BOTANY OF THE MAYA AREA: MISCELLANEOUS PAPERS

VIII

ENUMERATION OF THE MALPIGHIACEÆ OF THE YUCATAN PENINSULA

By C. V. Morton
U. S. National Museum

[Issued April 24, 1936]

ENUMERATION OF THE MALPIGHIACEÆ OF THE YUCATAN PENINSULA [1]

Despite the fact that the family Malpighiaceæ has recently been monographed by Dr. Fr. Niedenzu in Das Pflanzenreich, I have thought it worth while to record here a few additional observations on the species occurring in the Yucatan Peninsula. Niedenzu had seen very few specimens from this region at the time of publication of his monograph. The recent collections of Professor H. H. Bartlett and Mr. C. L. Lundell, made under the auspices of the Carnegie Institution of Washington and the University of Michigan, have disclosed two new species and have added to our knowledge of several of the older species. I am indebted to the curators of the herbaria in the Field Museum of Natural History and the University of Michigan for the loan of their collections of this family.

I have not given common names for the various species, as these are, so far as known, recorded by Standley in his Flora of Yucatan. It will be noted, however, that the scientific names here used differ in several instances from those employed by Standley. Niedenzu has divided many of the common species into numerous varieties and forms, many of which do not seem to be of special constancy or taxonomic importance. For the most part these are not mentioned in the present paper. I am also indebted to Dr. J. K. Small's treatment of the Malpighiaceæ in the North American Flora for numerous helpful suggestions. A treatment of the North American species correlating Small's treatment with that of Niedenzu is much to be desired, inasmuch as in the latter many of the species recognized by Small are reduced doubtfully to synonymy or are placed among the "Species incertæ." In a few cases I have appended notes on species found outside the limits of the area under consideration. Citations and synonymy are omitted, as these are readily accessible in Niedenzu's monograph.

The keys here presented are drawn, in so far as possible, from herbarium specimens. The identification of specimens by means of Niedenzu's keys is not an easy matter for anyone unfamiliar with the family, owing to his excessive use of minute characters, which are difficult of observation.

KEY TO GENERA

Torus elevated, usually pyramidal and 3-sided; fruits winged.
  Samaras with well-developed lateral wings, the dorsal wing much smaller and reduced.
    Fertile stamens 3, staminodia 2 ..... 1. GAUDICHAUDIA
    Fertile stamens 10, staminodia none.
      Lateral wings of samara not lobed.
        Stipules borne on the stems; flower stalks articulate and bibracteolate above base ..... 2. MASCAGNIA

[1] Published by permission of the Secretary of the Smithsonian Institution.

Stipules borne on the petioles; flower stalks not articulate, bibracteolate at base ..... 3. HIRÆA
Lateral wings of samara deeply 2-lobed ..... 4. TETRAPTERIS
Samaras with lateral wings obsolete, the dorsal wing more prominent.
Fertile stamens 10.
Dorsal wing of samara much reduced, thickened on the ventral (adaxial) edge ..... 5. BRACHYPTERYS
Dorsal wing well developed (or in one species reduced), thickened on the dorsal (abaxial) edge ..... 6. BANISTERIA
Fertile stamens usually 4; samara wings well developed, thickened ventrally ..... 7. STIGMAPHYLLON
Torus flat or slightly concave; fruit a drupe.
Styles obtuse or thickened at apex.
Styles distinct ..... 8. MALPIGHIA
Styles united ..... 9. BUNCHOSIA
Styles subulate at apex ..... 10. BYRSONIMA

Inasmuch as the identification of flowering material is often difficult for those unacquainted with the various genera, the following artificial key, based solely on the species occurring in Yucatan, has been prepared.

Styles subulate at apex. Erect shrubs or trees with terminal racemes of large yellow flowers (often reddish-tinged in age); leaves tomentose beneath ..... 10. BYRSONIMA
Styles obtuse or variously dilated at apex.
Flowers purple or lilac. Styles free.
Erect shrubs or small trees ..... 8. MALPIGHIA
High-climbing vines.
Leaves not over 3 cm. long, glabrous; peduncles and pedicels glabrate ..... **Mascagnia vacciniifolia**
Leaves usually larger, tomentose beneath; peduncles and pedicels rusty-tomentose ..... **Banisteria beecheyana**
Flowers yellow.
Fertile stamens fewer than 10.
Fertile stamens 3, staminodia 2, leaves small, tomentose; style 1 ..... 1. GAUDICHAUDIA
Fertile stamens 4, staminodia 6; leaves larger, glabrous or sericeous; styles 3 ..... 7. STIGMAPHYLLON
Fertile stamens 10.
Flower stalks articulate and bibracteolate at base, the flowers in umbels. Styles free.
Stipules borne on the petiole; vines ..... 3. HIRÆA
Stipules borne on the stem; erect shrubs ..... 5. BRACHYPTERYS
Flower stalks articulate and bibracteolate above base, the flowers in umbels, racemes, or panicles. Stipules borne on the stem.
Flowers of the compound inflorescence umbellate. Styles free.
Petals sericeous externally ..... 2. MASCAGNIA
Petals glabrous ..... 4. TETRAPTERIS
Flowers racemose.
Erect shrubs or trees; styles connate to apex; bracts and bracteoles of the inflorescence small ..... 9. BUNCHOSIA
Vines; styles free; bracts and bracteoles large.
Leaves hairy beneath, membranous ..... **Tetrapteris seleriana and T. arcana**
Leaves glabrous beneath, chartaceous ..... 6. BANISTERIA

1. GAUDICHAUDIA H.B.K.

Only one species occurs in the region under consideration, *viz, G. albida* C. & S. var. ***typica*** Ndzu. In the Flora of Yucatan, Standley reports this species as *G. mucronata* (M. & S.) A. Juss., a plant with markedly different fruits.

