río Orinoco above Samariapo, Río Sipapo, Santa Lucia). Anzoátegui, Apure; Colombia, Guyana, Brazil. ♦Fig. 283.

*Lasiadenia rupestris* is distinguished from *L. ottohuberi*, the only other species in the genus, by its ovate leaves with acute or acuminate apices and its distinctly pedicellate flowers measuring 11–15 mm long.

Fig. 283. *Lasiadenia rupestris*



**3. LOPHOSTOMA** (Meisn.) Meisn. in DC. Prodr. 14: 600. 1857. —*Linostoma* sect. *Lophostoma* Meisn. in Mart., Fl. Bras. 5 (1): 72. t. 30. 1855.

Lianas or scandent shrubs, bark lenticellate, axillary branches sometimes curved or recurved for climbing. Leaves opposite (rarely alternate); secondary veins many, close together,  $\pm$  parallel, terminating at margin, veins more pronounced on lower surface. Inflorescences terminal, racemose, compound panicles or thyrses, branching dichotomously 1–several times; primary peduncles 1–5 mm long, usually bearing 1 or 2 reduced bract-like leaves, rachis 3–6 mm long; secondary peduncles to 1 mm long. Flowers bisexual (plants monoecious). Floral tube cylindrical, persistent; calyx lobes 5, nearly erect, shorter than floral tube; petals 5, scale-like, deeply bifid (appearing as 10 scales), usually pubescent. Stamens 10, inserted in the floral tube in 2 whorls; filaments 1–3 mm long, filiform, exserted or one whorl included. Subgynoecial disk minute or absent, annular or lobed, glabrous. Ovary 1-locular, densely sericeous, sessile; style terminal (subterminal in *L. amoenum*), glabrous; stigma capitate; . Fruit enclosed by but not fused to the persistent floral tube; fruit wall smooth to ribbed and spinose-mammillate.

Amazonian Colombia, Venezuela, and Brazil, 4 species, 1 in Venezuela and the flora area.

**Lophostoma amoenum** Nevlng, J. Arnold  
Arbor. 44: 161. 1963.

Liana ca. 2.5 m long, axillary branches sometimes curved or recurved for climbing; leaves opposite (alternate on vigorous shoots); blades ovate or elliptic, 3.5–5.5  $\times$  1–3

cm, coriaceous, both surfaces glabrous, apex acute or obtuse, base cuneate; midrib raised below; petioles 2–4 mm long, glabrous; inflorescences terminal, 10–16-flowered, compound racemose panicles, 2- or 3-branched, often dichotomously branched; primary pe-



Fig. 284. *Lophostoma amoenum*

duncles 1–5 mm long, rachis 3–6 mm long; secondary peduncles to 1 mm long; bracteole minute, rose-colored; flowers pink, distinctly pedicellate; floral tube cylindrical, 15–16 mm long, pubescent externally, upper half glabrous internally, otherwise pubescent; calyx lobes 5, elliptic, 4–4.5 mm long, ca. 1.5 mm wide, upper surface glabrous, lower surface pubescent; petals 5, bifid to base (appearing as 10 scales), fleshy, ca.  $0.5 \times 0.25$ – $0.5$  mm, densely pubescent on outer surface, inner surface glabrous or pubescent; subgynoeical disk absent; ovary ellipsoid, ca. 1.5 mm long,

stigma slightly exerted. Seasonally flooded riparian forests along black-water rivers, 100–200 m; Amazonas (Caño San Miguel, Santa Cruz). Endemic (but almost certainly in adjacent Guainía in Colombia). ♦Fig. 284.

*Lophostoma amoenum* can be distinguished from other species of Thymelaeaceae occurring in the flora area by its lianescent habit, its oppositely arranged leaves, and its characteristic closely arranged parallel venation, which terminates in a pronounced marginal vein.

#### 4. SCHOENOBIBLUS Mart., Nov. Gen. Sp. Pl. 1: 65. 1824.

Shrubs or trees. Leaves alternate, petiolate; venation brochidodromous. Inflorescences terminal, umbellate, inflorescence axis branched 1–several times. Flowers unisexual (plants dioecious), borne on long pedicels. Floral tube shorter than

