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TROPICAL AMERICAN PLANTS, V

LOUIS O. WILLIAMS

FIELDIANA: BOTANY

VOLUME 29, NUMBER 10

Published by

CHICAGO NATURAL HISTORY MUSEUM

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Biology

Tropical American Plants, V

The notes which make up this paper result from the study of materials sent for determination and, especially, from the study of the Melastomaceae in revising that family for the *Flora of Guatemala*.

I wish to express my thanks to those in charge of the several herbaria where I have gone to study the collections or who have lent critical specimens: United States National Herbarium, New York Botanical Garden, Gray Herbarium, Arnold Arboretum, Missouri Botanical Garden, Lundell Herbarium, University of Florida, University of California, Escuela Agrícola Panamericana and University of Michigan. Several persons have been most generous with their time or specimens: John J. Wurdack, H. W. Rickett and Marcela Cruz de Crary.

These studies and travel to other herbaria have been made possible by a grant from the National Science Foundation.

The previous paper in this series appeared in *Brittonia*, 14: 441-446. 1962.

PINACEAE

The Museum library has just received a copy of a pamphlet by J. Ignacio Aguilar G., entitled *Pinos de Guatemala*. A note on the back cover states that the publication was first circulated in May 1953 and that the second edition (presumably the one in hand) was issued in November 1958; but the note is dated May 1961.

In the pamphlet a new form of pine is described; an old name for a Guatemalan pine is put into a new combination as a form; a new species is described but is said to date back to 1942, possibly in a *Catálogo del Museo Nacional de Ciencias Naturales de La Aurora* (in our copy of which the name does not appear). None of these names are properly published and have no validity.

ANONACEAE

Unonopsis R. E. Fries is a small genus of some 25 species. Three species have been recorded from Central America and Panama:

U. Pittieri Safford from the Canal Zone; *U. Schippii* Fries from British Honduras but reduced by Standley in *Flora of Guatemala* to *U. Pittieri*, perhaps incorrectly so; and *U. costaricensis* Fries from the Meseta Central of Costa Rica. In addition to those, *U. Storkii* is described below. It is a lowland species, but one in which the monocarpia are somewhat elongated and have two to several seeds. Another species, which is apparently undescribed, occurs in the Palmar region of Costa Rica. It is a small tree (4 m.) with narrowly elliptic leaves, the secondary nerves widely separated (1 cm. or usually nearly 2 cm.) and relatively few; the pedicels are subfiliform, not thick as in all other species.

Unonopsis Storkii Standl. & L. Wms., sp. nov.

Arbor parva usque ad 5 m. Folia late oblanceolata, breviter acuminata, base obtusa vel rotundata, nervi laterales utrinque 15–20; inflorescentia uniflora vel fascicula biflora; sepala 3, triangularia, pubescens; petala 6, impar, exteriora pubescens, valvata, cochleata, subtriangularia, crassa, interiora parva, cochleata, transverse rhombica, crassa, extus medium sericea; monocarpia 6 vel plura, ovoidea, sericea; semina discoidea.

Small tree to 5 m., branchlets slender, terete, densely but inconspicuously puberulent, becoming glabrous, internodes 2.5–4.5 cm. apart; leaves broadly oblanceolate, short-acuminate, obtuse or rounded at the narrow base, glabrous except the nerves below inconspicuously pubescent, secondary nerves about 15–20 on each side, blade 25–35 cm. long and 6.5–12 cm. broad well above the middle; petiole thick and fleshy, 0.5–0.8 cm. long and 0.3–0.5 mm. thick; inflorescence 1 flower, or 2-flowered fascicles from old wood, the peduncle stout, with a bract at the middle or below, ferruginous-pubescent, 1–2 cm. long; sepals 3, triangular, ferruginous-pubescent, about 2–3 mm. long; petals 6, in 2 series; petals of outer series valvate, strongly cochleate and subtriangular in outline, fleshy especially at the apex, densely ferruginous or sericeous-pubescent outside, 7–8 mm. long and nearly as broad; petals of inner series smaller, cochleate, transversely rhombic, very fleshy, glabrous except along the median line dorsally, about 4.5 mm. long and slightly broader; torus when mature spherical, bearing several (6 or more) stipitate monocarpia; monocarpia ovoid, puberulent, becoming glabrous, to 2 cm. long and 1.5 cm. in diameter, stipe about 0.5 cm. long, stout; seeds 2–6 in each monocarpium, flattened and sublenticular, with a prominent median ridge around the center, surface prominently pitted, about 1 cm. long and about as broad, 2–3 mm. thick along the border.

COSTA RICA: "Flower parts leathery, dull yellow, fruits now olive-green, in fact looking like olives; the seeds seem to be wafer-like, packed tandem, about 6 to each fruit; 5 meter tree in understory beneath Cativo, Carapa, etc."; 6 miles upstream from mouth of Estrella River, Prov. Limón, Apr. 19, 1952, *Harvey E. Stork 4608* (UC, type; F).

PANAMA: Small tree, Changuinola Valley, Prov. Bocas del Toro, Feb. 22, 1924, V. C. Dunlap (F).

The several seeds in each monocarpium seem to distinguish this species from others in the area; the ovoid, puberulent monocarpia are distinctive also. The description of the flowers was made from buds at point of anthesis.

STAPHYLEACEAE

Turpinia heterophylla (Ruiz & Pavón) Harms & Loess., Engler, Bot. Jahrb. 37: 575. 1906. *Staphylea heterophylla* Ruiz & Pavón, Fl. Peruv. et Chil. 3: 29, t. 253. 1802.

COSTA RICA: Flowers white, edge of sphagnum bog, next to Pan American highway between km. 18 and 20 from El Empalme to Villa Mills, Prov. San José, alt. 2700 m., Aug. 15, 1960, *Marcela Cruz* 165.

Two other species of *Turpinia* are known in Costa Rica. This Andean species, reported for the first time for North America, was among a fine collection of plants made by Miss Cruz in the Cordillera de Talamanca.

RHAMNACEAE

Rhamnus oreodendron L. Wms., sp. nov.

Arbor parva; folia oblongo-lanceolata vel lanceolata, acuminata; inflorescentia fascicula 1-4-flora in axilla foliorum; calyx 5-lobata, lobis triangularis, crassis; petala obovata, retusa, cochleata; fructa baccata.

Small trees with slender, terete, sparsely sericeous-pubescent branchlets which become glabrous with age; leaves alternate, blade oblong-lanceolate or lanceolate, crenulate, acuminate, base obtuse or rounded, glabrous except the veins sparsely sericeous-pubescent below, only the mid-vein pubescent above, darker green above than below, 3-7 cm. long and 1.5-3.5 cm. broad, petiole slender, sericeous, about 1-1.5 cm. long, the stipules sericeous, linear, about 2.5 mm. long; inflorescence a 1-4-flowered axillary fascicle, pedicels 9-14 mm. long, sparsely sericeous-pubescent; calyx 5-lobed, apparently valvate in bud, hypanthium and calyx about 4 mm. long in flower, glabrescent, the calyx lobes triangular, acute, somewhat fleshy, about 2.5 mm. long and as broad at the base; petals obovate, retuse, cuneate to the base, cochleate, inconspicuous, about 1.5 mm. long, borne from a torus-like process between the calyx lobes; stamens borne from the base of the petals and partially enclosed by them; style about 1 mm. long; fruit baccate, spherical, glabrous, about 6-7 mm. in diameter (nearly mature).

COSTA RICA: Small tree with black fruit, in sphagnum bog along Pan American highway between km. 18 and 20 from El Empalme to

Villa Mills [Cordillera de Talamanca], Prov. San José, alt. 2,700 m., July 7, 1960, *Marcela Cruz 186* (F, type; FLAS).

There are no close relatives in North America; however, *Rhamnus Goudotiana* Tr. & Pl., which is not uncommon in the Andes of Colombia, is similar. Our species is distinguished in having the calyx lobes persistent at least to nearly mature fruit, not circumscissile soon after anthesis as is the case with nearly all other species; petioles are longer and leaf blades are differently shaped and broader in relation to length.

The type material is in nearly mature fruit with a few old flowers present.

FLACOURTIACEAE

Casearia coronata Standl. & L. Wms., sp. nov.

Arbor vel frutex usque ad 2 m. altus. Folia elliptica vel elliptico-oblanco-lata, acuminata, breviter petiolata; inflorescentia fasciculata; sepala biseriata, late ovata, obovata vel orbicularia; stamina ± 8 ; filamenta et staminodia in corona connata, staminodia barbata.

Small trees or shrubs, about 2 m. tall, branches slender, grayish, puberulent, soon glabrate, leaves short-petiolate, elliptic to elliptic-oblanco-late, acuminate, glabrous, with about six main lateral nerves on each side, the blade 10–20 cm. long and 3–7 cm. broad; petiole short, puberulent or glabrate, about 1 cm. long; inflorescences fasciculate, several-many-flowered, borne in the axils of leaves or on the branches between leaf internodes; peduncles puberulent, 3–4 mm. long, dehiscent near the apex; flowers medium-sized (for the genus), pedicel 1.5–2 mm. long, puberulent; calyx lobes 5–6, in two series and somewhat dissimilar, some (inner ones) broadly obovate-orbicular and unguiculate, some (outer ones) broadly ovate or ovate-orbicular, puberulent, mostly 3–4 mm. long and 3–3.5 mm. broad; petals none; stamens about 8, 2.5–3 mm. long, alternating and connate with staminodes of about equal length into a corona; the staminodes flattened, conspicuously pilose-barbate on the apices; stigma entire, short, about 1 mm. long; fruits (fide Stork) “turning red, somewhat triangular”; ovary at anthesis 1.5–2 mm. long, puberulent.

COSTA RICA: Perianth pale green, small tree of 2 meters, only 2 fruits seen, turning red, somewhat triangular, 6 miles inland from mouth of Estrella River, Prov. Limón, Apr. 21, 1952, *Harvey E. Stork 4616* (type, F; UC).

Most closely related to *C. javitensis* var. *myriantha* (Turcz.) L. Wms. of the species recorded from Central America and Panama. The leaves are not coriaceous and not at all glossy; the perianth segments are much broader and somewhat larger; the relatively large corona, made up of the staminodes and adnate filaments, is distinctive as is the prominent “beard” at the apex of each staminode. Unfortunately, mature fruits are not present.

MELASTOMACEAE

There are some 200 genera and perhaps 4,000–5,000 species of the Melastomaceae. Approximately two-thirds of these are in the neotropics, the rest in the tropics of the old world.

The family is a fascinating one and often the individual species are most attractive. Many of the species, however, are small-flowered, especially among the Miconieae. In that subfamily the genera (and often the species) are very difficult to separate. There are really no satisfactory boundaries between many of the genera. Sections of *Miconia* often seem more distinct than some of the genera that are maintained. There is obviously need for a study of generic boundaries of many genera but especially of *Miconia* and the several genera closely allied to it. This work can best be done by a student who can devote much time to the study of this complex assemblage.

In the preparation of the manuscript for the *Flora of Guatemala* the material available from Mexico, Central America, the Caribbean region and South America has been studied with the hope that the account prepared would be as accurate as possible. More critical study will certainly indicate other desirable changes. The study of the vast genus *Miconia* has been especially difficult and a better understanding of it is desirable.

Aciotis Levyana Cogn. in Mart. Fl. Bras. 14, pt. 3: 460. 1885.

The species was described originally from Nicaragua (*Levy* 497, phototype F). I have seen specimens from Guatemala, British Honduras, Honduras, Nicaragua, Costa Rica, Panama and Colombia. There are four sheets in the Lundell Herbarium from British Honduras (*Gentle* 8249, 8403, 8610, 9248), the first seen from the colony although the species had been reported.

Arthrostemma Ruiz & Pavón, Fl. Peruv. 4: t. 326. 1802, as *Arthrostema*; Cogn. in DC. Monog. Phan. 7: 138. 1891. *Heteronoma* DC. Prodr. 3: 122. 1828.

In Guatemala there are three species of *Arthrostemma* which I am able to distinguish one from the other. No others occur in Central America or Panama.

Arthrostemma alatum Triana, Trans. Linn. Soc. Bot. 28: 35. 1871.

Originally described from Venezuela and now known also from Mexico, Guatemala, El Salvador, Costa Rica and Panama. The alate stems and relatively short sessile hypanthium distinguish the species superficially.

Arthrostemma parvifolium Cogn. in DC. Monog. Phan. 7: 143. 1891. *A. apodocarpum* Donn.-Sm. Bot. Gaz. 37: 210. 1904.

Originally described from Guatemala, now known also from Mexico and British Honduras. The sessile fertile flowers distinguish this from the following species, the long hypanthium from *A. alatum*.

Arthrostemma ciliatum Ruiz & Pavón, l.c.; Cogn. l.c. 140. *A. fragile* Lindl. Journ. Hort. Soc. 3: 74. 1847; Cogn. l.c. *Heteronoma campanulare* Naud. Ann. Sci. Nat. ser. 3, 14: 153. 1850. *A. campanulare* Triana, l.c. 35, non DC. 1828. *A. macrodesmum* Gleason ex Williams, Fl. Trinidad 356, 357. 1934.

Traditionally two species have been set apart in Mexico and Central America for the material which I would associate with an older name (*A. ciliatum*) based on South American material. These two species, *A. fragile* Lindl. and *A. macrodesmum* Gleason [*A. campanulare* (Naud.) Triana], have been separated on the comparative length of the connective and anther cells of the stamens borne opposite the sepal lobes. If the connective was much shorter than the anther cell the plant was called *A. fragile*; if the two were about equal in length or the connective was longer the plant was called *A. macrodesmum*. Abundant material of this complex is available but more often than not the petals and stamens, which are fugaceous, are not available on the specimens. When these characters are visible they *usually* hold for any given specimen. There are, however, specimens that might as well go into one as the other of these two species. Furthermore, while the anthers in this complex are usually dimorphic—those opposite the sepals in one series, those opposite the petals in another—this is not always the case and all anthers may be similar. The appendages of the anthers show considerable variation, which is possibly of no or but little taxonomic significance, and I find no mention of it.

