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TUBIFLORAE

The Tubiflorae in the sense of Engler (11th edition) in Guatemala contains sixteen families. Some of these families are important in the flora, with numerous genera and species. The group, as a whole, is most conspicuous in the flora toward the end of the rainy season.

The families of this order are often very closely related. Because of this relationship, due to parellel development or not, it is often difficult, if not impossible, to write a family description of one family which will exclude all those members of a related family. It is in fact sometimes difficult to relate a genus to a family and to be sure that it does not belong in another. Dr. Standley in the preliminary manuscript of this flora had placed two genera in the Scrophulariaceae that are now included in the Bignoniaceae. There are genera generally placed in Solanaceae that might as well be called Scrophulariaceae.

General Characters of the Tubiflorae

These families, with exceptions, have corollas that are (or are said to be) tubular, hence Tubiflorae; the flowers are perfect; the leaves are simple; the stamens are usually not adnate and are said to be free; the ovary is superior, and of limited carpels; there are no stipules. Exceptions occur in every one of these characters except perhaps the first and the last, hence a key to the families in which exceptions occur; I, Those that have compound leaves; II, Those in which the ovary is inferior or appears to be so; III, Those in which the stamens (or anthers) are connate; IV, Those in which unisexual flowers occur; and V, the family in which stipules (actually pseudostipules) occure. *

Key to Tubiflorae

A Leaves opposite
 B Flowers zygomorphic
  C Stamens the same number as the corolla lobes
   D Stigma one
    E Ovule one in each locule.....Solanaceae
    E' Ovules two or more in each locule
     F Locule one.....Boraginaceae
     F' Locules two or more.....Labiatae
    E'' Ovules numerous in each locule
     F Placentation axile.....Solanaceae
      Scrophulariaceae
     F' Placentation parietal.....Gesneriaceae
   D' Stigmas two or more
    E Ovule one in each locule
     F Locule one.....Pedaliaceae
     F' Locules two or more
      G Corolla lobes imbricate.....Verbenaceae
      G' Corolla valvate or contorted.....Polemoniaceae
    E' Ovules two or more in each locule
     F Locule one
      G Corolla lobes imbricate.....Pedaliaceae
      G' Corolla valvate or contorted.....Acanthaceae

* The key to the families of the Tubiflorae and the key that follows, to the sections of part of the genus Salvia, were prepared as a project carried out under the Skinner Foundation Scholarship at Field Museum.

F' Locules two or more.....Polemoniaceae
E''Ovules numerous in each locule
F Corolla lobes imbricate
G Locule one.....Pedaliaceae
Scrophulariaceae(rare)
G' Locules two.....Scrophulariaceae
Polemoniaceae
F' Corolla valvate, convolute or contorted
G Locule one.....Acanthaceae
G' Locule two or more.....Polemoniaceae
C' Stamens not the same number as the corolla lobes
D Stigma one
E Ovule one in each locule.....Solanaceae
E' Ovules two or more in each locule.....Labiatae
E''Ovules numerous in each locule
F Placentation axile
G Locule one.....Pedaliaceae
Scrophulariaceae(rare)
G' Locules two or more.....Scrophulariaceae
F' Placentation parietal.....Gesneriaceae
D' Stigmas two or more.
E Ovule one in each locule
F Locule one.....Pedaliaceae
F' Locules two or more.....Verbenaceae
E' Ovules two or more in each locule
F Corolla lobes imbricate.....Pedaliaceae
F' Corolla lobes valvate.....Acanthaceae
E''Ovules numerous in each locule
F Placentation axile
G Corolla lobes imbricate
H Locule one.....Pedaliaceae
Scrophulariaceae(rare)
H' Locules two or more.....Scrophulariaceae
Bignoniaceae(rare)
G' Corolla valvate, convolute, or
contorted.....Acanthaceae
F' Placentation parietal.....Martyniaceae
Bignoniaceae(rare)
B' Flowers actinomorphic
C Stigma one
D Ovule one in each locule.....Solanaceae
D' Ovules two or more in each locule
E Locule one.....Boraginaceae
E' Locules two or more.....Labiatae
D''Ovules numerous in each locule
E Placentation axile.....Solanaceae
E' Placentation parietal
F Sepals valvate.....Gesneriaceae
F' Sepals imbricate.....Hydrophyllaceae
Gesneriaceae(rare)
C' Stigmas two or more
D Corolla lobes imbricate.....Verbenaceae
D' Corolla lobes valvate.....Polemoniaceae

A' Leaves alternate
B Flowers zygomorphic
C Stamens same number as corolla lobes
D Stigma one
E Ovule one in each locule.....Solanaceae
E' Ovules two or more in each locule.....Boraginaceae
E''Ovules numerous in each locule
F Placentation axile.....Solanaceae
Scrophulariaceae
F' Placentation parietal.....Gesneriaceae
D' Stigmas two or more
E Corolla lobes valvate.....Polemoniaceae
E' Corolla lobes imbricate.....Scrophulariaceae
C' Stamens not the same number as the corolla lobes
D Ovule one in each locule.....Solanaceae
D' Ovules numerous in each locule.....Solanaceae
Scrophulariaceae
Lentibulariaceae
B' Flowers actinomorphic
C Stigma one
D Ovule one in each locule.....Solanaceae
Convolvulaceae
D' Ovules two or more in each locule.....Boraginaceae
Convolvulaceae
D''Ovules numerous in each locule
E Placentation axile.....Solanaceae
E' Placentation parietal.....Hydrophyllaceae
Gesneriaceae
C' Stigmas two or more
D Corolla lobes imbricate.....Verbenaceae
Convolvulaceae(rare)
D' Corolla lobes valvate.....Polemoniaceae
D''Corolla lobes plicate-contorted.....Convolvulaceae
A''Leaves scale-like, parasitic, lacking chlorophyll or seemingly so
B Ovules numerous in each locule.....Orobanchaceae
B' Ovule one in each locule.....Lennoaceae

EXCEPTIONS TO GENERAL CHARACTERS

I Compound leaves
A Stamens the same number as the corolla lobes.
B Stigma one.....Labiatae (pinnate)
B' Stigmas two or more
C Corolla lobes imbricate.....Verbenaceae(pinnate or palmate)
C' Corolla lobes valvate.....Polemoniaceae(pinnate)
A' Stamens not the same number as the corolla lobes
B Stigma one.....Labiatae
B' Stigmas two or more
C Ovule one in each locule.....Verbenaceae
C' Ovules numerous in each locule.....Bignoniaceae(pinnate)

II Ovary inferior
A Stigma one, parietal placentation.....Gesneriaceae
A' Stigmas two or more, axile placentation.....Pedaliaceae

III Stamens connate (mostly by anthers)

A Stigma one

B Ovule one in each locule.....Solanaceae

B' Ovules numerous in each locule

C Placentation axile.....Solanaceae, Scrophulariaceae

C' Placentation parietal.....Gesneriaceae

A' Stigmas two or more

B Corolla lobes imbricate.....Scrophulariaceae, Bignoniaceae

B' Corolla lobes valvate, convolute, contorted..Acanthaceae

IV Flowers unisexual

A Stigma one

B Corolla lobes convolute, plicate-contorted...Convolvulaceae(rarely unisexual)

B' Corolla lobes imbricate.....Boraginaceae
Convolvulaceae (rarely unisexual)

A' Stigmas two or more.....Verbenaceae
Convolvulaceae(rarely unisexual)

V Stipulate
Pseudostipules - Solanaceae ..... Solanaceae

5 4 Ovule one in each locule.....Solanaceae.
5 4 Ovules more than 1 in each locule.
6 5 4 Ovules two or more in each locule.....Boraginaceae.

6 5 4 Ovules numerous in each locule.

7 6 5 Placentation axile.....Solanaceae and Scrophulariaceae.
7 6 5 Placentation parietal.....Gesneriaceae.

4 3 Stigmas two or more.

5 4 Corolla lobes valvate.....Polemoniaceae.

5 4 Corolla lobes imbricate.....Scrophulariaceae.

3 2 Stamens not the same number as the corolla lobes

4 3 Ovule one in each locule.....Solanaceae.

4 3 Ovules numerous in each locule.....Solanaceae, Scrophulariaceae and Lentibulariaceae.

2 1 Flowers actinomorphic.

3 2 Stigma one.

4 3 Ovule one in each locule.....Solanaceae and
4 3 Ovules more than 1 in each locule. Convolvulaceae.
5 4 3 Ovules two or more in each locule.....Boraginaceae and Convolulaceae.

5 4 3 Ovules numerous in each locule.

6 5 4 Placentation axile.....Solanaceae.

6 5 4 Placentation parietal.....Hydrophyllaceae and Gesneriaceae.

3 2 Stigmas two or more

4 3 Corolla lobes imbricate.....Verbenaceae and
4 3 Corolla lobes NOT imbricate. Convolvulaceae.
5 4 3 Corolla lobes plicate-contorted.....Convolvulaceae.

5 4 3 Corolla lobes valvate.....Polemoniaceae

f1 Leaves scale-like; parasitic, lacking chlorophyll or seemingly so.

1 Ovules numerous in each locule.....Orobanchaceae.

1 Ovule one in each locule.....Lennoaceae.

β Tubiflorae

EXCEPTIONS TO GENERAL CHARACTERS

I. FAMILIES in which Compound leaves may occur.

~~fl Compound leaves.~~

fl. X Stamens the same number as the corolla lobes

1/ Stigma one.....(~~leaves pinnate~~).....Labiatae, (~~pinnate~~)

1/ Stigmas two or more.

2/ Corolla lobes imbricate.....(~~leaves pinnate or palmate~~).....Verbenaceae, (~~pinnate or palmate~~).

2/ Corolla lobes valvate.....(~~leaves pinnate~~).....Polemoniaceae. (~~pinnate~~).

fl. X Stamens not the same number as the corolla lobes.

1/ Stigma one.....Labiatae.

1/ Stigmas two or more.

2/ Ovule one in each locule .....Verbenaceae

2/ Ovules numerous in each locule .....Bignoniaceae. (~~pinnate~~)

II. ~~fl II Ovary inferior~~ Fam of Tub in which Inferior ovaries may occur.

fl X Stigma one, parietal placentation ..... Gesneriaceae.

fl X Stigmas two or more, axile placentation..... Pedaliaceae.

III. ~~fl III Stamens connate (mostly by anthers)~~ FAM of Tub in which the Stamens may be connate (mostly by anthers).

fl X Stigma one.

1/ Ovule one in each locule .....Solanaceae.

1/ Ovules numerous in each locule.

2/ Placentation axile.....Solanaceae and Scrophulariaceae.

2/ Placentation parietal .....Gesneriaceae.

fl X Stigmas two or more.

1/ Corolla lobes imbricate.....Scrophulariaceae and Bignoniaceae.

1/ Corolla lobes valvate, convolute, contorted.....Acanthaceae.

IV. ~~fl IV Flowers unisexual~~ Fam Tub. in which unisexual fl. may occur

fl X Stigma one.

1/2 Corolla lobes convolute, plicate-contorted.....Convolvulaceae (~~rarely unisexual~~)

1/2 Corolla lobes imbricate.....Boraginaceae and Convolvulaceae, (~~rarely~~ unisexual)

fl 1 Stigmas two or more.....Verbenaceae and Convolvulaceae, (~~rarely~~ unisexual)

V. ~~fl V Stipulate~~ Family in which stipules or pseudostipules may occur.

fl. 1 Pseudostipules.....one family..... Solanaceae,

The key to the families of the Tubiflorae ~~and the keys that follow, to the exceptions,~~ was prepared by Mary James as part of a project carried on under a Shinner Foundation scholarship at Field Museum.

insert {

Key to Tubiflorae

1 fl. Leaves not scale-like; not parasitic, ~~[illegible]~~ chlorophyll present.

