

THE GENUS *MYRSINE* (MYRSINACEAE) IN VENEZUELA

JON M. RICKETSON

Missouri Botanical Garden

P. O. Box 299, St. Louis MO 63166-0299, U.S.A.

jon.ricketson@mobot.org; jricketson@lehmann.mobot.org

JOHN J. PIPOLY III

Botanical Research Institute of Texas

509 Pecan Street, Fort Worth, TX 76102-4060, U.S.A.

jjpipoly@brit.org; clusia@latinmail.com

ABSTRACT

A synopsis of the genus *Myrsine* in Venezuela is provided. The generic description is updated, along with discussions of its morphology and ecology in Venezuela. A key to the species and subspecies is provided, along with descriptions, discussions of distribution, ecology and conservation, and etymology for all species. Each of the 12 species known for the country (one with two subspecies) is newly illustrated and its distribution is mapped. Four binomials: *Rapanea ambigua* Mez in Engl. (a synonym of *Myrsine coriacea* R. Br. ex Roem. & Schult. subsp. *coriacea*), *Rapanea andina* Mez (*Myrsine andina* (Mez) Pipoly), *Rapanea nitida* Mez (*Myrsine nitida* (Mez) Pipoly), and *Rapanea guianensis* Aubl. (*M. guianensis* (Aubl.) Kuntze) are lectotypified. Three additional binomials are relegated to synonymy.

RESUMEN

Se presenta una sinopsis del género *Myrsine* para Venezuela. Se actualiza la descripción genérica, acompañada por discusiones sobre su morfología y ecología dentro del país. Se provee una clave para separar las especies y subspecies, descripciones, discusiones sobre distribución, ecología, conservación y etimología. Se ilustran y se ofrecen mapas de distribución de cada una de las 12 especies (incluyendo una con dos subspecies). Se lectotifican cuatro binomios: *Rapanea ambigua* Mez in Engl. (= *Myrsine coriacea* R. Br. ex Roem. & Schult. subsp. *coriacea*), *Rapanea andina* Mez (= *Myrsine andina* (Mez) Pipoly), *Rapanea nitida* Mez (= *Myrsine nitida* (Mez) Pipoly), y *Rapanea guianensis* Aubl. (= *M. guianensis* (Aubl.) Kuntze) y tres especies adicionales se relegan a la sinonimia.

INTRODUCTION

The genus *Myrsine* L. contains about 300 species, of which nearly one fourth remain undescribed. C. Chen and Pipoly (1996), Pipoly (1991, 1992a, 1992b, 1996), Pipoly and C. Chen (1995), and Ricketson & Pipoly (1997) have provided summaries of evidence for broader circumscription of the genus, especially to include *Rapanea* Aubl. This circumscription has most recently been accepted by Otegui (1998a) in her treatment of *Myrsine* for the Southern Cone of South America, and tentatively by Anderberg and Ståhl (1995)

in their preliminary analysis of phylogeny in the entire order Primulales. While Anderberg and Ståhl (1995) were relatively noncommittal regarding the circumscription of *Myrsine*, later work by Ståhl (1996) in determining the systematic position of species formerly placed in *Heberdenia* Banks ex DC., revealed that the genus would be paraphyletic if taxa formerly assigned to *Rapanea* were removed from it, so the best circumscription of the group is in its broadest sense. The conclusion was based on a cladogram using three species from morphological extremes within the genus. Oregui (1998b) constructed another cladogram in a paper discussing anemophily in the genus, in which *Myrsine* was most closely related to the Papuan endemic genus *Fittingia* Mez. However, it should be noted that *Fittingia* is a group whose species have been described from very incomplete material, and that there has not been any analysis to include all genera in the family, so these cladograms should be considered very tentative.

Myrsine is pantropically distributed, occurring in diverse vegetation types, from mangroves to subalpine scrub, but always in moist, wet or pluvial habitats. The genus is defined by lateral (axillary), fasciculate or umbellate inflorescences, sessile or on short, perennating peduncles girdled by persistent floral bracts, thus forming "short shoots." In preparation for our treatment of the genus for *Flora of the Venezuelan Guyana*, it became necessary to assemble specimens from the entire country with complete synonymies and bibliographic references, and to lectotypify several species. Because of the somewhat abbreviated format of that flora, the present synopsis is intended to provide a complete nomenclator and a preliminary treatment for *Flora de Venezuela* for this often misunderstood and nomenclaturally complex genus.

MORPHOLOGY

Habit and Architecture

The majority of *Myrsine* species in Venezuela are shrubs to small trees to 10 m tall, but occasional individuals of *M. dependens* (Ruíz & Pav.) Spreng., *M. coriacea* (Sw.) R. Br. ex Roem. & Schult. subsp. *coriacea*, and *M. guianensis* (Aubl.) Kuntze, have been known to reach heights of 15 m, 30 m, and 15 m, respectively. All species of *Myrsine* are terrestrial, with positively geotropic roots, although those in cloud forests occasionally occur on deep humus formed by decaying organic matter over large boulders.

All Venezuelan species of *Myrsine*, with the notable exception of *M. dependens*, exhibit Rauh's Model of architecture (Hallé et al. 1978), characterized by a polyaxial, monopodial, rhythmically growing, readily distinguishable trunk, that develops tiers of branches morphogenetically identical to itself. All branches are orthotropic and monopodial, with spiral phyllotaxy and lateral (axillary) inflorescences that do not affect shoot development. As was found for

Myrsine cubana A. DC. (called *M. floridana* A. DC. in the paper), all branches are sylleptic (Wheat 1980) producing two prophylls followed by adult leaves.

Myrsine dependens exhibits Massart's Model of architecture (Hallé et al. 1978), characterized by a polyaxial, monopodial, rhythmically growing, readily distinguishable trunk, that develops regular tiers of branches at levels established by the growth of the trunk meristem. Branches are plagiotropic by leaf symmetry (distichous in this case), but never by apposition. The position of the inflorescence is not significant in the definition of the model. Like branching in Rauh's Model, the branching is sylleptic. This model is typical of many Myristicaceae, and is also known in *Ardisia crenata* Sims and *A. polycephala* Wall. in the Myrsinaceae. Most species of the genus *Embelia* Burm. f. also exhibit Massart's Model. Symmetry of the entire plant is striking, and allows immediate recognition of *Myrsine dependens* among the other species in its subpáramo thicket and páramo margin habitat, even though most branches will fall due to lack of light in the compact canopy of the thicket. With long-lived branches (when light conditions permit), Massart's Model is most often confused with Roux's Model, differing only by its rhythmic (and not continuous or diffuse) branching. Field work conducted in Venezuela, Colombia, and Ecuador has shown that the branch tiers consist of pseudoverticels, most often comprised of three branch units. It is notable that Massart's Model is typical in extreme environments, where wind-shearing of orthotropic trunk axes produce the characteristic "Krummholz Effect" in taxa such as *Abies balsamea* Mill. (Hallé et al. 1978). That resilience inherent in Massart's Model may be significant in the species' ability to withstand extreme conditions of high winds, extreme diurnal temperature fluctuations, soil compaction from overgrazing, and lack of oxygen due to high altitude, all typical of the páramo margin and subpáramo thicket habitats.

Branchlets

A branchlet is here defined as the distal 10 cm of any branch. Branchlets in Venezuelan *Myrsine* are straight, terete, smooth, glabrous, rufous or ferruginous villous- or floccose-tomentose, or rufous glandular-papillose, lenticellate or not. Most species have thin outer bark, but in *Myrsine guianensis*, an extremely active cork cambium results in significant cork accumulation, linked to dryness of the habitat.

Leaves

Species of *Myrsine*, like all Myrsinaceae, are exstipulate and have simple leaves. The leaves are mostly spiral, except in *Myrsine dependens*, where they are distichous. In Venezuela, all species have petiolate leaves. A study of ptyxis (Cullen 1978) showed that four Asian and Pacific species of *Myrsine* surveyed had suprevolute ptyxis, but a survey among the Venezuelan species has not as

yet been conducted, nor has the vernation been studied thus far. The leaf blade texture may be chartaceous, coriaceous, thickly coriaceous or cartilaginous. The difference between thickly coriaceous and cartilaginous is that the leaf is rubbery and will not snap on bending perpendicular to the plane of the midrib in the former, while it will easily snap with application of moderate bending perpendicular to the plane of the midrib in the latter. The shape is most often obovate, oblanceolate, elliptic or oblong, but may rarely be ovate (*Myrsine maguireana* Pipoly), or linear-lanceolate, narrowly elliptic or lorate (*M. resinosa* (A. C. Sm.) Pipoly). The apex may be attenuate, acuminate, acute, obtuse, rounded, broadly rounded, or emarginate, with or without a short, often blunt, bulbous, mucron formed by an extension of the midrib, while the base may be acute, cuneate, obtuse, or broadly rounded, usually decurrent on the petiole. The adaxial surface may be glabrous, smooth or scrobiculate, with or without a villous-tomentum of uniseriate hairs or glandular-papillae along the length of the midrib above; the secondary venation may be conspicuous, inconspicuous or not visible, and on the lower surface, the punctation may be black or pellucid punctate or black punctate and punctate-lineate; the margin is usually entire, and may be flat, merely inrolled, or revolute at least basally. The petioles may be flat on the adaxial surface, canaliculate, marginate or canaliculate and marginate distally, near the leaf blade base.

Inflorescence, Flowers and Fruit

The inflorescence in *Myrsine* consists of a sessile to subsessile umbel, or a fascicle. The inflorescence bract is very early caducous and is rarely seen on herbarium specimens. The "peduncle" consists of an accrescent, perennating rachis that mimics a shoot, gradually built up by persistent, girdling floral bracts to form a "short shoot." The floral bracts may be early caducous or persistent, chartaceous or coriaceous, orbicular, ovate, widely ovate, deltate, obovate, apically acute, rounded or obtuse, inconspicuously pellucid punctate, brown punctate, black or red punctate and/or punctate-lineate, the margin most often entire, but may be erose and usually with glandular cilia, but sometimes glabrous. In Venezuela, all pedicels are terete, and vary mostly by their length and relative thickness. In most species the pedicel is accrescent in fruit, but not exceeding approximately 5% of its original length.

The flowers are 4-5(-6)-merous, perfect and normally functionally unisexual. When they are bisexual, the androecium is smaller than that of a staminate flower and the gynoecium is smaller than that of the pistillate flower of the same species. Flower texture is chartaceous for all species in Venezuela, except in *Myrsine picturata*, whose corolla is membranaceous. The calyx may be cotyliform, or rarely, campanulate or cupuliform, with valvate lobes nearly free to fused 1/3 their length. The lobes may be triangu-

lar-ovate, widely ovate, or deltate, apically rounded, obtuse, acute, acuminate, short-acuminate or long-attenuate, long-acuminate, flat or prominently keeled abaxially, inconspicuously pellucid punctate, brown punctate, or densely and prominently black punctate, and punctate-lineate, with margins entire or apically erose or roughly dentate, glabrous, villous-ciliate, long-glandular-ciliate, or glandular-ciliolate. The corolla may be cotyliform, campanulate or cupuliform, except for *Myrsine minima*, where the nearly free lobes erect in anthesis make it appear tubular. The lobes are valvate and may be linear-lanceolate, lanceolate, ovate, elliptic, or oblong, apically rounded, obtuse, subacute, sharply acute to attenuate, or acute. The ornamentation ranges from inconspicuously pellucid punctate and punctate-lineate, densely and prominently black punctate and punctate-lineate, or medially brown punctate. The margins are usually entire, and glandular-granulose along its length.

The stamens and staminodes are similar but the latter are reduced in size. The stamens are monodelphous (united into a tube by their filaments), and the tube developmentally fused to the corolla tube, the stamens thus appearing epipetalous, or rarely are visible (*M. maguireana*), or readily apparent (*M. minima*, *M. resinosa*). The anthers may be broadly ovate, elliptic, or oblong; apically acute to obtuse, and apiculate or not; basally cordate, subcordate, deeply cordate, or sagittate, and the connective punctate or epunctate dorsally. The antherodes may be lanceolate, obcordate, widely ovate, or ovate, apically acute or obtuse and apiculate or not, basally sagittate or deeply cordate, and the connective epunctate or punctate dorsally. The pistil may be obnupiform or ellipsoid, or rarely conical (*M. andina*) or globose (*M. resinosa*). The style in the Venezuelan species is obsolete. The stigma may be morchelliform, prismatic with 2–3 lobes, conic and spirally lobed with 4 lobes, or rarely umbraculiform (*M. resinosa*) with 4 vertically spirally twisted lobes, or lacinate (*M. nitida*) and 4-lobed. The pistillode is most often conic and hollow.

The fruits are usually globose to subglobose, or rarely ellipsoid (*M. dependens*) or obovoid (*M. picturata*), prominently black punctate and punctate-lineate, or obscurely pellucid punctate, not costate or with inconspicuous longitudinal costae.

ECOLOGY AND BIOGEOGRAPHY

Myrsine species, throughout their range, are most often associated with moist or wet montane life zones. In Venezuela, one may find *Myrsine dependens* through the Andes, mostly in páramo along the margins, at the upper limit of the supáramo thicket habitat, but rarely also at the subpáramo-cloud forest transition zone as long as the site is open and exposed to wind. Where the cloud forest life zone is well-defined, one may expect *Myrsine andina* in the cloud forest just below the subpáramo thicket, where *M. coriacea* subsp. *coriacea*

may also occur in gaps and more disturbed places, along with *Myrsine pellucida*. While *Myrsine dependens* and *M. andina* are less tolerant of disturbance, *M. pellucida* is more tolerant, and *M. coriacea* subsp. *coriacea* is essentially a "weed."

Along the Atlantic coastal range and into the Guayana Region, *Myrsine guianensis* occurs mostly in primary and secondary riparian forests, but also rarely in premontane forests and upland tepui savannas. Below this life zone in the eastern portion of the Guayana Region (Pantepui Floristic Province sensu Huber 1995), *Myrsine nitida* is found in the same premontane forests, *Clusia-Magnolia*, or *Mora* riparian forests. At the upper limit of that same zone, *Myrsine coriacea* subsp. *reticulata* is found in the riparian formations. Immediately below these Guayana formations, but in the drier savannas, *M. resinosa* occurs.

Among the endemic upland tepui taxa, two species are endemic to Cerro de la Neblina and vicinity, including *Myrsine magnireana* and *M. perpauciflora*, while two others also known from Neblina, *M. minima* and *M. picturata*, are also found in the easternmost area of Pantepui, near the border of Guyana. *Myrsine macrocarpa* is restricted to the area around Cerro Huachamacari, in Estado Amazonas, an area known for high numbers of endemics (Pipoly 1992c).

NOTES ON KEYS AND TERMINOLOGY

The keys are artificial and designed to expedite identification of herbarium specimens. An attempt has been made to emphasize vegetative characters to increase the keys' usefulness with sterile material. The numbers appearing before the taxa refer to their respective position in the key; any correlations with phylogenetic relationships are coincidental. Quantitative and qualitative data presented in keys and descriptions for floral parts and bracts were taken from organs rehydrated from herbarium specimens by boiling in water. Measurements from these range from 10% to 15% greater than those measurements taken directly from dried material. Data regarding stem diameters, inflorescence rachises, pedicels, leaf and fruit shape were taken from dried herbarium specimens.

Description of general morphological features follows Lindley (1848), Pipoly (1987, 1991, 1992a, 1992b, 1996), Pipoly and C. Chen (1995), and Ricketson & Pipoly (1997) for the inflorescence, rachis pedicels and floral parts. Description of leaf morphology follows Hickey (1984), trichome description follows Theobald et al. (1984), and basic cell and tissue terminology follow Metcalfe (1984).

TAXONOMIC TREATMENT

Myrsine L., Sp. Pl. 1: 196. 1753, Gen. Pl. ed 5: 90. 1754; Roem. & Schult., Syst. Veg. 503. 1819; A. DC., Trans. Linn. Soc., London, Bot. 17: 104.

1834; Ann. Sci. Nat. Bot. 9: 292. 1841; Ann. Sci. Nat. Bot. 16: 65–97, 129–196, t. 1–3, 8–9, 1841; A. DC. in DC., Prodr. 8:92. 1844; Miq. in Mart., Fl. Bras. 10:306. 1856; Hook. f. in Benth. & Hook., Gen. Pl. 2:642. 1876; Mez in Engl., Pflanzenr. IV. 236(Heft 9):338. 1902; E. Walker, Philipp. J. Sci. 73:184. 1940, Bot. Mag. Tokyo 67:249. 1954, Bull. Ag. Home Ec. Univ. Ryuku 2:76, Quart. J. Taiwan Mus. 12:164. 1959; Stearn, Bull. Brit. Mus. (Nat. Hist.), Bot. 4:174. 1969; Fosberg & Sachet, Smithsonian Contr. Bot. 21:3–11. 1975; Lundell, Phytologia 48:137. 1981, Phytologia 56:418. 1984; Pipoly, Novon 1:204. 1991, Caldasia 17:1. 1992, Novon 2:392. 1992; Pipoly & C. Chen, Novon 5:360. 1995; Y.B. Harvey & Pipoly, Fl. Pico das Almas 487. 1995; C. Chen & Pipoly, Fl. China 15:34–38. 1996; Pipoly, Sida 17:115–162. 1996; Ricketson & Pipoly, Sida 17:579–589. 1997. Type (by monotypy): *Myrsine africana* L.

Rapanea Aubl., Hist. Pl. Guiane 1:121. t. 46. 1775; A. Juissieu, Gen. Pl. 288. 1789; Miq. in Mart., Fl. Bras. 10:306. 1856; Mez in Urb., Symb. Antill. 2:427. 1901; Mez in Engl., Pflanzenr. IV. 236(Heft 9):342. 1902; Pitard in LeComte, Fl. Gen. Indoch. 3(6):786. 1930; Standl., Publ. Field Mus. Nat. Hist. Ser 18(2):898. 1938; Bâthie, Fl. Madagascar 161:138. 1953; Lundell, Fieldiana, Bot. 24 (8-1):190. 1966, Fl. Panama 8:286. 1971; Fournier, Fl. Ilus. Phan. Guadeloupe et Martinique 1046. 1978; Taton, Fl. Afr. Cent. Myrs. 53. 1980; Kupicha, Fl. Zambesiaca 7:201. 1983; Halliday, Fl. Trop. E. Afr. Myrs. 2:8. 1984; Little et al. Arbol. Puerto Rico y Islas Virg. 2:872. 1988.

Dubamelia Dombey ex Lam., Encycl. 1:245. 1783.

Samara Sw., Prodr. 1:120. 1788, *pro parte. non* L.

Manglilla A. Juss., Gen. Pl. 151. 1789.

Arthrophyllum Lout., Fl. Cochinch. 1:120. 1790.

Caballeria Ruiz & Pav., Fl. Peruv. Prodr. 1:141. 1794.

Roemeria Thunb. (*non alior*) Nov. Gen. Pl. 9:130. 1798.

Scleroxylum Willd., Ges. Naturf. Freunde Berlin Mag. Neuesten Entdeck. Gesammten Naturk. 3:57. 1809.

Suttonia A. Rich., Ess. Fl. Nouv.-Zel. 349. pl. 38. 1832.

Merista Banks & Sol. ex A. Cunn. in A. DC. in DC., Prodr. 8:95. 1844.

Shrubs or small trees. *Leaves* alternate, exstipulate. *Inflorescences* lateral (axillary), umbellate or fasciculate, sessile or on short, perennating, accrescent peduncles girdled by persistent floral bracts (thus forming "short shoots"). *Flowers* 4–5(–6)-merous, bisexual or unisexual (the plants then bisexual, monoecious, dioecious, or polygamous); sepals nearly free or united to 1/2 their length, imbricate or valvate, usually ciliate, punctate, persistent; petals nearly free or rarely united to 1/2 their length, usually ciliate, glandular-granulose at least along margin and often throughout within, punctate; stamens and staminodes similar, subequalling corolla length, the filaments free or connate basally to form a tube, the tube with or without sterile appendages alternating with the filaments, and all merely adnate to the corolla tube; or

developmentally fused throughout, the anthers or antherodes thus appearing epipetalous, the anthers and antherodes similar, ovate or reniform, elliptic or oblong, rarely sagittate, 2-celled, dehiscent by longitudinal slits, or rarely by subterminal pores opening later into wide longitudinal slits; pistil and pistillode similar; conic, ellipsoid, obturbinate, obnapiform, or variously subglobose; ovary globose, costate or not, glabrous or glabrescent; ovules few, uniseriate, completely immersed in placenta or seated below apical pores in placenta or variously projecting; style obsolete to present, tapering into stigma; stigma morchelliform (morel-shaped), liguliform, sinuate to lobate, prismatic and 3(-4)-lobed, or rarely conical. *Fruit* a globose, subglobose, ellipsoid, ovoid, or obovoid or subovoid drupe, with somewhat fleshy exocarp and crusty or leathery endocarp, 1-seeded; seed occupying cavity, the endosperm horny, ruminant; embryo cylindrical, transverse.