SPECIMENS EXAMINED:

YUCATAN: Progreso, *Gaumer* 1138. Buena Vista Xbac, *Gaumer* 2456. According to Niedenzu, also *Gaumer* 539, distributed as *Metastelma schlechtendalii.*

NOTES ON OTHER SPECIES

GAUDICHAUDIA MOLLIS var. PRINGLEANA Ndzu.

I have examined a specimen of the type collection (*Pringle* 2459, from Guadalajara, Jalisco, Mexico) and find that it is not distinguishable from *G. pentandra* A. Juss. Niedenzu's specimen evidently lacked mature fruits, such as appear on the specimen in the National Herbarium, which show that the plant belongs to the subgenus *Engaudichaudia* rather than *Tritomopterys.*

GAUDICHAUDIA SUBVERTICILLATA Rose

Referred by Niedenzu to the subgenus *Tritomopterys*, but the mature fruits of the type specimen in the National Herbarium show that this species must be placed in *Eugaudichaudia.*

GAUDICHAUDIA PALMERI S. Wats.

Referred to the synonymy of *G. schiedeana* A. Juss. (=*G. albida* C. & S.) by Small (N. Amer. Flora 25: 130. 1910) and Standley (Contr. U. S. Nat. Herb. 23: 571. 1923). Listed among the "species incertæ" by Niedenzu (Das Pflanzenreich IV. 141: 246. 1928).

I have examined two specimens of the type collection and believe that this should be considered a form of *G. mollis* Benth., as treated by Niedenzu (excl. var. *pringleana*). Some confusion concerning the date of publication is apparent in the literature. Niedenzu gives the year as 1882, both Small and Standley as 1885, but the manuscript was not communicated until April 14, 1886.

2. MASCAGNIA Bert.

Petals lilac, glabrous; ovary glabrous; leaves oval, rounded at apex, not over 3 cm. long ..... **1. M. vacciniifolia**
Petals yellow, sericeous externally; ovary hairy; leaves lanceolate or ovate, acute, 5 cm. long or more.
  Flowers small, about 10 mm. in diameter; samaras not over 3.5 cm. wide ..... **2. M. polycarpa**
  Flowers large, about 20 mm. in diameter; samaras very large, 6 cm. wide or more ..... **3. M. malpighiodes**

1. Mascagnia vacciniifolia Ndzu.

A rare species not previously known from British Honduras, where it has been collected at Machaca (*Schipp* S-657).

2. Mascagnia polycarpa T. S. Brandeg.

This apparently rare species was transferred to the genus *Hiræa* by Standley, but it is a true *Mascagnia*, most closely related to *M. chlorocarpa* of South America. The flowers are now known for the first time, the original material being in fruit only. The following is the only collection from the Yucatan Peninsula: El Paso, Dept. Petén, Guatemala, *Lundell* 1520.

3. Mascagnia malpighiodes (Turcz.) Morton, comb. nov.

Stigmaphyllon malpighiodes Turcz. Bull. Soc. Nat. Moscow 36¹: 582. 1863.
Mascagnia mexicana Ndzu. Gen. Mascagnia 29. 1908.

Stigmaphyllon malpighiodes Turcz. was founded on *Botteri* 1073, which is identified by Niedenzu as *M. mexicana*.

SPECIMENS EXAMINED:

GUATEMALA, DEPT. PETÉN: Yaxha-Remate Road, *Lundell* 2078.
BRIT. HONDURAS: El Cayo, *Bartlett* 12924; *Chanek* 133, 203.

The following key will aid in distinguishing the present species from the other North American representatives of the subgenus *Plagiogynixa*. The characters given in the keys by Niedenzu, Small, and Standley do not hold true, and there has been a good deal of confusion in identification. The four species as here delimited are easily recognizable and have natural and mutually exclusive ranges. *M. macroptera* includes *Hiræa mexicana* Rose.

Petals sericeous externally, both in bud and flower.
  Samaras with numerous complicate irregular wings between the dorsal and lateral wings (Guatemala, Salvador, and Nicaragua)—**M. nicaraguensis** (Griseb.) Ndzu.
  Samaras without intermediate wings.
    Pubescence of the leaves closely appressed; mature leaves large, 9 cm. long or more; samaras very large, from wing to wing 6 cm. wide or more (Veracruz, Yucatan Peninsula)—**M. malpighiodes** (Turcz.) Morton
    Pubescence spreading; mature leaves smaller, 7 (rarely 8) cm. long or less; samaras smaller, up to 5 cm. wide (Nuevo Leon, Tamaulipas, Hidalgo, San Luis Potosí)—**M. septentrionalis** (A. Juss.) Ndzu.
Petals glabrous (Baja California, Sonora, Sinaloa, Colima)—**M. macroptera** (DC.) Ndzu.