My knowledge of *A. ciliatum* R. & P. is based on the original plate and a Ruiz and Pavón specimen in our herbarium received from "antiquo herbario generali, Herbario Horti Botanici Matritensis," numbered 11/93, and collected in Cuchero.

Bellucia Rafinesque is a small genus of eight or ten not very distinct species, mostly of northern South America. Several have been reported in tropical North America, mostly perhaps in error, but until the material is brought together and revised no very secure idea may be had of them. Two species are currently distinguished from our area, *B. grossularioides* and *B. costaricensis*. They seem to me dubiously distinct but will be maintained in the *Flora of Guatemala*.

Bellucia grossularioides (L.) Triana, Trans. Linn. Soc. Bot. 28: 141. 1871. *Melastoma grossularioides* L. Sp. Pl. 390. 1753.

The oldest species in the genus and one of the most widely distributed. In North America we have material from Guatemala, British Honduras, and Panama, and it is doubtless this species that is reported from Mexico by Hemsley (Biol. Centr.-Am. Bot. 1: 432. 1880) as *B. macrophylla* (D. Don) Naud. In South America it is in the Guianas, Venezuela, Colombia, and Ecuador.

This species may be distinguished from *B. costaricensis* by inflorescences usually 1-flowered and borne in the axils of existing leaves, not several or even short cymes borne usually on old wood; the calyx ruptures into unequal lobes and usually soon falls away, while in *B. costaricensis* the lobes are usually 5 and quite regular and apparently persistent. The nerves of the leaves of this species might be described as 5-plinerved while those of *B. costaricensis* might better be described as 5-nerved, the lowest lateral originating at or near the base while the higher lateral pair originate usually 1 cm. or more higher along the mid-nerve. This last character, however, is probably of no value and more apparent than real.

Bellucia costaricensis Cogn. Bull. Soc. Bot. Belg. 30 (1): 264. 1891; Cogn. in Durand & Pittier, Prim. Fl. Cost. 1: 167. 1891.

The species was based on material from Costa Rica and was doubtless seen by Cogniaux too late to put it into his monograph of the family, even though it was published in the same year. He gave no reason for distinguishing it from other species of the genus, and I find very little except that mentioned under the preceding species.

We have material (often incomplete) from Mexico, Guatemala, British Honduras, Nicaragua, Costa Rica and Panama. The species occurs also in Colombia (*Cuatrecasas 17119*).

Centradenia G. Don is a small genus of Mexico, Central America and Panama, with one of its species extending into Colombia. Cogniaux (in DC. Monog. Phan. 7: 116–119. 1891) has divided the genus into two sections, depending on whether the stamens are essentially isomorphic (Sect. *Centradeniopsis*) or quite unequal (Sect. *Eucentradenia*). Whether or not this character is always of sufficient value in setting up subgeneric entities seems to me to be doubtful. There are two species accepted by both Cogniaux and Gleason so similar that without looking at the anthers they would be placed in the same species. These two species are *Centradenia floribunda* Planch., stamens similar, and *C. Bernoullii* Cario ex Cogn. (= *C. floribunda* var. *Bernoullii*, see below) with stamens in two unequal sets. It would be of interest to study a colony of these plants in the field to see if intermediates, which seem to be indicated by herbarium material, are not to be found. The herbarium material available is not sufficient to make a study, but there are several Guatemalan specimens which were placed in *C. Bernoullii* by Standley and these seem to me closer to *C. floribunda*, although they may well be somewhat intermediate. A parallel condition exists between *Pterolepis pumila* (Bonpl.) Cogn. and *P. trichotoma* (Rottb.) Cogn.

***Centradenia floribunda* Planch. var. *floribunda*.** *C. floribunda* Planch. Fl. Serres 5: t. 453. 1849. *C. floribunda* var. *grandifolia* Cogn. in Donn.-Sm. Bot. Gaz. 20: 286. 1895.

This is the oldest name in this complex. The stamens are all much alike and none of the appendages on the filaments has a pair of long setose processes, as is the case in the following variety.

***Centradenia floribunda* var. *Bernoullii* (Cario) L. Wms., comb. nov.** *Centradenia Bernoullii* Cario ex Cogn. in DC. Monog. Phan. 7: 118. 1891.

The variety is distinguished primarily by the dimorphic anthers, one set of which has two long setose processes on the appendage of each anther. The geographical range of this variety is El Salvador and Honduras. It has been reported from Guatemala but apparently based on misidentifications. Some of the Honduran specimens approach the typical variety (*Williams & Molina 18082; Standley & Chacón 6493*).

When stamens are lacking on herbarium specimens I have found no way to distinguish this variety from the typical one.

Centradenia grandifolia (Schlecht.) Endl. in Walp. Ann. 2: 119. 1843. *Rhexia grandifolia* Schlecht. Linnaea 13: 429. 1839. *C. grandifolia* var. *brevisepala* Gleason, Phytologia 1: 340. 1939.

A distinctive species from Mexico and Guatemala, easily separated from the others by the hypanthium and short, broad calyx lobes. All of the Costa Rican material determined by Gleason and Standley with this name belongs to the quite different *C. salicifolia* Brandegee.

I have seen the following Guatemalan material, all from the Department of Alta Verapaz: *Goll 168* (US); *Donnell Smith 1540* (US); *Stuart 15* (Mich.); *von Tuerckheim 883* (US); *Wilson 184* (F).

Centradenia inaequilateralis (Schlecht. & Cham.) G. Don, Gen. Hist. Dichl. Pl. 2: 765. 1832. *Rhexia inaequilateralis* Schlecht. & Cham. Linnaea 5: 567. 1830. *C. divaricata* Kl. in Otto & Deitr. Allg. Gartenz. 19: 354. 1851. *C. inaequilateralis* var. *major* Cogn. in DC. Monog. Phan. 7: 117. 1891.

This is the type species of the genus *Centradenia*. It is widely distributed in Mexico, whence the type. It is known from several localities in northern Central America but is rare. In Costa Rica the species is common, and it is known from a few localities in Panama.

A photograph (CNHM no. 16683, taken in Berlin) of what is presumed to have been the type of *C. divaricata* collected by Warszewicz, possibly in Costa Rica or Panama, along with a diagnostic sketch showing an anther, indicates that it belongs here as a synonym.

An isotype of *C. inaequilateralis* var. *major* collected in Mexico by Galeotti (2963 A) shows that it is a somewhat large-leaved form of the species as Cogniaux indicated, and not *C. floribunda* Planch. as annotated by Gleason.

Centradenia Maxoniana Gleason, Bull. Torr. Bot. Club 65: 571. 1938.

A name currently recorded from Costa Rica and Panama. It seems more than likely that it is a large-leaved form of *C. floribunda* Planch. hardly if at all different from the plants from Guatemala which Cogniaux called *C. floribunda* var. *grandifolia*. I have seen the type.

Centradenia salicifolia Brandegee, Univ. Cal. Publ. Bot. 4: 379. 1913. *C. chiapensis* Brandegee, l.c. 6: 501. 1919.

The species occurs in Mexico from Vera Cruz and Puebla to Chiapas. It is common in Guatemala in the highlands in the west, near Mexico. It then jumps to the highlands of Costa Rica, where it is again quite abundant. There is not a single known station in the highlands between western Guatemala and Costa Rica. The species is to be expected in Honduras and Nicaragua.

The Costa Rican material differs from that of Mexico and Guatemala by having the pubescence in the inflorescence consistently more dense. I have found no other distinctive character than this very minor one. Dr. Gleason and Dr. Standley had determined all the Costa Rican material (as well as some of that from Guatemala) which they saw as *Centradenia grandifolia* (Schlecht.) Endl. I have seen the following specimens from Mexico and Central America.

MEXICO: *Matuda* 2747 (Mich, US, GH, F), 3000 (Mich), 3001 (Mich, F), 3002 (Mich); *Purpus* 6103 (US, F), 6978 (US); *Roby* s.n. (US).

GUATEMALA: *Standley* 65325 (F, GH), 67764 (F), 83297 (F), 83716 (F), 83749 (F), 84577 (F), 85451 (F); *Steyermark* 33877, 34344, 35118, 35312, 36343, 36644, 37522, 37668 (all F).

COSTA RICA: *Skutch* 4205 (US); *Smith* H385, H418, PC251, PC315 (all F); *Standley & Valerio* 43312 (US, F), 44093 (US).

Clidemia D. Don in Guatemala and adjacent Central America and Mexico is difficult primarily because of two or three small groups of closely related species. Alfred Cogniaux (in DC. Monog. Phan. 7: 984-1026. 1891) prepared a good account of the genus as then known. Later H. A. Gleason (in Brittonia 3: 97-140. 1939) prepared a revision of those in tropical North America. The account of the genus which will appear in the *Flora of Guatemala* owes much to both of these treatments. A few changes have been made and the Central American plants formerly referred to *Heterotrichium* are transferred to *Clidemia*. Comment concerning the genus *Heterotrichium* will be found under that name.

The situation in these genera is not so simple as that, however. *Tococa* Aubl., *Maieta* Aubl., and *Clidemia* D. Don are very closely allied and they are genera of convenience at best. When Dr. Gleason studied the myrmecophilous species of *Clidemia* (Bull. Torr. Bot. Club 58: 73-85. 1931) he took many of the species which had been described or transferred to *Maieta* and placed them in *Clidemia*, leaving in *Maieta* only Aublet's original species and a very closely allied one.

Tococa and *Maieta* have terminal inflorescences and are so distinguished from *Clidemia*, which has lateral inflorescences. I find, however, that pseudoterminal or terminal inflorescences are of not uncommon occurrence in *Clidemia* and that a single species may have both types. Cogniaux and Gleason were both astute students of the Melastomaceae yet when Gleason described *Clidemia spectabilis* he assumed that it had lateral inflorescences. Cogniaux described the same species, placing it (I think erroneously) in *Heterotrichium*, a genus which he understood as having terminal inflorescences. More recently Dr. Suessenguth, no specialist in the family, apparently has described the same species as *Maieta setosissima*. The inflorescences are apparently both lateral and pseudoterminal.

The problem of generic limitation in this section of the Miconieae is involved and will require detailed study by the specialists in the family.

Clidemia capitellata. The varieties of *C. capitellata* in Central America are three, closely related and often difficult to distinguish. A key and an account of them follows:

- Inflorescence branched (a dichasium), often rather simple; pubescence of under side of leaf principally of stellate hairs.....var. *neglecta*.
- Inflorescence unbranched or with a pair of branches at the base (rarely more); pubescence of under side of leaf principally of crisped hairs.
- Inflorescence internodes about 1 cm. long or less, densely long hirsute and inconspicuously glandular.....var. *dependens*.
- Inflorescence internodes 1-2 cm. long, sparsely hirsute and conspicuously glandular.....var. *capitellata*.

Clidemia capitellata var. capitellata. *Melastoma capitellata* Bonpl. in Humb. & Bonpl. Monog. Melast. 5, t. 3. 1816. *Clidemia capitellata* D. Don, Mem. Wern. Soc. 4: 310. 1823.

Widely distributed, from Mexico through Central America and Panama to Colombia. Closely related to var. *dependens*, which may not always be distinguishable. See that variety for further comment.

Clidemia capitellata var. dependens ([Pavón] D. Don) Macbr. Field Mus. Bot. 13 (4, no. 1): 484. 1941. *Clidemia dependens* [Pavón] D. Don, Mem. Wern. Soc. 4: 310. 1823; Gleason in Brittonia 3: 113. 1939. *Melastoma dependens* Pavón ex D. Don, l.c. *in syn.*

A common and widely distributed plant, Mexico to Bolivia and Argentina, difficult to distinguish from the typical variety. The characters Dr. Gleason gave to separate *C. capitellata* and *C. de-*

pendens, in his review of the Mexican and Central American Clidemias, are not at all stable and are maintained here with reservations.

The inflorescences are usually unbranched but in a few specimens seen are branched at the base and even through their length, in this respect approaching var. *neglecta*. The characters of pubescence in the inflorescence, type and length of the hirsute hairs and glandulosity, are tenuous at best.

Clidemia capitellata var. **neglecta** (D. Don) L. Wms., comb. nov. *Clidemia neglecta* D. Don, Mem. Wern. Soc. 4: 307. 1826.

A widely distributed variation of *C. capitellata* and perhaps more closely related to var. *dependens* than to var. *capitellata*. The range falls within that of the other two varieties. In var. *neglecta* the inflorescence is usually a dichasium, often quite diffuse, while in the other varieties branching occurs but rarely; the pubescence of the under side of the leaves is short, soft and stellate, while in the other varieties it is rather coarse and crisped, although occasionally soft stellate pubescence does occur.

The Mexican *Clidemia chinantlana* Triana appears, from a type photograph, to belong here. Dr. Gleason separated them widely in his revision but the type would not key out in his key.

Clidemia globuliflora (Cogn.) L. Wms., comb. nov. *Heterotrichium globuliflorum* Cogn. Bull. Soc. Bot. Belg. 27 (2): 176. 1888. *Clidemia spectabilis* Gleason, Bull. Torr. Bot. Club 58: 53. 1931. *Maieta setosissima* Suessenguth, Bot. Jahrb. 72 (2): 277, f. 9. 1942.

COSTA RICA: Brenes 3713, 3926, 4919, 5644, 5685, 6047; Pittier 3; Stork 2717; Valerio 1697.