Myrsine, as here defined, contains ca. 300 species and is pantropically distributed. In Venezuela, 12 species are known, separable by the following key.

KEY TO MYRSINE OF VENEZUELA

1. Branchlets, petioles and/or leaf midrib densely ferruginous or rufous villous-tomentose or floccose-tomentose, at times early glabrescent, the trichomes uniseriate.
 2. Branches plagiotropic; leaves distichous, the blades (0.6-)1.5-2(-3.5) cm long, apically mucronate, scrobiculate above, the secondary veins not visible; flowers 4(very rarely 5)-merous; calyx widely ovate to deltate, glabrous without, the margins villous glandular-ciliate; fruit ellipsoid. 1. *M. dependens*
 2. Branches orthotropic; leaves spiral, the blades (1.5-)3.5-1.3 cm long, without apical mucron, smooth above, the secondary veins prominulous to prominently raised at least adaxially; flowers 5(rarely 4)-merous; calyx triangular-ovate, scattered papillose-puberulent or glabrate without, the margins crose, glandular-ciliate; fruit globose. 2. *M. coriacea*.
 3. Leaf blades 6-1.3 cm long; inflorescences (3-)5-9(-11)-flowered; calyx lobes longer than wide 2a. *M. coriacea* subsp. *coriacea*
 3. Leaf blades (1.5-)3.5-5.5 (-5.8) cm long; inflorescences 2(-3)-flowered; calyx lobes deltate 2b. *M. coriacea* subsp. *reticulata*
1. Branchlets, petioles and leaf midrib glabrous or reddish glandular-papillose.
 4. Petioles obsolete to 5 mm long.
 5. Leaf blades cartilaginous, (2.3-)3-5(5.4) cm wide; petioles thick, 2-3 mm diam.; calyx lobes prominently keeled, apically long-acuminate, the margins roughly dentate. 3. *M. maguireana*
 5. Leaf blades coriaceous to thickly coriaceous, 1-2(-2.9) cm wide; petioles thinner, obsolete to 1.5 mm diam.; calyx lobes flat, apically obtuse or acute, the margins minutely crose or entire.
 6. Leaf blades (1.7-)2-3 cm long, 1-1.5 cm wide; calyx lobes obtuse apically, the margins minutely crose toward the apex, glabrous. 4. *M. minima*

6. Leaf blades (2.8–)3–5.5(–6) cm long, 1.5–2.5(–2.9) cm wide; calyx lobes acute apically, the margins entire, long glandular-ciliate toward apex or densely glandular-ciliate throughout.
7. Branchlets red glandular papillose-tomentose apically; leaf blades emarginate apically; pedicels 0.5–0.8 mm long; calyx lobe margins long glandular-ciliate toward the apex. 5. *M. andina*
7. Branchlets glabrous apically; leaf blades acute or rounded apically; pedicels 1.2–2 mm long; calyx lobe margins densely glandular-ciliate throughout. 6. *M. perpauciflora*
4. Petioles 5–20 mm long.
8. Leaf blades 1–2(–3) cm wide.
9. Leaf blades (3–)4–5 times longer than wide, 4–15 cm long, 1–2(–2.7) cm wide, lower leaf surface sparsely but conspicuously black punctate-lineate, the lines (5–)20–40 mm long; petioles flat above, marginate; pistillate pedicels 3.5–5 mm long; calyx lobes apically short-acuminate, the margins sparsely glandular-ciliate; fruit subglobose, longer than broad. 7. *M. resinosa*
9. Leaf blades 2–3 times longer than wide, (3–)4–6 cm long, 1.8–2(–3) cm wide, lower leaf surface densely and prominently black punctate and very short punctate-lineate, the lines 0.5–1 mm long; petioles canaliculate; pistillate pedicels 0.9–1 mm long; calyx lobes apically long-articulate, the margins glabrous; fruit obovoid. 8. *M. picturata*
8. Leaf blades (2.7–)3–9.2 cm wide.
10. Pistillate pedicels obsolete to 1.4 mm long; secondary veins of the leaf blades inconspicuous.
11. Branchlets, petioles and leaf midrib glabrous or glandular-granulose; pedicels 1.1–1.4 mm long; calyx lobes 1.2–1.4 mm long, wider than long; fruits 8–12 mm in diam., obscurely pellucid punctate. 9. *M. macrocarpa*
11. Branchlets, petioles and midrib of leaf blade reddish glandular-papillose; pedicels obsolete to 1 mm long; calyx lobes 1 mm long, longer than wide; fruits 3–3.5 mm in diam., obscurely punctate and punctate-lineate. 10. *M. pellucida*
10. Pedicels 1.5–3 mm long; secondary veins of the leaf blades conspicuous.
12. Leaf apices acute, rarely obtuse; lower leaf surfaces conspicuously reddish punctate and punctate-lineate; calyx lobes deltate; fruit 3–3.5 mm diam., obscurely pellucid punctate; gallery, *Mora* and *Clusia-Magnolia* forests. 11. *M. nitida*
12. Leaf apices obtuse to broadly rounded; lower leaf surfaces inconspicuously black punctate to punctate-lineate; calyx lobes ovate; fruit 3.5–5 mm diam., prominently black punctate; cloud forests to lowland savannas. 12. *M. guianensis*
1. *Myrsine dependens* (Ruíz & Pav.) Spreng., (Figs. 1H, 1I, 1J, 3), Syst. Veg. 1:664. 1825. *Caballeria dependens* Ruíz & Pav., Syst. Veg. Fl. Peruv. Chil. 281. 1798. *Manglilla dependens* (Ruíz & Pav.) Roem. & Schult., Syst. Veg. 4:506. 1819. *Rapanca dependens* (Ruíz & Pav.) Mez in Engl., Pflanzenr. IV. 236(Heft 9):377. 1902. TYPE: PERU. HUÁNUCO: Near Muña, without elev., H. Ruíz & J. Pavón s.n. (HOLOTYPE: MA; ISOTYPES: F, G-DEL).

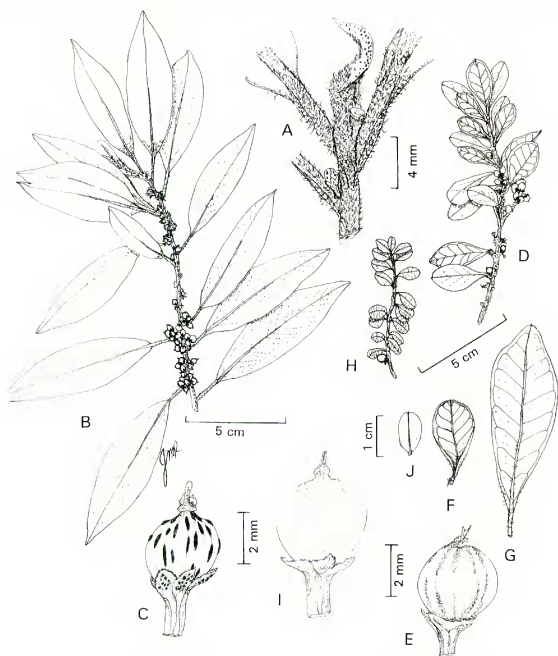


FIG. 1. A. *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult. subsp. *coriacea*, detail of branchlet apex, petioles and midrib of leaf blades with dense tomentum, drawn from *Pipoly* 6486. B. Habit, flowering branch of same, drawn from *F. Breteler* 4580. C. Fruit of same, drawn from *F. Breteler* 4580. D. Habit, flowering branch of *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult. subsp. *reticulata* (Steerm.) Pipoly, drawn from *B. Maguire* 33465. E. Fruit of same, drawn from *B. Maguire* 33465. F. Abaxial leaf of same, drawn from *J. Steyermark* 58983 (NY isotype). G. Abaxial leaf of same, showing variation, drawn from *L. Marciano-Berti* 804. H. Habit, flowering branch of *Myrsine dependens* (Ruíz & Pav.) Spreng., drawn from *L. Marciano-Berti* 804. I. Fruit of same, drawn from *L. Marciano-Berti* 804. J. Abaxial leaf of same, drawn from *L. Marciano-Berti* 804.

Myrsine ciliata Kunth in H.B.K., Nov. Gen. Sp. 3:248. 1819. *Rapanea dependens* (Ruíz & Pav.) Mez in Engl. var. *ciliata* (Kunth) Cuatrec., Rev. Acad. Colomb. Ci. Exact. 8:324. 1951. TYPE: COLOMBIA. Without locality, without elev., without date, *A. von Humboldt & A. Bonpland* 326 (HOLOTYPE: P).

Samara myrtifolia Willd. ex Schult. & J.H. Schult. in Roem. & Schult., Mant. 3:220. 1827. *Myrsine myrtifolia* (Schult. & J.H. Schult.) A. DC. in DC., Prodr. 8:103. 1844. TYPE: COLOMBIA. Without locality, without elev., without date, *A. von Humboldt & A. Bonpland s.n.* (HOLOTYPE: P). According to TL-2, the third volume of *Mantissa* was co-authored by Julius Herman Schultes, son of Josef August Schultes, in their revision of the Syst. Veg. that Josef and Johann Jakob Roemer had written earlier. Therefore, we have changed the literature citation customarily used for the basionym accordingly.

Caballeria myrtifolia Ruíz & Pav., ex A. DC. in DC., Prodr. 8:102. 1844. pro syn, nom. inval. TYPE: PERU. Without locality, without elev. without date, *H. Ruíz & J. Pavón s.n.* (HOLOTYPE: G-DEL; ISOTYPES: G-BOIS, MA).

Rapanea pittieri Mez in Engl., Pflanzenr. IV. 236(Heft 9):378. 1902. *Myrsine pittieri* (Mez) Lundell, Phytologia 48:142. 1981. TYPE: COSTA RICA. CARTAGO: Volcán Irazú, 3,000 m, *H. Pittier* 14111 (HOLOTYPE: B-dest., 1943; LECTOTYPE: by Pipoly 1992b, BR; ISOLECTOTYPE: US).

Rapanea peruviana Lundell, Wrightia 6:117. 1980. *Myrsine peruviana* (Lundell) Lundell, Phytologia 48:142. 1981. TYPE: PERU. CUZCO: Tres Cruces, upper edge of Parque Nacional de Manú, 1–13 km NW of Paucartambo-Pilcopata Road, 3,300–3,500 m, 29 Jun 1978, *A. Gentry et al.* 23478 (HOLOTYPE: LL-TEX; ISOTYPES: MO, USM).

Rapanea pittieri Mez var. *chirripensis* Suessenguth, Bot. Jahrb. Syst. 72:281. 1942. TYPE: COSTA RICA. SAN JOSÉ: Chirripó Grande, without elev., 28 Apr 1932, *W. Kupper* 1140 (HOLOTYPE: M; ISOTYPE: M).

Shrubs or *small trees* to 15 m tall and 16 cm DBH; trunk orthotropic, the branches plagiotropic. *Branchlets* terete, rufous puberulent or short villous to densely villous-tomentose apically, at least when young, usually glabrescent, nodes congested, lenticels generally small and obscure. *Leaves* distichous; blades coriaceous to cartilaginous, ovate to elliptic, obovate or suborbicular, (0.6–)1.5–2.0(–3.5) cm long, 0.5–2 cm wide, apically rounded or emarginate, with a short, often blunt, bulbous, mucron formed by an extension of the midrib, basally obtuse to rounded, the midrib impressed and puberulent to short-villous toward base above, prominently raised below, the secondary venation not visible, nitid and scrobiculate above, bearing numerous hydropotes, punctate and punctate-lineate below, the margin entire, densely punctate flat to inrolled; petioles canaliculate, 0.1–0.3(–0.4) cm long, puberulent to short villous within, extending up the midrib of the blade, outside often puberulent to short villous, usually glabrescent. *Staminate inflorescence* fasciculate, 1–3(–4)-flowered; peduncles forming short shoots 1–1.5 mm long, 1–1.2 mm diam., floral bracts chartaceous, oblate, 0.8–1 mm long, 1–1.5 mm wide, apically rounded, densely short-villous above, glabrous below, the margins entire, densely glandular-ciliate; pedicels 1–1.8 mm long, glabrous. *Staminate flowers* 4(rarely 5 [*Pipoly et al.* 6466])-

merous, chartaceous, 3–3.5 mm long; calyx cotyliform, 1–1.2 mm, long, the tube ca. 0.2 mm long, the lobes widely ovate to deltate, 0.8–1 mm long and wide, apically acute, prominently black punctate and punctate-lineate, the margin entire, villous-ciliate, especially toward apex; corolla campanulate, 2.5–3 mm long, the tube ca. 0.5 mm long, the lobes lanceolate to ovate, 2–2.5 mm long, 0.8–1 mm wide, apically subacute to obtuse, inconspicuously punctate and punctate-lineate, the margins entire, minutely glandular-granulose; stamens 1.9–2.3 mm long, the filaments obsolete, the anthers broadly ovate to elliptic, 1.4–1.8 mm long, 0.4–0.6 mm wide, attached dorsally at apex of corolla tube and thus appearing epipetalous, apically apiculate, basally cordate, the connective epunctate dorsally; pistillode conic, hollow, glabrous, the style obsolete, the stigma morchelliform, 0.1–0.2 mm long. *Pistillate inflorescence* as in staminate but 1–3-flowered; peduncle 1–1.2 mm long, 0.8–1 mm diam.; floral bracts 0.8–1 mm long and wide, densely ciliate along the margins; pedicels 1.7–2.2 mm, glabrous. *Pistillate flowers* as in staminate but corolla 2.4–2.6 mm long, the tube 0.2–0.4 mm long, the lobes lanceolate, 2–2.2 mm long, 0.6–0.7 mm wide; staminodes resembling stamens but abortive, the filaments obsolete, the antherodes lanceolate, 1–1.4 mm long, 0.3–0.4 mm wide, apically apiculate, basally sagittate; pistil obnapiiform, the ovary subglobose to conical, glabrous the style obsolete, the stigma morchelliform, 0.8–1 mm long, the placenta globose, the ovules 2–4, uniseriate. *Fruit* ellipsoid, 3–3.5 mm long, 2.5–3 mm diam., densely and prominently black punctate and punctate-lineate, with inconspicuous longitudinal costae.

Distribution.—*Myrsine dependens* is known from Costa Rica and Panama, and in the Andes from Venezuela to Bolivia, from 2,500–3,800 m elevation. In Venezuela, it is found in the Andean states of Mérida, Táchira, and Trujillo, and along the coastal cordillera in and north of Caracas, in the Distrito Federal and Miranda states. We expect it should also occur in the Serranía de Turumiquire, in the states of Anzoátegui, Monagas and Sucre.

Ecology and conservation status.—*Myrsine dependens* is known from subpáramo, páramo margins, and subpáramo-cloud forest transition areas, and withstands moderate to heavy disturbance. The principal obstacle to successful seedling establishment appears to be compaction of the soil from overgrazing by sheep and goats. The species is locally common, often forming dense thickets, and is not threatened at this time.

Etymology.—The specific epithet comes from the latin 'dependens', meaning suspended or hanging down, and refers to the often lax, narrow branchlets that hang due to weight with age.

Specimens examined. VENEZUELA. Distrito Federal: Caracas, without elev., 1843 (fl), *H. Funck* 481 (P); "crescit in declivitate meridionali montis Silla de Caracas, 800 hex, without date (fr), *A. von Humboldt* & *A. Bonpland* s.n. (P); Caracas, without elev., without

date (fl), *J. Linden* 958 (K); Parque Nacional El Avila, Pico Naiguatá, without elev., 5 Jan 1976 (fr), *B. Manara s.n.* (MO, NY, VEN); Cordillera del Avila, between Los Venados and Pico Oriental, 1,675–2,640 m, 27–28 Feb 1944 (fl), *J. Steyermark* 55646 (F, NY); Silla de Caracas, without elev., 1891–1892 (fr), *J. Warmings s.n.* (C). Mérida: Páramo de Mucupú, 3,100 m, 7 Dec 1952 (fr), *L. Bernardi* 214 (G, NY, VEN); Near Alto del Aguada, 3,300–3,500 m, 4 Nov 1976 (fr), *L. Bernardi et al.* 17136 (NY, VEN), 17144 (NY, VEN); Distrito Libertador, Páramo El Escorial, vicinity of El Valle, NE of Mérida, ca. 2,800 m, 9 Sep 1982 (fl), *S. Clemants & J. Dugarte* 2411 (F, NY, VEN); Distrito Miranda, road from Páramo La Aguila to Piñango, at bridge, 3,400 m, 16 Sep 1982 (fr), *S. Clemants & D. Díaz* M. 2435 (MERF, NY); Quebrada de Saisay, 3,220 m, 5 Apr 1930 (fr), *H. Gebriger* 28 (F, MO, NY, VEN); Páramo near Hotel Los Frailes, N of the Mérida-Barinas Hwy, 08° 49' N, 70° 47' O, 3,000–3,300 m, 29 Dec 1991 (fl), *W. Meier* 1097 (MO, VEN n.v.); Distrito Libertador, Sierra de Culata, 20 kms NE of Mérida, 2,800–3,800 m, 19 Dec 1983 (fr), *J. Pipoly et al.* 6466 (MER, MO, NY); Distrito Libertador, Sierra de Culata, 18 kms NE of Mérida, 2,800–3,800 m, 19 Dec 1983 (fr), *J. Pipoly et al.* 6512 (MER, MO, NY); Distrito Libertador, Parque Nacional Simón Bolívar, La Mucuy, Laguna del Coromoto, 3,400 m, 22 Dec 1983 (fr), *J. Pipoly & G. Aymard* 6566 (MER, MO, NY); Distrito Libertador, Municipio Tabay, near Laguna de la Coromoto, Parque Nacional Simón Bolívar, 3,100–3,400 m, 19 Jun 1963 (fl), *L. Ruiz Terán* 1669 (MERF, MO). Miranda: Ascent of Pico de Naiguatá, above Los Chorros, 2,200–2,865 m, 16–17 Jun 1945 (fl), *J. Steyermark* 63007 (F, MO). Táchira-Mérida border: Páramo, La Negra, 3,000 m, 7 Oct 1965 (fr), *J. Breteler* 4629 (F, NY); Páramo La Negra, ca. 3,080 m, 7 Oct 1965 (fl, fr), *L. Marciano-Berti* 804 (MER, MO). Trujillo: Páramo Guirigay, toward Peña Blanca, 3,400 m, Aug 1958 (fl), *L. Aristeguieta* 3606 (NY, VEN); Arriba de Jají, Paramito, toward Tuñame, rocky mounrains, 3,100–3,200 m, 29 Oct 1969 (fr), *J. Cuatrecasas et al.* 28185 (F); Along highway between Flor de Patria and Boconó, 64 km from Boconó, 500 m, 24 Feb 1971 (fl, fr), *J. Steyermark* 104785 (MO, NY). Without location: Venezuela, without elev., 1842–1843 (fl), *H. Funck* 550 (BM); 1845 (fl), *H. Funck & L. Schlim* 58 (BM).

As here interpreted, *Myrsine dependens* includes a wide range of growth forms, all restricted to Andean subpáramo and páramo habitats, extending to the Caribbean coastal cordillera. The *Myrsine ciliata* growth form is the most striking variant, chiefly because of its cartilaginous leaf blades with a plicate habit. Further study is needed through the subpáramos and jalca habitat margins, from Colombia to Peru, to determine whether this variant deserves subspecific recognition.

Among all Venezuelan species, *Myrsine dependens* is easily distinguished because it exhibits architecture corresponding to Massart's Model (Hallé et al. 1978), characterized by an orthotropic trunk and plagiotropic branches bearing distichous leaves. Fieldwork has shown it forms large populations with high densities. The ellipsoid fruit is also distinctive. At this time, its relationships are not certain, but the small-leaved taxa, including, *M. microdonta* Pipoly, *M. fosteri* Pipoly, and *M. brevis* (J. E. Macbr.) Pipoly of Peru; *M. lehmannii* (Standl.) Pipoly, and *Myrsine paramensis* (Cuatrec.) Pipoly of Colombia, seem to form a monophyletic group defined by mucronulate to mucronate leaf apices and Massart's Model of architecture. All are high-altitude taxa growing in harsh environments.

2. *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult.