1 ~~fl.~~ Leaves opposite.

2 Flowers zygomorphic.

3 Stamens the same number as the corolla lobes.

4 Stigma one.

5 Ovule one in each locule ..... Solanaceae

5 Ovules more than 1 in each locule.

6 Ovules two or more in each locule.

7 Locule one ..... Boraginaceae

7 Locules two or more ..... Labiatae

6 Ovules numerous in each locule.

7 Placentation axile ..... Solanaceae and Scrophulariaceae.

7 Placentation parietal ..... Gesneriaceae

4 Stigmas two or more.

5 Ovule one in each locule.

6 Locule one ..... Pedaliaceae

6 Locules two or more.

7 Corolla lobes imbricate ..... Verbenaceae

7 Corolla valvate or contorted ..... Polemoniaceae

5 Ovules more than 1 in each locule.

6 Ovules two or more in each locule.

5 etc

7 Locule one.

8 Corolla lobes imbricate ..... Pedaliaceae

8 Corolla valvate or contorted ..... Acanthaceae

7 Locules two or more ..... Polemoniaceae

6 Ovules numerous in each locule.

7 Corolla lobes imbricate.

8 Locule one.....Pedaliaceae and Scrophulariaceae(rare).

8 Locules two .....Scrophulariaceae and Polemoniaceae.

7 Corolla valvate, convolute or contorted

8 Locule one.....Acanthaceae

8 Locule two or more.....Polemoniaceae.

5 Corolla valvate, convolute or contorted

6 Locule one ..... Acanthaceae

6 Locule two or more ..... Polemoniaceae.

3 Stamens not the same number as the corolla lobes.

4 Stigma one.

5 Ovule one in each locule .....Solanaceae.

5 Ovules more than one in each locule.

6 Ovules two or more in each locule..... Labiatae.

6 Ovules numerous in each locule.

7 Placentation axile

8 Locule one.....Pedaliaceae and Scrophulariaceae (rare).

8 Locules two or more .....Scrophulariaceae.

7 Placentation parietal.....Gesneriaceae.

4 Stigmas two or more.

5 Ovule one in each locule

6 Locule one.....Pedaliaceae.

6 Locules two or more .....Verbenaceae.

5 Ovules more than 1 in each locule.

6 Ovules two or more in each locule.

7 Corolla lobes imbricate.....Pedaliaceae.

7 Corolla lobes valvate .....Acanthaceae.

6 Ovules numerous in each locule.

7 Placentation axile

8 Corolla lobes imbricate

9 Locule one.....Pedaliaceae
Scrophulariaceae (rare)

9 Locules two or more.....Scrophulariaceae
Bignoniaceae (rare).

8 Corolla valvate, convolute, or contorted.....Acanthaceae.

7 Placentation parietal.....Martyniaceae and
Bignoniaceae (rare).

2 Flowers actinomorphic

3 Stigma one

4 Ovule one in each locule .....Solanaceae.
4 Ovules, more than 1 in each locule.

5 Ovules two or more in each locule

6 Locule one .....Boraginaceae.

6 Locules two or more .....Labiatae.

5 Ovules numerous in each locule,

6 Placentation axile.....Solanaceae.

6 Placentation parietal.

7 Sepals valvate.....Gesneriaceae.

7 Sepals imbricate.....Hydrophyllaceae and
Gesneriaceae (rare).

3 Stigmas two or more.

4 Corolla lobes imbricate.....Verbenaceae.

4 Corolla lobes valvate.....Polemoniaceae.

1 Leaves alternate.

2 Flowers zygomorphic.

3 Stamens same number as corolla lobes.

4 Stigma one.

Convolvulaceae. Morning glory family

Herbs, vines (usually twining), shrubs or rarely trees, the sap often milky; leaves simple (but often lobate, pinnate or pectinate) estipulate or reduced to scales in cuscuta, estipulate; inflorescence axillary, the flowers solitary or in dichasia, heads, or panicles; flowers perfect regular or slightly zygomorphic often large and showy but fugacious;

corolla sepals 5, free, imbricated, equal or not, usually persistent and often accrescent in fruit; corolla sympetalous, tubular, funnelform, campanulate or salverform, the limb with 5 lobes or teeth or almost entire, often induplicate in bud and with distinctly limited longitudinal midpetaline areas or stripes; anthers 5, distinct, inserted on the base of the

corolla tube and alternate with the lobes, linear or oblong, 2-celled, introrse; disc annular or cupular, sometimes 5-lobate, or none; ovary superior, mostly 2-3-celled and each cell ~~with~~ biovulate, ~~2 ovules~~, or 4-6-celled and the cells uniovulate, - rarely 1 celled with 4 ovules; the ovary of 2-4 almost free carpels; style filiform, simple or bifid or with 2 distinct styles; stigma capitate or bilobate, or the stigmas two and globose, ellipsoid or linear; fruit 4-1-celled, usually capsular and deliscent by valves, rarely transversely or irregularly deliscent, or indehiscent; seeds often fewer than the ovules, often pubescent, with sometimes scanty but very hard endosperm.

Page 1a

Ac to Typ

The Convolvulaceae, worldwide but most numerous in the tropics, contains some 40 to 50 genera the largest being Ipomoea with perhaps 300 species. These are often common and showy in Central America in both dry and wet regions, especially at the end of the rainy season. Ipomoea batatas, sweet potato, is one of the important food plants in the tropics of the world. It is widely cultivated in Central America. Several kinds are grown as ornamentals. Weeds are of common occurrence in the family in tropical America.

The family is badly in need of critical revision. We have done the best we could with limited time.

One other genus, STICTOCARDIA, is known in Central America.

The family is a natural one and the genera are not easy to delimit. We have accepted them mostly in traditional usage.

ALBERTO

Most work on the Convolvulaceae has been carried out in recent years by the brilliant Argentine botanist Carlos A O'Donell (1912-1954). Posthumous works published in ~~Lilloa~~Lilloa (29: 19-376. 1959) indicate O'Donell's thinking along generic lines. It was a great tragedy for American systematics that his young man of such great promise died so young.

CONVOLVULACEAE. Morning-glory Family

Annual or perennial herbs, often twining, or woody vines, rarely trees; leaves alternate, mostly petiolate, without stipules; flowers perfect, regular or slightly zygomorphic, often large and showy, variously colored, axillary, solitary or in cymes, heads, or panicles; sepals 5, free, imbricate, equal or unequal, usually persistent and often accrescent in fruit; corolla gamopetalous, tubular, campanulate, funnelform, or salverform, the limb with 5 lobes or teeth or almost entire, often induplicate in bud and with distinctly limited longitudinal midpetaline areas or stripes; stamens 5, inserted on the corolla tube; filaments filiform, often dilated and pilose at the base; anthers linear or oblong, 2-celled, introrse; disk annular or cupular, sometimes 5-lobate, or none; ovary superior, mostly 2-3-celled, each cell with 2 ovules, or 4-6-celled, the cells then 1-ovulate, the ovary rarely of 2-4 almost free carpels; style filiform, rarely short, simple or bifid, or the styles 2 and distinct; stigma capitate or bilobate, or the stigmas 2 and globose, ellipsoid, or linear; fruit 4-1-celled, usually capsular and dehiscent by valves, rarely transversely or irregularly dehiscent, or indehiscent; seeds often fewer than the ovules, glabrous or pubescent, often 3-angulate.--About 40 genera, widely distributed, the species most numerous in the tropics. The only other genus represented in Central America is Stictocardia. The family is badly in need of critical revision, so far as tropical American species are concerned, and comprehensive recent treatments are available for only a few of the groups.

Key

1 Plants slender twining parasites, without any green coloring, the stems yellow or orange; leaves reduced to scales.....Cuscuta.

1 Plants not parasitic, the leaves green; leaves normally developed.

2 Ovary and fruit deeply 2-lobate, or the carpels distinct. Small creeping herbs with minute flowers; leaves reniform, sericeous beneath.....Dichondra.

2 Ovary and fruit entire, not lobate.

3 Fruit indehiscent, somewhat baccate or dry, or dehiscent but the seeds surrounded by orange-colored pulp. Woody vines.

3 | Leaves cordate or subcordate at the base. Seed usually 1; corolla white. ~~xxxxx~~ Turbina.

Leaves obtuse or acute at the base.

4 | Fruit indehiscent; flowers purple, 3.5-5 cm. long; leaves glabrous beneath or nearly so.....Maripa.

Fruit dehiscent; flowers greenish, 1 cm. long; leaves densely sericeous beneath. Itzaea.

Fruit dehiscent, dry; seeds never surrounded by pulp.

3 Style 1 and 2-fid, or the styles 2 and distinct.

4 | Plants scandent, woody; styles ~~2-fid~~ entire; stigmas capitate.....Breweria.

Plants not scandent, herbaceous, small; stigmas elongate.....Evolvulus.

3 Style 1, entire.

4 Sepals very unequal, the outer ones much broader and concealing the inner ones,

6 | ovate, green. Herbaceous vines; leaves obtuse or acute at the base; flowers white.....Aniseia.

4 Sepals subequal, ~~xxxxxxx~~ or but slightly unequal, the outer ones often shorter

6 or narrower than the inner.

5 | Stigmas elliptic or oblong. Small or large vines, the flowers usually small. Jacquemontia.

Stigmas globose or biglobose.

6 | Capsule transversely dehiscent.....Operculina.

Capsule opening by vertical valves.

7 Stamens and style exserted.

8 | Corolla salverform, white or blue.....Calonyction.

Corolla funnelform or tubular, rarely salverform, red, orange, yellow, bronze, or greenish.....Quamoclit.

7 Stamens and style not exserted.

8 | Pollen smooth; herbaceous vines; flowers yellow or white....Merremia.

Pollen echinate; plants various in habit, often woody; flowers various

10 in color, mostly often blue or purple, rarely white or yellow. Ipomoea.

OK to type
Nov 19, 1962

ANISEIA Choisy

Plants herbaceous, prostrate or scandent; leaves linear to ovate or elliptic, often mucronate, entire; flowers small, axillary, solitary or in few-flowered dichasial inflorescences; sepals 5, herbaceous, unequal, the 3 outer ones larger, often decurrent on the pedicel; corolla funnelform, the limb 5-dentate or subentire, with 5 longitudinal pubescent stripes outside; stamens and style included; ovary glabrous, 2-celled, the cells bi-ovulate; disk small or none; style 1, slender, the stigma biglobose; capsule globose, 2-celled, 4-valvate, 4-seeded. About 5 species, one other species is known from southern Central America.

Jacquemontia chiapensis Brandeg. Univ. Calif. Publ. Bot. 6: 60.1914.

Aniseia cernua Moric. Pl. Nouv. Amer. 56. 1838. Wet thickets or wet meadows bordering lakes, 800 meters or less; Jutiapa; Escuintla. Southern Mexico; British Honduras; Honduras; Salvador; South America. A slender herbaceous vine, the stems prostrate and rooting or usually twining, appressed-pilose; leaves narrowly oblong or linear-lanceolate, 3-10 cm. long, 1.5 cm. wide or narrower, acute or rounded and mucronate at the apex, acute at the base, somewhat fleshy when fresh, appressed-pilose with whitish hairs or glabrate, short-petiolate; peduncles axillary, mostly 1-flowered, shorter than the leaves; bracts linear, 2-4 mm. long; sepals appressed-pilose, the 3 outer ones ovate, acute or acuminate, broadly rounded or subcordate at the base, 9-13 mm. long, the 2 inner ones ovate, acuminate; corolla white, 1.5 cm. long or larger; capsule 2 cm. long; seeds black, glabrous. Called "Bejuco de pescado" in Salvador, the tough stems being used there for stringing fish. A. martinicensis (Jacq.) Choisy, found in Salvador, Nicaragua, Costa Rica and Panama, to Brazil, is similar in appearance, but the sepals are conspicuously decurrent on the pedicels.