I am indebted to Mr. C. A. Weatherby for calling my attention to the fact that the recently described species *Mascagnia dumetorum* Morton (Proc. Biol. Soc. Wash. 45: 53. 1932), bears a preoccupied name. It may therefore be known as **Mascagnia concinna** Morton, nom. nov. The earlier *Mascagnia dumetorum* Griseb. (Abh. Ges. Wiss. Gött. 24: 67. 1879) is a species of *Banisteria, viz.* **Banisteria dumetorum** (Griseb.) Morton, comb. nov.

3. HIRÆA Jacq.

Umbels solitary, many-flowered; leaves tomentose beneath—1. **H. quapara**
Umbels clustered, 2-4-flowered; leaves glabrous or appressed-pubescent beneath.
  Anthers oblong—2. **H. fagifolia**
  Anthers globose—3. **H. obovata**

1. Hiræa quapara (Aubl.) Morton, comb. nov.

Banisteria quapara Aubl. Pl. Guian. 1: 464. 1775.
Hiræa multiradiata A. Juss. Ann. Sci. Nat. II. Bot. 13: 257. 1840.
Hiræa smilacina Standl. Contr. Arn. Arb. 5: 87. 1933.

Niedenzu rejects Aublet's name on the ground that the fruits described and figured belong to a different genus (*Serjania*); but this procedure is hardly justifiable under the International Rules, since the chief part of Aublet's description and figure is concerned with the *Hiræa*, the fruits merely being described incidentally. *Hiræa smilacina*, described from Panama, does not seem to differ in any important respect.

2. Hiræa fagifolia (DC.) A. Juss.

A wide-spread species divided by Niedenzu into several varieties and forms which do not seem deserving of taxonomic recognition.

SPECIMENS EXAMINED:

BRIT. HONDURAS: Without definite locality, *Record* 12. Rio Grande, alt. 75 meters, *Schipp* 1105.

3. Hiræa obovata (H.B.K.) Ndzu.

Hiræa borealis Ndzu. Gen. Hiræa 5. 1905.
Hiræa purpusii T. S. Brandeg. Univ. Calif. Publ. Bot. 10: 409. 1924.

In 1928, at the time of publishing his monograph of the Malpighiaceæ, Niedenzu had seen but two collections of his species, *Hiræa borealis*. The more abundant material recently collected shows that the distinctions adduced between that and *H. obovata* are not constant and are not accompanied by any peculiarities of foliage, habit, or geographical distribution. In *H. borealis* four of the petals are said to be subentire and those of *H. obovata* denticulate or short-fimbriate. All stages between these extremes are observable in the material at hand. Also the styles of *H. borealis* are said to be merely short-acuminate and those of *H. obovata* uncinate, but this character also has proved to be variable.

SPECIMENS EXAMINED:

YUCATAN: Izamal, *Gaumer* in 1888. Buena Vista Xbac, *Gaumer* 1040. Chichankanab, *Gaumer* 2410. Without locality, *Gaumer* 24250.
GUATEMALA, DEPT. PETÉN: Uaxactun, *Bartlett* 12696, 12709, 12782. La Libertad, *Lundell* 3363, 3370.
BRIT. HONDURAS: Fern Hill, Toledo, *Schipp* S-447. Maskall, *Gentle* 1199, 1241. Little Fall, *Lundell* 4084.

4. TETRAPTERIS[1] Cav.

Stipules of the opposing leaves connate in pairs, leaving a circular scar around the stem; lower lateral wings of the samaras much smaller than the upper. Flowers borne in umbels.

[1] The name is used by Niedenzu with the spelling altered, on philological grounds, to *Tetrapterys*.

Samaras with irregular intermediate wings and crests between the dorsal and lateral wings, the upper lateral wings not more than 2.5 cm. long, glabrate ..... 1. **T. discolor**

Samaras without intermediate wings between the dorsal and lateral wings, the upper lateral wings large, 4-4.5 cm. long, more or less persistently sericeous ..... 2. **T. acapulcensis var. macrocarpa**

Stipules all free, small and soon deciduous; lower lateral wings almost equal to the upper.

Inflorescence racemose, not at all umbellate, the bracteoles borne at the base of the pedicels, conspicuous, 2-7 mm. long, narrowed at base; anthers puberulous; samara wings glabrate even when young.

Pubescence of the leaves closely appressed ..... 3. **T. seleriana**

Pubescence of the leaves spreading ..... 4. **T. arcana**

Inflorescence umbellate-paniculate (at least the terminal flowers arranged in 2-4-flowered umbels), the bracteoles minute, 1.5 mm. long or less, broad at base; anthers glabrous; samara wings densely white-sericeous even at maturity. Pubescence of the leaves appressed, when present ..... 5. **T. schiedeana**

1. Tetrapteris discolor (G. F. W. Meyer) DC.

A widely distributed species not previously reported from British Honduras. I have seen the following specimen: Middlesex, Brit. Honduras, alt. 60 meters, *Schipp* 464.