Shrubs or small trees to 8(–30) m tall; trunk and branches orthotropic. *Branchlets* terete, ferruginous to rufous villous tomentose to floccose tomentose, at least apically, usually persistent, the trichomes uniseriate; lenticels small and obscure to large and conspicuous. *Leaves* spiral; blades membranaceous, chartaceous or coriaceous, lanceolate, oblanceolate, obovate, elliptic or oblong, (1.5–)6–13 cm long, (0.8–)1–3 cm wide, apically acute or acuminate, rarely obtuse to emarginate, basally acute, cuneate to obtuse or rarely rounded, decurrent on the petiole, nitid and smooth above, pallid below, the midrib flat or impressed above, prominently raised below, the secondary veins prominulous to prominently raised above and/or below, conspicuously but not prominently punctate and punctate-lineate below, villous at first, at least along the midrib, glabrescent, the margins entire, flat or rarely revolute basally; petioles canaliculate or marginate at least distally, 0.1–2 cm long, thick, densely to sparsely ferruginous or rufous villous tomentose, often glabrescent with age. *Staminate inflorescence* fasciculate, 5–12-flowered; peduncles forming short shoots 1–4 mm long, 1–2 mm diam., glabrous or pilose; floral bracts deltate to very widely ovate, 0.4–0.8 mm long and wide, apically obtuse to rounded, the margin glandular-ciliate; pedicels obsolete to 1.5 mm long, papillose-puberulent at first, glabrescent. *Staminate flowers* 5-merous, very rarely with a few, scattered 4-merous ones on some inflorescences, 2.5–4 mm long; calyx chartaceous, cotyliform, 0.4–1.5 mm long, the tube 0.1–0.3 mm long, the lobes triangular-ovate, 0.4–1.2 mm long, 0.3–0.6 mm wide, apically acute to obtuse, densely and prominently black punctate or rarely epunctate, scattered papillose-puberulent without or glabrate, the margins subentire to erose, glandular-ciliate; corolla chartaceous, campanulate, 2.5–4 mm long, the tube 0.5–1 mm long, the lobes lanceolate, 2.5–3.5 mm long, 0.8–1.1 mm wide, apically subacute to obtuse, prominently black punctate-lineate, the margin entire, glandular-granulose; stamens 2–2.8 mm long; filaments obsolete and anthers attached at the apex of corolla tube, thus appearing epipetalous; anthers oblong, 1.5–1.8 mm long, 0.9–1 mm wide, apically acute to obtuse, basally deeply cordate to subsagittate, the connective epunctate dorsally; pistillode conic, hollow. *Pistillate inflorescence* as in staminate but 3–9-flowered. *Pistillate flowers* as in staminate but 1.8–4 mm long; corolla 1.7–3.3(–3.9) mm; staminodes similar to stamens but anthers ovate, 0.5–1 mm, apically acuminate, basally slightly sagittate, the connective epunctate; pistil obturbinate, the ovary 0.5–1 mm, globose to subglobose; the style obsolete, the stigma morchelliform, (1–)1.2–1.4 mm long; ovules 3, uniseriate. *Fruit* globose, 2.5–3.5(–4) mm diam., punctate to punctate-lineate, glabrous, costa not prominent, brown or black at maturity.

As here circumscribed, *Myrsine coriacea* is the most widespread neotropical species and perhaps the only “weedy” neotropical member of the Myrsinaceae.

It is the most polymorphic of the ochlospecies (sensu White 1962; Prance 1982; Pipoly 1983) found in any myrsinaceous genus. While vegetative plasticity is greater in this species than in any other in the family, the morchelliform stigma is shared only with *M. dependens*. It is not certain whether the morchelliform stigmas of both species are identical, or two states of what could be a transformation series, and more study of this is needed. Among the other distinguishing features of *Myrsine coriacea* are the few-flowered, sessile, faciculate inflorescences, subsagittate anther and antherode bases, the persistent ferruginous tomentum of the vegetative organs and pedicels, and the small, globose fruits.

2a. *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult. subsp. *coriacea*, (Figs. 1A, 1B, 1C, 2), Syst. Veg. 4:511. 1819. *Samara coriacea* Sw., Prodr. 1:32. 1788. *Rapanea coriacea* (Sw.) Mez in Urb., Symb. Antill. 2:428. 1901. TYPE: JAMAICA. Without locality, without elev., without date, *O. Swartz s.n.* (HOLOTYPE: BM).

Caballeria ferruginea Ruíz & Pav., Syst. Veg. Fl. Peruv. Chil. 280. 1798. *Manglilla ferruginea* (Ruíz & Pav.) Roem. & Schult., Syst. Veg. 4:506. 1819. *Myrsine ferruginea* (Ruíz & Pav.) Spreng., Syst. Veg. 1:664. 1825. *Rapanea ferruginea* (Ruíz & Pav.) Mez in Urb., Symb. Antill. 2:429. 1901. TYPE: PERU. HUÁNUCO: Near Muña, without elev., without date, *H. Ruíz et J. Pavón s.n.* (HOLOTYPE: MA; ISOTYPE: G).

Myrsine popayanensis Kunth in H.B.K., Nov. Gen. Sp. 3:249. 1819. TYPE: COLOMBIA. CAUCA: Near Popayán, 1,000 m, without date, *A. von Humboldt & A. Bonpland 1908* (HOLOTYPE: P).

Myrsine jelskii Zahlbr., Ann. K. K. Naturhist. Hofmus. 7:3. 1892. *Rapanea jelskii* (Zahlbr.) Mez in Engl., Pflanzenr. IV. 236(Heft 9):379. 1902. TYPE: PERU. CAJAMARCA: Near Cutervo, without elev. without date, *C. von Jelski 15* (HOLOTYPE: W; ISOTYPES: KRA, n.v., PR).

Samara saligna Willd. ex Schult. & J.H. Schult. in Roem. & Schult., Mant. 3:220. 1827. *Myrsine saligna* (Schult. & J.H. Schult.) A. DC., Prodr. 8:103. 1844. TYPE: *Herb. Willd. 1039* (HOLOTYPE: B-WILLD, n.v.). According to TL-2, the third volume of *Mantissa* was co-authored by Julius Herman Schultes, son of Josef August Schultes, in their revision of the Syst. Veg. that Josef and Johann Jakob Roemer had written earlier. Therefore, we have changed the literature citation customarily used for the basionym accordingly.

Myrsine myricoides Schltdl., Linnaea 1833:525. 1833. *Rapanea myricoides* (Schltdl.) Lundell, Wrightia 3:109. 1964. TYPE: MEXICO. VERACRUZ: Jalapa: without locality, without elev., without date, *H. Galeotti 521, 522, 526* (SYNTYPES BR, F, G, HAL). We defer lectotypification of this binomial until all material cited in the protologue and their duplicates can be assembled.

Myrsine tomentosa Presl, Reliq. Haenk. 2:63. 1835. TYPE: PERU. HUÁNUCO: without locality, without elev. without date, *T. Haenke s.n.* (HOLOTYPE: PR).

Myrsine viridis Rusby, Mem. Torrey Bot. Club 6:74. 1896. TYPE: BOLIVIA. LA PAZ: Mapiro, without elev., Jul–Aug 1892, *M. Bang 1476* (HOLOTYPE: NY).

Rapanea ambigua Mez in Engl., Pflanzenr. IV. 236(Heft 9):380. 1902. SYN. NOV. TYPE: VENEUELA. DISTRITO FEDERAL: Caracas bei der Kolonie Továr, without elev., without date (fl), *G. Karsten s.n.* (HOLOTYPE: B-destroyed, 1943 (F Neg. # 4886); LECTO-TYPE: here designated W (F Neg. # 31985).

Myrsine guatemalensis Gand., Bull. Soc. Bot. France 65:57. 1918. TYPE: GUATEMALA.

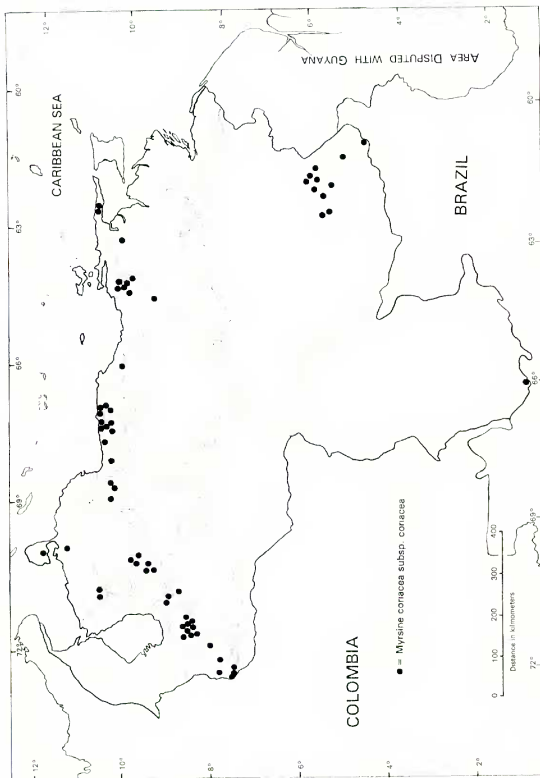


FIG. 2. Distribution of *Myrsine coriacea* subsp. *coriacea* (•) in Venezuela.

- ALTA VERAPAZ: Coban, 1350 m, Dec 1906, *H. von Türckheim 1001* (HOLOTYPE: P; ISOTYPES: F, G, LL-TEX, MICH, MO).
- Rapanea rufa* Lundell, *Wrightia* 5:298. 1976. *Myrsine rufa* (Lundell) Lundell, *Phytologia* 48:142. 1981. TYPE: COSTA RICA. SAN JOSÉ: Cordillera de Talamanca, Pacific Slope of the Chirripó Massif, 2,700–3,000 m, 6 Apr 1969, *G. Davidse & R. Pohl 1635* (HOLOTYPE: LL-TEX; ISOTYPE: MO).
- Myrsine vestita* Lundell, *Wrightia* 7:274. 1984. *Rapanea vestita* (Lundell) Lundell, *Phytologia* 58:490. 1985. TYPE: COSTA RICA. PUNTARENAS: Cordillera de Talamanca, slopes between Cerro Echandí and Cerro Burú, 2,600–2,700 m, 24 Aug 1983, *G. Davidse et al. 24018* (HOLOTYPE: LL-TEX; ISOTYPES: CR n.v., MO).
- Myrsine microcalyx* Lundell, *Phytologia* 58:277. 1985. *Rapanea microcalyx* (Lundell) Lundell, *Phytologia* 58:490. 1985. TYPE: PANAMA. CHIRIQUÍ: Cerro Colorado, 24 mi on gravel road from bridge over Río San Félix, 1,430 m, 22 Nov 1979, *T. Antonio 2619* (HOLOTYPE: LL-TEX; ISOTYPE: MO).

Shrubs or small *trees* to 5(–30) m tall, 15(–50) cm DBH. *Branchlets* rufous or ferruginous villous- or floccose- tomentose, persistent at least apically, rarely glabrescent. *Leaf blades* membranaceous, chartaceous or subcoriaceous, 6–13 cm long, 1–3 cm wide, the secondary veins prominulous to prominently raised above, often conspicuously but rarely prominently punctate and punctate-lineate, sometimes villous at first, especially along the midrib on both surfaces, usually glabrescent with age the margins flat to revolute; petioles 0.1–2 cm, thick, punctate, usually puberulent or short villous to densely villous-tomentose with reddish trichomes, often glabrescent. *Fruit* globose, 2.5–3.5(–4) mm diam.

Distribution.—*Myrsine coriacea* subsp. *coriacea* is known from Mexico and the West Indies through Central America, through the Andes from Venezuela to Argentina, and in montane or premontane areas in the Atlantic coastal forest of Brazil, from 700–3,000 m elevation. In Venezuela (Fig. 2), the species is known from the Guayana Region (Bolívar), the eastern states of Anzoátegui, Monagas and Sucre, the Coastal Range north of Caracas, including Aragua, Carabobo, Distrito Federal and Miranda, and the entire Andean region from Falcón to the Colombian border.

Ecology.—*Myrsine coriacea* subsp. *coriacea* occurs in primary and secondary elfin, cloud, and wet montane (including montane tepui savanna), and subpáramo thickets. While no statistical analyses have been carried out, fieldwork has shown that within a range from slight to heavy disturbance (mostly from sheep grazing), *Myrsine coriacea* subsp. *coriacea* seems to increase in population density with disturbance.

The subspecies' range overlaps with that of subsp. *reticulata* only in the state of Bolívar, where subsp. *coriacea* occurs in the talus slope forests, while subsp. *reticulata* occurs in riparian gallery forests on the tepui summits. Given its ability to thrive in disturbed habitats, subsp. *coriacea* it is not subject to threat at this time.

Etymology.—The subspecific epithet, 'coriacea' refers to the coriaceous nature of the leaf blades, an especially common feature in Caribbean populations.

Specimens examined. **VENEZUELA.** Amazonas: Departamento Río Negro, Cerro de La Neblina, Expedition Camp VII, 00° 50' N, 65° 58' W, 1,850 m, 2 Dec 1984 (fl), *W. Anderson 13461* (F, NY, US). Anzoátegui: Distrito Libertad, summit of Montañas Negras, along the Sucre and Anzoátegui border, 20 airline km NE of Bergantín, NE of Buenos Aires, Serranía de Turimiquire, 10° 04' 30" N, 64° 11' W, 2,000–2,350 m, 28 Nov 1981 (fr), *G. Davidse & A. González 19540* (F, MO, NY, VEN); (fl, fr), 19606 (MO, NY, VEN); Cerro Corona, near radio installation, 2,000–2,200 m, 7 Jan 1987 (fl), *W. Hahn & F. Grifo 3460* (MO, US); Distrito Freites, Serranía de Turimiquire, Cerro Peonía, ca. 10° 06' N, 64° 06' W, 2,200–2,400 m, 8 Dec 1983 (fr), *J. Pipoly 6450* (NY, VEN); Along forested slopes of headwaters of tributaries of Río Neverí, between Río León and "Carmelita", NE of Bergantín, 800–1,200 m, 5 Mar 1945 (fl), *J. Steyermark 61355* (F); Slopes of Montaña de las Palomas tributary of Río Neverí, between "Carmelita" and "Natalia", NE of Bergantín, 900–1,000 m, 9 Mar 1945 (fl), *J. Steyermark 61445* (F); S-facing steep slope, knife-edge ridge above tree zone, Cerro Peonía (Cerro Los Pajaritos), above Santa Cruz, headwaters of Río Manantiales, E of Bergantín, 1,800–2,000 m, 20 Mar 1945 (fl, fr), *J. Steyermark 61615* (F). Aragua: Distrito Girardor, near Alto de Choróni, 1,400 m, 11 May 1977 (fr), *V. Badillo 7339* (MY, NY); Carretera las Tejerías-La Tiara, highest point of Carretera, 1.4–15 km S of junction to Carretera Las Tejerías-Los Teques, 1,150–1,200 m, 4 Jan 1978 (fl), *G. Bunting & M. Fucci 6050* (NY); Summit, Pico Guacamaya, Parque Nacional Henri Pittier, 1,850 m, 25 Jan 1990 (fl), *A. Cardozo & H. Rodríguez 1218* (MO); Summit, Cerro Chimborazo, Parque Nacional Henri Pittier, 2,230 m, 23 Feb 1990 (fl), *A. Cardozo et al. 1278* (MO); On steep slope, N slope of Pico Guacamaya, Parque Nacional Henri Pittier, 1,800 m, 23 Mar 1990 (fl), *A. Cardozo et al. 1344* (MO); Parque Nacional Henri Pittier, without elev., 26 May 1990 (fr), *A. Cardozo & H. Meneses 1421* (MO); Near Colonia Tovar, without elev., 1854–1855 (fr), *A. Feudler 758* (MO, NY); Distrito Ricaurte, after arch toward Colonia Tovar, without elev., 22 Jul 1987 (fr), *C. de Rojas y F. Rojas 3682* (MY n.v., NY). Aragua: Lagunita, Colonia Továr, without elev., without date (fl), *J. Moritz 1175* (BM); Vicinity of Tovar, 1,200 m, 31 Jan 1928 (fl), *H. Pittier 12793* (NY); Sabanas de Agua Negra, 1,500–1,600 m, 18 Dec 1936 (fl), *H. Pittier 13793* (US); S-facing slopes of Cordillera del Avila, just above Caracas, along trail towards Los Venados, 1,520–1,675 m, 27 Dec 1943 (fl), *J. Steyermark 55022* (F). Barinas: Distrito Pedraza, SW of Carrizal, "La Escaza" on the S bank of the Río Canaguá, Parque Nacional Sierra Nevada, 08° 39' N, 70° 46' W, 26 Jun 1988 (fr), *L. Dorr et al. 5693* (NY, PORT). Bolívar: Distrito Piar, Macizo del Chimantá, wide valley in the SE sector of Apacará-tepui, in contact zone between Roraima Sandstone and extensive metamorphic (diabasic) intrusions, in the N sector of the Macizo 05° 19' N, 62° 07' W, 2,150 m, 7 Feb 1984 (fl), *Al. Colella & O. Huber 451* (MYF, NY); Distrito Piar, Kuaipia Mtn. Pedro Cova, 05° 37' N, 61° 46' W, ca. 1,000 m, 14 Apr 1986 (fr), *S. Elcoro y N. Vera 225* (MYF, NY); Distrito Sifontes, Mun. Urdaneta, Cuencas del Caroní, "Sabanita" 11 km E of San Ignacio, 05° 00' 00" N, 61° 00' 30" W, 1,120 m, 30 Jan 1985 (fr), *L. Hernández y N. Dezzeo 114* (MYF, NY); Distrito Piar, ca. 6 km NE of Kavanayén, 05° 38' N, 61° 40' W, 1,300 m, 6 Mar 1983 (fr), *O. Huber & C. Alarcón 7375* (MYF, NY); Distrito Roscio, montane savannas above "Piedra de Canaimé," ca. 5 km SE of Santa Elena de Uairén, 04° 35' N, 61° 06' W, 1,100–1,200 m, 28 Jul 1983 (fr), *O. Huber & C. Alarcón 7931* (MYF, NY); Distrito Piar, Macizo del Chimantá, wide valley located in SE section of Apacará-tepui, in the contact zone between Roraima Sandstones and extensive metamorphic (diabasic) in the N sector of the Macizo, 05° 19' N, 62° 07' W, 2,150 m, 6–9 Feb 1984 (fl), *O. Huber et*