A. martinicensis (Jacq.) Choisy and its var. nitens (Choisy) O'Donell occur in central America.

var. nitens (Choisy) O'Donell

ILLUS

DIC.
11/20/1968

BONAMIA Petit-Thouars

Tin Myint & Daniel B. Ward,

Reference: A taxonomic revision of the genus Bonamia, Phytologia 17:121-239, figs. 1968.

Herbaceous or woody vines, or the plants sometimes prostrate and not twining, glabrous or pubescent; leaves entire; flowers cymose, the cymes axillary and short-pedunculate, sometimes forming a terminal panicle, the bracts small; sepals obtuse or rarely acute, subequal or the outer ones larger and orbicular-cordate; corolla campanulate, the limb plicate, 5-sinulate; stamens shorter than the corolla, the filaments filiform, often dilated at the base, the anthers oval or oblong; ovary 2-celled, 4-ovulate, the style filiform, bifid, or the styles 2 and free, the stigmas capitate; capsule globose or ovoid, 4-valvate, membranaceous or coriaceous; seeds 4 or by abortion fewer, glabrous or pilose.—Species about 30, in tropical regions of both hemispheres. Only one has been found in Central America.

Three species

~~Subgenus~~

Sepals 1-1.5 ~~mm~~ cm. long..... B. sulphurea.

Sepals 0.4-0.5 cm. long..... B. brevipedicellata.

Bonamia brevipedicellata Myint & Ward, Phytologia 17: 188, fig. 1968.

Forest edges and clearings, near sea level, endemic, Machaca, British Honduras, (type Shipp 1210).

Woody vines to 15 m. or more long and 2-3 cm. in diameter. Leaves elliptic to ovate-elliptic, acute or acuminate, rounded or obtuse at the base, 8-12 cm long and 4-7 cm. broad, glabrous above, densely puberulent below, the petioles 2-3 cm. long; inflorescence axillary, a compact many-flowered cyme, up to 10 cm. long or perhaps more with short pedicels to 3 mm. long; sepals subequal, ovate-orbicular, 4-5 mm. long and 3-4 mm. broad, densely puberulent; corolla campanulate with a narrow cylindrical tube, 1-1.2 cm. long, hirsute on the interplicae; stamens included; styles free to the base, subequal, 1 cm. long or less, stigmas peltate-subglobose.

Bonamia sulphurea (Brandegee) Myint & Ward, Phytologia 17: 178. 1968. Breweria sulphurea Brandegee, Univ. Calif. Publ. Bot. 4: 384. 1913.

MEXICO - Honduras.

Rocky brushy hillsides, 200-900 meters; Zacapa; Chiquimula. (Veracruz). A woody vine, climbing over shrubs, the stems covered with short, brownish or yellowish, ascending hairs; leaves short-petiolate, rather thick, entire, elliptic-oblong to oval, 4-7.5 cm. long, rounded and mucronate at the apex, rounded at the base, thinly appressed-pilose above, densely fulvous-pilose or tomentose beneath; flowers numerous, in small cymes, these short-pedunculate or sessile, the pedicels long and slender; sepals 1-1.5 cm. long, lance-oblong or ovate-oblong, acute, appressed-pilose; corolla white, 1.5 cm. long, hirsute outside; immature capsule hirsute.

glabrous in age

Drawn

OK type

CALONYCTION Choisy

Large vines, usually herbaceous throughout, the stems sometimes covered with fleshy prickles; leaves large, thin, entire or lobate, cordate at the base; flowers large, white or blue, opening in the evening and closing in the morning; sepals coriaceous or herbaceous, the outer ones often with subulate appendages; corolla long-salverform, the tube usually cylindric or nearly so; stamens and style exserted; styles united, the stigmas globose; capsule globose, 2-celled, 4-seeded. Half a dozen species, widely dispersed in tropical regions. Probably only the following occur in Central America. Hardly distinct from Ipomoea.

Sepals with conspicuous subulate green appendages at the apex; stems with thick aculeate appendages..... C. aculeatum.

Sepals without subulate appendages.

Stems long hirsute with hollow hairs, flowers blue. C. clavatum.

Stems glabrous or with scale-like pubescence.

Calyx lobes subequal, mostly less than 1 cm. long; stems glabrous; leaves not lobate..... C. ventricosum.

Calyx lobes very unequal, more than 1 cm. long; stems with scale-like pubescence; leaves lobate..... C. sp.

(See underneath)

or large, herbaceous vine, usually scandent, glabrous, sometimes 20 meters long or more and covering large trees, the sap milky; stems densely armed with short fleshy prickles; leaves long-petiolate, rounded-ovate, thin, 5-15 cm. long, entire or rarely sometimes shallowly tri-lobate, abruptly short-acuminate, deeply cordate at the base; peduncles bearing 1-several flowers, usually elongate but shorter than the leaves; sepals green and fleshy, about 1 cm. long, the outer ones (at least) terminated by a long slender green horn-like appendage; corolla tube very slender, 10-12 cm. long, the limb white, 8-10 cm. broad, each lobe with a broad green median stripe; capsule ovoid, pointed, 2 cm. long; seeds black, glabrous or nearly so. Called Pañal

de niño in Honduras; Nata, Maxh (Chiapas); Nicua, Cración (Yucatan); Zutub (Yucatan, Maya); Campanilla blanca, Pitoreta, Bejuco de tabaco, Flor de luna, Galán de noche, Tarza (Salvador). In the evening, when in full bloom, the plant is a showy and handsome one, and it is often grown for ornament in the North, where, of course, it is not hardy, but must be grown from seeds each summer. When the proper stage of dusk or darkness has arrived, the buds open rapidly, in only a few minutes. The milky sap of this plant and of various other Convolvulaceae has long been used in Central America for coagulating the latex of Castilla rubber trees. The tough stems often are employed in place of string, especially for hanging tobacco leaves to cure, (hence the name Bejuco de tabaco).

Calonyction clavatum G. Don, Gen. Syst. 4: 264. 1838. Luna morada.

Moist or dry forest or thickets, 800 meters or less; Petén; Southern Mexico; British Honduras; Nic.; Costa Rica; Western South America, southward to Ecuador. A large herbaceous vine, the stems hirsute with very long and soft, spreading, whitish hairs; leafves long-petiolate, the petioles long-hirsute; leaf blades glabrous or nearly so, rounded-ovate, large, acute or acuminate, deeply cordate at the base, entire; peduncles mostly 1-flowered, densely hirsute, much shorter than the petioles, the pedicels stout, glabrous, usually longer than the peduncles, fistulose-thickened above; sepals 2.5-3 cm. long, muticous, glabrous, lance-oblong, obtuse or subacute; corolla blue, about 12 cm. long, the limb 10 cm. broad, the tube dilated upward, 2.5 cm. broad in the throat, glabrous; capsule broadly ovoid, 2.5 cm. long, glabrous; seeds densely covered with long hairs. Called Mofning-glory and Gloria de la mañana in British Honduras. The latter name is a Spanish translation of the English one, and probably of recent introduction. The usual Spanish name for plants of this family in most parts of Central America is Campanilla. The vine is an exceptionally beautiful one, one of the most gorgeous of all the morning-glories, its huge flowers of an exquisite shade of blue rarely seen in flowers.

Calonyction ventricosum Hallier, Bot. Jahrb. 16: 556. 1893, nomen; Bull. Herb. Boiss. 5: 1027. 1897. Ipomoea Santillanii O'Donell, Anal. Inst. Biol. Mex. 12: 93. 1941. Quilamul; Campana; Moist or wet thickets, often in roadside hedges, 200-1800 meters; Alta Verapaz; Santa Rosa; Guatemala; Chiquimula; Jutiapa; Chimaltenango; Suchitepéquez; Quezaltenango. El Salvador; Nic.; Southern Mexico; Costa Rica. A large coarse herbaceous vine, glabrous throughout or nearly so; leaves long-petiolate, thin, entire, rounded-ovate, usually caudate-acuminate, deeply cordate at the base; peduncles often equaling the leaves, divided at the apex into 2 long scorpioid branches, several-flowered, the pedicels mostly short, thickened above; bracts whitish or pale green, sometimes tinged with pink, membranaceous, broadly spatulate, large and concealing the flower buds; sepals ovate, glabrous, rounded at the apex, muticous, 1 cm. long; corolla white, the lower part of the tube slender, 3 cm. long, the upper portion dilated, 2.5 cm. long and 2 cm. broad, the limb 6 cm. broad or more. This is a showy and rather handsome plant. It is particularly plentiful and conspicuous on the otherwise barren sterile and uninteresting slopes along the roadside of Cuesta de la Conora in the Department of Jutiapa. This is one of the most celebrated steep roads of the Oriente of Guatemala, although its steepness seems comically overestimated to chauffeurs familiar with the terrific roads of central and western Guatemala.

Calonyction sp.

Probably
/Edges of clearings or thickets, Alta Verapaz, Steyermark 44999; 45121.

Coarse herbacous vine; the stems covered with scale-like pubescence to about 3 mm. long, glabrous with age; ~~calyx lobes very unequal fruit~~ leaves trilobate, often to near the middle, ~~cordate~~ cordate, broadly ovate-suborbicular in outline, to 15 cm. long and nearly as broad, petioles to about 10 cm. long, with sparse scale-like pubescence or none; the calyx lobes in fruit very unequal and large, coriaceous, ~~from~~ from about 1.5 cm. long to 4 cm. long; immature capsule to 3 cm. long; seeds pubescent with scale-like hairs.

This specimen has been called C. clavatum, and C. ventricosum by Thaeod. which it is not. ~~It lacks flowers and is not satisfactory for description but certainly is no Calonyction previously known from Mexico or Central America.~~

[DRAWN, SIMÓN]

CUSCUTA L. Dodder

References: T. G. Yuncker, Revision of the North American and West Indian species of Cuscuta, Univ. Ill. Biol. Monog. 6, nos. 2-3: 1-142. 1921; The Genus Cuscuta, Mem. Torr. Bot. Club 19: 113-331. 1932; Cuscuta, No. Am. Fl. , ser. 2, 4: 1-51. 1965.

Small twining parasitic plants without chlorophyll, the stems filiform, yellow or orange (rarely greenish), attached by haustoria to the host plant; leaves reduced to minute scales; inflorescence of cymose clusters of small, usually white flowers; calyx gamosepalous and five-parted or rarely the sepals nearly free; corolla usually urceolate or campanulate, the lobes various and usually 5, with scale-like appendages attached at the base within and opposite the stamens to form a corona or sometimes lacking; ovary 2-celled and each cell biovulate; styles distinct (rarely united), terminal, the stigmas capitate to linear; capsule indehiscent or circumscissle near the base.

The genus has perhaps as many as 150 species. The host preference of those of Guatemala is little known and it is assumed that most occur on a variety of hosts. Germination of the seeds is in the ground, the seedling plants soon attach themselves to host plants and the attachment with the soil withers. Certain species cause considerable damage in cultivated crops, especially in flax, beets and chiles but we do not know of damage to crops by Cuscuta in Guatemala.

CUSCUTA L. Dodder

Reference: Truman George Yuncker, Revision of the North American and West Indian species of Cuscuta, Univ. Ill. Biol. Monogr. 6, nos. 2-3: 1-142. 1921. The genus Cuscuta, Mem. Torrey Bot. Club 18: 113-331. 1932; CUSCUTA, No. Am. Fl., ser. 2, 4: 1-51. 1965.