Known only from Costa Rica, Pittier 3 is type of *Clidemia globuliflora* and Stork 2717 (F) is type of *C. spectabilis*, while Kupper 772, which I have not seen, is type number of *Maieta setosissima*.

The species belongs among the myrmecophilous species of *Clidemia* and inconspicuous formicaria are to be found on a few leaves. The leaves of the species must be attractive to insects, for those on all specimens seen have been chewed.

The inflorescences of this species may be either lateral or pseudoterminal or both.

Clidemia Matudae L. Wms., sp. nov.

Frutex vel arbor usque ad 6 m. Folia ovato-cordata, acuminata, 7-9-plineria, supra glabra, subtus pubescens vel hirsuta; inflorescentia thrysiflora, pauci-

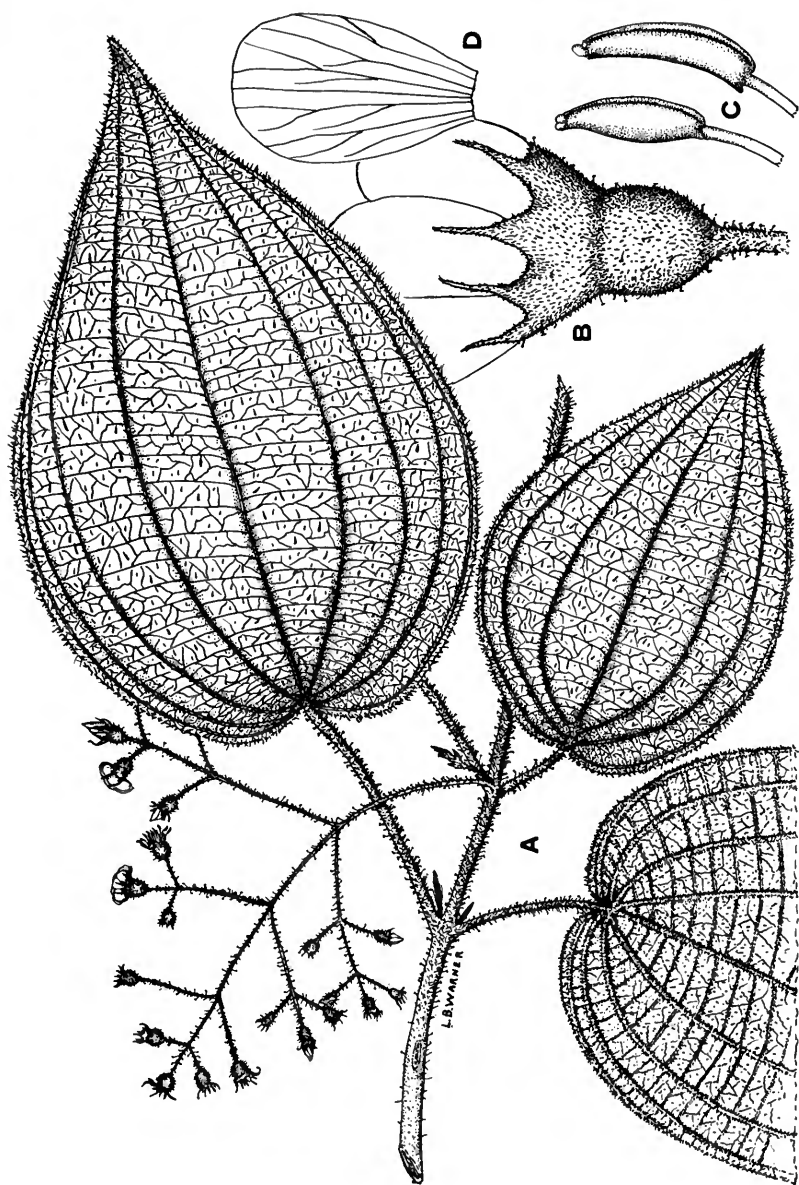


FIG. 16. *Clidemia Matudae*. A, Habit ($\times 1\frac{1}{2}$). B, Flower ($\times 5$). C, Anthers ($\times \pm 10$). D, Petal ($\times 5$).

flora; hypanthium campanulatum, pubescens; calyx 7-8-lobata; dentes exteriores subulatis; petala oblongo-obovata, obtusa vel retusa; stamina ca. 30-35.

Shrubs or small trees to 5-6 m., branchlets terete, densely pubescent with intermixed soft, often stellate or barbellate, hairs and glandular hirsute ones, the longest hairs mostly about 1 mm. long; leaves of a pair distinctly unequal, blade ovate-cordate, acuminate, obscurely denticulate, 7-9-plinerved, glabrous to sparingly hirsute above, densely puberulent below and hirsute along principal nerves, large blade (of pair) 13-20 cm. long and 8-14 cm. broad, smaller ones 8-12 cm. long and 7-8 cm. broad; petioles to 8 cm. long, pubescent as are the branchlets; inflorescence pseudoterminal, an elongated and rather few-flowered thyrses, to about 12 cm. long, with intermixed simple puberulence and hispid or glandular-hispid pubescence; hypanthium campanulate, subhispid-puberulent, about 4 mm. long; calyx lobes 7-8, rounded, about 1.5 mm. long; exterior teeth subulate, 2-2.5 mm. long and much exceeding the calyx lobes; petals about 7, oblong-obovate, obtuse or retuse, about 5 mm. long and 3.5 mm. broad; stamens about 30-35, about 4 mm. long, the anther 1.5-2 mm. long, narrowly oblong, the connective unappendaged or but slightly umbonate at the base; style capitate, about 5 mm. long.

MEXICO: A tree 5-6 m. high in advanced forest, Monte Cristo, Chiapas, alt. 1,350 m., June 17, 1945, *Matuda 5945* (LL); Monte Cristo, Chiapas, 1,350 m., June 17, 1945, *Matuda 15945* (F, type).

GUATEMALA: Dept. Guatemala, 1939, *Aguilar 304* (F).

This species is related to *C. octona* but may be distinguished by the generally smaller flowers, lack of a corona on the torus, much greater number of stamens, and very different shape of the anthers with much less conspicuous connective not at all prolonged.

Clidemia octona (Bonpl.) L. Wms., comb. nov. *Melastoma octona* Bonpl. Melast. 7, t. 4. 1806. *Heterotrichium octonum* DC. Prodr. 3: 173. 1828.

Widely distributed from Mexico through Central America, Panama and the West Indies, southward to Brazil and Peru. The species is closely related to *Clidemia hirta* (L.) D. Don. The inflorescence of the species is either lateral or apparently terminal, although if terminal there are often two or three inflorescences borne at each place—one in the axil of a leaf, one terminal, and another in the axil of the opposite leaf. Often also there are one or two inflorescences which appear lateral when one of the lateral buds has continued as a branch and not as an inflorescence.

This species has been treated as a species of *Heterotrichium* by most botanists since that genus was founded. However, as pointed out below under *Heterotrichium*, the type of that genus is quite different.

It is interesting to note that specimens of this species having lateral inflorescences have often been placed in *Clidemia hirta*, while specimens of *Clidemia hirta* apparently with terminal inflorescences have been determined as *Heterotrichium octonum*. Cogniaux' *H. octonum* var. *brasiliensis* has lateral inflorescences (on our *Pohl 1517*) and would seem to be *Clidemia hirta*.

A photograph of the type of *Miconia phaeotricha* Naudin (Ann. Sci. Nat. ser. 3, 16: 193. 1851) indicates that it may belong here as a synonym.

Clidemia petiolaris (Schlecht. & Cham.) Schlecht. ex Triana, Trans. Linn. Soc. 28: 135. 1871. *Melastoma petiolare* Schlecht. & Cham. Linnaea 5: 562. 1830. *M. serrulata* Schlecht. Linnaea 13: 425. 1839. *Clidemia Deppeana* Steud. Nomencl. Bot. 384. 1840; Gleason, Brittonia 3: 124-125. 1939. *C. serrulata* Triana, l.c.; Gleason, l.c. 121. *C. Naudiniana* Cogn. in DC. Monog. Phan. 7: 990. 1891. *C. laxiflora* var. *longipetiolata* Cogn. in Donn.-Sm. Bot. Gaz. 16: 5. 1891.

Dr. Gleason in his review of *The Genus Clidemia in Mexico and Central America* used the name *Clidemia Deppeana* for this plant, saying that Standley was the first to revive it. Standley did take up the name (Contr. U. S. Nat. Herb. 23: 1072. 1924) and gave as synonym "*Melastoma petiolare* Schlecht. & Cham. 1830, not *M. petiolare* Mill. 1768." Miller, however, spelled his specific epithet as *Melastoma petiolatis* (in Index Kewensis it is given as *M. petiolatum*).

There occurs, however, *Melastoma petiolare* Wall. (A numerical list of dried plants, etc. no. 4053) in his so-called catalogue. The date given on the title page of Wallich's work is 1828, but the sheet on which no. 4053 appeared apparently was published in 1831 (see O. Kuntze, Rev. Gen. Pl. 1: CXLV. 1891, and translation in Kew Bull. 1913: 260. 1913).

In making the new name *Clidemia Deppeana*, Steudel merely cited "*Melastoma petiolaris*. Chms. Schl." as a basionym and there is no way of telling which name he thought was a homonym of Schlechtendal & Chamisso's name.

It seems that *Melastoma petiolare* Schlecht. & Cham. and *Melastoma petiolatis* (or *petiolatum*) Miller are different names, and the use of one does not preclude the use of the other. Further it appears that *Melastoma petiolare* Schlecht. & Cham. was actually published a year before *Melastoma petiolare* Wall. and therefore is not a homo-

nym of it; besides, Wallich's name was a *nomen nudum* and hence not validly published.

Clidemia serrulata was maintained by Dr. Gleason, in the revision mentioned above, with the comment that "Neither is the distinction between this species and the commoner *C. Deppeana* very sharp." The comment seems to me to be justified, for there are in our collection specimens annotated by Gleason with these two names, but the specimens are so similar that they might well have been taken from the same bush.

Clidemia scopulina (Brandeggee) L. Wms., comb. nov. *Heterotrichium scopulinum* Brandeggee, Univ. Cal. Publ. Bot. 6: 187. 1915.

MEXICO: Cerro del Boquerón, Chiapas, June 1914, *Purpus* 7358 (F, AA, NY).

The only specimens which I have seen are isotypes of the original collection. This species is, I believe, most closely related to the myrmecophilous species of *Clidemia* although there is no indication of formicaria on specimens I have seen, nor did Brandeggee mention them on his specimens. It is curious, however, that he did call attention to the similarity of the setose processes of the stem to those of *Maieta setosa* Cogn., now usually treated as one of the myrmecophilous species of *Clidemia*. The most closely related species seems to be *C. globuliflora* (Cogn.) L. Wms., mentioned above.

Clidemia strigillosa (Sw.) DC. Prodr. 3: 159. 1828. *Melastoma strigillosa* Swartz, Fl. Ind. Occ. 793. 1800. *Clidemia reticulata* Gleason, Brittonia 3: 110. 1939.

I am unable to see any difference in these two concepts, and in fact it appears that *C. reticulata* is distinguished on a character which depends upon maturity of the specimen. The inflorescence on immature specimens is not so open as that on mature specimens.

The type is from Jamaica. The species is common in British Honduras; there is a single specimen from Nicaragua (*Standley* 19998); it is reported from Costa Rica and Panama; West Indies; British Guiana and Venezuela to Peru.

Clidemia umbellata (Mill.) L. Wms., comb. nov. *Melastoma umbellata* Miller, Gard. Dict. ed. 8. no. 10. 1768. *M. patens* Swartz, Prodr. 68. 1788. *M. nivea* Desr. in Lam. Encycl. 4: 42. 1797. *Heterotrichium umbellatum* Urban in Fedde Rep. Sp. Nov. 15: 14. 1917. *H.*

patens DC. Prodr. 3: 173. 1828. *H. niveum* DC. l.c. *H. Eggersii* Cogn. Jahrb. Bot. Gart. Berlin 4: 282. 1886.

Cuba; Puerto Rico; Santo Domingo; Jamaica. The material we have is quite variable.

Conostegia D. Don is a rather distinctive genus among the Central American Miconieae due primarily to the calyptriform calyx which dehisces and falls away at anthesis. A review of the genus by Cogniaux was published in 1891. Dr. Wurdack is gathering materials for a much-needed revision. About 45 species have been described from Mexico, Central America and Panama. *Conostegia xalapensis* (Bonpl.) D. Don is the commonest and most widely distributed melastome through most ecological situations in the area below 1,800 m. and is often a weed in pastures.

Conostegia caelestis Standl. Field Mus. Bot. 4: 318. 1929. *C. hondurensis* Standl. l.c. 9: 322. 1940.

BRITISH HONDURAS: *Gentle* 8633 (LL), 8649 (LL), 8704 (LL); *Schipp* 63 (F, type).

HONDURAS: *Williams & Molina* 17757 (F), 17765 (F), 17778 (F), 17905 (F); *Yuncker, Koepper & Wagner* 8818 (F, type of *C. hondurensis*).

One of the most distinctive species of *Conostegia* in Central America. It is allied to *C. Brenesii* Standl. and *C. speciosa* Naudin, both of southern Central America. The superficial resemblance and type of stellate hairs reminds one of *Miconia barbinervis* (Benth.) Triana.

Conostegia icosandra (Sw.) Urban in Fedde Rep. Sp. Nov. 17: 404. 1921. *Melastoma icosandrum* Swartz ex Wikstr. Svensk. Vet. Akad. Handl. 1827: 64. 1827. *C. subhirsuta* DC. Prodr. 3: 174. 1828. *C. Bernoulliana* Cogn. in DC. Monog. Phan. 7: 698. 1891. *C. Lundellii* Gleason, Carnegie Inst. Wash. Publ. 522: 348. 1940.