al. 8786 (MYE, NY 2-sheets); 11 kms E of Kavanayén, ca. 1,200 m, 26 Jul 1983 (fr), *R. Kral & A. González* 70455 (MO, VDB); Entre Estación y Aeropuerto CVG de Parupa, 1,250 m, 14 Sep 1983 (fr), *G. Morillo et al.* 9606 (VEN); Gran Sabana, Vía Kavanayén, El Jardín, between Campamento Parupa and Kavanayén, ca. 55 km E of Fuerte Luepa, without elev., 23 Jun 1983 (fl), *N. Ramírez* 796 (VEN); Gran Sabana, Rastrojo, behind Campamento Río Parupa at junction with Río Parupa, Parque Nacional Canaima, without elev., 23 Nov 1993 (fr), *N. Ramírez et al.* 4666 (MO); Pтари-tepui, steep forested slopes at base of first line of sandstone bluffs, on S-facing part, E of "Cave Rock", 2,130 m, 4 Nov 1944 (fl), *J. Steyermark* 59826 (F, MO, NY, US); Río Karuai bordering savanna between base of Pтари-tepui and Sororopán-tepui, 1,220 m, 28 Nov 1944 (bud), *J. Steyermark* 60737 (F); Ridge above La Laja at base of Sororopán-tepui, 1,375–1,460 m, 30 Nov 1944 (bud), *J. Steyermark* 60808 (F). **Carabobo:** Above Hacienda Cura, between Valencia and Maracay, 1,400 m, 8 Jan 1939 (fl), *A. Alston* 6172 (BM). **Distrito Federal:** Las Flores, Sierra de El Avila, 1,600 m, 15 Dec 1938 (fl), *A. Alston* 5515 (BM); Ecological study site, Silla de Caracas, without elev., 29 Jan 1969 (fl), *Z. Baruch* 95 (NY); Bajo Seco, Facultad de Agronomía Station, 2,000 m, 26 Jan 1983 (fl), *L. C. de Guereva* 3261 (BM); Parque Nacional El Avila, trail from end of road to La Silla de Caracas, ca. 10° 35' N, 66° 50' W, 1,951–2,316 m, 29 Jan 1984 (fl), *J. Luteyn et al.* 9386 (NY, VEN), (ster.), 9387; Fila del Avila, 10° 32' 8" N, 66° 53' W, 2,060 m, 11 Jun 1991 (fr), *W. Meier* 14 (MO); Cerro El Avila, S slope, along ridge to Hotel Humboldt-Papelón, 10° 32' 03" N, 66° 52' 05" W, 1,930 m, 10 Jan 1992 (fl), *W. Meier* 1317 (MO); Fila del Avila, 10° 32' 07" N, 66° 53' W, 2,050–2,100 m, 7 Jan 1992 (fr), *W. Meier* 1414 (MO); Headwaters of Quebrada Chacaito, 10° 33' N, 66° 52' O, 2,090 m, 5 Feb 1992 (fr), *W. Meier* 1603 (MO); Colinas W of Río Macarao Basin, 1,200 m, 4 mar 1971 (fl), *G. Morillo* 592 (NY, VEN); 6 km ENE of Colonia Tovar, 1,900 m, 21 May 1960 (fl) *J. Steyermark* 86192 (NY, VEN); Fila de Agua Negra, without elev., Feb 1938 (fl), *F. Tamayo* 436 (US, VEN); Carretera de El Junquito, 1,700 m, May 1950 (fr), *VEN Herb. No.* 3879 (MO); Caracas, without elev., 1891–1892 (fl), *J. Warmings* 553 (C); along Carretera de Los Flores y Boca del Tigre, 1,600 m, without date (fl), *L. Williams & A. Alston* 314A (BM); Agua Negra, 1,400 m, 18 Mar 1938 (fl), *L. Williams* 9938 (F, US); Along road to Las Flores a Caligan, 1,700 m, 16 Dec 1938 (fl), *L. Williams & A. Alston* 10940 (F). **Falcón:** Cerro Santa Ana, Península Paraguaná, near top, 800 m, 15 Dec 1964 (fl), *F. Breteler* 4289 (NY); Cerro Santa Ana, Península Paraguaná, 800–840 m, Dec 1953 (fl), *T. Lasser & L. Aristeguieta* 3418 (F, VEN); Península de Paraguaná, Cerro Santa Ana, isolated mountain, without elev., 17 Feb 1980 (fl), *G. Sobel et al.* 2021 (NY); Sierra de San Luís, La Chapa y Uria, 1,400 m, 19 Jul 1967 (fl), *J. Steyermark* 99182 (F, MO, NY, VEN). **Falcón and Lara:** Disputed area between Falcón and Lara, Cerro Cerrón, W part, 1,800–2,000 m, 27 Jun 1979 (fr), *R. Liesner et al.* 8202 (MO, VEN); (fl), 8232 (MO, VEN); Cerro Socopo, 1,400–1,560 m, 29 Jun 1979 (fr), *R. Liesner et al.* 8389 (MO, NY, VEN). **Lara:** Distrito Morán, Carretera de Humocaro Bajo via Buenos Aires, 09° 36' N, 70° 03' W, 1,600 m, 13 Nov 1985 (fl, fr), *H. van der Werff & R. Rivero* 7838 (MO, NY); (fl), 7859 (MO, NY); Distrito Morán, Carretera de Humocaro Bajo, via Las Palmitas, without elev., 16 Nov 1985 (fl), *H. van der Werff & R. Rivero* 8009 (MO, NY). **Mérida:** 10 km NE of Mérida, near village of Tabay, native coffee plantation, 1,900 m, 28 Oct 1963 (fl), *F. Breteler* 3218 (NY); 19 km W of Mérida, 1,700 m, 31 Oct 1963 (fl), *F. Breteler* 3242 (NY); 5 km NW of Mérida along road to El Valle, 1,920 m, 27 Feb 1964 (fl), *F. Breteler* 3635 (NY); 10 km NE of Mérida, near village Tabay, 1,900 m, 9 Sep 1965 (fr), *F. Breteler* 4580 (MO, NY); NW of Mérida, on slope near Barrio Los Chorros, 1,950 m, 16 Jul 1966 (fr), *J. de Bruijn* 988 (MO); Valle Grande from the stream to the páramo, 3,100–3,200 m, 8 Nov 1976 (fr), *A. Charpin & F. Jacquemond* 13136 (NY); Vicinity of Mérida, Río Chama, without elev., 14 Jul 1951 (fr), *H. Curran* 2114 (NY); Distrito

Rangel, Cuenca del Quebrada de La Mitisús, Parque Nacional Sierra Nevada, ca. 08° 51'–52' N, 70° 39' W, 2,400–2,750 m, 19 Jun 1988 (fl, fr), *L. Dorr & L. Barnett* 5602 (NY); Tabay, 2,200–2,300 m, 2 Sep 1930 (fr), *H. Gebriger* 401 (F, MO, NY); Parque Nacional Sierra Nevada, de La Mucuy, 13 km air miles NNE of Mérida, 08° 38' N, 71° 2' W, 2,400–2,600 m, 9 May 1991 (fl), *W. Meier & O. Carrero* 869 (MO); Galipán, Manteco Fac., without elev., without date (fl), *J. Moritz* 153 (BM); Distrito Libertador, Sierra de Culata, 18 km al NE de Mérida, 2,000–2,500 m, 19 Dec 1983 (fr), *J. Pipoly et al.* 6486 (MO, NY, VEN); Distrito Campo Elias, Municipio Zerpa, Bosque Experimental de San Eusebio, 2,100–2,400 m, 23 Jan 1963 (fl), *L. Ruiz Terán* 1297 (MERF, MO); Distrito Campo Elias, Municipio Zerpa, El Molinillo-San Luis, between El Salado and the village of La Azulita, ca. 1,680 m, 18 Mar 1963 (fl), *L. Ruiz Terán* 1436 (MERF, MO); Distrito Sucre, Municipio Estanques, along Quebrada de Quirorá, unos 4 km E of Quirorá, 700–1,000 m, 21 Feb 1970 (fl), *L. Ruiz-Terán & M. Lopez-Figueroa* 126 (MERF, MO, NY); Estanques-Páramos de los Colorados road, Mérida, 1,750 m, 12 Mar 1980 (fr), *G. Sobel & J. Strudwick* 2151 (NY); NW- & NE-facing slopes above "La Isla", above Tabay, 2,285–2,745 m, 18 May 1944 (fl), *J. Steyermark* 56588 (F); Distrito Montezerpa, valley above La Hechicera Mérida, 2,000–3,000 m, 4 Sep 1985 (fr), *E. Tanner & V. Kapos* 107 (MO); Ridge behind la Montaña teleférico station, ca. 2,600 m, 24 Nov 1985 (fr), *E. Tanner & V. Kapos* 246 (MO); 251 (MO); Spur ridge behind Estación La Montaña del Teleférico de Mérida, Tanner sites, 2,600–2,750 m, 13 Jul 1986 (ster.), *E. Tanner & V. Kapos* 402 (MO); La Trampa, Carretera San Juan-Azulita, 2,500 m, 2 Feb 1987 (fl), *H. van der Werff et al.* 8779 (MO, VEN); Distrito Sucre, along the road from Santa Cruz de Mora to Canaguá, along road 11.5 km from turn off paved road to Guayabal, 08° 20' N, 71° 36' W, 1,660 m, 15 Dec 1984 (ster.), *A. Weitzman & N. Holbrook* 183 (MO, NY). **Miranda:** Altos de Pipe, 10° 23.7' N, 67° 0.1' W 1,500 m, 10 May 1963 (fl), *G. Agostini* 174 (F, NY, VEN); Open sites near de San Antonio de los Altos, without elev., Feb 1965 (fl), *L. Aristeguieta* 5498 (MO, VEN); Reserva Biológica, Instituto Venezolano de Investigaciones Científicas (IVIC), Interior Branch of Cordillera de la Costa NE de Venezuela, 10° 00' N, 66° 00' W, 1,700 m, 7 Jan 1987 (fr), *N. Ramírez* 2084 (NY, VEN). **Monagas:** Summit of Cerro de la Cueva de Doña Anita, S of & bordering valley of Caripe, 1,300 m, 7 Apr 1945 (fr), *J. Steyermark* 61927 (F). **Sucre:** Península de Paria, trail from Los Pocitos de Santa Isabel to Cerro Humo, 25 km NW de Irapa, 10° 41' N, 62° 36' W, 900–1,250 m, 12 Jul 1972 (fr), *K. Dumont et al.* 7611 (NY); Cerro Turimiquire, 10° 07' N, 63° 53' W, 2,000–2,150 m, 14–16 Mar 1993 (fl, fr), *W. Meier & G. Bronner* 3523 (MO); Península de Paria, trail to Los Pocitos de Santa Isabel to Cerro Humo, 25 km NW de Irapa, 10° 41' N, 62° 36' W, 900–1,250 m, 12 Jul 1972 (fr), *G. Morillo* 2626 (F, VEN); Valley between base of Cerro de Diablo (W extension of S peak of Cerro Turumiquire), and Cerro de Neverí, along headwaters of Río de Amana, 2,000 m, 11 May 1945 (fl), *J. Steyermark* 62721 (F, NY); Península de Paria, Cerro de Humo, NW de Irapa, between Roma and Santa Isabel, ca. 12 kms N of Río Grande Arriba, 1,273 m, 2 Mar 1966 (fr), *J. Steyermark* 94902 (NY, VEN); Distrito Marino and Distrito Arismendi, Península de Paria, trail between crossing of Río Tacarigua to summit of slopes E of Cerro Humo, descending to Las Melena N of Río Grande Arriba, 10° 41' N, 62° 36'–37' W, 760–1,000 m, 24 Feb 1980 (fl), *J. Steyermark et al.* 121737 (MO, NY). **Táchira:** Distrito Junín, entre Villa Paéz y Betania, near Colombian border, 2,000–2,400 m, 15 Nov 1975 (fr), *G. Bunting* 4915 (NY); to above the right bank of Río Táchira on the Colombian border, ca. 2,300 m, 13 Nov 1976 (fr), *A. Charpín & F. Jacquemoud* 13296 (NY); 7 km W of Rubio, 07° 42' N, 72° 25' W, 900–1,000 m 18 Mar 1981 (fl), *R. Liesner & A. González* 10713 (NY, VEN); Slopes at base of Páramo de Tamá, 2,475–2,550 m, 19 May 1967 (fl), *J. Steyermark* 98431 (MO, NY, VEN); Forest of the small páramo of the Universidad Nacional Experimental del Táchira, San Cristóbal, without elev., 10 Jun 1988 (fl), *L. Valverde & I. Peña* 1021 (MO); Distrito

Uribanre, ca. 5 km outside Siberia along old road to Pregonero, ca. 1,300 m, 20 Nov 1985 (fl), *H. van der Werff & F. Ortega* 8082 (MO, NY, PORT). **Trujillo:** Distrito Boconó, Guaramacal, 20 km al E de Boconó, 09° 14' N, 70° 11' W, 1,900–2,300 m, 7 Feb 1987 (fl), *G. Aymard et al.* 5190 (F, MER, MO); Distrito Boconó, Parque Nacional Guaramacal, 09° 15' 07" N, 70° 13' 34" W, 1,950 m, 2–4 Jun 1995 (fl bud), *N. Cuello et al.* 931 (MO, PORT); N slopes, 09° 14' 48" N, 70° 12' 15" W, 1–3 Jul 1995 (ster.), *N. Cuello* 1107 (MO, PORT); S slopes, 09° 13' 32" N, 70° 10' 01" W, 2,400 m, 13–15 Dec 1995 (ster.), *N. Cuello et al.* 1256 (MO, PORT); 09° 12' 45" N, 70° 09' 51" W, 2,300 m, 03–05 Jan 1996 (ster.), *N. Cuello et al.* 1335 (MO, PORT), 1348 (MO, PORT); Distrito Carache, above Mesa Arriba, between Pico de Jabón and Páramo de Turmál, SE of Laguna de Turmál, 12 km SE of Carache, 09° 35' N, 70° 09' W, 2,550–2,600 m, 12 May 1988 (fl), *L. Dorr & L. Barnett* 5157 (NY, PORT), 5162 (NY, PORT); Distrito Boconó and Distrito Trujillo border, Quebrada La Honda, SW of Arbol Redondo on the Boconó-Flor de Patria road, 09° 25' N, 70° 20' W, 1,800–2,200 m, 2 Nov 1990 (fl), *L. Dorr & L. Barnett* 7598 (MO, VEN); Mpio. Boconó, Parque Nacional Guaramacal, S slopes, 09° 13' N, 70° 07' W, 2,100 m, 20–22 Jan 1996 (ster.), *A. Licata et al.* 650 (MO, PORT); Distrito Boconó, Páramo Guaramacal, 4.4–4.8 kms beyond jcr. NE of Boconó, 09° 15' N, 70° 14' W, 1,860 m, 19 Jan 1984 (fl), *J. Luteyn & J. Pipoly* 9280 (F, MER, MO, NY); Distrito Boconó, vicinity Páramo Arbol Redondo, ca. 40 km N of Boconó, 09° 24' N, 70° 18' W, 2,073 m, 20 Jan 1984 (fl), *J. Luteyn & J. Pipoly* 9328 (MER, MO, NY), 9330 (MER, MO, NY); Distrito Carache, ca. 9 km NE of Carache on Hwy. 2, 09° 38' N, 70° 09' W, 1,890 m, 21 Jan 1984 (fl), *J. Luteyn & J. Pipoly* 9335 (MO, NY, VEN). **Yaracuy:** Distrito Nirgua-Distrito San Felipe border, Cerro La Chapa, 7 km N of Nirgua by road, 10° 12' N, 68° 35' W, 1,200–1,300 m, 21 Oct 1982 (fl), *G. Davidse et al.* 20813 (MO, NY, VEN); Sierra de Aroa, Cerro Negro, forest 8 km SW of San Felipe, 10° 17' N, 69° 01' W, 1,200–1,800 m, 1–2 Apr 1980 (fr), *R. Liesner & A. González* 9933 (MO, VEN); El Amparo hacia Candelaria, a 7 km al N de Salom, 1,220–1,250 m, 17–19 Jun 1972 (fr), *J. Steyermark* 106283 (NY, VEN). **Without Location:** Venezuela, without elev., 1845 (fl), *H. Funck & L. Schlim* 140 (BM); Venezuela, without elev., without date (fl), *J. Moritz* 360 (BM); Venezuela, 1,400 m, without date (fl), *P. Vogel* 177 (F); Venezuela, 1,400 m, 17 Mar 1946 (fr), *P. Vogel* 309 (F).

As noted above, this highly variable species exhibits great variation in quantitative features of its vegetative parts, and also in such features as the degree of curvature of the leaf base (obtuse, rounded or acute), leaf shape, vestiture thickness and trichome length, number of flowers and internode length. All of these factors are responsible for the various segregates that have been recognized in the past, including the new one synonymized above. We believe we have assembled material from throughout subsp. *coriacea*'s range for the first time since Mez's work in 1902 and only for that reason have we been able to appreciate how broadly variation occurs within and among populations. Given this broad plasticity, we have adopted a very broad species concept. One of the synonyms, *Myrsine microcalyx*, is a bisexual growth form with consequent quantitative floral variation, but with qualitative features of the vegetative organs within the normal range of variation for the subspecies.

2b. *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schultes subsp. *reticulata* (Steyermark) Pipoly, (Figs. 1D, 1E, 1F, 1G, 6), Novon 1:210. 1991. *Rapanea reticulata* Steyermark, Fieldiana, Bot. 28:477. 1953. TYPE. VENEZUELA. BOLIVAR: Mount

Roraima, SW-facing forested slopes between Rondón Camp and base of sandstone bluffs, 2,040–2,255 m, 30 Sep 1944 (fl), *J. Steyermark* 58983 (HOLOTYPE: F (NY Neg. no. 12122); ISOTYPES: NY, US, VEN).

Shrubs or small trees to 3 m tall. *Branchlets* densely rufous villous-tomentose, often glabrescent. *Leaf blades* coriaceous, obovate to oblanceolate, (1.5–)3.5–5.5(–5.8) cm long, (0.8–)1–2.5 cm wide, apically emarginate or obtuse, basally acute, decurrent on the petiole, nitid above, pallid below, essentially glabrous or with a few scattered hairs over the midrib above the petiole, the margin revolute toward the base; petioles marginate, 4–5(–8) mm long, densely villous along the margin, early glabrescent. *Fruit* globose, 3–3.5 mm diam.

Distribution.—*Myrsine coriacea* subsp. *reticulata* (Fig. 6) is endemic to the Guayana Region, Pantepui Floristic Province in the state of Bolívar, Venezuela, growing at 2,000–2,750 m elevation.

Ecology and conservation status.—Subsp. *reticulata* occurs in gallery forests along streams on the summits of tepuis, where it forms considerable stands with several species of *Ternstroemia*, *Bonnetia*, *Clusia*, *Gleasonia* and *Cybianthus quelchii*. Given the protection afforded the tepuis in the state of Bolívar, the only threat to it is occasional fire. Therefore, it is not considered threatened.

Etymology.—The subspecific epithet, 'reticulata' refers to the prominent secondary veins of the leaf.

Specimens examined. VENEZUELA. Bolívar: Distrito Piar, Macizo del Chimantá, wide valle in the SE section of Apacará-tepui, 05° 19' N, 62° 07' W, 2,150 m, 7 Feb 1984 (fl), *M. Colella & O. Huber* 465 (MYF, NY); Distrito Cedeño, Sierra de Múgualida, NW sector, tepui plateau over dissected granite, at the headwaters of the Río Chajura, W branch of the Río Erebató, ca. 100 km directly SW of the Campamento Entreríos, 05° 33' N, 65° 13' W, 2,100 m, 18 Nov 1988 (fl), *O. Huber & L. Izquierdo* 12802 (MYF, US); Ilú-tepui, Gran Sabana, 7,000–8,000 ft [2,134–2,438 m], 17 Mar 1952 (fr), *B. Maguire* 33465 (F, NY, US); Gran Sabana, Sororopán-tepui, near the C.V.G. Antenna, Parque Nacional Canaima, without elev., 17 Aug 1993 (fr), *N. Ramírez et al.* 4452 (MO, VEN); Chimantá Massif, E branch of headwaters of Río Tirica, 2,150–2,200 m, 12 Feb 1955 (fr), *J. Steyermark & J. Wurdack* 806 (BRIT, F, NY); Chimantá Massif, Toronó-tepui, NW-facing forested slope between Summit Camp and base of escarpment, 1,880–1,970 m, 27 Feb 1955 (fl), *J. Steyermark & J. Wurdack* 1194 (F, MO, NY).

Subspecies *reticulata* is poorly known, but easily distinguished from subsp. *coriacea* by its shorter leaf blades, fewer-flowered inflorescences, deltate calyx lobes, and riparian gallery forest habitat.

3. *Myrsine maguireana* Pipoly, (Figs. 3, 4A, 4B), Novon 1:204. 1991.

TYPE. VENEZUELA. AMAZONAS: Cerro de La Neblina, Río Yatua, *Bonnetia* forest NE of Cañon Grande, 1,200–2,200 m, 8–9 Dec 1957 (fr), *B. Maguire, J. Wurdack & C. Maguire* 42318 (HOLOTYPE: VEN; ISOTYPES: MO, NY 3-sheets, US).

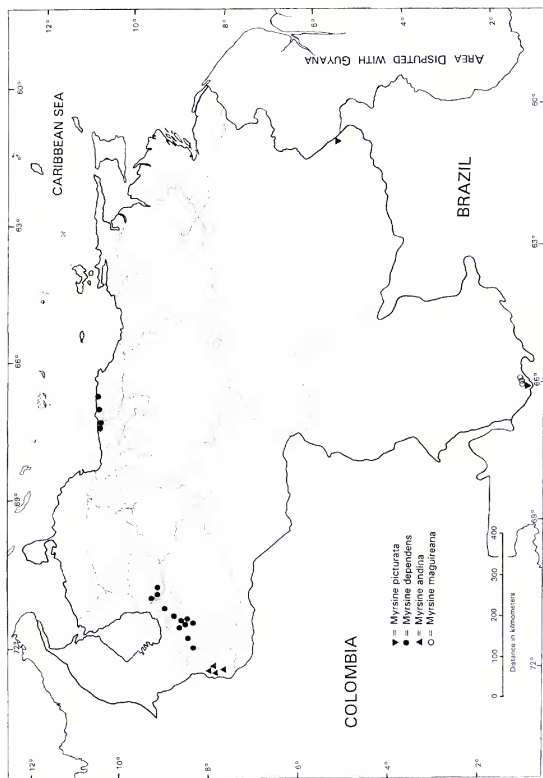


FIG. 3. Distribution of *Myrsine picturata* (▽), *M. dependens* (●), *M. andina* (▲) and *M. maguireana* (○) in Venezuela.

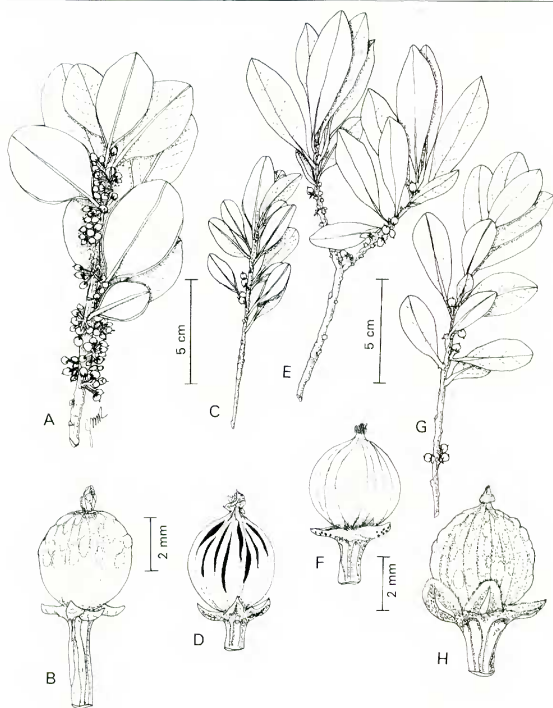


FIG. 1. A. Habit, flowering branch of *Myrsine maguireana* Pipoly, drawn from B. Maguire et al. 42318 (NY isotype). B. Fruit of same, drawn from B. Maguire et al. 42318 (NY isotype). C. Habit, flowering branch of *Myrsine minima* (Steyserm.) Pipoly, drawn from R. Liesner 23107. D. Fruit of same, drawn from R. Liesner 23107. E. Habit, flowering branch of *Myrsine perpauciflora* Pipoly, drawn from M. Nee 30697 (US isotype). F. Fruit of same, drawn from M. Nee 30697 (US isotype). G. Habit, flowering branch of *Myrsine andina* (Mez) Pipoly, drawn from J. Steyermark et al. 100998. H. Fruit of same, drawn from J. Steyermark et al. 100998.