2. Tetrapteris acapulcensis H.B.K. Nov. Gen. & Sp. 5: 168. 1821.

Niedenzu reduces *T. acapulcensis* to a variety of *T. crispa* A. Juss. (Ann. Sci. Nat. II. Bot. 13: 265. 1840), a procedure obviously contrary to all the rules of nomenclature. Our specimen (*Schipp* 1147, from Rio Grande, Missouri, Brit. Honduras) belongs to *Tetrapterys crispa* subsp. *typica* Ndzu. var. *subcordata* Ndzu. f. *macrocarpa* Ndzu. (Pflanzenreich IV. 141: 214. 1928). Niedenzu's form, described from Panama, may be known as **Tetrapteris acapulcensis** var. **macrocarpa** (Ndzu.) Morton, comb. nov.

3. Tetrapteris seleriana Ndzu.

Referred doubtfully to the synonymy of *T. schiedeana* by Standley (Flora of Yucatan, p. 317), but it is in reality a distinct species, being distinguished by the characters stated in the key, among others.

SPECIMENS EXAMINED:

YUCATAN: Photograph of type in the Berlin Herbarium, *Seler* 3982. Chichankanab, *Gaumer* 23667, 23738. Izamal, *Gaumer* s. n.

GUATEMALA, DEPT. PETÉN: Tikal, *Bartlett* 12632.

BRIT. HONDURAS: Corozal District. *Gentle* 624; *Lundell* 4997.

4. Tetrapteris arcana Morton, sp. nov.

Subg. *Mischolepis*, Sect. *Macrophyllaris*, Subsect. *Stauropterys*. Arbor usque ad 6 m. alta vel liana usque ad 9 m. scandens; caules teretes, dense

sericei; folia opposita, stipulata, stipulis distinctis, minutis, subulatis, nigris, nitidis, petiolata, petiolo dense sericeo-piloso, ca. 5 mm. longo, eglandulifero, lamina elliptica vel ovali, usque ad 7.5 cm. longa et 3.5 cm. lata, subcoriacea, apice breviter acuminata vel fere apiculata, basi rotundata, supra pilosula demum glabrata, subtus perspicue pilosula, margine integra remote glandulifera; inflorescentia racemosa haud umbellata, racemis axillaribus singulis vel geminis, ca. 6 cm. longis, usque ad 14-floris, pedunculo usque ad 17 mm. longo, dense appresso-piloso, apice bracteato, bracteis ovato-lanceolatis vel ovatis, acuminatis, usque ad 5 mm. longis, basi angustatis sed non petiolulatis, dense pilosulis, margine glanduliferis, pedunculo florifero quam pedicello breviore, pilosulo, usque ad 6 mm. longo, apice bibracteolato, bracteolis fere oblongis, usque ad 7 mm. longis, apice obtusis, basi gradatim angustatis, supra glabratis, subtus pilosulis, basi glanduliferis, pedicellis pilosulis, usque ad 8 mm. longis, apice vix dilatatis; sepala ca. 3.5 mm. longa, apice inflexa, sericea, biglandulifera, glandulis lineari-oblongis, ca. 2 mm. longis, discretis; flores lutei, ca. 12 mm. diametro, petalis patulis, unguiculatis, ungue crasso, glabro, lamina oblonga, ca. 4 mm. longa, inconspicue denticulata, plus minusve concava, basi truncata, extus pilos paucos albos malleiformes gerente; filamenta ca. 2.2 mm. longa, basi connata, lata, sursum subulata, ciliata, antheris lineari-oblongis, ca. 1 mm. longis, pilosulis; carpella tres, libera, dense hirsuta; styli crassiusculi, declinati, glabri; stigma obtusum; samaræ nux pilosula, subgloboso-obconica, ca. 3 mm. alta, areola ventrali parva, ca. 1 mm. diametro, alis lateralibus lineari-oblongis vel oblanceolatis, fere æqualibus, 9-11 mm. longis et 2-3.5 mm. latis, glabriusculis, integris, ala dorsali perspicua, deltoidea, ca. 2.5 mm. longa, alis vel rugis intermediis parvis.

Type in the U. S. National Herbarium, No. 1,493,921, collected at Rio Privacion, Mountain Pine Ridge, El Cayo District, British Honduras, February 26, 1931, by H. H. Bartlett (No. 11796). Described by the collector as a straggling tree 20 feet high with yellow flowers.

ADDITIONAL SPECIMENS EXAMINED:

BRIT. HONDURAS: Stann Creek Railway, *Schipp* 25. Machaca, *Schipp* S-600. Stann Creek Valley, *Kinloch* 209.

EL SALVADOR: San Francisco, *Calderon* 2487. Vicinity of Apastepeque, Dept. San Vicente, Standley 21337. Vicinity of San Vicente, *Standley* 21239. Vicinity of La Unión, Dept. of La Unión, *Standley* 20674, 20678.

These specimens have been mostly identified as *Tetrapteris schiedeana*, a quite different species, belonging in fact to a different subgenus. *T. arcana* is closely related to *T. seleriana*, but the different type of pubescence satisfactorily distinguishes it. The El Salvador specimens have a somewhat different aspect, but I can not differentiate them at present.

5. Tetrapteris schiedeana Cham. & Schl.

Heteropteris yucatanensis Millsp. Field Mus. Pub. Bot. 1: 369. 1898.