Small twining herbaceous plants, without chlorophyll, the stems filiform, yellow or orange, attached by haustoria to the host plant; leaves reduced to minute scales; inflorescence of cymose clusters of small, usually white, flowers; ~~flowers small, usually white, more or less cymose-clustered~~; calyx usually gamosepalous and 5-parted; corolla generally urceolate or campanulate, 5-dentate; stamens inserted in the throat of the corolla, alternate with the corolla lobes; scale-like, more or less fimbriate organs usually present at the base of the corolla opposite the stamens; ovary 2-celled, each cell 2-ovulate; styles distinct or united, the stigmas capitate or linear and elongate; capsule indehiscent or circumscissile near the base. Species about 150, widely distributed in tropical and temperate regions of both hemispheres. The plants are easily recognized by their parasitic habit, yellow or orange coloring, and twining herbaceous stems. The seeds germinate in the ground, developing seedling plants that soon attach themselves to some host, then the connection with the soil withers, and the plants draw all their sustenance directly from the host plant. Some of the European species, a few of which have become naturalized in the United States, cause great damage to cultivated plants such as flax (Linum; lino), beets (Beta; remolachas), and chile.

Capsule indehiscent. Section Clistogrammica.

Capsule globose, with a conspicuously thickened stylopodium. Flowers rather thick and fleshy, papillate or glandular.....C. indecora.

Capsule not definitely thickened at the apex.

Calyx lobes acute.....C. yucatana.

Calyx lobes obtuse.....C. obtusiflora.

Capsule circumscissile. Section Eugrammica.

Styles stout and more or less subulate, tapering to the globose or conic ovary.

4 | Calyx deeply cleft, the lobes distinct or nearly so.....C. Boldinghii.

Calyx not deeply lobate, definitely gamosepalous.

3 | Calyx lobes much broader than long at maturity; stigmas large and convolute. C. rugosiceps.

Calyx lobes about as broad as long; stigmas not conspicuously enlarged or convolute.....C. jalapensis.

□ Styles slender, usually of about the same thickness throughout.

4 Calyx lobes, and usually also the corolla lobes, obtuse. ~~.....C. tinctoria.~~

~~[illegible].~~

3 | Flowers about as broad as long.....C. tinctoria.

Flowers longer than broad.

4 | Corolla saccate, subglobose.....C. corymbosa.

Corolla not saccate, cylindric.....C. cozumeliensis.

4 Calyx lobes, and usually also the corolla lobes, acute.

3 Pedicels mostly longer than the flowers, in lax inflorescences; lobes of the 5 corolla ~~[illegible]~~, about equaling the tube..C. saccharata.

3 Pedicels not longer than the flowers, in dense compact inflorescences; lobes of 5 the corolla mostly shorter than the tube.....C. costaricensis.

Cuscuta Boldinghii Urban, Repert. Sp. Nov. 16: 38. 1919. # Growing on various herbs, ~~Nota~~ 600 meters; Escuintla; Santa Rosa; Retalhuleu; Sololá. Southern Mexico; Honduras; West Indies; Nicaragua; Costa Rica. Florida Venezuela.

Plants slender; flowers ~~3-4~~ about 2 mm. long, sessile or nearly so, or 1 or less, in dense clusters; calyx lobes equaling or longer than the corolla tube, distinct or nearly so, imbricate, oblong or oval, obtuse and mucronate, or obtuse and bearing a horn-like projection from its dorsal surface near the apex; corolla lobes about equaling the campanulate tube, erect or spreading, oblong or oval, obtuse, irregularly dentate at the apex and with a subapical horn-like projection; stamens shorter than the corolla lobes, the anthers small, oval-ovate, shorter than the stout subulate filaments; scales reaching the filaments, oblong or broadly ovate, short-lacerate; styles stout, subulate, much longer than the globose ovary, the stigmas capitate; capsule globose,

circumscissile, bearing the withered corolla at its apex; styles subulate, somewhat divergent; seeds oval, 1 mm. long.

The species is noteworthy for the hornlike projections on the perianth lobes. The plant is called "hierba mala" in Honduras and reported to be poisonous to stock. The genus yields a substance called cuscutin, but there is no clear proof that it has been found poisonous in the United States, although it has been suspected.

Cuscuta corymbosa ~~xxxx~~ R. & P. var. grandiflora Engelmann, Trans. Acad. St. Louis X 1: 483, 1859.

~~var. grandiflora Engelm. op. cit.~~ Tripa de gallina; Cabello de león; Pelo de león; Bejuco de mesquino; Pelo de ángel; Cancam (Quecchí); Fideos; Cabellos de ángel; Barba de león.

Parsitic on shrubs or coarse herbs, 2,700 meters or lower; Alta Verapaz; El Progreso; Jalapa; Escuintla; Guatemala; Sacatepéquez; Chimaltenango; Sololá; Suchitepéquez; Retalhuleu; Quezaltenango. Southern Mexico; Salvador to Costa Rica; northwestern South America.

Stems bright orange (as in other species), the corolla white; flowers 4-8 mm. long, on pedicels of about equal length, in rather lax, corymbose-paniculate inflorescences; calyx about reaching the middle of the corolla tube, the lobes short, broad, obtuse, slightly imbricate; corolla lobes one-fourth to one-half as long as the tube, ovate-oblong, obtuse, erect or spreading; scales thin, narrow, reaching the middle of the tube, dentate or with a few scattered processes; capsule globose, circumscissile, capped and surrounded by the withered corolla; seeds 1-1.5 mm. long.--The Maya name "Canlecay" has been reported from Yucatan for this or a related species. ~~The common form in Guatemala is var. grandiflora Engelm. in which the corolla is subglobose and the calyx is usually more than half as long as the corolla tube. Only one collection has been made (at Mazatenango) of var. stylosa, in which the corolla is cylindric, and the calyx half as long as the corolla tube or shorter.~~

The vernacular names cited above are, of course, applied indiscriminately to all species, and all are alike in general appearance and color. In some parts of Guatemala, especially in the Pacific coastal plains, the plants often are seen in great abundance, densely covering shrubs and tall herbs. ~~This~~ The plants are often used in Guatemala for dyeing textiles. Dieseldorff states that about Cobán the plants are employed in

domestic medicine to treat eruptions on the face. This species has been reported from Guatemala as C. americana L.

Cuscuta costaricensis Yuncker, Mem. Torrey Club 18: 227. 1932. Bejuco de mesquino. ~~Collected in~~ Guatemala, ~~only near Amatitlán, J. Morales Ruano 1337.~~ at 1100-1500 meters; Central Mexico; Costa Rica. Stems slender; flowers 3-4 mm. long, more or less papillate, subsessile, in dense glomerulate clusters; calyx loose about the corolla tube, the lobes broadly ovate, acute or acuminate, slightly imbricate; corolla lobes broadly ovate or suborbicular, erect or spreading, shorter than the campanulate tube, acute or acuminate or usually cuspidate; stamens shorter than the corolla lobes, the filaments equaling or exceeding the oval anthers; scales oblong, reaching the stamens, fimbriate; styles slender, much longer than the globose ovary; capsule depressed-globose, circumscissile; seeds 1.7 mm. long, ovoid.

Cuscuta cozumeliensis Yuncker, Bull. Torrey Bot. Club 49: 108. f. 2, 1922. Parasitic on shrubs, 600 meters or less; Suchitepéquez; Retalhuleu, Yucatan, Mexico, the type from Cozumel Island. Stems rather coarse; flowers 2-3 mm. long, the pedicels equaling or shorter than the flowers, in cymose clusters; calyx shorter than the corolla tube, the lobes ovate-orbicular, imbricate, somewhat carnose toward the base; corolla lobes erect or spreading, imbricate, obtuse or rarely subacute, half as long as the cylindric tube; stamens shorter than the corolla lobes, the filaments equaling or slightly longer than the oval anthers; scales reaching the stamens or shorter, oblong, moderately laciniate; styles slender, much longer than the depressed-globose ovary; capsule circumscissile.

Cuscuta indecora Choisy, Mém. Soc. Phys. Hist. Nat. Genève 9: 278. pl. 3, f. 3. 1841. On low herbs, near sea level; British Honduras (Malfredi Lagoon, ~~Bartlett~~ Schipp 1161). Flowers 2-3 mm. long, flesht, papillose-hispid, the pedicels longer than the flowers; calyx lobes triangular-ovate, acute or obtuse, shorter than the corolla tube; corolla campanulate, the lobes erect or spreading, triangular, acute, with inflexed tips; scales equaling or longer than the corolla tube, ovate or subspatulate, deeply fimbriate; stamens shorter than the corolla lobes, the anthers

broad, oval, about equaling the filaments; styles equaling or slightly longer than the globose pointed ovary, divaricate in fruit; capsule globose, thickened at the apex, surrounded by the withered corolla; seeds 1.7 mm. long, roundish or broader than long, somewhat scurfy.

Cuscuta jalapensis Schlecht. Linnaea 8: 515. 1833. Fideos; Cabellos de ángel; Barba de león; Coralillo; Flor de cadena. On shrubs and coarse herbs, 1300-3000 meters; Huehuetenango; Jalapa; Chimaltenango; Totonicapán; Quezaltenango; San Marcos. Southern Mexico. Stems of medium thickness, orange; flowers 2.5-5 mm. long, white or greenish white, the pedicels equaling or shorter than the flowers, densely clustered; calyx usually shorter than the campanulate corolla, the lobes imbricate, ovate, obtuse, somewhat thickened and verrucose along the middle; corolla lobes ovate, obtuse, shorter than the tube, erect or reflexed; scales ovate-oblong, about equaling the tube or exserted, fimbriate; stamens shorter than the corolla lobes, the anthers ovate, about equaling the filaments; styles strongly subulate, mostly shorter than the globose-conic ovary; capsule globose, circumscissile, surrounded by the withered corolla, the styles conic, widely divergent; seeds 1.5 mm. long, ovoid. This species seems to be confined in Guatemala to the higher mountains, and often is found as high as the Cupressus forests. Near Palojunoj (Quezaltenango) the senior author's attention was attracted one day by what he assumed to be great masses of shrubs with orange flowers about a mile away. Walking across the fields to see what this unknown plant might be, he was disgusted when he reached the spot to find that these solid masses of color consisted of Cuscuta plants covering Sambucus bushes.

Cuscuta obtusiflora HBK. var. glandulosa Engelm. Trans. Acad. St. Louis 1: 492. 1859.

On low shrubs, 600 m. or less;; Jutiapa (Steyermark 31988). United States; Mexico; West Indies. Costa Rica;

Continue under

irregularly serrulate, not imbricate; corolla lobes triangular-ovate, acute or subobtuse, spreading or reflexed, shorter than the campanulate tube; stamens shorter

than the corolla lobes, the filaments equaling or longer than the oval or cordate anthers; scales oblong, fimbriate at the apex, scarcely reaching the stamens; styles rather stout and subulate, shorter than the globose ovary or about equaling it; capsule depressed-globose, indehiscent, the styles subulate and divergent; seeds ovate, 1.5 mm. long.

Cuscuta rugosiceps Yuncker, Univ. Ill. Biol. Monogr. 6, nos. 2-3: 117. f. 1, 70, 155. 1921. On shrubs or coarse herbs, 1600-3300 meters; Sacatepéquez; Quiché; San Marcos; Huehuetenango. Southern Mexico. Stems coarse; flowers glabrous, 4-6 mm. long, sessile, in compact clusters; calyx large, campanulate, almost as long as the corolla tube, the lobes short, usually broader than long, unequal, obtuse, imbricate, sometimes carinate; corolla lobes ovate, obtuse, spreading, shorter than the campanulate tube; scales reaching the filaments, fimbriate; stamens shorter than the corolla lobes, the anthers oval, about equaling the filaments; ovary small, somewhat conic, tapering into the subulate styles, the stigmas large and more or less convolute; capsule circumscissile, with a very thick apex, giving the capsule a conic appearance, surrounded by the withered corolla; seeds rounded, compressed, 1.4 mm. long.