Shrubs to 1.5(-2) m tall; trunk and branches orthotropic. *Branchlets* terete, 5-7 mm diam., glabrous. *Leaves* spiral; blades cartilaginous, elliptic to ovate, (4-)5-9 cm long, (2.3-)3-5.4 cm wide, apically and basally obtuse, decurrent on the petiole, nitid above, pallid and scrobiculate below, the midrib impressed above, prominently raised below, the secondary venation obscure, conspicuously black punctate and punctate-lineate, the margin membranous, hyaline, revolute, prominently black punctate, glandular-ciliate at first when young, glabrescent, entire; petiole canalicate, 0.4-0.9 cm long, 2-3 mm diam., glabrous. *Staminate inflorescence*: unknown. *Pistillate inflorescence*: an umbelliform glomerule, 4-9-flowered, the peduncle glabrous, epunctate, 1.7-2.5 mm long, built up by a series of floral bract bases; floral bracts obovate, 0.5-0.6 mm long, 0.9-1 mm wide, apically obtuse, the margins entire, densely glandular-ciliate; pedicels cylindrical, 1-1.5 mm long, accrescent in fruit to 2 (-2.5) mm long, glabrous, brown punctate. *Pistillate flowers* 5-merous; calyx chartaceous, cupuliform, erect, translucent, unequally divided, 1.6-1.8 mm long, the tube 0.6-0.8 mm long, the lobes ovate, 1.1-1.3 mm long, 0.4-0.5 mm wide, apically long-acuminate, glabrous, medially brown punctate, and prominently keeled, the margins hyaline, roughly dentate, highly irregular, glabrous; corolla chartaceous, campanulate, 2.8-3.2 mm long, translucent, the tube 0.8-1 mm long, the lobes linear-lanceolate, 2-2.4 mm long, 1.2-1.4 mm wide, asymmetric, apically acute, medially brown punctate, the margin glandular-granulose; staminodes 1.9-2 mm long, the anthers appearing epipetalous, filaments thin, hyaline, 0.1-0.3 mm long, the antherodes widely ovate, 1.2-1.5 mm long, 0.9-1.0 mm wide, the apically apiculate, basally deeply cordate, the connective epunctate; pistil obnapiform, ca. 1.5 mm long, 1 mm diam., the ovary 0.8 mm long, costate, densely pellucid punctate, glabrous, the style 0.2 mm long, costate, the stigma prismatic, 0.5 mm long, 2-3-lobed, the placenta hemispherical, the ovules 3, completely imbedded. *Fruit* globose, 3-5 mm long and diam., densely pellucid punctate.

Distribution.—*Myrsine maguireana* (Fig. 3) is known from Cerro de la Neblina and Sierra de Maigualida, Amazonas, Venezuela, growing at 1,200-2,200 m elevation.

Ecology and conservation status.—*Myrsine maguireana* is restricted to dense, open marshy scrub plateaus and on open tepui summits. While it has a highly restricted distribution and narrow ecological tolerance, the remoteness of these areas has thus far ensured that it is not threatened.

Etymology.—The specific epithet honors the late Bassett Maguire, indefatigable explorer, collector and student of the Guayana Region's flora.

Specimens examined. VENEZUELA. Amazonas: Departamento Río Negro, Cerro de La Neblina, camp 9, 1.2 km NE of waterfall on E headwaters of Río Mawarinuma, 35 km E of Base Camp, 01° 00' N, 65° 53' W, 1,780-1,820 m, 2 Feb 1985 (fr), B. Boom *et al.*

5535 (NY, US, VEN); Cerro Neblina Valle de Titricó, N of Pico Phelps, 00° 56' N, 65° 58' W, 2,200 m, 1 Dec 1984 (fr), *T. Croat* 59551 (MO, VEN); Departamento Atures, Sierra de Maigualida, NW sector, dissected granitic mesa on the headwaters of Río Iguana, tributary of the Río Ventuari, 05° 40' N, 65° 08' W, 2,150 m, 24 Nov 1989 (fr), *O. Huber* 13071 (MYE, MO); Cerro de La Neblina, Río Yatua, E escarpment of upper Cañon Grande, summit, 1,200–2,200 m, 13 Dec 1957 (fr), *B. Maguire et al.* 42393 (NY 2-sheets); 14 Dec 1957 (fr), *B. Maguire et al.* 42403 (E, MO, NY 2-sheets, US, VEN).

Myrsine magnireana appears to be most closely related to *M. glazioviana* Warm., a taxon known from the Planalto of Brazil. However, *Myrsine maguireana* is easily recognized by the glabrous leaves, glandular-ciliate leaf bud margins, longer, glabrous pedicels, costate ovary and glabrous corolla lobe margins.

4. *Myrsine minima* (Steeyer.) Pipoly, (Figs. 4C, 4D, 6, 9), Novon 1:210.

1991. *Rapanea minima* Steyer., Fieldiana, Bot. 28:477. 1953. TYPE. VENEZUELA. BOLÍVAR: Summit, Cerro Roraima, 2,620–2,740 m, 27 Sep 1944 (stam. fl.), *J. Steyermark* 58848 (HOLOTYPE: F; ISOTYPES: NY, VEN).

Shrubs 1.8–2.8 m tall; trunk and branches ortotropic. *Branchlets* terete, glabrous. *Leaves* spiral; blades thickly coriaceous, obovate, widely oblong or suborbicular, (1.7–)2–3 cm long, 1–1.5 cm wide, apically obtuse to broadly rounded, basally obtuse to broadly rounded, nitid above, pallid below, the secondary veins not visible, bearing numerous hydropotes in pits and conspicuously black punctate below, the margins scarious, flat, decurrent on the petiole; petiole marginate, 3–6 mm long, essentially glabrous. *Staminate inflorescence* a fascicle (3–)5-flowered; pedicels 0.9–1.2 mm long. *Staminate flowers* chartaceous, 3–3.2 mm long; calyx cotyliform, chartaceous, 0.9–1.1 mm long and wide, the tube ca. 0.1 mm long, the lobes very widely ovate to suborbicular, 0.9–1.1 mm long and wide, apically obtuse, prominently black punctate, the margins entire except minutely erose apically, hyaline, glabrous; corolla cotyliform, 3–3.2 mm long, the tube 0.2–0.3 mm long, the lobes oblong, 2.8–3 mm long, 1.2–1.3 mm wide, apically acute to obtuse, cucullate, prominently black punctate abaxially, the margins densely glandular-granulose throughout; stamens 2–2.2 mm long, the filaments 0.5–0.6 mm long, the anthers oblong, 1.3–1.5 mm long, 0.7–0.8 mm wide, apically apiculate, basally cordate, deshiscent by extremely wide longitudinal slits, connective epunctate dorsally; pistillode lageniform, hollow, not differentiated into ovary and style, 1.3–1.5 mm long, 0.3–0.4 mm wide. *Pistillate inflorescence* as in staminate but (2–)3–5-flowered, pedicels 0.7–1 mm long. *Pistillate flowers* as in staminate but 2–2.2 mm long; calyx cotyliform, hyaline, 0.8–1.1 mm long, the tube ca. 0.1 mm long, the lobes very widely ovate to suborbicular, 0.9–1 mm long and wide, apically obtuse, prominently black punctate, the margin entire except minutely erose apically, hyaline, glabrous; corolla appearing tubular, but lobes nearly free, 2.0–2.2 mm long, the tube 0.1–0.2 mm long, the lobes oblong, 1.8–1.9 mm long, 0.5–0.6

mm wide, apically obtuse to broadly rounded, densely and prominently black punctate and punctate-lineate abaxially, densely glandular-granulose along entire margin; staminodes 1–1.2 mm long, the filaments 0.7–0.8 mm long, the antherodes obcordate, 0.8–0.9 mm long, 0.5–0.6 mm long, sterile, apically acute, basally deeply cordate, the connective prominently brown punctate apically; pistil ellipsoid, 1.7–1.8 mm long, the ovary 1.2–1.3 mm long, 0.6–0.7 mm wide, opaque beige in color when dried, the stigma conic and spirally lobed, 0.5–0.6 mm long, with 4 slight lobes; placenta ellipsoid, 0.4–0.5 mm long, 0.2–0.3 mm diam., bearing 3 uniseriate ovules, fully exposed on the side of the placenta. *Fruit* globose, (2.5–)3–4.5 mm long and in diam.

Distribution.—*Myrsine minima* (Figs. 6, 9) is endemic to the Guayana Region, and is known from eastern Bolívar and adjacent Guyana, and from the Brazilian side of Cerro de la Neblina, growing from 1,900–2,800 m elevation.

Ecology and conservation status.—*Myrsine minima* is known only from extremely remote and well-protected areas. It occurs in scrub forest and exposed areas in upland tepui savannas. Therefore the species is not under threat at this time.

Etymology.—The epithet “minima” refers to the diminutive size of the leaf blades.

Specimens examined. BRAZIL. Amazonas: Parque Nacional do Pico da Neblina, rocky formation of Pico da Neblina, 2,600 m, 21 Aug 1985 (fl), C. Farney et al. 905 (MO); Serra da Neblina, summit to Pico Phelps, 9,000 ft [2,743 m], 2 Dec 1965 (fr), B. Maguire et al. 60450 (BRIT, NY, US). GUYANA. Mazaruni-Potaro: Roraima, summit, La Proa camp, E of border, near Lake Gladys, 05° 15' 36" N, 60° 13' W, 2,800 m, 14 Apr 1988 (fr), R. Liesner 23296 (MO, US). VENEZUELA. Bolívar: Distrito Piar, Macizo del Chimantá, north mesa of Abacapá-tepui, located in the SW sector of the massif, 05° 10' N, 62° 16' W, 2,200 m, 31 Jan–2 Feb 1984 (bud), O. Huber & N. Dezzio 8590 (MYF, NY); Distrito Piar Macizo del Chimantá, sector SE, central SE section of Churí-tepui, 05° 15' N, 61° 58' W, 2,250 m, 28 Mar 1984 (fl), O. Huber 9269 (MYF, NY); Distrito Piar, Macizo del Chimantá, sector SE, mesa slightly sloping toward the SSE, in the central-SE portion of Churí-tepui, 05° 15' N, 61° 58' W, 2,250 m, 6–8 Feb 1985 (fr), O. Huber et al. 10100 (MYF, NY); Distrito Piar, Macizo del Chimantá, NW sector, superposed mesa on the summit of the central part of Murey-(Eruoda-) tepui, 05° 22' N, 62° 05' W, 2,600 m, 15–17 Mar 1986 (fl), O. Huber 11593 (MO, MYF, NY 2-sheets); Distrito Piar, W summit of Angasima-(Adanta-) tepui, 10 km SSE from the W limit of Amurí-tepui (Macizo del Chimantá) and ca. 40 km WNW of the Mission of Wonkén, 05° 03' N, 62° 07' W, 2,100 m, 9 Aug 1986 (fl), O. Huber 11698 (MYF, NY); Kukenán-tepui, summit, 05° 13' N, 60° 18' W, 2,550 m, 11 Apr 1988 (fr), R. Liesner 23107 (BRIT, MO, NY, US, VEN); (fl, fr), 23210 (MO, US, VEN); Ilu-tepui, lower plateau, 05°, 25' 36" N, 60° 29' W, 2,500 m, 16 Apr 1988 (fr), R. Liesner 23426 (BRIT, MO, US, VEN); Distrito Piar, Macizo del Chimantá, sector SE, mesa slightly sloping toward the SSE, in the central SW section of Churí-tepui, 05° 15' N, 61° 58' W, 2,250 m, 6–8 Feb 1985 (fr), J. Pipoly et al. 7141 (MO, MYF, NY, US); Chimantá Massif, E-central portion of summit of Apácará-tepui, 2,450–2,500 m, 21–22 Jun 1953 (fr), J. Steyermark 75931 (E, NY); Chimantá Massif, along tributary valley of E branch of headwaters of Río Tírica, 2,120 m, 13 Feb 1955 (fl), J. Steyermark & J. Wurdack 843 (BRIT, E,

NY); Meseta de Jáua, Cerro Jáua, summit of the Central-Western portion of the Meseta, 36 nautical miles or 60 kms NW of the mission at the medical camp of Río Kanarakuni, 1,922–2,100 m, 22–27 Mar 1967 (fl), *J. Steyermark* 97985 (MO, NY, VEN); Distrito Sucre, Meseta de Jáua, 04° 35' N, 64° 15' W, 2,020 m, 14 Feb 1981 (fl), *J. Steyermark et al.* 124328 (BRIT, MO, NY, VEN); Distrito Piar, Macizo del Chimantá, mesa at the southern base of the upper walls of Apacará-tepui, N sector of Macizo, exposed knolls near stream, 05° 20' N, 62° 12' W, 2,200 m, 30 Jan–1 Feb 1983 (fl), *J. Steyermark et al.* 128268 (MO, NY, VEN); Roraima, 2,500 m, Jul 1910 (fl), *E. Ule* 8721 (US).

Myrsine minima appears to be closely related to *Myrsine andina*, but is easily separated by its glabrous branchlets, shorter leaves and longer pedicels.

5. *Myrsine andina* (Mez) Pipoly, (Figs. 3, 4G, 4H), *Caldasia* 17:3. 1992.

Rapanea andina Mez in Engl., *Pflanzen*. IV. 236(Heft 9):378. 1902. TYPE. ECUADOR. Without location, without elev., 1857–1859, *R. Spruce* 5588 (LECTOTYPE, here designated: K (pist. fl, fr); ISOLECTOTYPES: (pist. fl) BM, NY, (stam. fl) P-2 sheets, W-2 sheets, (unknown, n.v.) F, G, OXF).

Mez' description clearly indicates that the branchlets of *Myrsine andina* are ferruginous-pilose tomentose, although they are often early glabrous. Also, the floral description matches those of all sheets except *C. von Jelski* 12 (W). Given that Mez saw all the duplicates of the Spruce collection, that they are the most numerous, and include staminate and pistillate individuals, we designate its duplicate at Kew (K) as the lectotype.

Shrubs or trees to 5 m tall; trunk and branches orthotropic. *Branchlets* terete, rufous glandular papillose-tomentose at first, glabrescent. *Leaves* spiral; blades coriaceous, elliptic to oblong, (2.8–)3–5.2(–5.5) cm long, 1.5–2.5(–2.9) cm wide, apically emarginate, basally obtuse to subacute, nitid, the midrib impressed above, prominently raised below, the secondary venation not visible, densely and prominently black punctate above and below, sparsely red-papillate along midrib above at first, early glabrescent, the margin densely black punctate below, inrolled, entire, decurrent on the petiole; petioles marginate, 5–7 mm long. *Staminate inflorescence* fasciculate, (3–)5–8-flowered, on short perennating shoots girdled by floral bracts, 1–1.5 mm long; floral bracts ovate, 1–1.3 mm long, 0.5–0.7 mm wide, apically acute, the margins somewhat erose, long glandular-ciliate; pedicels 0.5 mm long. *Staminate flowers* 2–2.2 mm long; calyx chartaceous, cotyliform, the tube ca. 0.1 mm long, the lobes ovate, 0.8–1 mm long, 0.5–0.7 mm wide, apically acute, minutely and prominently black punctate, the margin entire, long glandular-ciliate apically, glabrescent; corolla campanulate, 2–2.2 mm long, the tube 0.2 mm long, the lobes ovate, 1.8–2 mm long, 0.6–0.7 mm wide, apically acute, densely and prominently black punctate and punctate-linear without, glabrous within, the margin entire, densely glandular-ciliate apically; stamens 1.8–2 mm long, the filaments not discernible, developmentally fused to corolla tube, the anthers appearing epipetalous, broadly ovate, 1.5–1.6 mm long, 0.6–0.8 mm wide, apically apiculate, basally

cordate, the connective slightly dark brownish dorsally; pistillode conic, hollow or absent. *Pistillate inflorescence* as in staminate but on shoots to 1.5 mm long; pedicels 0.7–0.8 mm long. *Pistillate flowers* as in staminate but 2.8–3 mm long; calyx cupuliform, 1.3–1.5 mm long, the tube ca. 0.3 mm long, the lobes ovate, 0.9–1 mm long, 0.7–0.8 mm wide; corolla campanulate, 2.6–2.9 mm long, the tube ca. 0.5 mm long, the lobes 2.1–2.3 cm long, 0.6–0.8 mm wide; staminodes like the stamens but 1–1.3 mm long; pistil conical, 0.8–1.0 mm long, 0.7–0.8 mm diam., the stigma sessile, conical, prismatic, with 4 lobes; placenta globose; ovules 2–3, uniseriate. *Fruit* globose, 3.5–5 mm diam, the stigma persistent, prominently punctate.

Distribution.—In Venezuela, *Myrsine andina* (Fig. 3) is only known from secondary and dry forests in Estado Táchira, but is well known otherwise from Venezuela, southward through Colombia, Ecuador, and Peru to Bolivia, growing at (400–)1,200–2,500 m elevation.

Ecology and conservation status.—*Myrsine andina* is restricted to primary cloud forest margins just below the subpáramo thicket transition throughout its range. Because many montane roads through the Andes follow the páramo-cloud forest contour, it should be considered threatened.

Etymology.—The specific epithet refers to its place of description and range, throughout the Andes.

Specimens examined. VENEZUELA. Táchira: 5 km E of San Antonio del Táchira, 07° 50' N, 72° 25' W, 1,400 m, 3 Jan 1989 (fl), W. Hahn & F. Grifo 4971 (MO, NY, US); Parque Cazadero, Quebrada Cazadero, 16 km NW of San Cristóbal, 400–650 m, 2 May 1981 (fr), R. Liesner & M. Guariglia 11655 (MO, VEN); Paramito between Quebrada de Palmar & Quebrada de Paramito, at base of Páramo de Tamá, 2 kms above Betania & 7 kms above Villa Paéz, 2,500 m, 14 Jun 1944 (fl), J. Steyermark 57205 (E, NY); Along path between "Las Copas" and peak of Fila de Tierra Negra, toward Cerro de Segeta and Fundación Bélgica, on the narrow range that divides the headwaters of Río Quinimarí, Río Frío and Uribante and Río Talco (Oirá), 20–25 km S of San Vicente de la Revancha, 35–40 km S of Alquitrana, SW of Santa Ana, 2,870–2,880 m, 16 Jan 1968 (fr), J. Steyermark et al. 100998 (NY, VEN). **Without Locality**: Without locality, without elev., 1848 (fl), J. Linden 108 (P).

Myrsine andina appears to be closely related to *M. minima*, but is easily separated by its glandular-papillate branchlets, emarginate leaf blades and subsessile flowers.

6. *Myrsine perpauciflora* Pipoly, (Figs. 4E, 4F, 9), Novon 2:176. 1992.

TYPE. VENEZUELA. AMAZONAS: Cerro de La Neblina, Camp VII, 5 km NE of Pico Phelps, vicinity of heliport on rock outcrop, 00° 50' 40" N, 65° 58' 10" W, 1,850 m, 1 Feb 1985 (fr), M. Nee 30697 (HOLOTYPE: VEN; ISOTYPES: E, NY, US).

Trees to 4 m tall; trunk and branches orthotropic. *Branchlets* terete, 2.5–3 mm diam., glabrous. *Leaves* spiral; blades chartaceous, oblanceolate to elliptic, (4–)4.8–5.5(–6) cm long, (1.5–)1.8–2 cm wide, apically acute, basally cu-

neate to rounded, decurrent on the petiole, asymmetric, somewhat nitid above, pallid and black punctate-lineate below, the midrib impressed above, prominently raised and brown punctate-lineate below, the secondary veins prominulous above and below, the margin revolute, translucent but not hyaline, entire, brown punctate, glandular-ciliate at first, early glabrescent; petiole marginate, 0.3–0.5 mm long. *Staminate inflorescence*: unknown. *Pistillate inflorescence*: unknown. *Infructescence*: glomerulate, apparently 1–3-flowered, the peduncle glabrous, epunctate, (1.2–)1.6–2.4 mm long; floral bracts orbicular, 0.8–1 mm long, 0.8–1 mm wide, apically obtuse, densely pellucid punctate, the margins densely erose-ciliate; pedicels cylindrical, 1.2–2 mm long, glabrous, sparsely pellucid punctate-lineate. *Pistillate flowers*: unknown. *Fruiting calyx* chartaceous, cotyliform, unequally divided, 1.2–1.3 mm long, translucent, densely and prominently brown punctate and punctate-lineate, with darkened glandular areas at the calyx lobe/tube sinus, the tube 0.2–0.3 mm long, the lobes very widely ovate to deltate, 1–1.2 mm long, 0.8–1 mm wide, apically acute, prominently brown punctate and punctate-lineate, flat, the margin hyaline, entire, densely glandular-ciliate. *Fruit* globose, 3–5 mm long and in diam., when dried, densely pellucid punctate and punctate-lineate.