Widely distributed from Mexico through Central America and the West Indies, and to southern Brazil and Paraguay.

There is considerable question as to the proper specific epithet for the accumulation of material placed here. In Central America and Mexico there are other species which may very well belong here — *C. chiriquensis* Gleason, *C. Oerstediana* Berg, and *C. volcanalis* Standl. & Steyerl., among them.

Conostegia plumosa L. Wms., sp. nov.

Arbor parva usque ad 8 m. alta. Folia elliptico-lanceolata, acuminata, quinqueplinervia, subtus stellato-pubescent; hypanthium subglobosum, stellato-vel plumoso-pubescent; calyx calyptriforme, appendiculatum; petala ovata vel subrhombico-ovata, acuta.

A small tree 8 m. tall and the trunk about 10 cm. in diameter, the branches and petioles at first densely stellate or plumose-stellate pubescent, both becoming glabrous with age. Leaves elliptic-lanceolate, acuminate, acute or cuneate to the base, denticulate, 5-plinerved with the outer pair of nerves arising near the base of the blade and the inner pair 1 cm. or more above the base, the nerves of each pair arising at different places on the mid-nerve, the upper surface densely stellate pubescent but soon becoming glabrous or nearly so, dense and persistent stellate-pubescent completely covering the under surface; blade 6–18 cm. long and 2.5–5.5 cm. broad, those of a pair apparently very unequal; petioles 1.5–2.5 cm. long; inflorescences terminal or pseudolateral, densely pubescent with stellate or plumose hairs, dichasiod with the lateral branches congested and subcapitate at first, the branches of the inflorescence elongating (to about 4 cm.) with age and spicate and somewhat fractiflex, with reflexed linear-lanceolate bracts opposite or perhaps subtending the flowers; flowers to about 8 mm. long, white, hypanthium 2–3 mm. high and 3–4 mm. broad, subglobose, densely plumose or stellate-pubescent; calyx calyptriform, falling away as a unit, conic, with 6 longitudinal subapical appendages about equaling the calyptra, pubescence as on the hypanthium; petals 6, ovate or subrhombic-ovate, about 5 mm. long and 3 mm. broad; anthers about 2.5–3 mm. long.

BRITISH HONDURAS: Petals white and stamens yellow, occasional tree to 25 feet and 4 inches in diameter in jungle, Middlesex, July 10 (no year given), alt. 200 feet, *William A. Schipp 232* (type in Chicago Natural History Museum, GH, A).

The species is not closely related to any species known to me. In superficial aspect it somewhat resembles *Conostegia xalapensis* because of the densely stellate-pubescent undersurfaces of the leaves; but the appendages of the calyptra distinguish it from all species that I know, and the plumose or barbellate pubescence of the flowers and inflorescence, and the form of the inflorescence are distinctive.

Graffenrieda De Candolle, Prodr. 3: 105. 1828; Cogniaux in DC. Monog. Phan. 7: 439. 1891. *Calyptrella* Naudin, Ann. Sci. Nat. ser. 3, 18: 115. 1852; Cogniaux in DC. Monog. Phan. 7: 453. 1891; Gleason, Phytologia 2: 301. 1947.

The genus *Calyptrella* of Naudin was originally described from a Galeotti specimen (2959) from Mexico. It has been found, however, that the plants referred to this generic name are much more abundant in South America than they are in North America. Ten species have been credited to *Calyptrella*, three of these from North

America, where plants of this affinity are rare. The remaining seven were described from South America, but one of these, *Calyptrella littoralis* Gleason, seems not to belong in *Graffenrieda*.

In preparing the manuscript for the one species that is known to occur in Guatemala the entire genus *Calyptrella* was studied and it was soon realized that *Calyptrella denticulata* Gleason and *C. stellata* Gleason belonged in the closely allied genus *Graffenrieda*. Further study of the two genera revealed that the only difference between them was whether the calyx ruptured and separated from the hypanthium as a calyptra (in *Calyptrella*) or whether the calyx was more or less normal in forming lobes—these sometimes formed by the rupturing of the calyx (in *Graffenrieda*). Furthermore, the calyces in *Calyptrella* in age tend to break away or are deciduous.

The stamen structure, often used for generic separation in this family, seems to offer no characters. Seeds seem to be much alike in the two groups of species. The large genus *Conostegia*, not allied to *Graffenrieda* and *Calyptrella*, is usually characterized by having a calyptriform calyx, but sometimes the calyx ruptures into lobes and is more or less persistent.

There seems to be no justification for maintaining *Graffenrieda* and *Calyptrella* as distinct genera and I propose that most species of *Calyptrella* be transferred to *Graffenrieda*, the older name.

Graffenrieda cucullata (D. Don) L. Wms., comb. nov. *Conostegia cucullata* D. Don, Mem. Wern. Soc. 4: 317. 1823. *Calyptrella cucullata* Triana, Trans. Linn. Soc. Bot. 28: 72. 1871.

The species is represented by specimens from Colombia, Peru and Bolivia.

Graffenrieda denticulata (Gleason) L. Wms., comb. nov. *Calyptrella denticulata* Gleason, Phytologia 2: 300, f. 3. 1947.

The species is known only from Ecuador. It is a typical *Graffenrieda*.

Graffenrieda Galeottii (Naudin) L. Wms., comb. nov. *Calyptrella Galeottii* Naudin, Ann. Sci. Nat. ser. 3, 18: 115. 1852. *Calyptrella cyclophylla* Donn.-Sm. Bot. Gaz. 55: 434. 1913.

The type species of the genus *Calyptrella*, originally described from Mexico and now known also from Guatemala, Costa Rica, Panama and Colombia.

This species is very closely related to *G. cucullata* (D. Don) L. Wms. and is distinguishable from it by minor details only. Petals in both species may be from lanceolate and acute to oblong-oblongate and obtuse, *and in the same flower*.

Graffenrieda gracilis (Triana) L. Wms., comb. nov. *Calyptrella gracilis* Triana, Trans. Linn. Soc. 28: 72. 1871.

This species is known only from Peru.

Graffenrieda micrantha (Gleason) L. Wms., comb. nov. *Calyptrella micrantha* Gleason, Phytologia 3: 346. 1950.

The species is endemic to Panama, so far as known.

Graffenrieda robusta (Cogn.) L. Wms., comb. nov. *Calyptrella robusta* Cogn. in Engler, Bot. Jahrb. 42: 138. 1908.

There is a good photograph (CNHM neg. 16882) of the type, which was in the Berlin herbarium. Peru.

Graffenrieda stellata (Gleason) L. Wms., comb. nov. *Calyptrella stellata* Gleason, Phytologia 2: 428. 1948.

The species, a peculiar one, is known from Ecuador.

Graffenrieda tristis (Triana) L. Wms., comb. nov. *Calyptrella tristis* Triana, Trans. Linn. Soc. 28: 72. 1871.

Known from Brazil and Peru.

EXCLUDED SPECIES

Calyptrella littoralis Gleason, Bull. Torr. Bot. Club 72: 473. 1945.

This species seems not to belong in *Graffenrieda* but our specimen is inadequate to verify its systematic position.

Henriettea DC. and **Henriettella** Naudin. In preparing the account of the Melastomaceae for the *Flora of Guatemala* I came to the conclusion that the type species of these genera in fact belonged in the same genus. Some twenty years ago, Macbride, in the *Flora of Peru*, concluded that the two entities were not distinguishable and placed the Peruvian species of the two genera together. These two generic concepts have ascribed to them perhaps some fifty or sixty species, of which very few are found in Central America or Panama.

While the type species of the two are very similar there are species placed here that perhaps would go elsewhere as well or better. I am concerned only with those of Central America and Panama at the present time, and fortunately the type species of both genera are to be found in our region.

Dr. Gleason, astute student of the family, in his account of *The Melastomaceae of the Yucatan Peninsula* described *Henriettea strigosa* and placed it alongside *H. succosa* (Aubl.) DC., which is the type species of *Henriettea*. However, there seems to be no difference between Gleason's *Henriettea strigosa* and *Henriettella Seemannii* Naudin, the type species of the genus *Henriettella*. In placing these two species in the same genus Gleason has indicated effectively that the two genera have but little foundation in fact.

There are in Central America and Panama the following species which may be placed in *Henriettea* DC., the older of the two generic names.

Henriettea cuneata (Standl.) L. Wms., comb. nov. *Maieta cuneata* Standl. Field Mus. Bot. 8: 30. 1930. *Henriettella cuneata* Gleason, Bull. Torr. Bot. Club 58: 75. 1931.

Known only from Guatemala and British Honduras. Formicaria are to be found at the base of the leaf blades, partially obscured by long brownish pubescence. The material available is inadequate but I know nothing better to do with this species than to place it here.

Henriettea densiflora (Standl.) L. Wms., comb. nov. *Henriettella densiflora* Standl. Field Mus. Bot. 4: 247. 1929. *Clidemia densiflora* Gleason, Phytologia 3: 346. 1950.

Known from Guatemala, British Honduras, Honduras and Panama. Dr. Gleason has placed this anomalous species in *Clidemia*, where it goes no better than in *Henriettea*. Better material is needed.

Henriettea fascicularis (Sw.) Gomez, Anal. Hist. Nat. Madrid 23: 68. 1894. *Melastoma fascicularis* Swartz, Prodr. 71. 1788. *Ossaea fascicularis* Griseb. Fl. Br. W. Ind. 246. 1860. *Henriettella fascicularis* Triana, Trans. Linn. Soc. Bot. 28: 143. 1871.

Although Gomez' combination is not well made there seems to be no question as to his intent, so the name is accepted. The species is a fairly common one, known from the Greater Antilles, Central America and Panama.

Henriettea Seemannii (Naudin) L. Wms., comb. nov. *Henriettella Seemannii* Naudin, Ann. Sci. Nat. ser. 3, 18: 108. 1852. *Henriettea strigosa* Gleason, Carnegie Inst. Wash. Publ. 522: 340. 1940.

Known from British Honduras, Panama and Colombia (fide Gleason).

There seems to be no differences in the concepts given above. This is the type species of the genus *Henriettella* Naudin. The petals are acute or retuse, or perhaps even obtuse, for Gleason described the petals of *Henriettea strigosa* as triangular-ovate, although they were acute or obscurely retuse to retuse in flowers from an isotype which I examined. *Henriettea parviflora* (Triana) Griseb. of Cuba is very closely related to this species.

Henriettea succosa (Aubl.) DC. Prodr. 3: 178. 1828. *Melastoma succosa* Aubl. Hist. Pl. Guiane Fr. 418, t. 162. 1775. *Henriettella macrocalyx* Standl. Field Mus. Bot. 8: 31. 1930. *Henriettea macrocalyx* Gleason, Brittonia 2: 324. 1937.

Known from Mexico, Guatemala, British Honduras, Costa Rica, Panama and northeastern South America. The species is the type of the genus *Henriettea* DC.

Henriettea tuberculosa (Donn.-Sm.) L. Wms., comb. nov. *Henriettella tuberculosa* Donn.-Sm. Bot. Gaz. 27: 335. 1899. *Henriettella costaricensis* Kränzl. Vierteljahr. Naturf. Zürich 76: 158. 1931.

Known only from Costa Rica and adjacent Panama.

EXCLUDED SPECIES

Henriettea brunnescens Standl. Field Mus. Bot. 4: 247. 1929 = *Loreya brunnescens* (Standl.) Gleason, Phytologia 3: 346. 1950. —Described from Panama.

Heterocentron Hooker & Arnott, Bot. Beech. Voy. 290. 1840. *Heeria* Schlecht. Linnaea 13: 432. 1839, *non* Meissn. 1837.

There are in Central America four species of *Heterocentron*, with perhaps a half dozen additional ones in Mexico. Cogniaux (in DC. Monog. Phan. 7: 135–139. 1891) distributed the then known material into six species. Gleason (Bull. Torr. Bot. Club 65: 572–575. 1938) described four new species of the genus and at the same time briefly reviewed those known. Later (1950) he described one more species, bringing the number of species which he recognized to sixteen.

A review of *Heterocentron* for the *Flora of Guatemala* (all the species known in Central America occur in Guatemala) has suggested a more conservative account of them, based on reasonably abundant collections and long acquaintance with them in the field. The four species are the following:

Heterocentron elegans (Schlecht.) Kuntze, Rev. Gen. Pl. 1: 247. 1891. *Rhexia elegans* Schlecht. Linnaea 13: 432. 1839. *H. sessilis* Gleason, Bull. Torr. Bot. Club 65: 573. 1938 (type from Alta Verapaz, *Tuerckheim II 1554*). *Monochaetum guatemalense* Standl. & Steyerl. Field Mus. Bot. 23: 136. 1944 (type from Huehuetenango, *Steyermark 48512*).

Southern Mexico and Guatemala.

A rare species known from fewer than a dozen collections. There is no question that the fruiting type of *Monochaetum guatemalense* belongs here rather than in the genus *Monochaetum*.

Heterocentron hirtellum (Cogn.) L. Wms., comb. nov. *Arthrostemma hirtellum* Cogn. in Donn.-Sm. Bot. Gaz. 20: 286. 1895.

Known only from a rather restricted area in Guatemala.

This species is closely related to *H. elegans* (Schlecht.) Kuntze and when more adequate study material is available they may prove to be the same; however, there seem to be several minor differences.

Heterocentron suffruticosum Brandege, Univ. Cal. Publ. Bot. 6: 57. 1914.

Known only from the Mexican state of Chiapas and the adjacent department of San Marcos in Guatemala. This species is closely related to *H. hirtellum*.