A common and wide-spread species in continental North America. The forma *grandifolia* Ndzu. based on *Tonduz* 11456, from Tuis, Prov. Cartago, Costa Rica, is not at all to be associated with this species, but is a form of *T. discolor* (G. F. W. Meyer) DC.

SPECIMENS EXAMINED:

YUCATAN: *Gaumer* 316 (type of *Heteropteris yucatanensis*), 24273, 24319, 24410, 24415. Cozumel Island, *Millspaugh* 1484, 1484 bis. Chichen Itza, *Steere* 1371, 1476.

BRIT. HONDURAS: Lower Belize River, *Record* s. n. Sibun River, *Bartlett* 11357, 11365. Cornhouse Creek, Belize District, *Bartlett* 11273. Mullins River Road, *Schipp* 21.

NOTES ON OTHER SPECIES

TETRAPTERIS NELSONI Rose, Contr. U. S. Nat. Herb. 5: 143. 1897.

Tetrapterys nummularia Ndzu. Gen. Tetrapterys 38. 1909.
Tetrapteris emarginata Bartl. Proc. Amer. Acad. 43: 53. 1907.

Dr. Small in the North American Flora keeps both *Tetrapteris nelsoni* and *T. emarginata* as valid species, but a study of the types of both species does not reveal any essential differences. Niedenzu in Das Pflanzenreich considers both as doubtful synonyms of his species *T. nummularia*. A photograph of the type of this latter species shows its identity with the earlier *T. nelsoni* Rose.

Although not as yet found within the area covered by this paper, *Tetrapteris nelsoni* may be expected, inasmuch as it occurs nearby at Gualán, Guatemala.

5. BRACHYPTERYS A. Juss.

Brachypterys ovata (Cav.) Small

The genus *Brachypterys* is reduced to merely a section of *Stigmaphyllon* by Niedenzu, but the 10 fully fertile stamens contradict his generic description of that genus.

SPECIMENS EXAMINED:

BRIT. HONDURAS: Belize, *Cook & Martin* 28; *Lundell* 4087, 4089; *Lellerman* 5737.

6. BANISTERIA L.

Sepals erect or slightly inclined; ventral areole much less than the nut in diameter, the endocarp back of the areole prominently intruded into the cell; bracts and bracteoles inconspicuous, broad at base; leaves persistently tomentose beneath; petals rose; inflorescence umbellate-paniculate, the apical flowers of each branchlet being borne in 2 to 6-flowered umbels ..... 1. **B. beecheyana**

Sepals revolute at apex; ventral areole about equal to the nut in diameter, the endocarp not intruded; bracts and bracteoles larger, narrowed at base; leaves glabrous; petals yellow; inflorescence racemose-paniculate.

Samara with dorsal wing 2.5-4 cm. long ..... 2. **B. laurifolia**

Samara with dorsal wing vestigial (not over 5 mm. long) ..... 3. **B. heterocarpa**

1. Banisteria beecheyana (A. Juss.) C. B. Robinson.

Heteropteris retusa Donn Smith.

A common species, divided by Niedenzu into several varieties and forms which do not seem of special significance. *Heteropteris retusa* Donn. Smith was considered by Niedenzu a doubtful synonym. A study of the type, in the National Herbarium, shows it to be a quite typical specimen of *B. beecheyana*.

SPECIMENS EXAMINED:

YUCATAN: Suitun, *Gaumer* 23447. Calotmul, *Gaumer* 2024. Chichankanab, *Gaumer* 2023. Izamal, *Gaumer* s. n. Without locality, *Gaumer* 892, 24263, 24269. Mérida, *Schott* 158. Muna, *Steere* 2139. Chichen Itza, *Steere* 1551. Sotuta, *Flores* 3.

CAMPECHE: Tuxpeña; *Lundell* 978, 1219.

BRIT. HONDURAS: Mountain Pine Ridge, El Cayo District, *Bartlett* 11839. Hillbank Camp, *Pelly* 27. Sibun River, *Gentle* 1430. Stann Creek Railway, *Schipp* 448.

2. Banisteria laurifolia L.

A common plant of wide geographic range.

SPECIMENS EXAMINED:

BRIT. HONDURAS: Little Cocquericot, *Lundell* 4109, 4110. Stann Creek Railway, *Schipp* 194. Mullins River Road, *Schipp* 143. Tipparary, *Stevenson* 5. Hector Creek, *Gentle* 1504.

GUATEMALA, DEPT. PETÉN: La Libertad, *Lundell* 3025, 3257, 3430, 3544, 4880. Monte Polol, *Lundell* 3035.

3. Banisteria heterocarpa Standl.

A most interesting recent discovery. Standley compares this species with *B. laurifolia*, but it is more likely a member of the section *Pachypterys* of Niedenzu, finding its nearest relative in **Banisteria helicina** (Griseb.) Morton, comb. nov. (*Heteropteris helicina* Griseb. ex Mart. Fl. Bras. 12[1]: 67. 1858), a species known only from Brazil. It is possible that *B. heterocarpa* is the same as the dubious *Heteropteris lindeniana* A. Juss., known to me only from description.

SPECIMENS EXAMINED:

CAMPECHE: Champotón, *Steere* 1778.

BRIT. HONDURAS: Without locality, *Winzerling* V 15 (type collection). Northern River, *Gentle* 1309. Corozal District, *Gentle* 504. New Town, *Schipp* 818. Honey Camp, *Meyer* 120.