Distribution.—*Myrsine perpauciflora* (Fig. 9) is endemic to the Cerro de La Neblina, 1,500–1,730 m elevation.

Ecology and conservation status.—*Myrsine perpauciflora* is restricted to low shrubland on saturated soils. Because Cerro de la Neblina is extremely remote and protected, the species is not threatened.

Etymology.—The specific epithet refers to the fact that the inflorescences are infrequent and very few-flowered.

Specimens examined. VENEZUELA. Amazonas: Departamento Río Negro, Cerro de La Neblina, Camp VII, 00° 52' N, 65° 58' W, 1,730–1,850 m, 10 Feb 1985 (fr), S. Renner 2096 (US); Cerro de La Neblina, Camp 2, Neblina massif, 2.8 km NE of Pico Phelps, 00° 49' 40" N, 65° 59' W, 2,100 m, 15 Apr 1984 (fr), B. Stein & A. Gentry 1525 (MO, NY, VEN).

Myrsine perpauciflora is most closely related to *M. laucifolia* Mart., but is separated by the smooth upper leaf blade surface, the prominent brown punctations of the calyx, and inflorescences with 1–3 flowers. Within the Guayana Region, it may be confused with *Myrsine picturata*, but is easily recognized by the abaxial leaf surface less conspicuously (not densely and prominently) black punctate-lineate, 1–3 (not 3–5)-flowered inflorescence, calyx lobes brown (not black) punctate, and globose (not obovoid) fruit.

7. *Myrsine resinosa* (A.C. Sm.) Pipoly, (Figs. 5A, 5B 6), Novon 1:210. 1991. *Rapanea resinosa* A.C. Sm., Bull. Torrey Bot. Club 67:297. 1940. TYPE. VENEZUELA. BOLIVAR: Río Arabapu, near Arabapu, 4,200 ft [1,280 m], 17 Jan 1939 (fl), A. Pinkus 84 (HOLOTYPE: NY (pist. fl.); ISOTYPES: F, GH, NY (2-sheets, US).



FIG. 5. A. Habit, flowering branch of *Myrsine resinosa* (A.C. Sm.) Pipoly, drawn from R. Liesner 23534. B. Fruit of same, drawn from R. Liesner 23534. C. Habit, flowering branch of *Myrsine picturata* Pipoly, drawn from B. Maguire et al. 42375 (NY isotype). D. Fruit of same, drawn from B. Maguire et al. 42375 (NY isotype).

Shrubs 1–1.5(–3) m tall; trunk and branches orthotropic. *Branchlets* terete, glabrous. *Leaves* spiral; blades chartaceous to thinly coriaceous, linear-oblanccolate, lorate or narrowly elliptic, (4–)6–12(–15) cm long, (1–)1.7–2(–2.7) mm wide, apically acute to attenuate, basally acute to attenuate, midrib prominulous above, prominently raised below, the secondary venation prominulous above

and below, nitid above, pallid below, with conspicuous black punctate-lineations (5–)20–40 mm long below, the margins entire, inrolled and revolute at least basally; petioles flat above, marginate, 6–9 mm long. *Staminate inflorescence* a sessile, 4–8-flowered umbel; floral bracts ovate, 0.8–1 mm long, 0.6–0.7 mm wide, apically acute, inconspicuously red punctate, the margins entire, densely glandular-ciliate; pedicels 2.5–3.5 mm long. *Staminate flowers* 5(–7)-merous, chartaceous; 2.5–3 mm long; calyx cotyliform, 1.2–1.4 mm long, the tube ca. 0.2 mm the lobes ovate, 1–1.2 mm long, 0.9–1 mm wide, apically short-acuminate, essentially epunctate or with one or two scattered glands, the margin irregular, sparsely glandular-ciliate; corolla campanulate, 2.6–2.7 mm long, the tube 0.4 mm long, the lobes ovate, 2.2–2.3 mm long, 1.6–1.7 mm wide, apically sharply acute to attenuate, sparsely brown punctate and punctate-lineate, the margins densely glandular-granulose; stamens 2–2.2 mm long, the filaments not visible, the anthers oblong, 2–2.2 mm long, apically apiculate, basally subcordate, the connective dark brownish punctate-lineate dorsally; pistillode conic, 0.9–1 mm long, hollow. *Pistillate inflorescence* a sessile 5–7-flowered umbel, as in staminate but pedicels 3.5–5 mm long. *Pistillate flowers* as in staminate but 2–2.2 mm long; calyx lobes ovate, 1.3–1.4 mm long, 0.9–1 mm wide; corolla 2–2.2 mm long, the tube, 0.2 mm long, the lobes 1.8–2 mm long, 0.7–0.9 mm wide; staminodes 1.3–1.5 mm long, the filaments 0.3 mm long, the antherodes 1.1–1.3 mm long, 0.5–0.6 mm wide, apically apiculate, basally sagittate; pistil globose, 2–2.2 mm long, the ovary 1–1.1 mm long, 1.2–1.4 mm wide, the stigma umbraculiform, with 4 vertical spirally twisted lobes, 1–1.2 mm long; placenta globose, 0.6–0.7 mm long, 0.5–0.6 mm wide; ovules 2–3, uniseriate, immersed. *Fruit* subglobose, longer than broad, 3.5–5 mm long and broad, black at maturity, the exocarp thick, juicy, densely and conspicuously black punctate-lineate when dried.

Distribution.—*Myrsine resinosa* (Fig. 6) is known only from the eastern portion of Pantepui Floristic Province in the state of Bolívar in Venezuela, and the adjacent Mazaruni-Potaro region in Guyana, growing at 470–1,000 m elevation.

Ecology and conservation status.—This species is known from gallery forests along rivers in lowland dry savannas. Because these forests house the relatively scarce source of construction materials, *M. resinosa* should be considered threatened.

Specimens examined. GUYANA. Mazaruni-Potaro: Upper Mazaruni River basin, Kuku River between Mokay River and Suru-agu-puh River, 470 m, 11 Sep 1960 (fl), S. Tillett & C. Tillett 45380 (FDG, NY, US). VENEZUELA. Bolívar: Gran Sabana, ca. 10 km SW of Karaurin-tepui at junction of Río Karaurin and Río Asadon (Río Saipa), 05° 19' N, 61° 03' W, 900–1,000 m, 20 Apr 1988 (fr), R. Lesner 23465 (BRIT, MO, NY, US, VEN); 21 Apr 1988, 23534 (BRIT, MO, NY, US, VEN); Gran Sabana, orillas del Río Aponguao,

without elev., 18 Jan 1973 (fl), *G. Morillo et al.* 2887 (VEN 2-sheets); Along Río Karuai, between base of Ptari-tepui and Sororopán-tepui, 1,220 m, 28 Nov 1944 (fr), *J. Steyermark* 60726 (F, NY, US).

Myrsine resinosa may be confused with *M. picturata*, but is easily separated by the linear-oblanccolate, lorate or narrowly elliptic leaf blades with long, conspicuous punctate-lineations, and the longer pedicels.

8. *Myrsine picturata* Pipoly, (Figs. 3, 5C, 5D, 6), Novon 1:204. 1991.

Caño Grande, 1,200–2,200 m, 13 Dec 1957 (fl, fr), *B. Maguire, J. Wurdack & C. Wurdack* 42375 (HOLOTYPE: VEN; ISOTYPES: F, MO, NY 2-sheets, US).

Trees to 8 m tall. *Branchlets* terete, 4–5 mm diam., glabrous; trunk and branches orthotropic. *Leaves* spiral; blades coriaceous, elliptic to oblong, (3) 4–6 cm long, (1.5–)1.8–2(–3) cm wide, apically obtuse to slightly emarginate, basally cuneate, decurrent on the petiole, the midrib strongly impressed above, raised and ribbed below, the secondary veins prominulous below, nitid above, pallid below, prominently and densely black punctate and short-lineate, translucent glandular-lepidote above in bud, glabrescent; the margin revolute, entire, hyaline, with prominently raised black punctations, densely red glandular-ciliate in bud, glabrescent; petiole canaliculate, (0.7–)0.8–1 cm long, glabrous. *Staminate inflorescence*: unknown. *Pistillate inflorescence* glomerulate, 3–5-flowered, the peduncle glabrous, epunctate, 1.2–2.1 mm long; floral bracts membranaceous, very widely ovate to deltate, 0.7–1.0 mm long, 0.8–1.2 mm wide, apically obtuse, densely and prominently black punctate and punctate-lineate, the margin entire, glandular-ciliate; pedicels cylindrical, 0.9–1.0 mm long, glabrous, densely and prominently black punctate-lineate. *Pistillate flowers* 5-merous, translucent green; calyx chartaceous, cotyliform, 1.3–1.5 mm long, the tube 0.1–0.2 mm long, the lobes ovate, 1.1–1.2 mm long, 0.6–0.8 mm wide, apically long-attenuate, glabrous, densely and prominently black punctate-lineate, medially crassate, the margin hyaline, flat, irregular, glabrous; corolla membranaceous, campanulate, 1.8–2.0 mm long, the tube 0.5–0.6 mm long, the lobes ovate, 1.2–1.4 mm long, 0.6–0.7 mm wide, apically rounded to obtuse, densely and prominently black punctate and punctate-lineate, hyaline, the margin densely glandular-granulose, entire; staminodia 1.2–1.4 mm long, the filaments obsolete to 0.1 mm long, the antherodes ovate, 0.9–1 mm long, 0.3–0.4 mm wide, apically apiculate, basally sagittate, epunctate, but the connective darkened dorsally; pistil ellipsoid, 2.1–2.4 mm long, the ovary 1.5–1.8 mm long, 1.0–1.2 mm diam., densely and prominently black punctate and punctate-lineate, the stigma sessile, conical, ca. 0.6 mm long, 2–3-lobed longitudinally, pellucid punctate, apically cuspidate, ovules 3, immersed in a globose placenta. *Fruit* obovoid, 4–5 mm long, 3–3.5 mm diam. when dried, densely and prominently black punctate and punctate-lineate.

Distribution.—*Myrsine picturata* (Figs. 3, 6) is endemic to Cerro de la Neblina

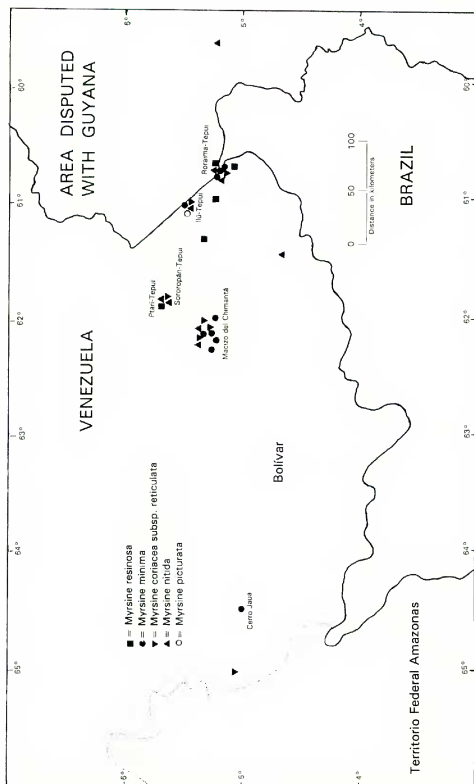


FIG. 6. Distribution of *Myrsine resinosa* (■), *M. minima* (●), *M. coriacea* subsp. *reticulata* (▼), *M. nitida* (▲) and *M. picturata* (○) in Venezuela and bordering Guyana region. Note that this map is essentially a close-up of the eastern portion of Figure 9, with *M. minima* repeated to eastern range more precisely.

of Amazonas and the Ilú-tepui on the Gran Sabana of Bolívar, growing at 1,200–2,450 m elevation.

Ecology and conservation status.—This species grows in low woodlands in cloud forests on saturated soil. Despite its restricted distribution, the protected status and remoteness of the Cerro provide it adequate protection.

Etymology.—The specific epithet refers to the dense and prominent black punctate lineations of the leaf blades, perianth parts and fruits.

Specimens examined. VENEZUELA. Amazonas: Departamento Río Negro, Cerro de La Neblina, Cumbre Camp Swale, 1,200–2,200 m, 19 Nov 1957 (fr), *B. Maguire et al.* 42090 (F, NY-2 sheets, US); Cerro de La Neblina, Río Yatua, S rim of upper basin of Cañon Grande, 1,200–2,200 m, 13 Dec 1957 (fr), *B. Maguire et al.* 42376 (NY 3-sheets). Bolívar: Gran Sabana, Ilú-tepui, slopes below upper most W-facing escarpment, 7,000–8,000 ft [2,134–2,438 m], 21 Mar 1952 (fl), *B. Maguire* 33535 (NY).

Myrsine picturata may be confused with *M. perpauciflora*, but is separated by the more densely and prominently black punctate-lineate abaxial leaf surface, the 3–5 (not 1–3)-flowered inflorescences, calyx lobes black (not brown) punctate, and obovoid (not globose) fruit.

9. *Myrsine macrocarpa* Pipoly, (Figs. 7A, 7B, 9), Novon 1:207. 1991.

TYPE. VENEZUELA. AMAZONAS: Serranía Parú, Río Parú, Cerro Parú, valley above camp and valley draining eastward through cumbre, 2,000 m, 10 Feb 1951 (fr), *R. Cowan & J. Windack* 31372 (HOLOTYPE: VEN; ISOTYPES: F, NY-2 sheets, US).

Tree to 7 m tall; trunk and branches orthotropic. *Branchlets* terete, 7–10 mm diam., glabrous. *Leaves* spiral; blades coriaceous, elliptic to obovate, 9.5–16 cm long, 6.5–9.2 cm wide, apically obtuse, basally acute, decurrent on the petiole, pallid and scrobiculate above and below, midrib impressed above, prominently raised below, the secondary vein pairs 13–26, mostly inconspicuous, but somewhat visible below, not evidently punctate, the margin opaque, highly revolute basally, glabrescent, entire; petioles marginate, 1.5–2 cm long, glabrous. *Staminate inflorescence*: unknown. *Pistillate inflorescence*: unknown. *Infructescence*: glomerulate, apparently 4–8-flowered, the peduncle glabrous, epunctate, 1.2–4.2 mm long, made up of floral bract bases; floral bracts very widely ovate to oblate, 0.5–0.7 mm long, 1.0–1.2 mm wide, apically obtuse, densely pellucid punctate, the margin entire, densely glandular-ciliate; pedicels cylindrical, 1.1–1.4 mm long, glabrous, epunctate. *Pistillate flowers* unknown. *Fruiting calyx* cotyliform, coriaceous, 1.2–1.4 mm long, the tube 0.2–0.3 mm long, the lobes very widely ovate to oblate, 1.0–1.2 mm long, 1.1–1.3 mm wide, the apically acute, densely pellucid punctate, the margin irregular, opaque, entire, glabrous. *Fruit* globose, 0.8–1.2 cm long and diameter, purplish at maturity, inconspicuously pellucid punctate.

Distribution.—*Myrsine macrocarpa* (Fig. 9) is endemic to the state of Amazonas, Venezuela, growing at 1,500–2,000 m elevation.

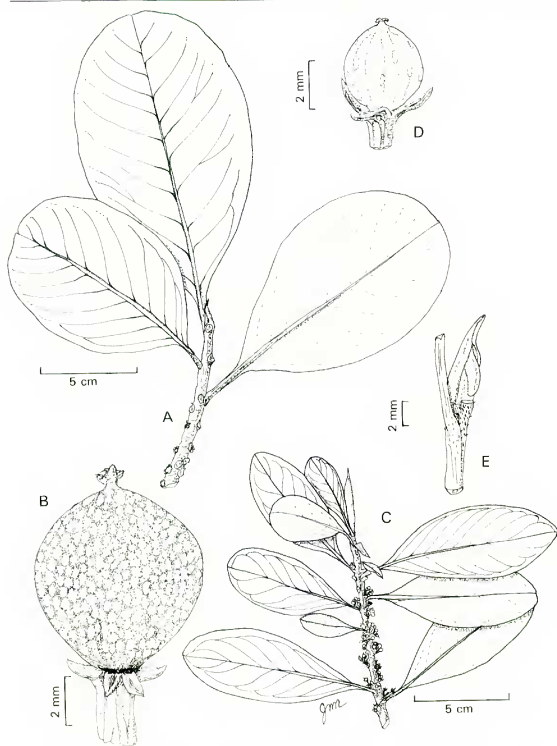


FIG. 7. A. Habit, flowering branch of *Myrsine macrocarpa* Pipoly, drawn from R. Cowan & J. Wurdack 31372 (NY isotype). B. Fruit of same, drawn from R. Cowan & J. Wurdack 31372 (NY isotype). C. Habit, flowering branch of *Myrsine pellucida* (Ruiz & Pav.) Spreng., drawn from J. Luteyn & J. Pipoly 9370. D. Fruit of same, drawn from A. Gentry et al. 11090. E. Detail of branchlet apex and partial petiole with reddish glandular-papillae of same, drawn from A. Gentry et al. 11090.

Ecology and conservation status.—*Myrsine macrocarpa* is a riparian species, occurring at the margins of gallery forests in upland, wet savannas. Because its known localities are so remote, and so wet, they are not particularly subject to dangers from human intervention nor fire. Therefore, the species should not be considered threatened.

Specimens examined. VENEZUELA. Amazonas: Cerro Huachamacari, Río Cunucunuma, below Camp II, 1,000 m, 20 Dec 1950 (fr), *B. Maguire et al.* 29969 (NY-2 sheets); In vicinity of Summit Camp, 1,800 m, 6 Dec 1950 (fr), *B. Maguire et al.* 30005 (NY); Along right fork of Caño de Dios in cumbre near Summit Camp, 13 Dec 1950 (fr), *B. Maguire et al.* 30180 (NY-2 sheets); Departamento Atures, lomas graníticas, Caño Piedra, 115 km al SE de Puerto Ayacucho, 04° 54' N, 66° 54' W, 1,500 m, Sep 1989 (ster.), *E. Sanoja et al.* 2988 (MO).

Myrsine macrocarpa is most closely related to the vicariant *M. pellucida* (Ruíz & Pav.) Spreng., but is easily separated by the prominulous secondary veins and pellucid punctations of the leaf blades, shorter pedicels, glabrous calyx lobe margins, and the large fruits.

10. *Myrsine pellucida* (Ruíz & Pav.) Spreng., (Figs. 7C, 7D, 7E, 9), Syst. Veg. 1:664. 1825. *Caballeria pellucida* Ruíz & Pav., Syst. Veg. Fl. Peruv. Chil. 1:280. 1798. *Mangilla pellucida* (Ruíz & Pav.) Roem. & Schult., Syst. Veg. 4:506. 1819. *Rapanea pellucida* (Ruíz & Pav.) Mez in Engl., Pflanzenr. IV. 236(Heft 9):394. 1902. TYPE. PERÚ. HUÁNUCO: Muña, without elev., 1778–1788 (stam. fl), *H. Ruíz & J. Pavón* 5/35 (HOLOTYPE: MA; ISOTYPES: F (NY Neg. # 12120), G-BOIS).

Rapanea perforata Mez in Engl., Pflanzenr. IV. 236(Heft 9):395. 1902, SYN. NOV. TYPE. PARAGUAY. PARAGUARI: Paraguari, without elev., Mar 1875 (fr), *B. Balansa* 2378 (HOLOTYPE: G; ISOTYPE: P).