Heterocentron subtriplinervium (Link & Otto) A. Braun & Bouché, Ind. Sem. Hort. Berol. app. 1851; Linnaea 25: 300. 1851. *Melastoma subtriplinervium* Link & Otto, Ic. Pl. Rar. t. 24. 1821. *H. axillare* Naud. Ann. Sci. Nat. ser. 3, 14: 155. 1850. *H. macrostachyum* Naud. l.c. *H. mexicanum* Hook. & Arn. Bot. Beech. Voy. 290. 1840; Hook. Bot. Mag. 86: t. 5166. 1860. *H. roseum* A. Br. & Bouché, l.c. 14. *H. glandulosum* Schrenk in Regel, Gartenfl. 1856: 227, t. 169. 1856. *Heeria rosea* Triana, Trans. Linn. Soc. 28: 34. 1871. *Heeria macrostachya* Triana, l.c. 37. *Heeria axillaris* Cogn. in DC. Monog. Phan. 7: 138. 1891. *H. salvadoranum* Gleason, Bull. Torr.

Bot. Club 65: 575. 1938. *H. hondurensis* Gleason, Phytologia 3: 360. 1950.

A widespread and variable species found from Mexico through Central America to Panama. Mountain thickets and on moist banks or most commonly in oak-pine woodlands, 1,300–2,500 meters.

The petals of this species vary from deep purple to rose to white, becoming lighter with age; they are also quite variable in size. The sepals are somewhat variable in shape and size but in pubescence they vary from completely glabrous to ciliate and occasionally hirsute on the outer surface; the lobes are mostly about the same length as the hypanthium. The hypanthium again does not vary greatly in size and shape but the hirsute pubescence may vary from quite dense to almost none (or occasionally glabrous) and from eglandular to prominently glandular; it is tuberculate (especially in age) to quite smooth. The capsule is 4-lobed and each lobe usually has a horny terminal appendage which may be entire or emarginate, glabrous or ciliate or even glandular-ciliate. The leaves are not more variable than might be expected in a species of which a large number of specimens are available for study; however, the pubescence does vary greatly in quantity; it is found on both sides of the leaves and is occasionally sparse although usually not, and on a few specimens is quite dense. The stems are herbaceous or suffruticose, prominently 4-angled, especially in living material, usually red or reddish as are the new leaves, and variously strigose. Comparative lengths of portions of the anthers have been used to segregate species but here again I find nothing constant.

Heterotrichium DC. Prodr. 3: 173. 1828, the selection of a generic type.

Heterotrichium is a genus of the Miconieae described by De Candolle and to which he assigned five species. These five species are not all congeneric, at least not within the limits usually accepted for genera in the Miconieae. The selection of a type species for this genus presents a few problems but these are not serious. First, the number of species may be reduced to four by placing *H. niveum* (Desr.) DC. (of which he had no specimen in his own herbarium) into the synonymy of *H. patens* (Sw.) DC. De Candolle says of the species of the genus that they are "Frutices Domingenses." It seems logical therefore to think that when De Candolle first wrote the description and set the genus apart in manuscript he had specimens only from the island of Santo Domingo. This would exclude *H. oc-*

tonum (Bonpl.) DC. and *H. novemnervium* DC. from consideration in the selection of a generic type, for he gave the range of the first as "Amer. aust. monte Quindiu . . ." and of the second as "in Brasilia." Furthermore, both these species would be better placed in *Clidemia*, and one has been transferred there long since. In addition, De Candolle commented that "Torus in *H. octono* à calyce facile separabilis tunicam apice dentatam circa ovarium conficit"—a further reason to exclude that species from consideration and one which points to its relationship with *Clidemia hirta* (L.) D. Don.

The two species remaining, *H. angustifolium* DC. and *H. patens* (Sw.) DC., have most of the generic characters given by De Candolle although they belong to different genera. However, the leaves of the genus are described as "Folia petiolata superne setosa subtus in nervis hispida, inter nervos velutina." *Heterotrichium angustifolium* has the leaves setose above while *H. patens* does not. The generic description of the anthers is essentially the same as the description of the anthers given for *H. angustifolium*, while the anthers are not mentioned in the description of *H. patens* nor in that of *H. niveum*.

Heterotrichium angustifolium DC., for these reasons, is selected as type species of the genus *Heterotrichium* DC. The type specimen is one collected in Santo Domingo by Bertero and is in the De Candolle collection (photo F, NY). None of the other species placed in the genus by De Candolle seem to be congeneric with *H. angustifolium*.

Leandra Raddi is a most unsatisfactory, and unfortunately large, assemblage of species which it is almost impossible to distinguish from *Miconia* in any adequate manner. *Leandra* is also related to *Clidemia*. The character often given to distinguish *Leandra* from *Miconia*, and other closely allied genera, is the acute petals—certainly a tenuous character in a closely related group of genera that perhaps contains a thousand species or more. *Leandra* is a genus of convenience rather than one based on good morphological distinctions.

Leandra subseriata (Naudin) Cogn. in Mart. Fl. Bras. 14 (4): 73. 1886. *Clidemia subseriata* Naudin, Ann. Sci. Nat. ser. 3, 17: 354. 1852.

The species is widely distributed, occurring from Guatemala through Central America and Panama, southward to Ecuador. The species illustrates well the difficulty of generic placement in

this group of plants. Specimens of this species determined as *Miconia guatemalensis* Cogn. by Donnell Smith, by Standley, and by Gleason have been passed over without comment by many botanists. The resemblance of the two species is striking.

Leandra costaricensis Cogn. will doubtless be found to be a synonym, for I find the presumed difference to be unimpressive. The species has been reported under this name from British Honduras.

Meriania Swartz, one of the most attractive genera of the Melastomaceae, has one species described as from Guatemala, *M. macrophylla* Benth. The specimen was collected by Hartweg and it is curious that no one else has found the genus in Guatemala, where Hartweg is said to have found it. Hartweg collected extensively in Ecuador and it is possible that the unnumbered type is actually from that country. The species is known from Panama and *Conostegia excelsa* Pittier is a synonym.

The second species recorded from continental North America is *M. panamensis* Gleason from Chiriquí Volcano in Panama.

Miconia Ruiz & Pavón is the largest genus of the Melastomaceae, with perhaps seven or eight hundred species; of these, sixty-one are to be found in Guatemala and British Honduras. It may be found convenient eventually to conserve the name *Miconia* for there are valid generic names that are older and that may be shown to be congeneric with *Miconia*.

Miconia desmantha Benth., Pl. Hartw. 181. 1845. *M. Bourgaeana* Cogn. in DC. Monog. Phan. 7: 772. 1891. *M. Carioana* Cogn. l.c. 773.

I find no differences between the Andean *M. desmantha* and the tropical North American species cited in synonymy above. The species, distributed from Mexico through Central America and Panama to Colombia, is variable. Furthermore, there is an additional complication of the relationship of this species with *M. aeruginosa* Naudin, which has a similar geographical range. The two may be distinguished in most cases by the following key:

The young branches sparsely covered with short hirsute hairs; the upper surface of the leaves sparsely hirsute and stellate puberulent to almost glabrous.

M. desmantha.

The young branches with a dense covering of long hirsute hairs; the upper surface of the leaf quite densely long hirsute. *M. aeruginosa*.

Miconia echinoidea and ***M. tixiensis*** Standl. & Steyer-
Field Mus. Bot. 23: 180-181. 1944.

When Standley and Steyermark described these two species they said they were of "somewhat uncertain position." They should perhaps be placed in the genus *Tetrazygia* L. C. Rich., if that genus can be kept apart from *Miconia*. The species will be retained in *Miconia* for the *Flora of Guatemala*.

Miconia fulvostellata L. Wms., sp. nov.

Arbor usque ad 15 cm. diam. Folia lanceolata vel elliptico-lanceolata, acuminata, subtus dense fulvostellata, petiolata; inflorescentia paniculata; flores parvi; hypanthium campanulatum fulvostellatum; petala oblonga vel oblongo-quadrata.

Trees to 15 cm. in diameter, the branchlets densely fulvous stellate with stellate or barbellate trichomes. Leaves of a pair somewhat unequal in size, lanceolate or elliptic-lanceolate, acuminate, long petiolate, 3- (5-) plinerved, obscurely denticulate above, glabrous above or nearly so, densely fulvous stellate-tomentose below, blade 6-14 cm. long and 2-5.5 cm. broad; petiole slender, angled, 1-3 cm. long, densely stellate pubescent; inflorescence a terminal panicle shorter than the subtending leaves, the lateral branches short and the flowers racemose and sessile, pubescence as on the branchlets; flowers small, white; hypanthium about 1.5-2 mm. long and as broad or broader, broadly campanulate, densely fulvous stellate, the calyx very short, almost unlobed but with 4 short dorsal appendages about 0.5-1 mm. long and these acute or obtuse, fulvous stellate; petals 4, oblong or oblong quadrate, about 2 mm. long and 1.5 mm. broad, the apex obscurely bilobed and somewhat apiculate at one angle; stamens 8, the anthers about 1.5 mm. long and the filament 1 mm. long; style somewhat thickened above, about 3-3.5 mm. long; fruit not seen.

GUATEMALA: Cerro Chiblac, between Finca San Rafael and Ixcán, Sierra de los Cuchumatanes, alt. 1200-2000 m., July 22, 1942, *Steyermark 49143a* (type in Chicago Natural History Museum).

BRITISH HONDURAS: "Mountain sirin," tree 6 inches in diameter, flowers white with yellow, scented; in high ridge on hilltop (near boundary line) beyond central camp, Edwards road beyond Columbia, Toledo District, May 19, 1951, *Gentle 7333* (LL, fragment F).

Closely allied to *Miconia oligocephala* Donn.-Sm., itself a rare species known only from Guatemala. The present species has smaller flowers which are not subtended by conspicuous bracts nearly as long as the hypanthium.

Miconia holosericea (L.) DC. Prodr. 3: 181. 1828. *Melastoma holosericea* L. Sp. Pl. 390. 1753. *Melastoma mucronata* Desr. in Lam. Encycl. 4: 46. 1796. *Miconia mucronata* Naudin, Ann. Sci. Nat. ser. 3, 16: 120. 1851.

There are no doubt other synonyms but these are the essential ones for North America, where I have seen specimens from Mexico, British Honduras, Costa Rica and Panama. The species extends southward to Brazil and Bolivia.

De Candolle's combination seems valid for this plant for he gave a basionym based on Linnaeus, even though the bibliographic reference was in error and the plants which he had in hand may have represented other than the Linnaean species. Dr. Gleason, in his recent account of the family for the *Flora of Panama*, used the name *Miconia mucronata* (Desr.) Naudin for this species.

Miconia humilis Cogn. in DC. Monog. Phan. 7: 764. 1891.

This species, first collected in Guatemala by Scherzer, has most often been considered to be a synonym of *M. lauriformis* (which see, below, for comment). In the *Flora of Guatemala* this name will be used for the relatively small plant with small leaves and the nerves arising well above the base. It has been collected rarely in Guatemala and adjacent Mexico but is often very common in the oak-pine forests of the highlands of Honduras. It is known also from the high mountains of El Salvador.

Miconia laevigata and its allies in Guatemala: There are described from Guatemala four species closely allied to *Miconia laevigata* (L.) DC. and perhaps not really distinct. *Miconia laevigata* (L.) DC. is the oldest name in the complex; the leaves are obtuse or rounded at the base and 3.5–8 cm. broad. *Miconia hyperprasina* Naudin is very similar, but the leaves are acute or subacute at the base. *Miconia ochroleuca* Standl. is essentially the same as *M. hyperprasina* but the type has smaller, relatively simple inflorescences. *Miconia virescens* (Vahl) Triana seems to belong to the same group but I have seen little material and none of it authentic.

The four species are maintained in the *Flora of Guatemala* although it is felt that they are too much alike.

Miconia lauriformis Naudin, Ann. Sci. Nat. ser. 3, 16: 189. 1851.

We have a photograph of *Linden 1279* and a fragment of *Linden 649*, the original collections of this species from Mexico, which seem to indicate that the species is exceedingly close to *M. mexicana* (Humb. & Bonpl.) Naudin. The species found in Chiapas, Guatemala, El Salvador and Honduras to which this name has been applied

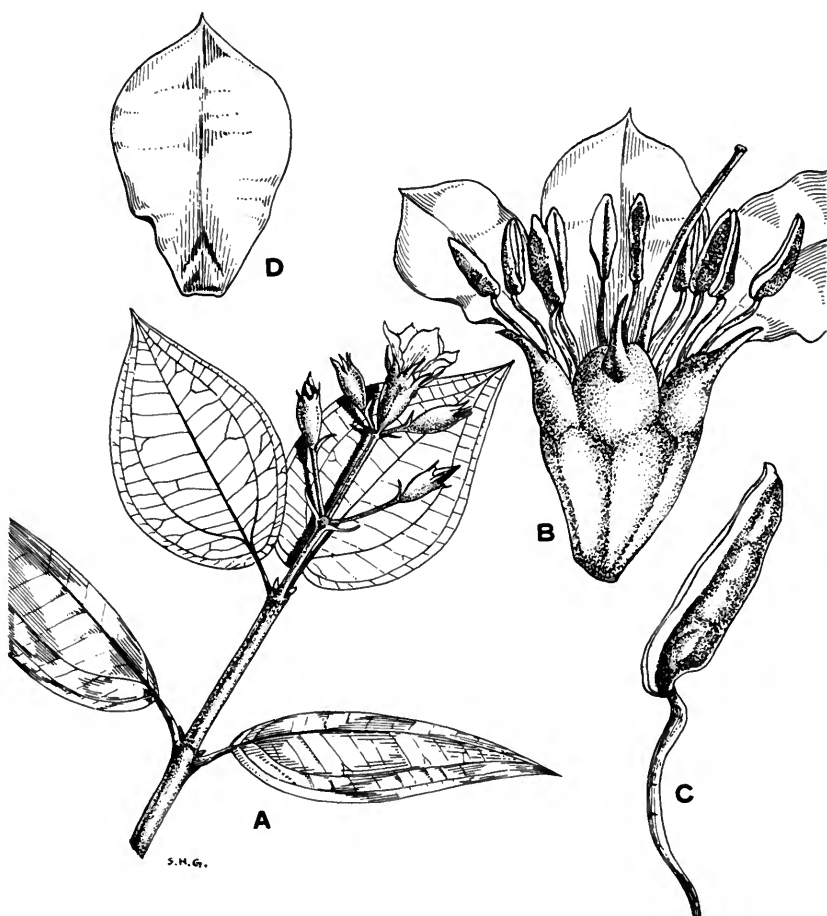


FIG. 17. *Miconia Lundelliana*. A, Habit ($\times \pm 1$). B, Flower, partially dissected ($\times \pm 6$). C, Anther ($\times 10$). D, Petal ($\times \pm 4$).

seems to be distinct and perhaps should be referred to *M. humilis* Cogn. See that species (above) for further comment.