7. STIGMAPHYLLON[1] A. Juss.

Leaves glabrous or glabrate beneath at maturity.
- Leaves elliptic, acute, or obtuse at base, pinnately nerved ..... 1. S. **ellipticum**
- Leaves ovate, cordate at base (with closed sinus), pedately nerved at base, ciliate ..... 2. S. **ciliatum**

Leaves sericeous beneath at maturity.
- Samaras broad at base, tapering to the apex; leaves entire, pinnately nerved ..... 3. S. **puberum**
- Samaras constricted near base, enlarged toward the apex; leaves entire or often variously lobed, pedately nerved ..... 4. S. **lindenianum**

[1] Corrected on philological grounds to *Stigmatophyllum* by Niedenzu and others.

1. Stigmaphyllon ellipticum (H.B.K.) A. Juss.

A wide-spread and common species.

SPECIMENS EXAMINED:

YUCATAN: Izamal, Gaumer s. n.
CAMPECHE: Tuxpeña, *Lundell* 975.
BRIT. HONDURAS: Punta Gorda, *Schipp* S-456.
GUATEMALA, DEPT. PETÉN: San Andres, *Lundell* 3128.

2. Stigmaphyllon ciliatum (Lam.) A. Juss.

A South American species not recorded from continental North America by Niedenzu. It has been found now in British Honduras (Stann Creek, *Schipp* 880, S-59) and Guatemala (Puerto Barrios, *Deam* 6018; Livingston, *Tuerckheim* II 1356).

3. Stigmaphyllon puberum (Rich.) A. Juss.

SPECIMENS EXAMINED:

BRIT. HONDURAS: Punta Gorda, *Schipp* 1009. Corozal-Consejo Road, *Lundell* 4889.
According to Schipp this plant is known as "Eldorado."

4. Stigmaphyllon lindenianum A. Juss.

Stigmatophyllum tiliifolium var. *sericans* Ndzu.
Stigmatophyllum tiliifolium var. *sericans* f. *grandifolia* Ndzu.

After a study of a large series of specimens of *S. lindenianum* and *S. tiliifolium* I have concluded that the two species can not be differentiated as treated by Niedenzu in Das Pflanzenreich, where they are keyed as follows:

Leaves subentire, glabrate above, puberulous beneath ..... **S. tiliifolium**
Some of the larger leaves 3 or 5-lobed, the adult ones pilose beneath ..... **S. lindenianum**

The characters of pubescence may be at once discarded as untrue, inasmuch as Niedenzu's own descriptions (and the plants themselves) contradict them. Niedenzu divides *S. tiliifolium* into var. *typicum* (leaves tomentose beneath) and var. *sericans* (leaves sericeous beneath), among other varieties. *Stigmaphyllon lindenianum* is similarly divided into var. *typicum* (leaves sericeous beneath) and var. *lupulus* (leaves tomentose beneath). So it is seen that the only distinction left is to be found in the lobing of the leaves; but this is variable, and an almost complete gradation between entire and deeply lobed leaves is to be found, often on specimens from the same plant. When the character of pubescence alone is considered, the two species may be quickly and accurately recognized even at arm's length. They may therefore be treated as follows:[1]

Leaves sericeous beneath, the hairs closely appressed ..... **S. lindenianum**
(incl. *S. tiliifolium* var. *sericans* Ndzu.)
Leaves tomentose beneath ..... **S. humboldtianum**
(incl. *S. lindenianum* var. *lupulus* (Wats.) Ndzu.)

[1] *Stigmaphyllon tiliifolium* (H.B.K.) Ndzu. is an invalid name. The proper name is *S. humboldtianum* (DC.) A. Juss.

These varieties have been recognized as distinct species (as *Stigmaphyllon sericans* Small and *S. lupulus* Wats.), but the characters which have been advanced to uphold them seem not to exist in the abundant material at hand.

SPECIMENS EXAMINED:

YUCATAN: Without locality, *Gaumer* 408. Izamal, *Gaumer* s. n. Maxcanu, *Gaumer* 23264. Xnocac, *Gaumer* 23477. Kancabconot, *Gaumer* 23538, 23538 bis, 23900. Pocoboch, *Gaumer* 24075. Jitas, *Schott* 771. Without locality, *Gaumer* 24118; *Johnson* s. n.; *Goldman* 577.

BRIT. HONDURAS: Rio Grande, *Schipp* S-464. Middlesex, *Schipp* 468. El Cayo, *Bartlett* 12939. *Chanek* 164, 186.. Little Cocquericot, *Lundell* 4086. Sibun River, *Gentle* 1425.

8. MALPIGHIA L.

Styles straight, equal. Leaves ovate or lanceolate, usually acute at apex, glabrous ..... 1. **M. glabra**

Styles curved, the two posterior longer and thicker than the anterior.

Stamens opposite the two lateral petals not longer or thicker than those opposite the sepals; leaves obovate or oblong, rounded or emarginate at apex, glabrate; common peduncle of the inflorescence usually obsolete ..... 2. **M. punicifolia**

Stamens opposite the lateral petals obviously longer and thicker than those opposite the sepals; leaves canescent or sericeous; common peduncle well developed.