Cuscuta saccharata (Engelm.) Yuncker, Mem. Torrey Club 18: 239. 1932. C. gracillima var. saccharata Engelm. Trans. Acad. Sci. St. Louis 1: 489. 1859. Parasitic on herbs, 200-550 meters; Zacapa; Chiquimula. Southern Mexico; Hond.; Costa Rica. Stems very slender; flowers 2-2.5 mm. long, densely papillate (as also the stems, pedicels, and bracts), the slender pedicels longer than the flowers, in dense compact clusters; calyx about equaling the corolla tube, the lobes ovate-lanceolate, acute or acuminate; corolla lobes erect or spreading, about equaling the campanulate tube; stamens shorter than the corolla lobes, the slender filaments longer than the oval anthers; scales ovate, reaching the stamens, short-fimbriate; styles slender, longer than the globose ovary; capsule globose, thin, irregularly circumscissile; seeds oval, 1 mm. long.

Cuscuta tinctoria Mart. ex Engelm. Trans. Acad. Sci. St. Louis 1: 480. 1859. On shrubs or trees; Totonicapán (Lehmann 1682). Mexico. Flowers smooth, 4-5 mm. long, sessile or short-pedicellate, single or in dense glomerules of many flowers; calyx lobes unequal, orbicular, obtuse, imbricate, about equaling the corolla, sometimes

carinate; corolla campanulate, becoming urceolate in fruit, thinner toward the base, the lobes ovate or almost oblong, obtuse, imbricate, erect or usually spreading; scales reaching the filaments; stamens shorter than the corolla lobes, the filaments about equaling the oval-oblong anthers; styles usually longer than the globose ovary, exserted in fruit; capsule depressed-globose, circumscissile; seeds 1.5 mm. long, angulate.

Cuscuta tinctoria var. Kellermaniana Yuncker, Univ. Ill. Biol. Monogr. 6, nos. 2-3: 32, f. 16. 1921. Known only from the type, Volcán de Agua, Sacatepéquez, 3700 meters, W. A. Kellerman 7567; on Ceanothus. Like the species, but the scales oblong, sparsely fimbriate; styles shorter than the depressed-globose ovary and capsule, not exserted.

Cuscuta yucatana Yuncker, Bull. Torrey Bot. Club 62: 511. 1935. Coralillo. On Houstonia serpyllacea, 2500 meters; Jalapa (Montaña Miramundo, Steyermark 32648). Known otherwise only from Valladolid, Yucatan. Stems slender; flowers 2 mm. long, the pedicels equaling or longer than the flowers, in compound umbellate cymes; calyx longer than the corolla tube, the lobes triangular-ovate, acute, not imbricate; corolla lones oblong-lanceolate, very sharply acute, erect in young flowers, the tips inflexed, soon becoming reflexed, the lobes equaling or longer than the campanulate tube, more or less granular-papillate; filaments slender or slightly subulate, mostly 2-3 times as long as the oval-elliptic anthers; scales oblong or subspatulate, reaching the stamens, fimbriate; styles equaling or longer than the depressed-globose ovary; capsule depressed-globose, not circumscissile; seeds 0.8-1 mm. long, oval. The distribution of this species is remarkable, for it would be hard to imagine two regions more unlike than the localities from which the plant is known at present. Even though both specimens known, the type and Steyermark 32648, have been determined by Prof. Yuncker we are inclined to suspect that the Guatemalan collection represents another species.

DICHONDRA

November 26, 1968

Mr. R. Ross
Keeper of the Herbarium
British Museum (Natural History)
Cromwell Road
London S.W. 7,
Great Britain

Dear Mr. Ross:

I am now preparing manuscript for Guatemalan Convolvulaceae and find that Dichandra was loaned to British Museum on May 26, 1965.

I wonder if the person who is studying the material would care to prepare an account of the genus in Guatemala for me. He will, of course, be given credit for it.

The general form to be followed can be taken from any recent issue of the Flora of Guatemala. I presume that in this case there may be only one species and a variety (or two species) to account for but if it appears that others will most certainly be found in Guatemala as exploration continues I have been including them.

Since the initiation of this work the first subspecific category used has been variety. To be consistent we are continuing this practice and if necessary to use a subspecific category we would prefer "var." to "subsp."

Sincerely,

Louis O. Williams
Chief Curator
Department of Botar

LOW:vc

Dichandra - Dr Stearn says that the borrowed material could not be worked, The borrower incapable. He was going to do it. Aug 26, 1969

Tharp, B.C. & Marshall C. Johnston. Recharacterization of Dichondra and a revision of North American species. Rhodora 63: 346-360. 1961

DICHONDRA Forster

Slender perennial herbs, creeping, glabrous or sericeous; leaves small, cordate-orbicular or reniform, entire, long-petiolate; flowers minute, solitary and pedicellate in the leaf axils; sepals subequal, distinct, usually spatulate; corolla broadly campanulate, deeply 5-fid, the lobes induplicate; stamens shorter than the corolla, the filaments filiform, the anthers small; ovary 2-lobate, the lobes distinct, 2-celled, 2-ovulate; styles 2 between the lobes, filiform, the stigmas capitate; capsule 2, membranaceous, erect, usually 1-seeded, indehiscent or irregularly 2-valvate; seeds subglobose, smooth; cotyledons oblong-linear, 2-plicate. Four or 5 species, widely distributed in tropical and warm-temperate regions. Only the following are known from Central America.

Dichondra repens Forst. Prodr. 134. 1786. Usually in moist or dry, open, often frequently in open oak forest, rocky places, sometimes in moist shaded soil, 1200-2500 meters; Alta Verapaz; Chiquimula; Jalapa; Guatemala; Huehuetenango; Quezaltenango; San Marcos. Widely distributed in tropical and temperate regions of both hemispheres; in Central America known also from Costa Rica. Plants very slender, repent, rooting at the nodes, the stems usually short but sometimes 30 cm. long or more, appressed-pilosulous or glabrate; leaves long-petiolate, reniform or cordate-orbicular, mostly 8-20 mm. wide, broadly rounded at the apex and often emarginate, deeply cordate at the base, green on both surfaces, sparsely pilosulous on both surfaces with subappressed hairs; peduncles shorter than the petioles, filiform; sepals oblong or spatulate-oblong, obtuse, green, pubescent, about equaling the corolla, shorter than the capsule, about 2 mm. long; corolla yellowish; capsules densely pilose.

Dichondra repens var. sericea (Swartz) Choisy in DC. Prodr. 9: 451. 1845. D. sericea Swartz, Prodr. Veg. Ind. Occ. 54. 1788. Frequent in moist thickets or open places, most often in pine-oak forest, sometimes in exposed rocky places, 1200-2100 meters; Alta Verapaz; Jalapa; Jutiapa; Escuintla; Guatemala; Sacatepéquez; Chimaltenango; Sololá. Widely distributed in both hemispheres; in Central America found also in Costa Rica. Like the species in most respects, but the leaves almost glabrous

on the upper surface, pale beneath and densely silvery-sericeous; sepals usually equaling the capsules. By some authors this has been treated as a distinct species, but in Central American material, at least, the differences seem not to be constant, and it probably is better to consider both forms as representing a single species. This genus is in need of critical revision. With the abundant material now available for study, it might be possible to form some definite idea of the value of the several species that have been described.

Juss? (Done) GK

EVOLVULUS L.

Reference; Simon Jan van Ooststroom, A monograph of the genus Evolvulus, ~~1934~~ in Med. Bot. Mus. & Herb. R. Univ. Utrecht 14:1-267. 1934.

Plants usually slender, annual ~~xxxxx~~ or perennial, herbaceous or suffrutescent, not twining, sometimes creeping; leaves small, often narrow, entire; flowers in axillary, pedunculate, 1-several-flowered dichasia, sometimes solitary, pedunculate or sessile in the leaf axils; sepals 5, free, equal or subequal; corolla small, rotate, funnelform, or salverform, blue or white, the limb plicate, usually subentire, the lobes with a pilose longitudinal stripe outside; stamens 5, the filaments filiform, inserted at the mouth of the corolla tube; anthers ovate to oblong or linear; ovary 2-celled, each cell 2-ovulate, sometimes 1-celled and 4-ovulate; styles 2, slightly united at the base or wholly free, each style 2-cleft; stigmas long, terete, filiform or subclavate; capsule globose or ovoid, 4-valvate, 4-1-seeded; seeds small, smooth or minutely verrucose; cotyledons almost flat, the radicle incurved. ~~#~~ About 100 species, widely distributed in both hemispheres, mostly in the warmer regions.

Inflorescence not pedunculate, the flowers solitary or fasciculate from leaf axils.

Plants repent, the stems rooting at the nodes; leaves broadly oval or orbicular. . . . . E. nummularius.

Plants erect or ascending; leaves oblong-ovate to linear.

Leaves oblong-ovate; stems pilose with long, lax spreading hairs.. E. ovatus.

Leaves linear to oblong; stems strigose or sericeous..... E. sericeus.

Inflorescence pedunculate, axillary or sometimes terminal.

Pubescence of the stem spreading, leaves variable..... E. alsinoides.[1]

Corolla 3-7 mm. broad . . . . . E. alsinoides[1]

Corolla 10 mm. broad, the leaves 12-20 mm. broad..... E. tenuis.[1]

Pubescence of stem appressed. . . . . E. filipes[1]

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[1] The junior author is not at all sure that the Central American material traditionally named as E. alsinoides and E. filipes represents other than a single weedy and somewhat variable species. Evolvulus tenuis likewise seems doubtfully distinct from E. alsinoides, as represented by Central American material.

Evolvulus alsinoides L. Sp. Pl. ed. 2. 392. 1762. Convolvulus alsinoides L. Sp. Pl. 157. 1753. C. linifolius L. Amoen. Acad. 4: 306. 1759. Quiebra-cajete; Cenicito. Usually in open, moist or dry places, sometimes in thickets or on rocky banks, sometimes in pine forest, frequently a weed in cultivated ground, 200-1900 meters; Baja Verapaz; Alta Verapaz; Izabal; Zacapa; Jalapa; Jutiapa; Santa Rosa; Escuintla; Guatemala; Sacatepéquez; Chimaltenango; Sololá; Suchitepéquez; Huehuetenango. Southwestern United States; Mexico; British Honduras to Salvador and Panama; widely distributed in temperate and tropical America and in the Old World. Plants slender, annual or perhaps sometimes perennial, erect to prostrate, often much branched, pilose with appressed or spreading hairs; leaves mostly oblong to elliptic-oblong or lanceolate, and 1-2.5 cm. long, usually 1 cm. broad or less, on very short petioles, obtuse or acute, rounded or acute at the base, generally rather densely appressed-pilose, especially beneath; peduncles almost filiform, inflorescence axillary, shorter than the leaves or often much longer, 1-few-flowered; pedicels equaling or longer than the calyx; sepals lanceolate, acute or acuminate, 1.5-3 mm. long, pilose; corolla pale blue or sometimg white, 3-5.5-7 mm. broad; ovary glabrous; capsule globose, with 4 or fewer seeds, these black, smooth. Called Oreja de ratón in Salvador; Xiaxiu (Yucatan, Maya). Van Ooststroom recognizes no fewer than 15

S. J. van Ooststroom, A monograph of the Genus Evolvulus, Utrecht 1934, indicates that there are four varieties of this species in Guatemala: var. griesbachianus Meissn., var. debilis (HBK.) v. Ooststr., var. adscendens (House) v. Ooststr., and var. acapulcensis (Willd.) v. Ooststr. The differences seem slight if not non-existent. Van Ooststroom, in 1934, recognised fifteen varieties of this species, world-wide.