Trees to 5(–10) m tall; trunk and branches orthotropic. *Branchlets* terete, reddish glandular-papillose. *Leaves* spiral; blades coriaceous, elliptic, oblong, oblanceolate or obovate, (6.5–)7.5–18 cm long, (2.7–)3.3–7.9 cm wide, apically obtuse to subacute, basally acute, nitid above, densely reddish glandular-papillate along the midrib above, the midrib impressed above, prominently raised below, the secondary veins inconspicuous above and below, pellucid or black punctate and punctate-lineate below, the margin flat, slightly decurrent on the petiole; petiole marginate, 0.5–1.0 cm long, densely red glandular-papillate, glabrescent. *Staminate inflorescence* sessile, 8–12-flowered; floral bracts coriaceous, ovate, ca. 1.3–1.5 mm long, 1.2–1.4 mm wide, apically broadly rounded, long reddish glandular-ciliolate; pedicels obsolete to 1 mm long. *Staminate flowers* chartaceous, 2–2.2 mm long; calyx cotyliform, ca. 1 mm long, the tube 0.2–0.3 mm long, the lobes ovate, unequally divided, longer than wide, 0.7–0.8 mm long, 0.5–0.7 mm wide, apically obtuse to subacute, densely and prominently black punctate and punctate-lineate, the margin sparsely glandular-ciliate, irregular, entire; corolla broadly campanulate, 2–2.2 mm long, the tube ca. 0.3 mm long, the lobes elliptic, 1.7–1.9 mm

long, 0.7–0.8 mm wide, apically acute, densely and prominently black punctate and punctate-lineate, the margin entire, densely glandular-granulose throughout; stamen 1.4–1.7 mm long, filaments not obvious, venation visible, ca. 0.3 mm long; anthers ovate to oblong, 1.5–1.7 mm long, apically apiculate, the apiculum darkened, recurved ventrally, basally subcordate, the connective black lineate; pistillode conic, hollow, ca. 1 mm long, 0.5 mm diam. *Pistillate inflorescence* as in staminate. *Pistillate flowers* as in staminate but antherodes 1–1.1 mm long; pistil 2–2.3 mm long, 1–1.3 mm diam., the ovary subglobose, 1.2–1.3 mm long and in diam., the stigma carnosose, prismatic, 1–1.1 mm long and in diam., the placenta ellipsoid, 1 mm long, the ovules 3–4, uniseriate. *Fruit* globose, 3–3.5 mm diam., obscurely punctate and punctate-lineate.

Distribution.—*Myrsine pellucida* (Fig. 9) is known from the Venezuelan coastal range in the state of Falcón, south and westward through the Andes of Venezuela, Colombia, Ecuador, and Peru to Bolivia and adjacent Paraguay, growing at (400–)1,000–2,600 m elevation. There are a few disjunct populations in the western portion of the state of Bolívar, Venezuela, growing on diabasic intrusion areas in the tepuis.

Ecology and conservation status.—*Myrsine pellucida* is found along disturbed roadsides through cloud forest and subpáramo life zones, and along margins of cloud forests. The disjunct populations in the state of Bolívar are on diabasic intrusions in otherwise superimposed Roraima Sandstone formations.

Etymology.—The epithet 'pellucida' refers to the pellucid punctations of the abaxial leaf blades and fruits.

Specimens examined. VENEZUELA. Barinas: Distrito Pedraza, trail from Mesa de Canagua (ca. 08° 34' N, 70° 37' W) to Pozo Negro (ca. 08° 32' N 70° 37' W), 400–600 m, 25 Nov 1990 (fr), *L. Dorr et al.* 7872 (MO, PORT); Ca. 32 km NE of Altamira & 3 km NE of Caldas, 08° 55' N, 70° 25' W, 1,000 m, 24 Jan 1984 (fr), *J. Luteyn & J. Pipoly* 9377 (BRIT, MO, NY, PORT). Bolívar: Distrito Cedeño, near Minería El Guaniamo, 06° 27' N, 65° 52' W, 300 m, May 1993 (ster.), *E. Diaz* 1756 (MO); near small Minería El Guaniamo, 06° 27' N, 65° 52' W, 300 m, May 1993 (ster.), *W. Diaz* 1759 (MO); Municipio Raul Leoni, 64 km al SE de Pijiguaos, 06° 09' N, 66° 23' W, 550 m, Jul 1989 (fl), *L. Delgado* 282 (MO). Falcón: Distrito Bolívar, mesa of Sierra de San Luis, ca. 1 km S of caserío Carrizalito, 11° 05' N, 69° 42' W, 1,100 m, 31 Aug 1985 (fr), *O. Huber & W. Morawetz* 10823 (BRIT, MYE, MO, W); Cucaire, Sierra de San Luis, 134 km post, 11° 08' N, 69° 46' W, 1,000 m, 20 Jun 1979 (fr), *R. Liesner et al.* 7661 (MO, VEN). Lara: Distrito Torres, Páramo Agua Linda, near television repeating towers and el Fundo Orion, above the village of Palmarito, along the Carretera Lara-Zulia ca. 35 km E of El Venado, between Km 12–15, 10° 10' N, 70° 42' W, 6–7 Sep 1980 (fr), *G. Bunting & A. Stoddart* 9745 (NY); Distrito Morán, trail from Humacaro to Buenas Aires, Caserío, below Páramo Los Rosas, 09° 40' N, 70° 05' W, 2,600 m, 25 Jun 1979 (fr), *R. Liesner et al.* 7949 (MO); Distrito Morán, ca. 4.4 km W of Humacaro Alto, 09° 36' N, 70° 01' W, 1,400–1,500 m, 22 Jan 1984 (stam. fl), *J. Luteyn & J. Pipoly* 9357 (MO, NY, PORT). Mérida: Mucurubá, without elev., 12 Nov 1952 (fr), *L. Bernardi* 11 (NY); Antes de la Palmita, 700 m, 4 Feb 1955 (fr), *L. Bernardi* 1881 (NY, VEN); Pueblos del Sur, 1,450 m, Jun 1955 (fr), *L. Bernardi* 2292 (NY 2-sheets); 26 km NE of Mérida along road to Valencia, right bank of Chama River, 2,000 m, 18 Nov 1963

(fl), *F. Breteler* 3313 (NY); Mucurubá, Quebrada del pueblo, 2,700–2,800 m, 27 Jun 1930 (fl), *H. Gebriger* 270 (F, MO, NY); Distrito Rangel, E edge of town of Santo Domingo, 08° 52' N, 70° 43' W, 1,646 m, 24 Jan 1984 (fl), *J. Luteyn & J. Pipoly* 9370 (F, MER, MO, NY); Distrito Rivas Dávila, páramo de La Negra, 23–30 km above (SSW) Bailadores on road to La Grita, 2,500–2,900 m, 12 Apr 1984 (fl), *J. Luteyn & M. Lebrón-Luteyn* 9776 (NY); Along Hwy. 7, 21 km by road NE of Mérida and 9 km SW of Mucurubá, 1,900 m, 29 Jul 1979 (fr), *M. Nee & M. Whalen* 17016 (F); Anden, Umgebung von Timotes, 2,020 m, 22 Aug 1968 (fl, fr), *B. Oberwinkler & F. Oberwinkler* 12472 (M); Anden, Straße Mérida, Apartaderos, zwischen Tabay und Mucuruba, 2,000 m, 15 Dec 1968 (fl), *B. Oberwinkler & F. Oberwinkler* 13909 (M); Vicinity of Timotes, 2,000 m, 20 Jan 1928 (fl), *H. Pittier* 12652 (M, NY); Disitrito Libertador, Caserío El Chabá, entre Los Nevados y la población de El Morro, a orillas de la quebrada de El Hato, vertiente meridional de la Sierra Nevada, 2,400 m, 14 Dec 1961 (fl), *L. Ruiz Terán* 824 (MERF, MO); Disitrito Campo Elias, San José de Acequias a Orillas de Quebrada de Minanon, 2,350–2,400 m, 24 Mar 1967 (fl), *L. Ruiz Terán, et al.* 3916 (MERF, NY). Táchira: Páramo Zumbador, 14 km S of El Cobre, 2,500 m, 31 Mar 1974 (fr), *A. Gentry et al.* 11090 (MO); Páramo Zumbador, 07° 58' N, 72° 05' W, 2,250–2,600 m, 4 Jan 1989 (fr), *W. Hahn & F. Grifo* 4983a (MO, NY); Cazadero, Quebrada Cazadero, 16 km of San Cristóbal, 07° 54' N, 72° 18' W, 650–900 m, 4 May 1981 (fl), *R. Liesner & M. Guariglia* 11812 (MO); Distrito Jauregi, 40 km S of La Grita along road to San José de Bolívar, 07° 56' N, 71° 57' W, 1,560 m, 14 Apr 1984 (pist. fl, fr), *J. Luteyn & M. Lebrón-Luteyn* 9913 (MO, NY, VEN); Distrito Junín, Municipio Delicias, Caserío Villa Páez and vicinity, 1,900–2,300 m, 7 Mar 1962 (fr), *L. Ruiz Terán* 935 (MERF, MO); Lower slopes of Paramo de Tamá to Paramo de Tamá, 2,800 m, 20 May 1967 (fl, fr), *J. Steyermark* 98562 (NY, VEN); Cabeceras del Río Quinimarí, steep slopes and cliffs of El Banco, belos Cerro Las Copas, below Páramo de Judío, 20 kms al S de San Vicente de la Revancha, 35 kms S of Alquitrana, SW of Santa Ana, 2,500–2,700 m, 15 Jan 1968 (fl, bud), *J. Steyermark et al.* 100966 (NY 2-sheets); Sierra El Casadero, 13 km N of Rubio, between Las Dantas and Las Adjuntas, 07° 43' N, 72° 23' W, 900–1,050 m, 12 Nov 1979 (fr), *J. Steyermark et al.* 120141 (MO). Trujillo: Distrito Carache, en Cuicas, La Guajira, 900 m, 25 Jun 1972 (fr), *C. Benítez de Rojas* 1459 (F, MY).

Myrsine pellucida is a common plant throughout the Andes, particularly easy to distinguish because of the sessile umbels and reddish glandular papillae of the terminal bud and apical zone of the branchlets. This species, along with *Myrsine latifolia* (Ruíz et Pav.) Spreng. have been misidentified as *M. guianensis*, which does not occur in the Andes. Within Venezuela, it may be confused with *Myrsine macrocarpa*, but is easily distinguished by the red glandular-papillate branchlets petioles and leaf midrib, smaller fruits and shorter petioles. Another significant difference is that *Myrsine pellucida* is restricted to soils on metamorphic rock, while *M. macrocarpa* is a tepui species.

11. *Myrsine nitida* (Mez) Pipoly, (Figs. 6, 8A, 8B), Novon 1:210. 1991.

Rapanea nitida Mez, Repert. Spec. Nov. Regni Veg. 16:424. 1920. TYPE. GUYANA [VENEZUELA]. Mt. Roraima, 2,000 m, Dec 1909, (fl), *E. Ule* 8725 (HOLOTYPE: B-destroyed, 1943; LECTOTYPE here designated K).

Rapanea roraimensis A.C. Sm., Bull. Torrey Bot. Club 67:296. 1940. SYN. NOV. *Myrsine roraimensis* (A.C. Sm.) Pipoly, Novon 1:208. 1991. TYPE. VENEZUELA. BOLÍVAR: Mount Roraima, SW slopes, 7,800 ft. [2,377 m], 11 Jan 1939 (fl), *A. Pinkus* 132 (HOLOTYPE: NY; ISOTYPES: F, GH, MO, NY, US 2-sheets).

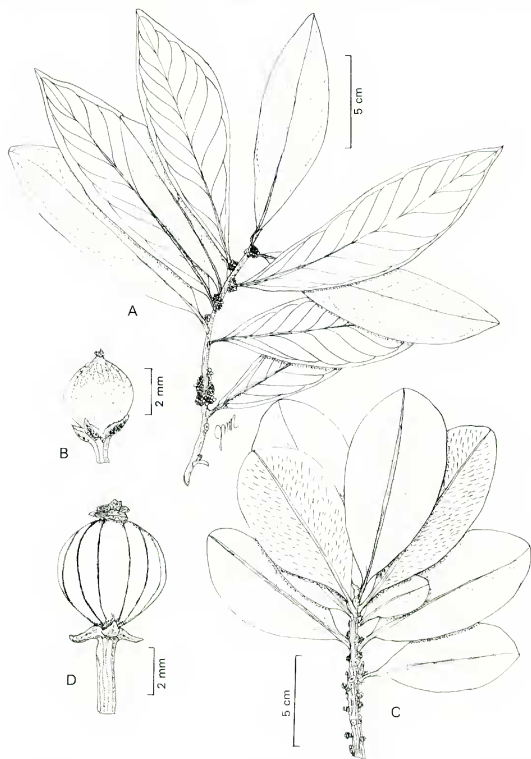


FIG. 8. A. Habit, flowering branch of *Myrsine nitida* (Mez) Pipoly, drawn from A. Pinkis 132 (NY, holotype of *Rapanea vortamensis* A.C. Sm). B. Fruit of same, drawn from J. Steyermark 75834. C. Habit, flowering branch of *Myrsine guianensis* (Aubl.) Kuntze, drawn from J. Aublet s.n. (BM isolecotype). D. Fruit of same, drawn from L. Delgado 215.

Shrub or tree to 10 m tall; trunk and branches orthotropic. *Branchlets* terete, glabrous. *Leaves* spiral; blades coriaceous, elliptic or oblanceolate, (5.5)12–17 cm long (2.7–)3.5–5.7(–7) cm wide, apically acute or rarely, obtuse, basally acute to obtuse, slightly decurrent on the petiole, the secondary veins prominulous above, obviously brochidodromous, the loop connections visible dull to somewhat nitid above, conspicuously reddish punctate and punctate-lineate below, the margin entire, flat; petioles marginate, 0.7–1.5 cm long, glabrous. *Staminate inflorescence* fasciculate, 5–9-flowered, the short shoots sessile to 3 mm long; floral bracts ovate, 1–1.2 mm long, 0.7–0.8 mm wide, apically acute, densely and prominently black punctate-lineate; pedicels 1–1.3 mm long. *Staminate flowers* 5-merous, chartaceous, 3.4–3.6 mm long; calyx cotyliform, 1.2–1.4 mm long, the tube 0.2–0.3 mm long, the lobes ovate to deltate, 1–1.2 mm long, and wide, prominently black punctate-lineate medially, apically acute, the margin entire, minutely glandular-ciliolate; corolla campanulate, 3.4–3.6 mm long, the tube 0.7–0.9 mm long, the lobes oblong to elliptic, 2.5–2.7 mm long, 1.2–1.3 mm wide, apically acute to obtuse, densely and prominently black punctate and punctate-lineate, the margin entire, glandular-granulose throughout; stamens 2.9–3.1 mm long; filaments not obvious, ca. 0.7–0.9 mm long, the anthers ovate to oblong, 2–2.1 mm long, 1.1–1.3 mm wide, apically apiculate, basally subcordate, the connectives black punctate-lineate dorsally; pistillode conic, 2 mm long, 1 mm wide, the sterile stigma conic, 4-lobed, hollow. *Pistillate inflorescence* as in staminate but pedicels 1–1.5 mm long. *Pistillate flowers* as in staminate but 2.5–2.9 mm long; calyx 1.5–1.7 mm long, the tube ca. 0.5 mm long, the lobes ovate to deltate, 0.9–1 mm long and wide, apically acute; corolla 1.8–2 mm long, the tube 0.7–0.8 mm long, the lobes elliptic, 1.1–1.3 mm long, ca. 0.5 mm wide; staminodes ca. 1.5 mm long, the filaments not obvious but venation visible, ca. 0.7–0.8 mm long, the antherodes malformed, 0.5–0.8 mm long, ca. 0.5 mm wide, apically acute, basally subsagittate; pistil 2.5–2.7 mm long, the ovary globose, 1.1–1.3 mm long and diam., the stigma lacinate, 4-lobed, translucent, carnos, 1.5–1.7 mm long, 1–1.2 mm diam, the placenta ellipsoid; ovules 3–4, uniseriate. *Fruit* globose, 3–3.5 mm long and in diam., obscurely pellucid punctate.

Distribution.—*Myrsine nitida* (Fig. 6) is known from the state of Bolívar in Venezuela, and adjacent Guyana, growing at (830–)1,800–2,450 m elevation.

Ecology and conservation status.—*Myrsine nitida* occurs in rocky knolls in savannas, along the margins of premontane forests, *Clusia-Magnolia* riparian forests, and in *Mora* forests. Because these forests produce more timber than any of those surrounding them, this species should be considered threatened.

Etymology.—The specific epithet refers to the shiny nature of the adaxial leaf surface.

Specimens examined. GUYANA. Cuyuni-Mazaruni: Pakaraima Mts., NE plateau of Ayanganna, 05° 23' N, 59° 58' W, 1,500–1,650 m, 3 Nov 1992 (ster.), *B. Hoffman* 3230 (BRIT, US). VENEZUELA. Bolívar: 0–1 km NE of El Paují, 04° 30' N, 61° 35' W, 830–900 m, 5 Nov 1985 (fl), *R. Liesner* 19543 (MO, NY, VEN); Gran Sabana, Ilú-tepui, W-facing slopes below low escarpment, 7,000–8,000 ft [2,134–2,438 m], 17 Mar 1952 (fl), *B. Alaguire* 33468 (BRIT, NY), slopes below upper most W-facing escarpment, 21 Mar 1952 (fr), 33497 (NY); Mount Roraima, SW-facing slopes between Rondón Camp and base of bluffs, 2,040–2,255 m, 30 Sep 1944 (fr), *J. Steyermark* 58948 (F, NY); Ptari-tepui, along base of E-facing bluff, 2,410–2,450 m, 7 Nov 1944 (fl), *J. Steyermark* 59948 (F, NY); Sororopán-tepui, crest of cerro between E & W end, 2,255 m, 14 Nov 1944 (fl), *J. Steyermark* 60108 (F, NY, US); Chimantá Massif, above SE-facing upper shoulder on slope leading to summit of Apícara-tepui, 2,200–2,300 m, 20 Jun 1953 (fl), *J. Steyermark* 75834 (F, MO, NY); Chimantá Massif, Agparamán-tepui, SE-facing forested slopes below escarpment, 1,880–1,955 m, *J. Wurdack & J. Steyermark* 1160 (NY).

Myrsine nitida appears to be most closely related to *M. guianensis*, but is separated by the conspicuously reddish punctate-lineate abaxial leaf surface, the acute or rarely, obtuse leaf apices and habitat.

12. *Myrsine guianensis* (Aubl.) Kuntze, (Figs. 8C, 8D, 9), Revis. Gen.

Pl. 2:402. 1891. *Rapanea guianensis* Aubl., Hist. Pl. Guiane. Fr. 1:121, t. 46. 1775. TYPE. FRENCH GUIANA. Without locality, without elev., without date (fl); *J. Aublet s.n.* (LECTOTYPE: P, here designated (BRIT & MO Neg.); ISOLECTOTYPE: BM (MO Neg. # 4321)).

Rapanea oblonga Pohl ex Miq. in Mart., Fl. Bras. 10:308. 1856. TYPE. BRAZIL. Without locality, without elev., without date (fl, fr), *Pohl* 4384, 6077 (SYNTYPES W; photo SD). We defer lectotypification of this binomial until all material cited in the protologue and their duplicates can be assembled.

Myrsine ovalifolia Miq. in Mart., Fl. Bras. 10:313. 1856. *Rapanea ovalifolia* (Miq.) Mez in Engl., Pflanzenr. IV. 236(Heft 9):391. 1902. TYPE. BRAZIL. Alagoas, without elev., Jun 1838 (fl), *Gardner* 1350 (HOLOTYPE: G; ISOTYPE: BM).