Leaves rounded or retuse at apex, even at maturity densely silvery-sericeous beneath, oval, 2-3.5 cm. broad; peduncle 12-23 mm. long; styles uncinate ..... 3. **M. lundellii**

Leaves acuminate, canescent beneath, oblong or lanceolate, 1-2 cm. broad; peduncle 4-6 mm. long; styles obtuse ..... 4. **M. incana**

1. Malpighia glabra L.

A very common species, often cultivated.

SPECIMENS EXAMINED:

YUCATAN: Lake Chichankanab, *Gaumer* 23653, 23721. San Anselmo, *Gaumer* 1755. Progreso, *Flores* s. n. Without locality, *Gaumer* 972.

CAMPECHE: Tuxpeña, *Lundell* 886, 1378. Reforma, *Lundell* 837.

BRIT. HONDURAS: Corozal District, *Gentle* 151, 164, 225, 463, 466, 531, 536. San Andrés, *Gentle* 144, 830. Punta Gorda, *Schipp* 1030. El Cayo, *Bartlett* 11981, 12001, 12881; *Chanek* 116, 196. Orange Walk District, *Winzerling* s. n.

GUATEMALA, DEPT. PETÉN: El Paso, *Lundell* 1585.

2. Malpighia punicifolia L.

This species is quite as common as *M. glabra*.

SPECIMENS EXAMINED:

YUCATAN: Chichen Itza, *Steere* 1439; *Bequaert* 31. Izamal, *Gaumer* 706. Kancabconot, *Gaumer* 23878, 23878 bis. Silam, *Gaumer* 23331. Suitun, *Gaumer* 23309. Without locality, *Gaumer* 23982.

CAMPECHE: Tuxpeña, *Lundell* 1028. Champotón, *Flores* 7.

BRIT. HONDURAS: El Cayo, *Bartlett* 12948. Without locality, *Record* 7; *Castillo* 4.

GUATEMALA, DEPT. PETÉN: La Libertad, *Lundell* 3356, 3568, 3612, 3732.

3. Malpighia lundellii Morton, sp. nov.

Arbor 6 m. alta, trunco ca. 12.5 cm. diametro; rami glabri, longitudinaliter striati, ramulis hornotinis flavido-sericeis; folia opposita, petiolata, petiolo brevi, vix 0.5 mm. longo, arcte sericeo, supra canaliculato, stipulata, stipulis minutis, subulatis, integris, ca. 1.5 mm. longis, plus minusve persistentibus, lamina foliorum ovali, usque ad 9 cm. longa et 3.5 cm. lata, apice rotundata vel retusa, sæpe mucronulata, basi obtusa, chartacea, supra sparse sericeo-strigosa, permox glabra, pallide viridi, venulis prominulis, subtus dense argentea-sericea, glandulis duobus minutis basin versus prædita; inflorescentia subumbellata, usque ad 4.5 cm. longa, pedunculo communi usque 2.3 cm. longo, tenuiter sericeo, bracteis geminis lanceolatis, acuminatis, ca. 2 mm. longis, sericeis, pedunculo florifero usque ad 7 mm. longo, sericeo, apice bibracteolato, bracteolis ovatis, ca. 1 mm. longis, basi latis, apice acutis, pedicellis quam pedunculo florifero longioribus, usque ad 9 mm. longis, tenuiter sericeis, sursum sensim incrassatis; calycis lobi ovato-lanceolati, ca. 3.5 mm. longi, glandulas 8 oblongas ca. 2.5 mm. longas basi plus minusve confluentes gerentes, apice liberi, et incurvi, strigosi, obtusi; petala rubra, ca. 10 mm. longa, longe unguiculata, ungue crasso, canaliculato, ca. 4 mm. longo, limbo orbiculari, concavo, dorso carinato, perspicue erosolacerato, utrinque glabro, eglanduloso, basi cuneato, petalo quinto subsimili; andrœceum zygomorphum, filamentis basi connatis, glabris, filamentis 2 petalis postico-lateralibus oppositis ceteris 8 multo crassioribus, antheris glabris; gynæceum zygomorphum, ovario pro parte sericeo, stylis glabris, 2 posticis quam antico directo longioribus, evidenter curvatis, apice uncinatis; baccæ non suppetunt.

Type in the U. S. National Herbarium, No. 1,586,346, collected at Betsy Croft, Belize River, British Honduras, June 8, 1933, by C. L. Lundell (No. 4083). Duplicate in the herbarium of the University of Michigan.

ADDITIONAL SPECIMENS EXAMINED:

BRIT. HONDURAS: Tiger Point, Northern River, *Gentle* 885. Orange Walk District, Winzerling I-15, VIII-6.

A peculiar species, probably most nearly related to *Malpighia incana* Miller, from which it may be distinguished by the characters given in the key. Mr. Winzerling's specimen I-15 has the note: "Tree looks like 'Red Fowl' but has no prickles, grows in clusters like logwood, in wet places near Pine Ridge. Has dull-like thorns [probably abortive branches]. Medium hard wood. Back of leaf silvery-grey in colour. Tree about 5 in. diam. and 20 ft. tall. Small red flowers." On the label for *Winzerling* VIII-6 the common name is given as "Hicatee plum."

4. Malpighia incana Mill.

This species was described from material cultivated from seeds said to have come from Campeche, but it has not since been found in that region. Niedenzu records it only from Cuba.