Evolvulus filipes Mart. Flora 24, Beibl. 2: 100. 1844. Moist shaded places, or sometimes a weed in cultivated fields, 200-1200 2,000 meters; Zacapa; Jalapa; Jutiapa; Santa Rosa; Guatemala; Huehuetenango. Honduras; Mexico; Nicaragua to Panama; Jamaica; South America. Plants annual, erect or ascending, usually 30 cm. high or less, often densely branched, the stems sparsely appressed-pilose; leaves sessile or on very short petioles, linear or narrowly lanceolate, 1-2.5 cm. long, mostly 2-5 mm. wide, , acute or subobtuse,

acute at the base, very sparsely pilose or glabrous above, sparsely appressed-pilose beneath; peduncles longer or shorter than the leaves, mostly 1-2-flowered, the pedicels equaling or shorter than the calyx, reflexed in fruit; sepals lanceolate, glabrous or sparsely pubescent, ciliate, 2-2.5 mm. long; corolla pale blue or white, at most twice as long as the sepals, 3-4.5 mm. broad; ovary glabrous; capsule little exceeding the sepals, globose or ovoid, with 4 or fewer seeds, these brownish black, smooth.

Traditionally E. filipes has been considered to be distinct from E. alsinoides, having smaller flowers, narrower more glabrous leaves, pubescence of the stems appressed. The junior author finds that these characters are not consistent and believes that so far as the Central American material is concerned only one somewhat variable and weedy species is involved. Until monographic work can be done it would be as well to name all pedunculate Evolvulus in Central America as E. alsinoides.

Ev
meters;
United S
slender,

almost sessile, mostly oval or suborbicular, 8-20 mm. long, 5-15 mm. wide, rounded or subemarginate at the apex, rounded or subcordate at the base, green, glabrous above or nearly so, sparsely appressed-pilose beneath or glabrate; peduncles filiform, 8-30 mm. long, 1-3-flowered, the pedicels shorter or longer than the calyx, erect at first, often reflexed in fruit; sepals oblong-lanceolate, acute or acuminate, 2.5-3.5 mm. long, 3-nerved; corolla pale blue or white, the limb 8-10 mm. broad; ovary glabrous; capsule globose or ovoid, with 4 or fewer brown seeds.--The Maya name of Yucatan is recorded as Yax-cumil.

Evolvulus nummularius L. Sp. Pl. ed. 2. 391. 1762. Convolvulus nummularius L. Sp. Pl. 157. 1753. Hierba de pesar (Petén, fide Lundell); Cuartillo. Moist shaded places, often among cobblestones in streets, frequent on roadside banks or a weed in cultivated fields, 1200 meters or less; Jutiapa; Suchitepéquez; Petén; Izabal; Zacapa; Chiquimula; Santa Rosa; Escuintla; Guatemala; Retalhuleu. Mexico; British Honduras to Salvador and Panama; West Indies; South America; Old World tropics. Plants perennial, herbaceous, repent, rooting at the nodes, the stems short or often 50 cm. long, pilose with sort spreading curved hairs; leaves distichous, short-petiolate, broadly oval to orbicular, 4-15 mm. long, rounded or emarginate at the apex, rounded or subcordate at the base, glabrous or often sparsely appressed-pilose beneath; flowers 1-2 in each leaf axil, the pedicels 2-6 mm. long, recurved in fruit; sepals 2.5-4 mm. long, ovate-oblong, obtuse or subacute, sparsely pilose or glabrous, ciliate; corolla white, 5-7 mm. broad; ovary glabrous; capsule

VOLVULOPSIS nummularium Roberty, Candollea 14: 29. 1952

globose, equaling or slightly longer than the sepals, with 4 or fewer seeds.

Evolvulus ovatus Fernald, Proc. Amer. Acad. 33: 89. 1898. Dry brushy plains or hillsides, 200 meters; Zacapa. Western Mexico; Colombia and Venezuela to Brazil. Plants annual, erect, 30 cm. high or less, sparsely branched, the stems villous with long spreading lax hairs; leaves short-petiolate or the upper ones sessile, oblong-ovate, 1-3 cm. long, obtuse or subacute, rounded or subcordate at the base, sparsely appressed-pilose on both sides with very long, lax hairs; inflorescence axillary, flowers 1-2, ~~in the leaf axils~~, the pedicels shorter than the calyx, reflexed in fruit; sepals lanceolate, acute, 4-5 mm. long, pilose; corolla blue, 5 mm. broad; ovary glabrous; capsule depressed-globose, shorter than the sepals, 4-seeded; seeds smooth, dark brown.

Evolvulus sericeus Swartz, Prodr. Veg. Ind. Occ. 55. 1788. Savannas or open grassy places, sometimes on rocky slopes, or in pine forest, on serpentine outcrops, 1500 - 2,000 ~~1500~~ meters or less; Petén; Alta Verapaz; Zacapa; Chiquimula; Santa Rosa; Huehuetenango. Southwestern United States; Mexico; British Honduras to El Salvador and Panama; West Indies; South America. Plants perennial, erect or ascending, mostly 25 cm. high or less, often densely branched from the base, sometimes suffrutescent below, the stems slender but stiff, grayish-sericeous; leaves erect or erect-spreading, sessile or nearly so, linear or linear-lanceolate or elliptic, sericeous, at least beneath, sometimes glabrous on the upper surface, 1-2.5 cm. long, 1-3 mm. broad wide; flowers solitary or few in the leaf axils, sessile or short-pedicellate, reflexed in age; sepals narrowly oblong-lanceolate, acuminate, 3-5 mm. long, densely appressed-pilose; corolla white or pale blue, 7-12 mm. broad; ovary glabrous; capsule globose, 1-4-seeded; seeds brown, smooth. **The common form of the species in Guatemala has leaves pubescent on both surfaces. Two collections are referable to the following variety:**

Evolvulus sericeus var. discolor (Benth.) Gray, Syn. Fl. 2, pt. 1: Suppl. 436. 1886. ~~Ev.~~ discolor Benth. Pl. Hartw. 6. 1839. Grassy open slopes, 2, 200 meters; ~~Hts~~ Huehuetenango, ~~(Los Pinitos, southeast of Huehuetenango, Steyermark 48199)~~. Southwestern United States; Mexico. Differing from the common form (in Guatemala) of the species in having broader leaves which are glabrous rather than pubescent on the upper surface.

Evolvulus tenuis Mart. ex Choisy, Mém. Soc. Phys. Hist. Nat. Genève 78. 1837.

Dry or moist, brushy slopes, 1400 meters or less; Chiquimula; Quezaltenango(?). Yucatan; Costa Rica; South America. Plants erect or ascending, annual or somewhat suffrutescent at the base, the stems sometimes more than a meter long, rather sparsely branched, the stems densely pilose with long pale ascending hairs; leaves mostly ovate or oblong-ovate and 1.5–3.5 cm. long, 1–2 cm. wide, acute or acuminate, sparsely or often densely appressed-pilose; peduncles longer or shorter than the leaves, 1-few-flowered, the pedicels usually longer than the calyx; sepals lanceolate, acute or acuminate, 2.5–3 mm. long; corolla blue or white, 10 mm. broad, ovary globose, glabrous.

this is presumably the plant reported by Hemsley from Llano de San Juan de Dios, Quezaltenango, as E. villosus, Ruiz & Pavón, Bernoulli, 181. Two species Very closely related to E. tenuis E. alsinoides R.

IPOMOEA L. Morning Glories

References: H. Omer Liver D. House, The North American Species of the genus Ipomoea, Ann. N. Y. Acad. Sci. 18: 181-263. 1908. Eizi Matuda, El Género Ipomoea en México, An. Inst. Biol. 24: 85-145. 1964, 25: 45-76. ~~1964~~ 1965, 26: 83-106. 1965.

Twining or (or creeping,) rarely erect herbs or shrubs, rarely trees, the flowers usually large and showy, axillary, usually fascicles; the inflorescences usually axillary, rarely aggregated in terminal panicles; sepals coriaceous or foliaceous, equal or unequal, persistent; corolla funnelform or campanulate, rarely salverform, the limb entire or 5-angulate, rarely 5-lobate, usually induplicate; stamens included or nearly so; rarely exserted; pollen said to be spinulose; ovary 2-4-celled; style included, the stigmas 1-2, globose-capitate; capsule ~~2-4~~ 2-4-valvate, 2-4-seeded; seeds often densely lanate or pubescent.

Leaves alternate, entire, angled, lobate, or palmately or pinnately divided, usually petiolate;

The genera Quamoclit, Turbina, ~~and~~ Exogonium and Calonyction are sometimes included in Ipomoea but are kept separate in this flora. It must be admitted that the reasons for maintaining these genera separate from Ipomoea are tenuous.

There are perhaps not fewer than 400 species of Ipomoea which are widely distributed, the majority of them in tropical regions. There are currently credited to Mexico, Central America and Panama, ~~(excluding in our index to this region, varieties)~~ about ~~245~~ 250 species (and a few varieties). There are to be expected from Guatemala additional species as collections continue, for ~~this genus has~~ is difficult to collect and has been neglected.

Two accounts of ~~this~~ Ipomoea genus are useful in the study of the Guatemalan species. ~~Both~~ mentioned above. M.L. House's treatment was prepared more than 60 years ago when Central America was relatively little known, ~~Professor Matuda's account of the Mexican species is helpful for those of Guatemala.~~ but it is useful

Ipomoea 3

Species of Ipomoea seem to be wide ranging and there is little doubt that when the South American species have been more critically compared with those of North America some changes may be required in the nomenclature used here. Many Ipomoeas occur at relatively low elevations and experience indicates that it is from these regions that most wide-ranging plants are found.

The Ipomoeas produce some of the showiest and most beautiful flowers of Guatemala, and occur in great abundance almost anywhere at low and middle elevations, more abundantly in the foothills and on the plains. In some places along the foothills or lowlands of Escuintla and Santa Rosa one rides for miles in the morning with solid sheets of morning-glory flowers on each side of the road. The flowers of all or most species open in the evening and close usually before noon. In the higher parts of central and western Guatemala there are no Ipomoeas, or only an occasional plant may be found. The flowers are much visited by bees. The people of Chiquimulilla (Santa Rosa) claim that the superior flavor of honey produced there is due to the fact that it comes large from Ipomoea flowers. The most common vernacular name current in Guatemala for this genus is Campanilla, but other terms, such as Quilamul, sometimes are used, and even Alegría de la mañana, which is probably a translation of the usual English name.

fl Plants not twining, erect or sometimes shrubs or trees, or sometimes almost wholly herbaceous.

Subgenus Orthipomoea.

☐ Leaf blades obtuse or rounded at the base; trees; corolla white; seeds with white hairs on the dorsal angles only.

Corolla and sepals tomentose outside; sepals 2-3 cm. long.....I. murucoides.

Corolla and sepals puberulent; sepals 1 cm. long or shorter....I. arborescens. (and I. glabriuscula)

☐ Leaf blades cordate or subcordate at the base; corolla white or purple-pink; seeds with black hairs on all surfaces.. . . . . I. fistulosa.

~~Leaf blades lance-oblong or ovate-oblong, long-attenuate.....I. crassicaulis.~~

~~Leaf blades ovate, short-acuminate.....I. glabriuscula.~~

fl Plants twining or repent, usually herbaceous throughout or nearly so.