Trees to 6(–15) m tall; trunk and branches orthotropic. Branchlets terete, glabrous, the bark of lower branches thick and corky. Leaves spiral; blades coriaceous, elliptic, oblong, oblanceolate or obovate, 7–18 cm long, (2.7–)3–7.5 cm wide, apically obtuse to broadly rounded, basally acute, the midrib impressed above, prominently raised below, the secondary veins prominulous above, penninerved, not obviously brochidodromous, nitid above, pallid below, inconspicuously black punctate or black punctate-lineate below, the margin entire, flat, somewhat revolute basally; petioles marginare, 0.5–1.5 cm long, glabrous. Staminate inflorescence fasciculate, 5–8-flowered, on short perennating shoots accrescent by accumulating girdling floral bracts; floral bracts chartaceous, oblate, 0.5–0.6 mm long, 0.9–1.0 mm wide, apically broadly rounded, the margin entire, densely long glandular-ciliate; pedicels 1.2–2 mm long. Staminate flowers 5-merous, chartaceous, hyaline, 3.5–3.8 mm long; calyx campanulate, 1–1.2 mm long, the tube ca. 0.3 mm long, the lobes widely ovate to deltate, 0.7–0.9 mm long and wide, apically narrowly

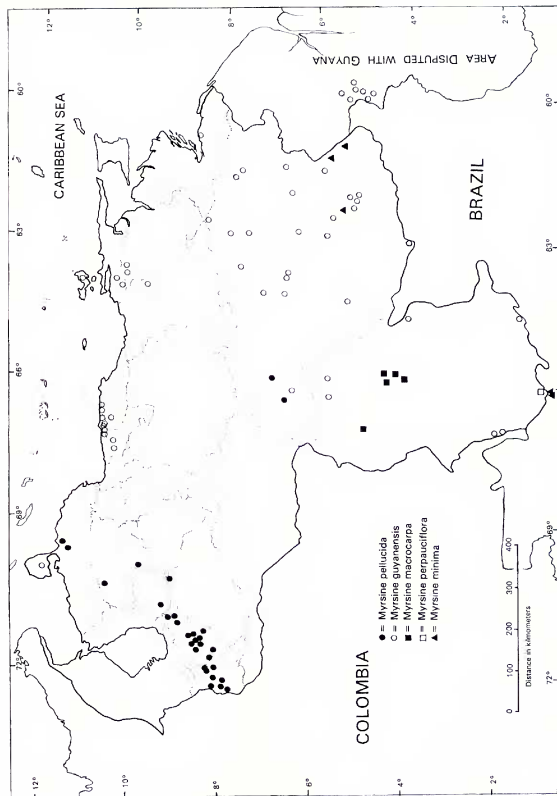


FIG. 9. Distribution of *Myrsine pellucida* (●), *M. guianensis* (○), *M. macrocarpa* (■), *M. perpauciflora* (□) and *M. minima* (▲) in Venezuela and bordering Guyana region.

acute to attenuate, prominently black punctate and punctate-lineate medially, the margin entire, glabrous; corolla campanulate, 3.5–3.8 mm long, the tube 0.7–0.9 mm long, the lobes elliptic to lanceolate, 2.7–3 mm long, 0.9–1 mm wide, apically sharply acute to attenuate, densely and prominently black punctate and punctate-lineate, the margin entire, glandular-granulose throughout; stamens 2.2–2.5 mm long, the filaments not obvious (but veins visible) 0.7–0.9 mm long, the anthers ovate, 1.5–1.7 mm long, 0.7–0.8 mm wide, apically apiculate, the apically curved inward, basally subcordate, the connective with one prominent black punctation at point of attachment; pistillode conic, 1.3–1.5 mm long, 0.7–0.8 mm diam., hollow or bearing a sterile placenta. *Pistillate inflorescence* as in staminate but on perrenating shoots to 6 mm long; pedicels 1.5–2 mm long. *Pistillate flowers* as in staminate but calyx 1.1–1.8, the tube ca. 0.2 mm the lobes ovate, 1.1–1.3 (–1.5) mm long, 0.7–0.9 mm wide; corolla 2.5–3.5 mm long; the tube as in staminate, the lobes 2.5–3 mm long, 0.8–1.2 mm wide; staminodes resembling stamens except antherodes broadly ovate 1.0–1.3 mm long, 0.6–0.8 mm wide; pistil conic, 1.5–2.5 mm long, 0.8–1 mm diam, the stigma conical, with 4 twisted lobes, the placenta conical, the ovules 3–5, uniseriate. *Fruit* globose, 3.5–5 mm long and in diam., prominently black punctate.

Distribution.—*Myrsine guianensis* is known from French Guiana and adjacent Brazil westward through Suriname and Guyana to Venezuela (Fig. 9), growing at (100–)400–1,400(–2,800) m elevation. Reports of this species from Colombia, Ecuador, Peru, Bolivia and Paraguay are based on misidentifications. In Venezuela, it is found throughout the states of Bolívar, around the margins of Amazonas, in Delta Amacuro, Monagas, Sucre, Nueva Esparta, Anzoátegui, Miranda, D.F., Aragua, and Falcón growing in sandy, savanna-like situations.

Ecology and conservation status.—In Venezuela, *Myrsine guianensis* is known from primary and secondary lowland riparian forests on reddish or quartzite sands, premontane forest, cloud forests and rarely, upland savannas.

Etymology.—The epithet refers to the species' type locality, French Guiana.

Specimens examined. GUYANA. Mazaruni-Potaro: Upper Potaro River region, summit of Mt. Wokomung, 05° 05' N, 59° 50' W, 9 Jul 1989 (fr), B. Boom & G. Samuels 9138 (MO, NY); Upper Potaro River region, trail Kopinang-Orinduik, ca. 1.5 hr walk from Koponang, 04° 57' N, 59° 53' W, 790 m, 22 Jul 1989 (fr), B. Boom & G. Samuels 9285 (MO, NY); Kaieteur Plateau, forest along trail from Plane-landing to Kaieteur Falls, ca. 1,400 m, 11 Feb 1962 (fl), R. Couan & T. Soderstrom 1826 (K, US); E Berbice-Corentyne Region: Digitima Savanna; Canje River, 10 km S of Mora, 185 km S or mouth of Canje, 05° 33' N, 57° 40' W, 10–20 m, 29 Oct 1989 (stam. fl), L. Gillespie et al. 2510 (US); Potaro-Siparuni Region, at southern base of Mt. Kopinang along trail from Kopinang to Orinduik, 05° 00' N, 59° 55' W, 500–600 m, 9 Apr 1988 (fr), W. Hahn et al. 4435 (MO, US); Potaro-Siparuni Region, Kato, 04° 40' N, 59° 55' W, 750 m, 11 Mar 1989 (fr), W. Hahn et al. 5603 (MO, US); E. Berbice-Corentyne Region: W bank of Canje River, Cow Savanna, ca. 1 km N of Digitima Creek, 1–20 m, 14 Apr 1987 (fr), J. Pipoly et al. 11582 (FDG, MO, NY,

US) Upper Mazaruni River basin, Mt. Ayanganna, on shoulder of E flank, ca. Thompson camp, 1,418 m, 12 Aug 1960 (fr), *S. Tillett et al.* 45118 (NY-2 sheets); Upper Mazaruni River basin, Kukui River, in Mora forest bordering river at Adaro river mouth, ca. 500 m, 5 Sep 1960 (fr), *S. Tillett & C. Tillett* 45290 (NY-2 sheets, US). **VENEZUELA.** Amazonas: Beyond soccer field, San Carlos de Río Negro, 115 m, 17 Sep 1975 (fr), *P. Berry* 1367 (MO); San Carlos de Río Negro, ca. 20 km S of confluence of Río Negro and Brazo Casiquiare, near radar site, 3.4 km NE of San Carlos on Solano road, 01° 56' N, 67° 03' W, 119 m, 13 Mar 1979 (fr), *H. Clark* 7094 (MO, NY); Serranía de Tapirapecó, Campamento Tamacuari, trail between 2 camps, 01° 14' N, 64° 40' W, 1,400 m, 10 Feb 1989 (fr), *A. Henderson et al.* 1022 (BRIT, NY); Department Atures, cumbre del Cerro Yaví, en las cabeceras del Río Parucito, afluente oriental del Río Manapiare, en el sector NE de la cumbre, 05° 43' N, 65° 52' W, 2,100 m, 29 Oct 1986 (fr), *O. Huber* 11853 (NY); Department Atures, cumbre del Cerro Coro-Coro, en las cabeceras nor-occidentales del Río Manapiare, sector NW de la Serranía Yutajé, 05° 46' N, 66° 12' W, 2,200 m, 12 Nov 1987 (fr), *O. Huber* 12318 (US); Sierra Parima, Vecindades de Simarawochi, Río Matacuni, a unos 6–7 km al O de la frontera Venezolana-Brasilera, 03° 49' N, 64° 36' O, 795–830 m, 18 Abr–23 May 1973 (fl), *J. Steyermark* 106968 (MO, NY); 107113 (F, MO, NY). Anzoátegui: Distrito Bolívar, just S of El Zamuro, Fila El Purgatorio, 9 airline km NE of Bergantín, 10° 02' N, 64° 17' W, 1,100 m, 24 Nov 1981 (fr), *G. Davidse & A. González* 19400 (MO, NY, VEN), 19402 (US). Aragua: Maracay, without elev., 1934 (fl, fr), *P. Vogel* 1118 (M); Arriba de Guamitas, P. N. Aragua, 780 m, 15 Jun 1939 (fr), *L. Williams* 11125 (F, MO). Bolívar: Near summit of Cerro Bolívar, ironstone area, Ciudad Piar, 750 m, 10 Apr 1954 (fl), *L. Aristeguieta* 2178 (NY 2-sheets); Distrito Raul Leoni, Río Ariza, 55 km NE of San Francisco de la Paragua, 07° 11' N, 64° 13' W, 485 m, Jun 1989 (fr), *L. Delgado* 215 (MO, NY); Distrito Gran Sabana, Zona Minera El Polaco, 04° 32' N, 61° 26' W, 950 m, Jul 1993 (ster.), *W. Diaz y S. Elcoro* 1580 (MO); Distrito Raul Leoni, Bajo Caroní, Sector III, Cerro Altamira, 07° 27' N, 63° 13' W, 300 m, May 1994 (fl), *W. Diaz* 2515 (MO); Municipio Piar, 3 km NE of Hato Las Nieves, 07° 28' N, 62° 36' W, 280 m, May 1986 (fr), *A. Fernández* 2946 (US); Distrito Piar, Serranía Quiribay, 07° 49' N, 62° 43' W, 280 m, 26 Jul 1989 (fr), *F. Flores & E. Pérez* 557 (MO); Guyana, villa de Upata, without elev., 1864 (fl), *D. de Grosourdy* 13 (P); Distrito Heres, Meseta del Guaiquinima, S-sloping plain near edge of NE section of the meseta, near the summit, 05° 58' N, 63° 29' W, 1,400 m, 27 Mar 1985 (fr), *O. Huber* 10389 (MYF, MO, NY); Distrito Heres, Meseta del Guaiquinima, SE sector of the summit, 05° 51' N, 63° 25' W, 1,350 m, 26 Sep 1985 (fr), *O. Huber & G. Medina C.* 10916 (MYF, NY); Distrito Cedeño, Serranía Guanay, NE sector, sloping toward the S and SW, at the easternmost headwaters of Río Parguaza, 05° 55' N, 66° 23' W, 1,700 m, 20–28 Oct 1985 (fl bud), *O. Huber* 11062 (MYF, NY); Distrito Piar, Macizo del Chimantá, W sector, SW range of Aparará-tepui, near the connection with Abacará-tepui, at NW headwaters of Río Tírica, 05° 17' N, 62° 16' W, 2,100 m, 8–10 Mar 1986 (fr), *O. Huber* 11456 (BRIT, MYF, MO, NY 2 sheets); Distrito Roscio, savannas at W foothills and SW summit of the Altiplanicie de Nuria, ca. 50 km N of Tumeremo, 07° 37' N, 61° 37' W, 300–450 m, 7 May 1986 (fl buds), *O. Huber* 11640 (MYF, NY); Distrito Heres, Meseta del Guaiquinima, plain sloping SE, along the SE border of the meseta, at W headwaters of Río Aberaíma, 05° 47' N, 63° 48' W, 1,400 m, 20 May 1987 (fl), *O. Huber & V. Rull* 12273 (MYF, MO, US); Distrito Cedaño, Meseta de Jaua, headwaters of Río Marajano, tributary of Río Cácaro, 04° 48' N, 64° 32' W, 1,750–1,800 m, 20 Nov 1989 (fr), *O. Huber* 13005 (MYF, MO); Uaipan-tepui, between the W & E Peaks of Uaipan, ca. 1,500 m, 4 Mar 1967 (fr), *T. Koyama & G. Agostini* 7474 (NY, VEN); Cerro Guaiquinima, Río Paragua, lateral S drainage of "North Valley", 1,700 m, 2 Jan 1952 (fl), *B. Maguire* 32917 (NY); Ptari-tepui, NW slopes, 1,500–2,000 m, 17 Dec 1952 (FR), *B. Maguire & J. Wurdack* 33896 (NY); Ptari-tepui, in

vicinity of "Cave Rock" camp, below S face of mountain, 1,600–2,000 m, 14–19 Aug 1970 (bud), *H. Moore et al.* 9738 (F, NY, US); Ptari-tepui, S slope, 2,600 m, 24 Nov 1983 (fr), *J. Pipoly* 6399 (NY, VEN); Ptari-tepui, S-facing slopes, just NE of "Cave Rock", 1,800–1,850 m, 4 Nov 1944 (fr), *J. Steyermark* 59808 (F, NY); Ptari-tepui, at base of cerro along Río Karuai, 1,220 m, 27 Nov 1944 (ster.), *J. Steyermark* 60621 (F, MO); Chimantá Massif, NW part of summit of Abácapa-tepui, 2,125–2,300 m, 13 Apr 1953 (fr), *J. Steyermark* 74954 (F, MO, NY); Chimantá Massif, on plateau of SE-facing upper shoulder of Apácará-tepui, 2,000 m, 19 Jun 1953 (fr), *J. Steyermark* 75738 (F, MO, NY); Chimantá Massif, below Upper Falls of Río Tirica above Summit Camp, 1,940 m, 7 Feb 1955 (fr), *J. Steyermark & J. Warduck* 594 (BRIT, F, MO, NY); Altiplanicie de Nuria, vicinity of campamento Nuria, NE of Hato de Nuria, 530 m, 17 Jul 1960 (ster.), *J. Steyermark* 86438 (NY); Altiplanicie de Nuria, vicinity of camp, 5 kms from Hato de Nuria, E of Miamo, 400 m, 12 Jan 1961 (fr), *J. Steyermark* 88366 (NY); along Río Churún at foot of "Second Wall" of sandstone, N from camp, 5 km to the NE, 1,660 m, 12 May 1964 (fl), *J. Steyermark* 93748 (NY); Distrito Heres, Cerro Marutaní, 1,420 m, 13 Jan 1981 (fl bud), *J. Steyermark et al.* 124036 (NY); Distrito Piar, Cerro Torribio, Bajo Caroní, Sector III, 07° 04' N, 62° 05' W, 100 m, May 1994 (fr), *A. Valera* 563 (MO). **Delta Amacuro:** Departamento Antonio Díaz, vicinity Caño Jotajana, tributary of Caño Guiniquina, NW of Epaña near boundary with Departamento Tucupita, 09° 15' N, 61° 10' W, 50 m, 20 Oct 1977 (ster.), *J. Steyermark et al.* 115090 (MO). **Distrito Federal:** Colonia Tovar, without elev., Dec 1924 (fl), *A. Allart* 513 (NY). Parque Nacional "El Avila," near Los Venados, 1,650 m, 22 Dec 1975 (fl), *L. Aristeguieta & O. Huber* 300 (NY); Reforested hills of the Caracas Botanical Gardens, 870–980 m, 1 Jul 1974 (fr), *P. Berry* 213 (MO); Calvarío de Caracas, without elev., without date (fr), *Ernst* 1088 (BM); Prope coloniam Tovar, without elev., 1854–1855 (fl), *A. Fendler* 760 (MO, NY); Parque Nacional El Avila, above Naiguatá, along the right of way for Electricidad de Caracas between the stream of the Río Camurí and the stream of the Río Mazares en selva, 10° 34.5' N, 66° 42.3' O, 800 m, 11–12 Apr 1992 (ster.), *W. Meier et al.* 2069 (BRIT); Jardín Botánico, Caracas, reforested slopes facing N, without elev., 14 Jun 1960 (fr), *J. Steyermark* 86309 (NY). Caracas, without elev., 14 Jan 1892 (fl), *J. Warming* 560 (C. 2-sheets). **Falcón:** Península Paraguaná, Cerro Santa Ana, 650 m, 15 Dec 1964 (fl), *F. Breteler* 4292 (MO, NY); 4299 (F, MO, NY); Península Paraguaná, Cerro Santa Ana, 650 m, Dec 1953 (fl), *T. Lasser & L. Aristeguieta* 3410 (F 2-sheets, VEN); Cerro Santa Ana, ascensión del lado S desde el pueblo de Santa Ana, 750 m, 24 Jan 1966 (fl), *J. Steyermark & A. Braun* 94642 (NY); Península Paraguaná, Cerro Santa Ana, without elev., Jan 1939 (fl, fr), *F. Tamayo* 797 (F). **Miranda:** Carretera de Tacata-Loma del Hierro sabana antrópica, without elev., 1 Jan 1988 (fl), *N. Ramirez* 2477 (MO, NY). **Monagas:** San Antonio-Cumaná Road, without elev., 24 Oct 1948 (fl, fr), *B. Maguire et al.* 27251 (NY); Cerro Negro, above La Sabana de las Piedras, NW of Caripe, 1,500–2,180 m, 15 Apr 1945 (fl), *J. Steyermark* 62075 (F). **Nueva Esparta:** Isla de Margarita, Cerro Copey, 500–900 m, Jul 1984 (fl), *F. Delascio & A. González* 12223 (MO); (fr), 12255 (MO); Copey, 900 m, Dec 1951 (fl), *H. Gines* 2815 (US), 3461 (US); Isla de Margarita, Cerro Copey, S of Santa Ana, at and near summit, 11° 02–03' N, 63° 55' W, 800–850 m, 24 Mar 1985 (fr), *J. Steyermark et al.* 131074 (MO). **Sucre:** Valley of Cocollar, 820 m, 28 Apr 1945 (fr), *J. Steyermark* 62377 (F); Cerro Turumquire, N-facing slopes above La Trinidad, SW of Cocollar, 2,100–2,200 m, 5 May 1945 (fr), *J. Steyermark* 62560 (F); Distrito Sucre, La Lomita, between La Sabana and Zurita, 500–600 m, 18 Aug 1973 (fl), *J. Steyermark et al.* 107789 (MO, NY). **WITHOUT LOCALITY:** Coticita, without elev., 17 Jun 1917 (fl, bud), *H. Curran & M. Haman* 1069 (NY).

Myrsine guianensis (Aubl.) Kuntze has long been confused with *M. pellucida* and *M. latifolia* (Ruíz & Pav.) Spreng., both Andean species. In the Caribbean

and Central America, including the coast of the state of Delta Amacuro, it has been confused with *Myrsine cubana* A. DC. (often reported as *M. floridana* A. DC., a *nomen superfluum*, or *M. punctatum* (Lam.) Stearn, non (H. Lév.) Wilbur). In Brazil, it has been confused with several other species, including *Myrsine monticola* Mart. (Harvey & Pipoly 1995) and *M. umbellata* Mart. In Venezuela, *Myrsine guianensis* is most easily confused with *M. nitida*, from which it is easily distinguished by the obtuse to broadly rounded leaf apices, with inconspicuously black punctate and punctate-lineate abaxial surfaces, the ovate calyx lobes, larger, black punctate fruits and the cloud forest to lowland savanna habitats.

DOUBTFUL AND EXCLUDED TAXA

Myrsine schomburgkiana Miq. in Mart., Fl. Bras. 10:315. 1856. = *Elaeostoma schomburgkiana* (Miquel) Baill., Hist. Pl. 11:293. 1892, (Sapotaceae). TYPE: GUYANA. Without further locality, without elev., without date, *R. Schomburgk* 968 (HOLOTYPE: U; ISOTYPE: BM). See T. Pennington, Fl. Neotrop. 52:240. 1990.

Rapanea duidae Gleason, Bull. Torrey Bot. Club 58:447. 1931. TYPE: VENEZUELA. AMAZONAS: Summit of Mount Duida, 4,800 ft [1,463 m], 5 Jan 1929 (fl), *G. Tate* 594 (HOLOTYPE: NY).

This taxon is actually a species of *Micropholis* (Sapotaceae), and the type was annotated "*Micropholis* sp." by Pennington in 1985. However, disposition of this name was not made in his Sapotaceae monograph (Pennington 1990).

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NUMERICAL LIST OF MYRSINE TAXA

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|--|-------------------------------|
| 1. <i>Myrsine dependens</i> | 7. <i>Myrsine resinosa</i> |
| 2a. <i>Myrsine coriacea</i> subsp. <i>coriacea</i> | 8. <i>Myrsine picturata</i> |
| 2b. <i>Myrsine coriacea</i> subsp. <i>reticulata</i> | 9. <i>Myrsine macrocarpa</i> |
| 3. <i>Myrsine maguireana</i> | 10. <i>Myrsine pellucida</i> |
| 4. <i>Myrsine minima</i> | 11. <i>Myrsine nitida</i> |
| 5. <i>Myrsine andina</i> | 12. <i>Myrsine guianensis</i> |
| 6. <i>Myrsine perpauciflora</i> | |

LIST OF EXSICCATAE

Figures in parentheses refer to the numbers from the numerical list of taxa. Collection numbers in boldface type indicate type specimens.

Agostini, G. 174 (2a); Allart, A. 513 (12); Alston, A. 5515 (2a); 6172 (2a); Anderson, W. 13461 (2a); Aristeguieta, L. 2178 (12); 3606 (1); 5498 (2a); Aristeguieta, L. & O. Huber 300 (12); Aubler, J. s.n. (12); Aymard, G. et al. 5190 (2a).

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Farney, C. et al. 905 (4); Fendler, A. 758 (2a); 760 (12); Fernández, A. 2946 (12); Flores, F. & E. Pérez 557 (12); Funck, H. 481 (1); 550 (1); Funck, H. & L. Schlim 58 (1); 140 (2a).

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Karsten, G. s.n. (2a); Koyama, T. & G. Agostini 7474 (12); Kral, R. & A. González 70455 (2a).

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9776 (10); 9913 (10); ; Luteyn, J. & J. Pipoly 9280 (2a); 9328 (2a); 9335 (2a); 9357 (10); 9370 (10); 9377 (10); Luteyn, J. et al. 9386 (2a); 9387 (2a).

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Ule, E. 8721 (4); 8725 (11).

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