***Miconia Lundelliana* L. Wms., sp. nov.**

Arbor parva. Folia anguste ovata vel ovata, acuta, basim rotundata vel cordata, breviter petiolata, 5-plinervia, subtus furfuracea; inflorescentia terminalis, dichasialia, parviflora; hypanthium campanulatum vel subglobosum; calyx 6-appendiculatum, coriaceum; petala late oblanceolata, acuta, subcarnosa.

Small trees, branches slender, terete or slightly flattened when very young, obscurely pubescent with small, glandular, peltate scales, becoming glabrous;

leaves of a pair equal or nearly so, narrowly ovate to ovate, acute, the base rounded or slightly cordate, short petiolate, 5-plinerved, the lateral pair often obscure, glossy green above, lighter below, glabrous above, furfuraceous below with subglandular peltate scales, densely so on the veins, sparsely so on the surface of the blades, blades 3–7 cm. long and 1.5–4 cm. broad; inflorescence terminal, either a simple or a compound dichasium, few flowered if compound, usually not exceeding the leaves, each lateral flower subtended by two small linear bracts, the bracts either at the apex of the pedicel or one at the base (abaxial) and one at the summit (adaxial), the terminal flower of a simple dichasium usually bractless, the inflorescence, hypanthium and calyx covered with furfuraceous, subglandular scale-like pubescence; hypanthium campanulate in flower, becoming subglobose in fruit, mostly 4–5 mm. long and in fruit nearly as broad; calyx with six subapical dorsal appendages, in flower 5–6 mm. long, thick and coriaceous, the dorsal appendages thick and laterally flattened, about 3 mm. long; petals broadly oblanceolate, sometimes fimbriate or irregular near the base, acute, rather fleshy, with about 5 principal nerves, about 10 mm. long and 6 mm. broad; stamens similar, 12, the anthers linear-oblong, opening by a single terminal pore, about 3.5 mm. long, the filaments about 3 mm. long, connective not appendaged.

BRITISH HONDURAS: Flowers white, small tree, in pine ridge, Mullins River Pine Ridge, Feb. 2, 1955, *Gentle 8561* (type in Lundell herbarium, fragment in F).

Miconia Lundelliana is not closely allied to any continental North American melastome known to me. However, there are several in the West Indies to which it is related, mostly those which have been described in the genus *Pachyanthus* A. Rich. and of these it is perhaps most closely related to *P. mantuensis* Britton & Wilson. In South America there are at least two related species, *Pachyanthus corymbiferus* (Naud.) Cogn. and *Miconia larensis* Gleason (which might well have been placed in *Pachyanthus* by a less conservative botanist).

Miconia mirabilis (Aubl.) L. Wms., comb. nov. *Fothergilla mirabilis* Aubl. Hist. Pl. Guiane Fr. 1: 441, t. 175. 1775. *Tamonea guianensis* Aubl. l.c., in some copies. *Miconia guianensis* Cogn. in Mart. Fl. Bras. 14 (4): 245. 1887.

In his work cited above, Aublet published two names for this plant—one name in part of the copies and another name in the others. In the same work (2: 659, t. 268. 1775) he published another *Tamonea* in the Verbenaceae. It seems probable that he “discovered” that he had described two genera with the name *Tamonea* and changed one of them while the work was going through press. It seems quite clear that he changed the name of the Melastome to *Fothergilla mirabilis* and that he should be followed in this. Indica-

tive that his intent was this is that the name *Tamonea guianensis* does not appear in the index of scientific names but *Fothergilla mirabilis* does—as *F. admirabilis*.

The only North American specimens of this common South American plant which I have seen are cited below.

MEXICO: Puente del Rey, Galeana, Gro., alt. 1160 m., May 1, 1938, *Hinton et al. 11185* (GH, NY, US); Carrizo, Sto. Domingo, Galeana, Gro., alt. 850 m., Oct. 25, 1935, *Hinton et al. 14717* (NY, US).

BRITISH HONDURAS: "Sirin mansana," tree 5 inches in diameter, flowers pink and yellow, high ridge on hilltop, Baboon Ridge, Stann Creek Valley, Jan. 21, 1940, *Gentle 3149* (LL, A, NY); near Middlesex, 1600 feet, Nov. 22, 1929, *Schipp 472* or *473* (A, NY).

COSTA RICA: *Oersted s.n.* (US).

Miconia platyphylla (Benth.) L. Wms., comb. nov. *Tococa platyphylla* Benth. Pl. Hartw. 181. 1845. *Sphaerogyne latifolia* Naudin, Ann. Sci. Nat. ser. 3, 15: 331. 1851. *Miconia paleacea* Cogn. in DC. Monog. Phan. 7: 757. 1891. *Tococa grandifolia* Standl. Field Mus. Bot. 4: 319. 1929.

There can be no question that these specific names, maintained by Cogniaux in his revision of the Melastomaceae under both *Miconia* and *Tococa*, refer to but a single species. Dr. Gleason has often determined the species with the two names, depending on geographical origin. The species does point up again, if this need be done, the difficulty of distinguishing some genera in the family.

I have seen the following specimens: Guatemala: *Steyermark 39163*. British Honduras: *Schipp S-610, 1253*. Honduras: *Standley 52870, 54556; Wilson 227*. Nicaragua: *Shank & Molina 4897a*. Costa Rica: *Brenes 13529; Standley 37604; Standley & Valerio 45056, 45221; Tonduz 7652, 8576, 9602*. Colombia: *Cuatrecasas 11413, 12890, 15483, 23980; Ewan 16050; Lawrence 13, 649*; a phototype taken by Gleason has also been seen. The legend is not legible on the photograph. Ecuador: *Camp E-1215*. Venezuela: *Linden 1391*.

Miconia prasina (Sw.) DC. Prodr. 3: 188. 1828. *Melastoma prasina* Sw. Prodr. Veg. Ind. Occ. 69. 1788. ?*Miconia pteropoda* Benth. in Hook. Journ. Bot. 2: 314. 1840.

Traditionally the two species of *Miconia* given above have been credited to the Mexican-Central American floristic area. I find no consistent differences in the specimens so determined by Cogniaux,

Gleason, Standley, Lundell and others. In the *Flora of Guatemala* only *M. prasina* will be included. *Miconia pteropoda* Benth., originally described from British Guiana, is excluded and the problem of whether or not it is a synonym of *M. prasina*, which is the oldest name for the taxon occurring in Central America, is left to the specialists.

Miconia Zemurrayana Standl. & L. Wms. Ceiba 1: 42. 1950. *Tococa parvifolia* Donn.-Sm. Bot. Gaz. 27: 335. 1899, non *Miconia parvifolia* Cogn.

When Standley and I described this species as a *Miconia* we overlooked its previous publication in the genus *Tococa*. The species is not a *Tococa* as that genus is usually delimited, and it would seem to go best into *Miconia*. The genus *Calycogonium* A. DC. contains some species related to this, but that West Indian genus may not be distinct from *Miconia*, and I feel that this species should be left in *Miconia* until that generic complex can be critically studied.

Known from Guatemala, El Salvador and Honduras.

Monochaetum (A. P. De Candolle) Naudin, in Central America, is a small genus of several closely allied species. In order to put those of Guatemala in order it was necessary to look at all of those described from Mexico, Central America and Panama. Those from South America were studied, but apparently no species overlap. *Monochaetum* was revised by Cogniaux (DC., Monog. Phan. 7: 391-405. 1891) and those of North America were reviewed by Gleason (Am. Journ. Bot. 16: 586-594. 1929). Gleason later (1938) added two species, and Standley and Steyermark (1944) added one, to this genus. Those found in Guatemala, with their synonyms, follow:

Monochaetum floribundum (Schlecht.) Naud. Ann. Sci. Nat. ser. 3, 14: 165. 1850. *Rhexia floribunda* Schlecht. Linnaea 13: 431. 1839. *Monochaetum rivulare* Naud. Ann. Sci. Nat. ser. 3, 4: 50. 1845. *M. diffusum* Cogn. in Donn.-Sm. Bot. Gaz. 16: 4. 1891. *M. diffusum* var. *eglandulosa* Cogn. in DC. Monog. Phan. 7: 395. 1891. *M. cymosum* Gleason, Am. Journ. Bot. 16: 588. 1929. *M. intermedium* Gleason, l.c. 589. *M. rivulare* f. *glandulosum* Gleason, l.c. 590. *M. compressum* Gleason, Bull. Torr. Bot. Club 65: 577. 1938.

The geographical range of the species is from Mexico, through Central America, and Panama. The species is a variable one and perhaps could be divided into two varieties but these would then

be difficult to define. The species as I would define it is practically the same as it was defined by Cogniaux in 1891, except that many more specimens are available and show two taxa maintained by Cogniaux to be the same.

Monochaetum Deppeanum (Schlecht. & Cham.) Naud. Ann. Sci. Nat. ser. 3, 14: 165. 1850. *Rhexia Deppeana* Schlecht. & Cham. Linnaea 5: 566. 1830.

The range is southern Mexico, Guatemala, and Nicaragua. The species is quite variable and it is curious that it has not been segregated.

Monochaetum tenellum Naud. Ann. Sci. Nat. ser. 3, 14: 159. 1850.

The species is apparently endemic to Guatemala. It is closely allied to *M. Deppeanum* but apparently can be distinguished consistently by larger size, longer petiole on leaves, and non-barbellate pubescence.

Monochaetum guatemalense Standl. & Steyerm. (Field Mus. Bot. 23: 136. 1944) is a synonym of *Heterocentron elegans* (Schlecht.) Kuntze.

Rhynchanthera De Candolle is a small but distinctive genus to which four North American species have been ascribed. In verifying the single species credited to Guatemala I had occasion to look at most of the material available in the larger American herbaria. There follows a key to the species that I have seen and bibliography and comment concerning them. Alfred Cogniaux prepared a good revision of the genus more than 70 years ago (in DC. Monog. Phan. 7: 97-111. 1891) and accounted for 35 species, all South American except one.

Petioles and upper surface of leaves glabrous. *R. medialis*.

Petioles and upper surface of leaves pubescent.

Connective of one fertile stamen much longer and bigger than on the other four; leaves acute to the base. *R. grandiflora*.

Connectives of fertile stamens essentially similar; leaves very obtuse or usually cordate at the base.

Hypanthium with a few setose hairs about 2 mm. long. *R. paludicola*.

Hypanthium densely short fulvous-pubescent. *R. mexicana*.

Unknown, perhaps a synonym of *R. grandiflora*. *R. insignis*.

Rhynchanthera grandiflora (Aubl.) A. DC. Prodr. 3: 107. 1828. *Melastoma grandiflora* Aubl. Hist. Pl. Guiane Fr. 1: 414, t. 160. 1775.

A species widespread in the tropical lowlands. It occurs in Mexico, but only one specimen has been found in Central America although it should certainly be found along the Atlantic lowlands of most of the region. The species is found in the lowlands of all the northern South American countries and extends southward into the Amazon basin. It is quite possible that *R. insignis* Naudin belongs here as a synonym. I have seen the following North American specimens of the species:

MEXICO: Minatitlán, Veracruz, Dec. 5, 1928, *Mell s.n.* (US, NY); Chinameca, Veracruz, Apr. 30, 1910, *Orcutt 3278* (F, GH, MO, US); in bog, Minatitlán, Veracruz, Jan. 30, 1892, *J. A. Smith 404* (MO); Jaltapán, Veracruz, in 1895, *C. L. Smith 1009* (US, NY).

COSTA RICA: San Isidro del General, Aug. 10, 1936, *Danforth 37* (GH).

PANAMA: Cañagas, Veraguas, Feb. 8, 1937, *Allen 73* (NY); Santiago, Veraguas, Nov. 24–25, 1938, *Allen 1014* (MO, GH, US, NY); Soná, Veraguas, Nov. 24, 1938, [albino form], *Allen 1020* (MO); El Valle de Antón, Coclé, Nov. 11, 1941, *Allen 2814* (NY); Ocu, Herrera, Jan. 22, 1947, *Allen 4044* (MO, NY); Aguadulce, Coclé, Dec. 3–6, 1911, *Pittier 4942* (F, GH, US); between Paso del Arado and Olá, Coclé, Dec. 7–9, 1911, *Pittier 5027* (US); El Valle, Coclé, Jan. 8, 1938, *White & White 65* (NY), *66* (MO, NY); Penonome, Feb. 23–Mar. 22, 1908, *Williams 216* (NY).

Rhynchanthera insignis Naudin, Ann. Sci. Nat. ser. 3, 12: 206. 1849.