☐ Sepals herbaceous, at least above, sometimes subcoriaceous but then covered with long, fleshy, subulate tubercles, often elongate and densely pilose; ovary usually 3-celled.. Subfgenus Pharbitis.

☐ Sepals covered with long spreading setae or fleshy tentacular outgrowths.

Leaves deeply lovate, the lobes ~~usually~~ 3-7 .....I. melanotricha.

Leaves entire.

Sepals all long-attenuate.....I. silvicola.

Sepals, at least the inner ones, very obtuse.....I. crinicalyx.

☐ Sepals merely pilose or hirsute, or glabrate, never with fleshy outgrowths.

☐ Corolla copiously pubescent outside; Leaves densely sericeous beneath.

3a. Bracts with yellowish, spreading, villous hairs; sepals lanceolate. . . . . I. villifera.

3a. Bracts and calyx with sericeous, appressed pubescence; sepals ovate. . . . . I. mairetii.

Corolla glabrous; leaves rarely if ever sericeous.

Sepals glabrous or with only short appressed hairs.....I. acuminata.

Sepals hirsute, at least below, with long spreading hairs.

Corolla small, only 2-3 cm. long; inflorescences dense and head-like, much shorter than the leaves.....I. Meyeri.

(½ Sepals and corolla glabrous I. plurifloral. ½ Sepals and corolla puberul.)

3a Sepals oblong, ~~ob~~ 10-14 mm. long. . . . . I. dasysa.
3a Sepals linear-lanceolate, about 25 mm. long. . I. silvicola, I. villicalyx.

Congesta.

5 Corolla large, 4–8 cm. long; inflorescences usually open, often long-pedunculate.

6 Sepals abruptly contracted into a long linear tip, 2–3 cm. long; leaves 3-lobate.....I. Nil.

Sepals acute or gradually acuminate, usually shorter.

7 Inflorescences short-pedunculate; stems usually glabrous; sepals acuminate.
CONGESTA var.
I. variabilis.

Inflorescences long-pedunculate; stems usually hirsute; sepals merely acute or sometimes obtuse.

8 Stems creeping, rooting at the nodes, densely long-hirsute; sepals lance-linear.....I. ophioides.

Stems scandent, not rooting at the nodes, short-hirsute; sepals broader.

9 Inner sepals mostly 12–15 mm. long, acute or obtuse; leaves entire; corolla 6–8 cm. long.....I. tyrianthina.

Inner sepals mostly 9–12 mm. long, acute; leaves 3-lobate or entire; corolla 4–6 cm. long.....I. purpurea.

II Sepals coriaceous, membranaceous, or obscurely herbaceous, usually not elongate, most often glabrous but sometimes pubescent; ovary usually with 2 or 4 cells.

Subgenus Batatas. ? out

III Leaves deeply palmate-lobate or pinnate-lobate almost to the base or to the costa, the lobes narrow; plants erect or usually twining.

3 Leaves sessile, divided to the base into filiform segments; plants usually not twining.....I. capillacea.

Leaves petiolate, the segments linear or often much broader; plants usually twining.

4 Lobes of the leaves less than 4 cm. long; small vines.

5 Sepals cuspidate; peduncles not coiled.....I. costellata.

Sepals rounded at the apex; peduncles usually spirally coiled at the base.
I. pulchella.

4 Lobes of the leaves 5–8 cm. long; large vines.

5 Leaves parted to the base, the terminal lobe 3-parted.....I. heterodoxa.

Leaves not parted to the base, the lobes all entire.....I. digitata.

Leaves entire, or lobate to the middle or usually much less deeply, rarely more deeply lobate (L. stolonifera) but the plants then creeping.

3 Plants prostrate or creeping, not twining, herbaceous.

4 Leaf blades cordate or sagittate at the base.

5 Leaves sagittate.....I. reptans.

Leaves rounded-cordate.....I. asarifolia.

4 Leaf blades rounded at the base.

4½ Sepals pilose or ciliate, about 2 mm. long I. minutiflora.
Sepals glabrous, 5-10 mm. long.

middle of next page

98. Sepals sericeous — I. huxleyensis.

98. Sepals glabrous.

109. Leaves sagittate; anthers near the base of the corolla — I. callida.

109. Leaves not sagittate; anthers near middle of corolla. — I. carnesiana

110. Leaves cuneate at the base; flowers red or carmine — I. carnesiana.

110. Leaves cordate at the base; flowers lilac. — I. texana.

5 Flowers white; leaves mostly oblong, sometimes deeply lobate, mostly 1-2 cm. wide.....I. stolonifera.

Flowers pink or purple; leaves suborbicular, mostly 6 cm. wide or more, never lobate.....I. Pes-Caprae.

3 Plants twining or trailing, at least the tips twining.

4 Sepals in anthesis 4 mm. long or less; corolla blue or yellow.

5 Corolla blue, about 2 cm. long; leaves cordate-hastate.....I. Tuerckheimii.

Corolla yellow, 8-25 mm. long; leaves cordate.

6 Corolla about 8 mm. long; leaves mostly as broad as long, rounded at the 8 apex or abruptly acute; plants often prostrate.....I. minutiflora.

6 Corolla 20-25 mm. long; leaves longer than broad, acute or acuminate; 8 plants twining.....I. microsepala.

4 Sepals in anthesis 5 mm. long or usually much longer; corolla never yellow.

5 Leaves densely and conspicuously tomentose or sericeous beneath.

6 Corolla glabrous or essentially so.

7 Sepals aristate at the apex.....I. leucotricha.

Sepals rounded at the apex, not aristate.....I. tuxtlensis.

8 Sepals sericeous
Sepals glabrous
6 Corolla copiously, often densely, pilose.....I. signata.

7 Sepals 1 cm. long or less.....I. carnea.

Sepals almost or quite 2 cm. long.....I. praecana.

5 Leaves glabrous beneath or inconspicuously pubescent, never densely sericeous or tomentose.

6 Sepals conspicuously aristate at the apex.

7 Sepals minutely aculeolate along the costa; petioles minutely aculeolate; 9 leaves triangular-hastate, entire.....I. setifera.

7 Sepals and petioles not aculeolate; leaves not triangular-hastate.

8 Sepals hirsute or at least ciliate.....I. triloba.

Sepals glabrous.

9 Stems mostly creeping and rooting, only the tips of the stems twining; 11 plants usually not flowering.....I. Batatas.

5 Flowers white; leaves mostly oblong, sometimes deeply lobate, mostly 1-2 cm. wide.....I. stolonifera.

Flowers pink or purple; leaves suborbicular, mostly 6 cm. wide or more, never lobate.....I. Pes-Caprae.

3 Plants twining or trailing, at least the tips twining.

4 Sepals in anthesis 5 mm. or less long; corolla blue to purple or yellow.

5 Corolla blue to purple.

6 Calyx rugose on dorsal veins; corolla blue or purple, about ~~20-5~~ 20-25 mm. long..... I. aristolochiifolia.

6 Calyx lobes not rugose; corolla pink, about 15 mm. long.... I. ~~perplexa~~ X

5 Corolla yellow, 8-25 mm. long; ~~leaves cordate~~.

6 Corolla about 8 mm. long; leaves mostly as broad as long, rounded at the apex or abruptly acute; plants often prostrate.....I. minutiflora.

6 Corolla ~~8-25~~ 20-25 mm. long; leaves longer than broad, acute or acuminate; plants twining.....I. microsepala.

4 Sepals in anthesis 5 mm. long or usually much longer; corolla rarely yellow.

6 Leaves densely and conspicuously tomentose or sericeous beneath.

7 Corolla glabrous or essentially so.

8 Sepals aristate at the apex.....I. leucotricha.

8 Sepals rounded at the apex, not aristate.

9 Sepals sericeous..... I. tuxtlensis.

9 Sepals glabrous..... I. carnosima.

~~8 Sepals cordate, the apex acute..... I. xxxxxx~~

~~9 Leaves sinuate at the base, the apex obtuse..... I. carnosima~~

7 Corolla copiously, often densely pilose.

8 Sepals 1 cm. long or less.....I. carnea.

Sepals almost or quite 2 cm. long.....I. praecana.

6 Leaves glabrous beneath or inconspicuously pubescent, never densely sericeous or tomentose.

7 Sepals conspicuously aristate at the apex.

8 Sepals minutely aculeolate along the costa; petioles minutely aculeolate; leaves triangular-hastate, entire.....I. setifera.

8 Sepals and petioles not aculeolate; leaves not triangular-hastate.

9 Sepals hirsute or at least ciliate.....I. triloba.

Sepals glabrous.

10 Stems mostly creeping and rooting, only the tips of the stems twining; plants usually not flowering.....I. Batatas.

10 9 Stems not rooting at the nodes, twining throughout, the
9 plants flowering abundantly

11 10 Corolla about 2-3 cm. long; leaves usually lobate..... I. trifida.

11 10 Corolla 3.5-7 cm. long; leaves usually not lobate.

12 11 Sepals 1 cm. long or shorter.

12

13 11x Corolla 3.5-5 cm. long; stames inserted below middle
of the corolla; outer calyx lobes cochleate..... I. tiliacea.

12

13 11x Corolla 6-7 cm. long; stamens inserted near the throat;
outer calyx lobes not cochleate..... I. seducta.

12 11 Sepals 1.3 cm. long or longer.

13 12x Sepals oblong to oval, obtuse; peduncles about
1 cm. long..... I. santae rosae.

13 12 Sepals narrowly lanceolate, subaristate;
peduncle essentially none..... I. sessilis.

7 6 Sepals not aristate at the apex, usually rounded or obtuse.

7 CONTINUE ow

9 Stems not rooting at the nodes, twinning throughout, the plants flowering abundantly

10. Corolla about 2-3 cm. long; leaves usually lobate.... I. trifida.

10. Corolla 4-7 cm. long; leaves usually entire. Not lobate.

11 Sepals 1 cm. long or shorter..... I. tiliacea.

11 Sepals 2 cm. long or longer. . . . . I. santae rosae.

6 Sepals not aristate at the apex, usually rounded or obtuse.

7. Stems setose or setose-hispid.

8 Calyx lobes glabrous.

9 Calyx lobes ovate, obtuse, unequal, 10-20 mm. long I. sepacuitensis.

9 Calyx lobes lanceolate to elliptic, acute, subequal, 25-30 mm. long. . . . . I. contrerasii.

8 Calyx lobes setose..... I. setosa.

7 Stems not setose nor setose-hispid.

8 Stems woody throughout; plants glabrous; corolla white... I. pauciflora.

8 Stems wholly or chiefly herbaceous.

9 Flowers subtended by a large leaf-like reniform bract 2-5 cm. long..... I. suffulta.

9 Flowers never subtended by a large leaf-like bract.

10 Sepals in anthesis about 5 mm. long, narrow, lanceolate or ovate lanceolate, imbricate only below.

11 Corolla glabrous outside, 5-6 cm. long; sepals mostly oblong lanceolate, white marginate. . . . . I. tricolor.

11 Corolla puberulent outside, about 3 cm. long; sepals lanceolate-ovate. . . . . I. parasitica.

10 Sepals in anthesis usually longer, mostly oval to orbicular, sometimes elliptic-oblong, usually strongly imbricated for most their length

11. Upper leaves sessile or short petiolate; corolla salverform. . . . . I. purga.

11 Upper leaves all or mostly long-petiolate; corolla funnelform.

12 Stems, at least below, bearing numerous fleshy tubercles; sepals 6 mm. long. . . . . I. parasitica.

12 Stems not tuberculate.

13 Leaves sagittate, the terminal portion oblong or triangular to almost linear.

14 Sepals very unequal, the outer ones less that half as long as the inner; peduncles several flowered. . . . . I. anisomeres, var. sagittiformis.