9. BUNCHOSIA Rich.

Ovary and style hairy; some of the petals glandular-toothed ..... 1. **B. lanceolata**
Ovary and style glabrous; petals eglandulose ..... 2. **B. swartziana**

1. Bunchosia lanceolata Turcz.

Specimens of this species from the Yucatan Peninsula have usually been called *Bunchosia nitida* (Jacq.) Rich., a West Indian species, apparently not very closely related.

SPECIMENS EXAMINED:

BRIT. HONDURAS: All Pines, *Schipp* S-148. Kendal, *Schipp* 802. San Andrés, *Gentle* 7, 67; *Lundell* 4731, 4820. America's Estate, *Gentle* 118; *Lundell* 4947. Without locality, *Winzerling* V 21; *Gentle* 517.

GUATEMALA, DEPT. PETÉN: La Libertad, *Lundell* 3499. Monte Polol, *Lundell* 3761.

The last two specimens differ in some respects from the others and may be referable to some other species. They are in very young bud only.

2. Bunchosia swartziana Griseb.

The specimens here cited have usually been identified as *Bunchosia glandulosa* (Cav.) Rich., a species confined to the West Indies. In fact, Niedenzu himself recorded *B. glandulosa* from Yucatan on the basis of *Gaumer* 411; but an examination of specimens of this number shows that they also are referable to *B. swartziana*, which belongs to a different subsection of the genus (*Xanthozeugma*). At the same time other Yucatan specimens were referred by Niedenzu to *B. swartziana* as a new variety (var. *yucatanensis* Ndzu.), but they seem to differ in no respect from typical West Indian material. Niedenzu also records *B. media* (Ait.) DC. from Yucatan on the basis of *Seler* 3942 and 3986. I have not seen these specimens, but it seems quite possible that they also will prove to be *B. swartziana*.

In the fruiting condition this species is not always easy to distinguish from *Bunchosia lanceolata*. Even at maturity the fruits of *B. lanceolata* bear a few persistent hairs, whereas those of *B. swartziana* are glabrous from the beginning. The two species sometimes differ in aspect also, the leaves of *B. swartziana* being usually smaller and yellowish-green.

SPECIMENS EXAMINED:

YUCATAN: Izamal, *Gaumer* 474, 23376. Tecal, *Gaumer* 23283. Valladolid, *Steere* 1656. Chichen Itza, *Steere* 1602; *Bequaert* 39. Progreso, *Flores* s. n. Without locality, *Schott* 84; *Valdez* 96; *Gaumer* 411, 23958, 24286.

BRIT. HONDURAS: Jacinto Hills, *Schipp* S-624, 1308. Corozal-Pachacan Road, *Gentle* 47; *Lundell* 4802. Xiabe, *Gentle* 838. Without locality, *Winzerling* X 2.

GUATEMALA, DEPT. PETÉN: La Libertad, *Lundell* 2920, 3488, 3567, 3961. Sabana San Francisco, La Libertad, *Lundell* 2474.

10. BYRSONIMA Rich.

Leaves obovate, rounded at apex, short-petiolate; hairs of the torus much intertangled ..... 1. **B. bucidæfolia**
Leaves elliptic, lanceolate, or rarely obovate, usually acute, longer-petiolate; hairs of the torus straightish ..... 2. **B. crassifolia**

1. Byrsonima bucidæfolia Standl.

SPECIMENS EXAMINED:

YUCATAN: Kancabconot, *Gaumer* 23869 (type). Without locality, *Gaumer* 23966, 24012, 24391.

BRIT. HONDURAS: Honey Camp, *Lundell* 353; *Meyer* 14, 18. Without locality, *Winzerling* I 3.

2. Byrsonima crassifolia (L.) H.B.K.

This is a common and wide-spread species, varying greatly in leaf form and pubescence, which is excluded from the flora of continental North America by Niedenzu, who refers the specimens to *B. cotinifolia, B. pulchra, B. oaxacana, B. cumingiana,* and *B. laurifolia* var. *guatemalensis.* The characters used in distinguishing these do not seem constant in the material I have examined, indicating that they are merely forms of the variable *B. crassifolia,* as suggested by Standley in his description of *Byrsonima bucidæfolia.*

SPECIMENS EXAMINED:

YUCATAN: Cozumel Island, *Gaumer* 95. Kancabconot, *Gaumer* 23849, 23849 bis. Izamal, *Gaumer* 23836. Lake Chichancanab, *Steere* 2414. Chichen Itza, *Steere* 1543. Without locality, *Gaumer* 1083, 23996.

BRIT. HONDURAS: Mountain Pine Ridge, *Bartlett* 13055, 13114. Belize, *Bartlett* 11217. North of Baldy Sibun, *Kinloch* 78. Stann Creek Railway, *Schipp* 176. Roaring Creek, *Lundell* 388, 458. Belize-Sibun Road, *Gentle* 48. Corozal District, *Gentle* 334. Big Fall Pine Ridge, *Lundell* 4091, 4092. Without locality, *Klugge* 16; *Heyder* 47.

GUATEMALA, DEPT. PETÉN: La Libertad, *Lundell* 2348, 2573, 3007. El Sos, *Lundell* 1648.