I know nothing of this species. Cogniaux (in DC. Monog. Phan. 7: 105. 1891) places it as a synonym of *R. mexicana* DC., but Cogniaux' concept of the species is obviously a mixture and this reduction should be verified. It is more likely to be a synonym of *R. grandiflora*.

MEXICO.

Rhynchanthera medialis Standl. & Steyerl. Field Mus. Bot. 23: 137. 1944.

The type is the only known collection of the species. It is fruiting and it may not belong to *Rhynchanthera*. The peculiar dichasiod inflorescence is not like that of any other member of the genus.

GUATEMALA: Between Canjulá and La Unión, Juárez, Volcán Tacaná, Feb. 22, 1940, *Steysmark 36386* (F, NY).

Rhynchanthera mexicana DC. Prodr. 3: 108. 1828; Cogn. in DC. Monog. Phan. 7: 105. 1891. *Thenardia rosea* [Sessé & Mociño] ex DC. l.c.

This species is based on a drawing in the De Candolle herbarium (Chicago Natural History Museum Neg. 30660) in turn based on a Sessé and Mociño specimen that could be the one from which the drawing was made; it is numbered 1211, which number also appears on a field label in red crayon. There is a duplicate of this specimen in Chicago as well as a photograph of Sessé & Mociño's sketch of *Thenardia rosea*. Cogniaux (in DC. Monog. Phan.) apparently did not see the De Candolle drawing or the Sessé & Mociño material or drawing for he placed the species in the wrong group of the genus. Gleason (Ann. Mo. Bot. Gard. 45: 219. 1958) followed Cogniaux' lead, and the specimens he cited are all *R. grandiflora*.

I have seen no specimens of the species, except from Mexico.

MEXICO: *Sessé & Mociño 1211* (F); Veracruz, Sept. 7, 1944, *Gilly & Hernández 20* (NY).

Rhynchanthera paludicola (Donn.-Sm.) Gleason, Phytologia 1: 136. 1935. *Tibouchina paludicola* Donn.-Sm. Bot. Gaz. 42: 293. 1906.

The species is a variable one and the material cited may include two or perhaps even three things, but better material is needed.

TYPICAL: Costa Rica: Cañas Gordas, Feb.-Mar. 1897, *Pittier 11055* (US), *11056* (US, F); El General, Jan. 1939, *Skutch 4097* (A, NY, US).

ATYPICAL, SMALL-LEAFED FORM: Costa Rica: Los Chiles, Río Frío, *Holm & Iltis 936* (NY). Panama: Boquete, Chiriquí, July 24-26, 1940, *Woodson & Schery 739b* (NY).

ATYPICAL, DENSELY STRIGOSE, FULVOUS FORM: Panama: Llanos del Volcán, Jan. 23, 1939, *Allen 1549* (F, GH, US, NY); Boquete, Chiriquí, April 21, 1938, *Davidson 588* (F, A, US).

Tibouchina Aublet in continental North America is a small genus of perhaps fewer than a dozen species, some of which are to be found also in South America, where the genus is a very large and complicated one.

Tibouchina aspera Aubl. Hist. Pl. Guiane Fr. 1: 446, *t.* 177. 1775. *T. belizensis* Lundell, Am. Midl. Nat. 29: 483. 1943.

Dr. Wurdack has called my attention to the fact that there seems to be no difference between the abundant northern South American *Tibouchina aspera* and *T. belizensis* from our region. So far as I know, the species is recorded from only two localities in British Honduras, and nowhere else in North America. The disjunct range is of interest but not unusual.

There is in our herbarium a fragment from the Aublet herbarium which may have come from the type collection.

Tibouchina bipenicillata (Naud.) Cogn. in Mart. Fl. Bras. 14 (3): 385. 1885; in DC. Monog. Phan. 7: 243. 1891.

This species ranges from Costa Rica to Venezuela and Colombia. Standley (Field Mus. Bot. 18: 840. 1938) credited *T. Mathaei* Cogn. to Costa Rica. The specimens which he had available are rather *T. bipenicillata*.

The only other closely related species in Central America is *T. aspera* Aubl., mentioned above.

Tibouchina longifolia (Vahl) Baill. Adansonia 12: 74. 1877. *Rhexia longifolia* Vahl, Eclog. Amer. 1: 39. 1796. *Tibouchina Bourgaeana* Cogn. in DC. Monog. Phan. 7: 264. 1891. *T. aliena* Brandegee, Univ. Cal. Publ. Bot. 6: 58. 1914.

Tibouchina longifolia is the common, occasionally abundant, and widely distributed *Tibouchina* of Central America. It is in the West Indies as well and extends as far south as Bolivia. It occurs in most natural habitats, except the driest and coldest, and its elevational range is from 150 to some 2000 meters. It is an occasional weed in cultivated ground or in second growth.

The species is variable, and for the *Flora of Guatemala* I have included in it plants with the connective of the anther to more than 1 mm. long; those with anthers of two sizes in a flower; and those having almost no connective to those with some connective on stamens with larger anthers. Pubescence is from dense to rather sparse, appressed or spreading; the calyx lobes from about 3 mm. long to as much as 15 mm.; the petals from perhaps as little as 5 mm. long to 15 mm. or perhaps more.

Without passing on the validity of *Tibouchina Schiedeana* (Cham. & Schlecht.) Cogn. (in DC. Monog. Phan. 7: 261. 1891) and of *T.*

Naudiniana (Dcne.) Cogn. (in DC., l.c. 264), which were both described from Mexico above the Isthmus of Tehuantepec, the Central American material determined with these names by Gleason, Standley, myself and others is being redetermined as *T. longifolia*.

***Tibouchina longisepala* Cogn. var. *longisepala*.** *T. longisepala* Cogn. in DC. Monog. Phan. 7: 259. 1891.

A fairly distinct species among those of Central America. It occurs in the mountains of the western departments of Guatemala and may be expected in the Mexican state of Chiapas. The type collection is *Bernoulli & Cario 2872*, which I have not seen.

***Tibouchina longisepala* var. *spathulata* (Brandeggee) L. Wms., comb. nov.** *T. spathulata* Brandeggee, Univ. Cal. Publ. Bot. 6: 58. 1914.

The variety *spathulata* is distinguished from variety *longisepala* by having the hairs of the stems and the branches widely spreading and not appressed as in the typical variety. All of the specimens seen originated along the Mexico-Guatemala border in the state of Chiapas and the departments of San Marcos and Quezaltenango.

***Topobea* Aublet** is a small but interesting and difficult genus ranging in North America from Mexico to Panama, where 25 species have been reported or described. A greater number are reported from South America. The genus is very closely related to *Blakea* P. Br., and in fact the distinction between the two is rather tenuous. In *Topobea* the anthers are elongated, either linear or lanceolate and attenuated at the apex, while those of *Blakea* are short, oval or oblong and obtuse at the apex. It is difficult to place a given specimen in its genus if stamens are missing, as they often are. In *Topobea* there seem to be two groups—one in which the anthers are connate and with the connective produced dorsally into an appendage, the other in which the anthers are apparently free at anthesis and the connective is without a dorsal appendage.

The following is an account of those species of *Topobea* which I am able to distinguish, occurring from Mexico to the San Juan depression in Nicaragua.

Calyx truncate, with or without external dentiform appendages near the margin; bracts one-third to one-half the length of hypanthium and calyx.

Bracts about one-third as long as hypanthium and calyx; axils of main leaf veins without coarse, weak hairs. *T. laevigata*.

- Bracts about half as long as hypanthium and calyx; axils of main leaf veins below with a few coarse, weak hairs. *T. calycularis*.
- Calyx prominently 6-dentate; bracts about half as long as hypanthium and calyx. Three principal veins separating well above base of leaf; bracts of outer pair divided about half way to base. *T. calycularis*.
- Three principal veins separating at or very near base of blade; bracts of outer pair free nearly to base. Outer bracts longer than inner pair; inflorescence, bracts and hypanthium furfuraceous pubescent. *T. Watsonii*.
- Outer bracts equaling inner ones; bracts glabrous or pubescent. Petioles with a tuft of hairs at juncture with blade; leaf blades mostly about 20 cm. long; hypanthium glabrous. *T. Maurofernandeziana*.
- Petioles without hairs at juncture with blade; leaf blades mostly about 9 cm. long; hypanthium obscurely furfuraceous. *T. Standleyi*.

Topobea calycularis Naudin, Ann. Sci. Nat. ser. 3, 18: 149. 1852; Cogn. in DC. Monog. Phan. 7: 1090. 1891.

GUATEMALA: *Johnston 1849* (F); *Skutch 1845* (F, NY); *Standley 89832* (F, NY), *89973* (F), *91228* (F), *91704* (F), *92672* (F); *Steyermark 44834* (F, NY), *48727*, *48912* (F); *Tuerckheim 1135* (F, NY), *1688* (F); *Wilson 178, 199, 360* (all F).

The species occurs in Guatemala in a rather restricted area in the west central part of the country. The name has been used for most of the kinds of *Topobea* which occur in the area. The differences between this species and *T. laevigata* seem to be rather minor and it is possible that additional material will show them to be the same.

Originally described from Mexico. I have not seen Mexican material and accept the species as Cogniaux treated it.

Topobea laevigata (D. Don) Naudin, Ann. Sci. Nat. ser. 3, 18: 150. 1852. *Blakea laevigata* D. Don, Mem. Wern. Soc. 4: 327. 1823. *Melastoma laevigatum* Schlecht. Linnaea 18: 428. 1939.

MEXICO: *Purpus 1226* (F), *4318* (F), *5768* (F), *11163* (F); *Sessé & Mociño 1818* (F).

GUATEMALA: *Maxon & Hay 3219* (US).

BRITISH HONDURAS: *Gentle 4928* (LL).

The only specimens with definite localities we have are from Vera Cruz as are those which Cogniaux cited (DC. Monog. Phan. 7: 1090. 1891), and that from British Honduras. The Mexican specimens cited in old literature and credited to Pavón as *Blakea trinervia* are no doubt those of Sessé and Mociño who possibly intended to name

their collection *Blakea trinervia* L. There are four sheets of this species in the Sessé and Mociño herbarium, now all given the same number (1812) but surely from two different collections, for the original field numbers seem to be 11-1 and 12-1. One of these (12-1) bears the name "*Blakea trinervia* ic.," the other (11-1) bears the same name with two additional letters (*ni*) inserted in the generic name before the final *a* but without the indication "*ic.*" However, on the same sheet is another original label with the name changed to Spanish phonetic spelling, followed by the indication "*ic.*"

Topobea Maurofernandeziana Cogn. in DC. Monog. Phan. 7: 1193. 1891. *T. Durandiana* Cogn. Bull. Soc. Bot. Belg. 30: 268. 1891.

MEXICO: Plan de Carrizo, Galeana District, Guerrero, alt. 700 m., *Hinton et al.* 14661 (F, GH, NY, US); same locality, alt. 850 m., *Hinton et al.* 14700 (GH, NY, US).

There is some question whether the two names given above really belong to the same species but until this genus has been revised I prefer to place them together.

The species is known from Mexico and Costa Rica. I have seen only two collections from our range and so far as I know they are the only collections of the genus from the Pacific slope of North America above Costa Rica. In Costa Rica the species is reasonably abundant.

Topobea Standleyi L. Wms., sp. nov.

Arbores vel frutices usque ad 8 m. Folia elliptica vel ovalia, longe petiolata, acuminata; inflorescentia uni-biflora; pedunculus crassus, usque ad 1 cm. longus; calyx coriaceus, urceolatus, 6-dentatus; petala subrhombica vel ovato-subrhombica, acuta, carnosa; connectiva inappendiculata.

Small trees or shrubs to 8 m. tall, the branches stout, obtusely tetragonous or subterete, glabrous or nearly so; leaves elliptic to oval, glabrous or the petiole obscurely puberulent at first, long petiolate, abruptly acuminate, the blade 4.5–15 cm. long, 1.5–10 cm. broad (mostly about 9×4 cm.), cuneate or acute to the base, 5-nerved, the lateral pair very obscure, secondary nerves diverging at about 80°, the petiole 1.5–4 cm. long, slender; inflorescence 1–2 short pedicellate flowers in the axils of upper leaves; flower with short fleshy pedicels 1 cm. long or less, the subtending bracts minutely furfuraceous, two opposed pairs, the outer pair ovate, as long as or slightly longer than the inner pair, about 5 mm. long, divided to the base, the inner pair free and truncate or rounded; hypanthium and calyx coriaceous, obscurely furfuraceous, about 7–8 mm. long, the hypanthium urceolate, the calyx regularly 6-dentate, somewhat flaring; petals subrhombic or ovate-subrhombic, acute, fleshy, obscurely retrorse-ciliolate, to 7 mm. long and 5 mm. broad; stamens apparently free, the anther about 5 mm. long, the filament a little shorter, the connective lacking dorsal appendage.