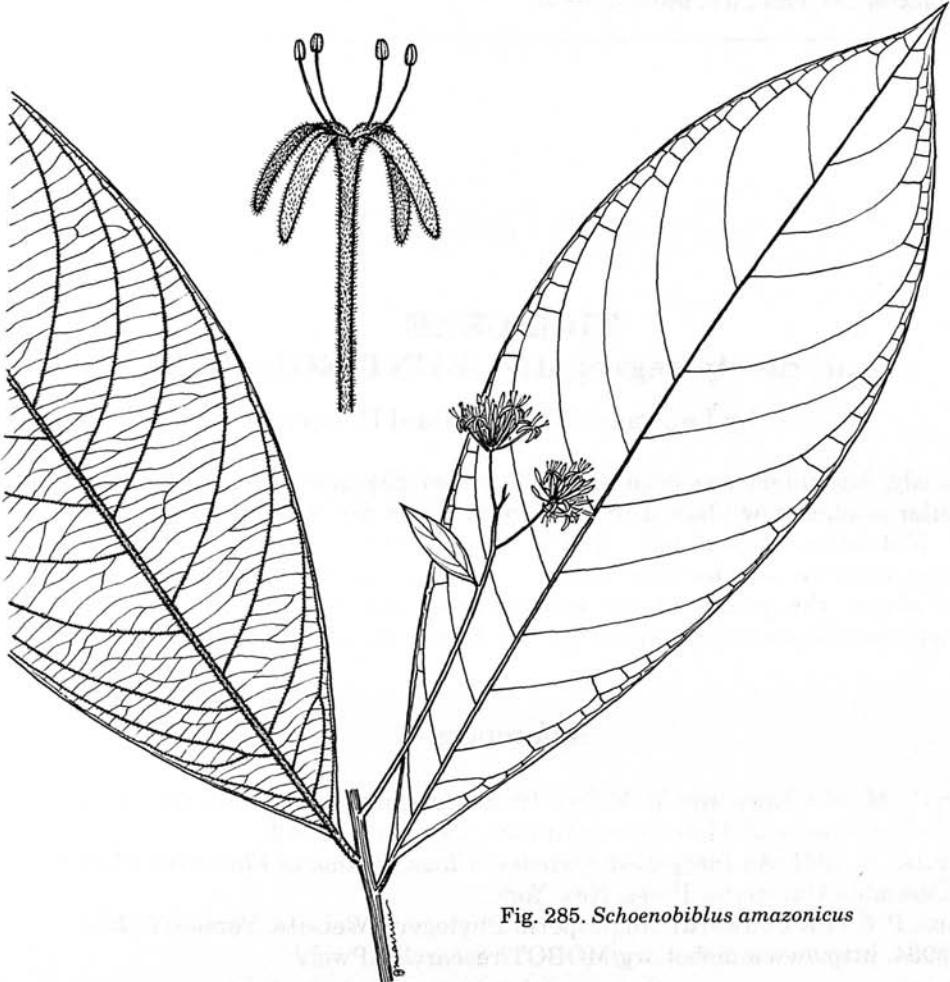


Fig. 285. *Schoenobiblus amazonicus*

calyx lobes, persistent at base of fruit; calyx lobes 4, spreading; petals absent. Stamens 4, exserted; filaments long, adnate to base of calyx lobes. Subgynoeical disk absent or minute. Ovary usually glabrous; style terminal; stigma globose, usually near opening of the tube. Fruits slightly fleshy, smooth. Seed coat crustaceous to coriaceous; endosperm absent.

Costa Rica, Panama, Colombia, Venezuela, Trinidad, Ecuador, Peru, Brazil, Bolivia; ca. 10 species, 4 in Venezuela, 1 of these in the flora area.

**Schoenobiblus amazonicus** Steyerm.,  
Ann. Missouri Bot. Gard. 74: 654, fig. 10.  
1987.

Tree ca. 6 m tall; leaf blades broadly ovate-oblongate, ca.  $36 \times 12.5$ –14 cm, apex acuminate or acute, base cuneate-attenuate; petioles 6–9 mm long; inflorescences terminal or axillary, 10–20-flowered, compound-umbellate, branching nearly dichotomous, primary peduncles 1- or 2-branched, secondary peduncles 1–3, branched; pedicels 10–18

mm long; calyx lobes 4, oblong-elliptic, ca.  $6 \times 1.5$  mm, spreading, apex rounded; stamens 4, filaments 5–5.5 mm long, glabrous. Undergrowth of evergreen lowland forests, 100–200 m; Amazonas (along road from Puerto Ayacucho to Samariapo). Endemic. ♦Fig. 285.

*Schoenobiblus amazonicus* is the only species of Thymelaeaceae in the flora area with 4 stamens that are borne on long exserted filaments.

## TILIACEAE and newly segregated MUNTINGIACEAE

by Laurence Dorr and Paul E. Berry

Previously, *Muntingia* has been placed in either Elaeocarpaceae or Tiliaceae, but molecular studies now place it in Muntingiaceae, a family distinct from all of the other Malvaceae sensu lato (Bayer et al. 1998; Stevens 2001 onward). Muntingiaceae are included here following Tiliaceae because that is where Cronquist (1981) placed the genus in his classification system, and we did not cover Muntingiaceae in its proper alphabetical sequence in the flora.

### References

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