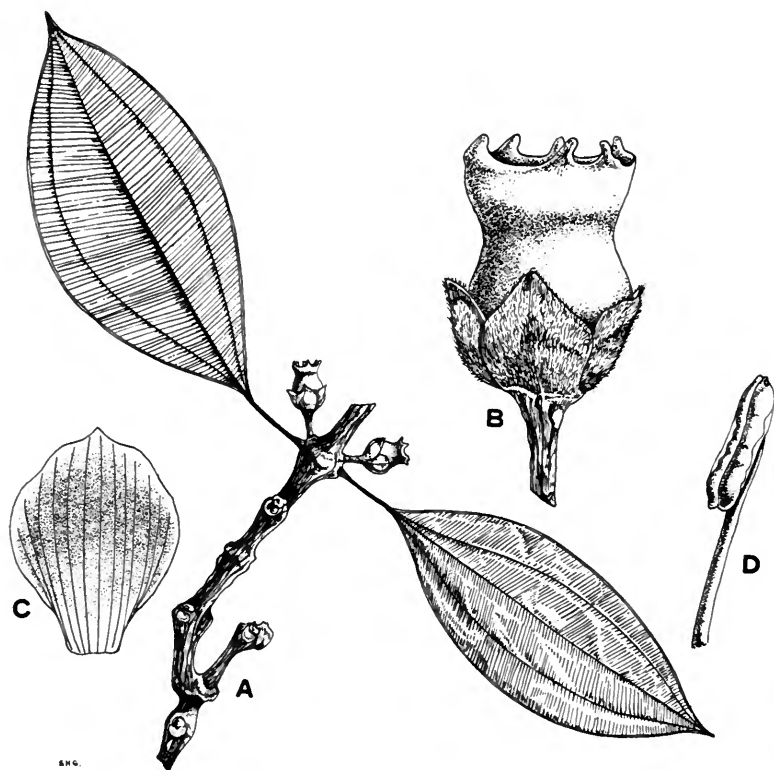


FIG. 18. *Topobea Standleyi*. A, Habit ($\times \frac{1}{2}$). B, Bracts, hypanthium and calyx ($\times 2\frac{1}{2}$). C, Petal ($\times 2\frac{1}{2}$). D, Stamen ($\times 4$).

GUATEMALA: Tree 25 feet, petals pink and white, on dry rocky hills, in forest of pine and oak, north of Santa Rosa, Dept. Baja Verapaz, March 30, 1939, *Standley 69709* (type in Chicago Natural History Museum; NY); shrub or small tree, in pine-oak forest, on rocky hills near and above Santa Rosa, Dept. Baja Verapaz, alt. 1,500 m., Apr. 4, 1941, *Standley 91045* (F, NY).

Standley and Gleason have both given manuscript names to the collections cited above but neither has published a name. The species seems to be distinct and it is with pleasure that I name it for Standley.

Perhaps most closely related to *T. Watsonii*, a species of wet, low forests. It is distinguished by the thick branchlets, the short thick and fleshy pedicels, difference in shapes of both pairs of bracts, and other details.

Topobea Watsonii Cogn. in DC. Monog. Phan. 7: 1089. 1891.
T. rosea Gleason, Carnegie Inst. Wash. Publ. 522: 336. 1940.

A lowland species found in British Honduras and the lowlands of Guatemala and Nicaragua.

BRITISH HONDURAS: *Gentle* 6316 (LL), 7169 (LL); *Schipp* S496 (F), 1320 (F).

GUATEMALA: *Hatch & Wilson s.n.* (F); *Johnson* 1237 (F); *Steyermark* 39417 (F, NY), 39428 (F), 41681 (F), 41798 (F); *Watson* 94, in part (GH).

NICARAGUA: *Englesing* 116 (F).

The isotype of this species in the Gray Herbarium is a mixture of *Topobea Watsonii* Cogn. and of *Blakea bella* Standl. *Steyermark* 41681 is almost identical to the portion of the collection which is a *Topobea*.

Triolena Naudin and **Diolena** Naudin. The species of these two genera are very much alike in general appearance but are separated by stamen characters that would seem to be trivial—certainly not of generic worth. *Diolena*, if separated from *Triolena*, has two basal spurs on the connective of the anther and the leaves of each pair are dimorphic. *Triolena* has three basal spurs on the connective, at least on the larger anthers, and the leaves of each pair are isomorphic or dimorphic.

In the preliminary manuscript of the *Flora of Guatemala*, Paul Standley has indicated that "it is probable that the two groups should be united," although he did not carry out the suggestion. There seems to be no justification to maintain the two generic names and as they were published at the same time and as the taxa contain about an equal number of entities, *Triolena* Naudin is selected as the name to be kept and *Diolena* Naudin is reduced to synonymy.

Triolena hygrophylla (Naudin) L. Wms., comb. nov. *Diolena hygrophylla* Naudin, Ann. Sci. Nat. ser. 3, 15: 329. 1851.

The type species of *Diolena*, Venezuela.

Triolena calciphila (Standl. & Steyererm.) Standl. & L. Wms., comb. nov. *Diolena calciphila* Standl. & Steyererm. Field Mus. Bot. 23: 133. 1944.

Known only from Guatemala.

Triolena roseiflora (Standl. & Steyererm.) Standl. & L. Wms., comb. nov. *Diolena roseiflora* Standl. & Steyererm. l.c. 134.

Known only from Guatemala.

Triolena stenophylla (Standl. & Steyererm.) Standl. & L. Wms., comb. nov. *Diolena stenophylla* Standl. & Steyererm. l.c. 135.

Known only from Guatemala.

Triolena spicata (Triana) L. Wms., comb. nov. *Diolena spicata* Triana, Trans. Linn. Soc. 28: 81. 1871.

Originally from Colombia (Choco); recorded from Panama.

HALORAGACEAE

Gunnera

There have been described from Mexico and Central America five species of *Gunnera*. The first of these, described as *Pankeia insignis* by Oersted in 1857 from Costa Rican material, is the oldest and is now well known from Costa Rica and Panama. Hemsley, in the *Biologia Centrali-Americana*, included *G. insignis* and a second undescribed species from Vera Cruz in Mexico. Schindler, in his review of Haloragaceae in *Pflanzenreich*, added *G. Wendlandii* Reinke ex Schindler, which is probably a synonym of *G. insignis*. Schindler apparently saw only four collections of the genus for North America and these all from Costa Rica. In 1922, Brandegee described *G. mexicana*, which is unknown to me except for the rather short description. In 1940, Dr. Lundell described *G. Killipiana* from Volcán de Tacaná on the Guatemalan-Mexican border and it is to this species that all of our Guatemalan and Honduran material will be referred in the *Flora of Guatemala*. Weber and Mora more recently (1958) have described *G. talamanca* from Costa Rica. This comes from the known range of *G. insignis*, but in the field, where I saw it a few months ago, it appears quite distinct.

Proserpinaca

There is but a single species of *Proserpinaca* in Central America and adjacent Mexico. Dr. N. C. Fassett has annotated most of our Central American material as *P. palustris* var. *crebra* Fernald & Griscom but it seems not "abundantly" distinct from the typical variety.

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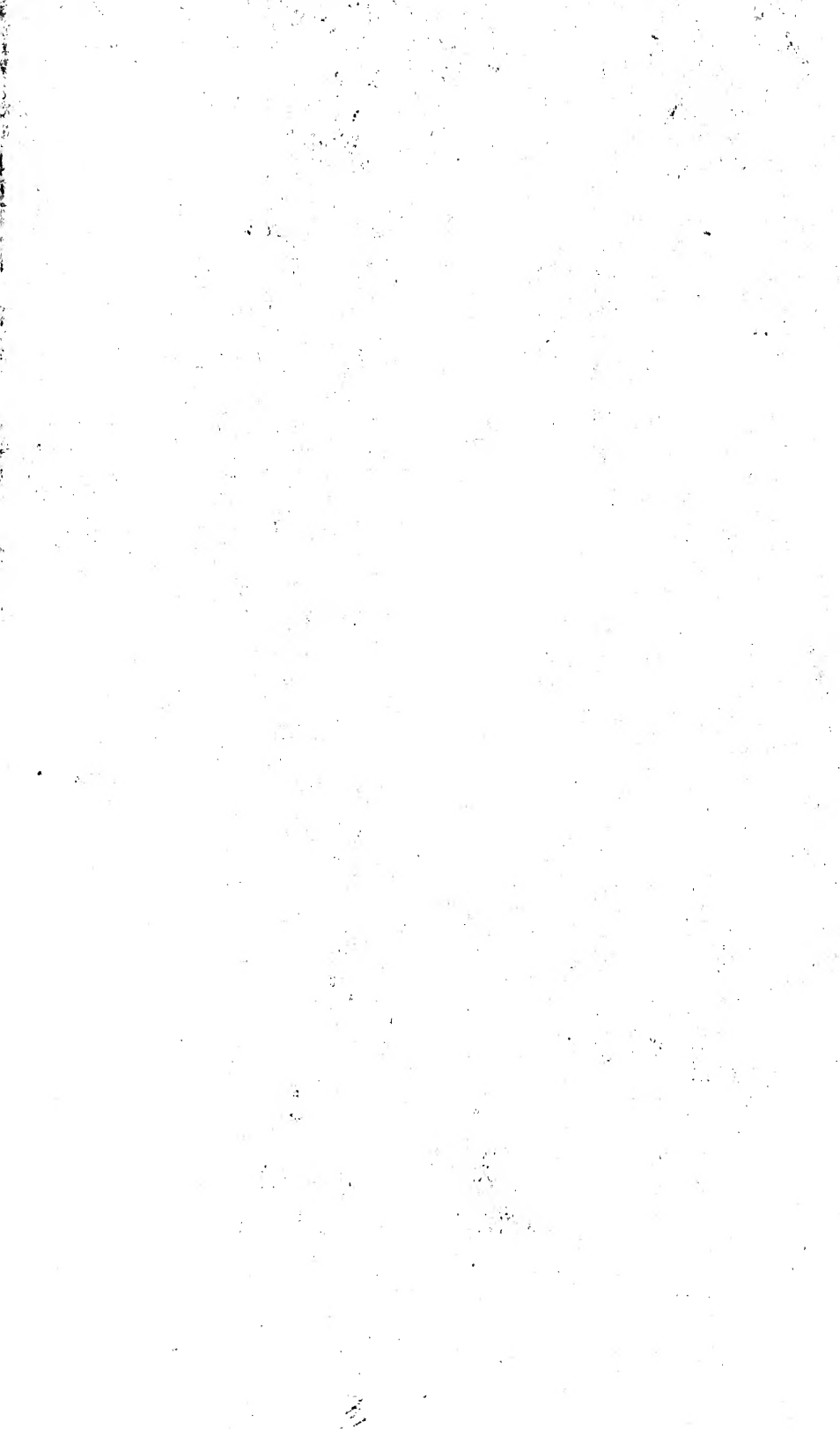
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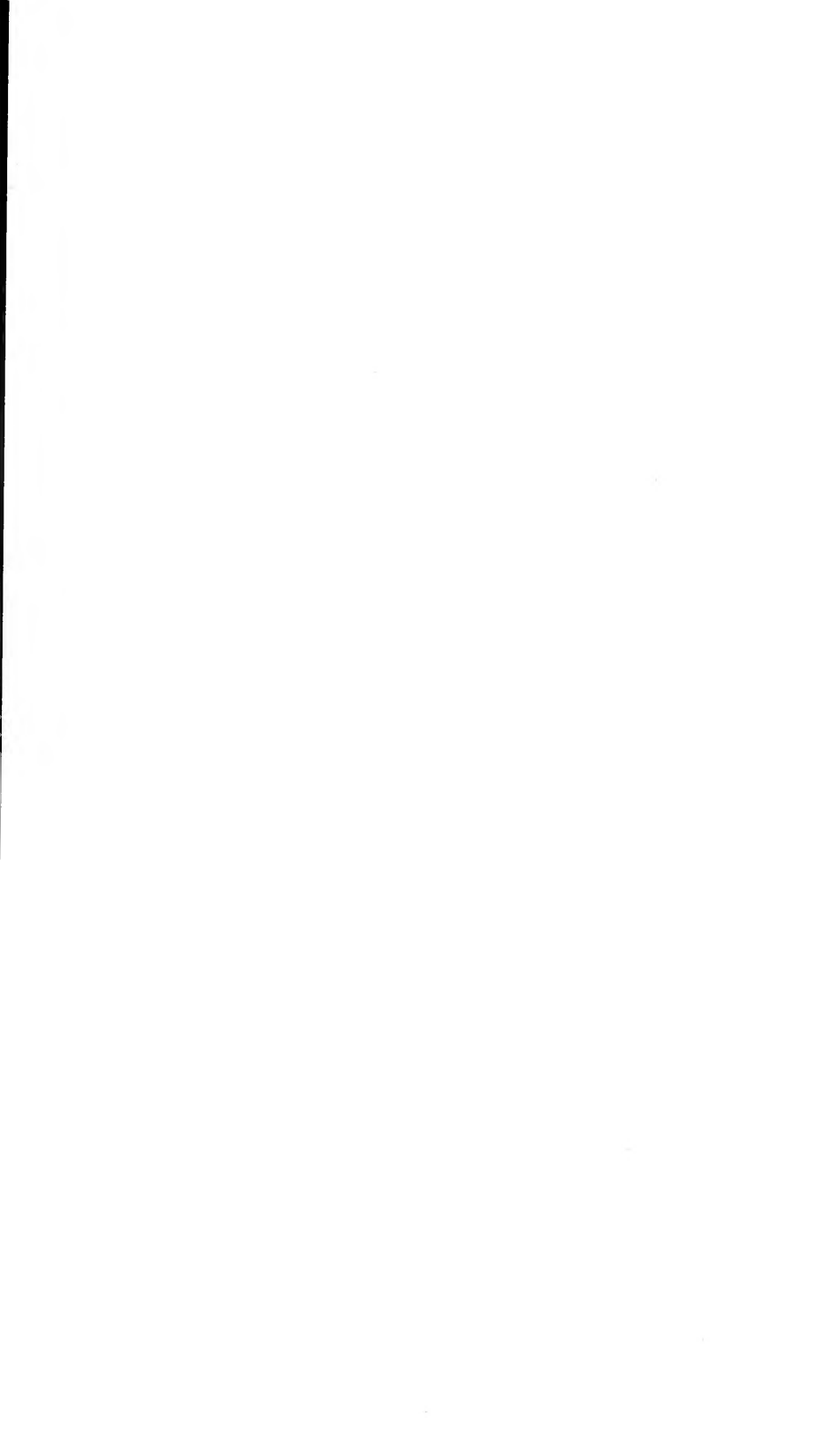
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