14 Sepals subequal, the outer ones but little shorter than the inner; peduncles mostly 1-flowered.. I. sagittata.

14 Leaves broadly cordate.

15 Corolla 5-8 cm. long, pink, purple, or brown-purple.

16 ~~Sepals 15-18 mm. long.....I. demerariana.~~

16 Sepals 12-18 mm. long.

17 Peduncle less than 2 cm. long; inflorescence 1-2-flowered..... I. armentalis.

17 Peduncle 10-20- cm. long; inflorescence usually many-flowered..... I. I. demerariana.

16 Sepals 6-10 mm. long.

17 Stems conspicuously papillate on older growth; stamens only 1/3 as long as corolla..... I. anisomeres.

17 Stems smooth; stamens extending to the middle of the corolla or beyond.

18 Seeds long-pilose; corolla brown-purple.....I. ~~nitcyana.~~ armentalis

Seeds glabrous or short-pubescent; corolla rose-purple or white.

~~Peduncles about equaling the petioles; outer sepals acute..I.seducta.~~

~~Peduncles usually much longer than the petioles; outer sepals very obtuse.~~

19 Corolla purple; leaves glabrous or nearly so,.....I. morelii.

20 Peduncles 0-5 mm. long. ..... I. lindenii.

20 Peduncles 30 mm. long or usually much longer.

21 Corolla campanulate or funnelform; anthers inserted below the middle..... I. wilsonii.

Calyx lobes 1-1.5 cm. long and as broad as long, not apiculate, the margins prominently thin chartaceous; rare in Guatemala I. morelii.

Calyx lobes less than 1 cm. long, longer than broad (ovate at most), apiculate, margin lighter in color; common in guatemala ..... I. microsticta.

21 Corolla salverform; anthers reaching the throat or exserted..... ..... I. signata.

19 Corolla white; leaves densely hirtellous beneath...I. daxorum.

15 Corolla about 4 cm. long, sometimes longer, usually white, sometimes tinged with pink, or yellow.

16 Stems woody with age; under surface of leaf with microscopic black dots; sinus at base of leaf shallow ..... I. microsticta.

16 Stems herbaceous; under surface of leaves without black dots; ~~sinus at base of leaf deep.....~~ I. ~~wallii.~~ flavida.

17 Sinus at base of leaf shallow. flowers yellow. I. sulphurea.

17 Sinus at base of leaf deep. flowers not yellow. I. wallii

(If Calcula House is same it precedes by one 2 months CW= 7/30/69)

Ipomoea anisomeres Robi. & Barth. Proc. Am. acad. 43: 57. 1907.

Moist or wet thickets at 500 m. or less, Escapa (type, Deam 318); Petén (Contreras 437). Probably endemic, British Honduras.

A slender herbaceous vine, glabrous, the stems to about 2 mm. in diameter, smooth at first becoming prominently papillate with age. Leaves oblong-ovate to broadly ovate, acute or acuminate, cordate at the basal lobes petioles slender, 3-6.5 cm. long broad and rounded; inflorescence several-many-flowered fascicles or cymes, the peduncles 4-14 cm. long, the peduncles slender, and up to 2.5 cm. long; slightly thickened above; calyx coriaceous, up to about 1 cm. long, the lobes very unequal, the outer ones orbicular or transversely oval, 1-3 mm. long. The inner lobes oblong to ovate, obtuse, 8-10 mm. long at anthesis; corolla white with a purple throat, narrowly infundibuliform, about 7 cm. long, the limb 4-5 cm. broad; stamens unequal in length, 1/3 as long as the corolla or less; style as long as the stamens; capsule unknown.

TYPE

over

The type specimen is duplicated almost exactly grown by a specimen from Patel

Two number, Deam 318, 319 and 319. are cited as types. we select 318 as the lectotype in gray Herbarium.

Ipomoea anisomeres Rob. & Bartl. Proc. Amer. Acad. 43: 57. 1907. Moist or wet thickets, 500 meters or less; Izabal; Zacapa (type from Gualán, C. C. Deam 318 and 319). Yucatan, Mexico Nicaragua. A slender glabrous herbaceous vine, climbing or sometimes trailing over the ground; leaves long-petiolate, hastate or cordate, 6-11 cm. long, acute or acuminate, deeply cordate at the base, the terminal portion oblong-ovate to linear-oblong, the basal lobes narrow, rounded to subacute, often somewhat incurved; peduncles very short or elongate, sometimes shorter than the petioles, cymosely or umbellately few-flowered, the pedicels 1-2 cm. long, thickened above; sepals subcoriaceous, the outer ones 1-3 mm. long, rounded, the inner ones elliptic to nearly oval, 1 cm. long, rounded at the apex, thin-margined; corolla white with a purple throat or lavender throughout, 6-7 cm. long, the limb 4-5 cm. broad; capsule subglobose, 10-12 mm. long, glabrous, 2-celled; seeds 4, dark gray, finely pubescent, to pilose.

Cut and redone
July 27, 1969

Ipomoea arborescens (Humb. & Bonpl.) G. Don, Gen. Syst. 4: 267. 1838. Convolvulus arborescens Humb. & Bonpl. ex Willd. Enum. Pl. 1: 204. 1809. Dry rocky thickets, 900 meters; Jutiapa (near Jutiapa, Standley, 60491). Western and southern Mexico; El Salvador. A small tree, the branches densely and minutely pubescent, the bark whitish; leaves slender-petiolate, ovate or oblong-ovate, mostly 5-14 cm. long, acute or acuminate, shallowly cordate at the base, finely pubescent above or glabrate, densely and minutely pubescent beneath, the veins conspicuous and closely reticulate; peduncles usually short and several-flowered; sepals oval, obtuse or rounded at the apex, 8-12 mm. long, tomentulose; corolla white, 5 cm. long, glabrous or glabrate outside; capsule ovoid, 2 cm. long; seeds black, the angles densely long-pilose.--A single collection of this species has been made in Guatemala, one by the senior author and on the label it is stated that the tree is abundant about Jutiapa. When the material was collected, it was not realized that it was distinct from I. murucoides, which is abundant in the same department. In general appearance trees of the two species are exactly alike, but they differ greatly in pubescence and in size of sepals.

The specimen is immature and may well be this species which is known to occur on both sides of Guatemala, or it could be the more common I. murucoides. The peduncles in I. arborescens are usually several flowered while those of I. murucoides usually bear a single flower.

Convolvulus aristolochiaefolia HBK, Nov. gen. & Sp. Pl. 2: 102. 1819.

(HBK.)

Ipomoea aristolochiaefolia G. Don, Gen. Hist. Pl. 4: 277. 1838; O'Donell, Lilloa 29: 114. 1959.

Vatke ex Uo:

I. tuerckheimii/Donn.-Sm. Bot. Gaz. 42: 8. 1905, (type from Alta Verapaz, Tuerckheim 386). Campanilla; quiebra cajete.

Moist thickets, 600 - 2000 (?) m., Alta Verapaz; Jalapa; Santa Rosa; Zacapa. Mexico, El Salvador; Costa Rica. Colombia and Ecuador to Argentina.

Venezuela,

A slender vine, the stem pubescent with short, erect hairs, becoming glabrous, internodes 5-10 cm. long; Leaves with short petioles 1-5 cm. long, the blades 5-8 cm long and 2-4 cm broad, cordate, acuminate, glabrous ~~on~~ or sparsely pubescent above; peduncle very slender, 3-6 cm. long, pubescent or not, often passing ~~through the~~ between the basal lobes of leaf ~~sepals oval, acute~~ usually several flowered; sepals oval, acute or obtuse, rugose on the dorsal veins, nearly equal or the outer ones shortest, mostly 3-5 mm. long; corolla campanulate, glabrous 20-25 mm. long; ovary conic, bilocular, the style longer than the stamens; capsule ovoid, 1 cm. long, seeds pubescent, black or brown.

OK

Mexico (Chiapas); Honduras; Panama;

Ipomoea asarifolia (Desr.) Roem. & Schult. Syst. 4: 251. 1819. Convolvulus asarifolius Desr. in Lam. Encycl. 3: 562. 1789. Hierba del carbunclo. Moist or wet, open places, 200 meters or less; Petén (La Libertad). ~~Chiapas; Panama;~~ South America; West Indies; tropical Asia and Africa. Plants herbaceous, trailing, not twining, glabrous, the stems very coarse and thick; rooting at the nodes; leaves succulent, rounded-cordate or subreniform, often 10 cm. wide, rounded at the apex, entire; peduncles short or elongate, inflorescence several-flowered, the pedicels short or elongate, rather slender; sepals unequal, 8-10 mm. long, elliptic or oval, subcoriaceous, rounded at the apex; mucronate corolla purple, 6-8 cm. long, glabrous; seeds blackish, glabrous. This species is noteworthy for its irregular and interrupted distribution. It is frequent in Panama but apparently rare in other parts of continental North America, or at least has not been collected.

Ipomoea armentalis L. Wms

the description is written.

Ipomoea Batatas (L.) Lam. Encycl. 6: 14. 1804. Convolvulus Batatas L. Sp. Pl. 154. 1753. Camote; Is or Iz (Quiché, Maya, Quecchí); Iis (Ixil); On (Jacaltec, Chuje); Om (Poconchí). Sweet potato. Cultivated commonly at low and middle elevations, and often naturalized in waste ground or most thickets or fields; perhaps native of America, now cultivated in most warmer regions of the earth; noted as escaped in Sacatepéquez and Quezaltenango, and doubtless to be found in various other departments. Perennial from a large fleshy root, glabrous or nearly so; stems usually trailing, a meter long or more; leaves very variable in outline, ovate to rounded, cordate at the base, entire or dentate or lobate, often deeply lobate, with acute lobes; peduncles equaling or shorter than the petioles; inflorescence few-flowered; sepals oblong, acute or rounded and cuspidulate, 7-10 mm. long, somewhat unequal; corolla pale purple or almost wholly white, about 5 cm. long, glabrous; capsule 2-celled, glabrous; seeds glabrous.—The Usual name for the sweet potato in Mexico and Central America is "Camote", a word of Nahuatl origin. In Cuba this vegetable is called "Boniato", a word said to be of Antillean origin. In Puerto Rico and in other parts of tropical America it is called "Batata", perhaps a Carib word. It may be

I. Batatas

noted that Batata belongs properly to the sweet potato, but in Central America and elsewhere it was transferred to the Irish potato when that was introduced from South America, and in most parts of the earth the Irish potato now is known by the name that belongs rightfully to the sweet potato. The name of this plant has given the name to a pueblo of the Department of Chiquimula, Camotán. Sweet potatoes are grown abundantly in ~~this~~ in some parts of Guatemala and large quantities are eaten, but they are not a highly important food, and in some regions they seldom are seen. ~~The crop for the year 1939-40 is estimated at 13,050 hundredweight.~~ The only departments with a large production are Alta Verapaz, Sacatepéquez, Izabal, and Petén. Although often of good quality, most of the local sweet potatoes are small, compared with those marketed in the United States. They often are ~~sold~~ sold boiled in the markets, and by the upland Indians are eaten more or less as a delicacy. In Guatemala sweet potatoes are especially esteemed for preparing a dessert known as dulce de camote, which sometimes is rather good, but generally is too highly flavored with cinnamon. There are a number of distinct color varieties of sweet potatoes in Guatemala. A camote blanco when grated or mashed is almost snow-white when cooked, and is much esteemed for desserts, likewise the camote morado, which is of a handsome deep purple color when put on the table. The sweet potato doubtless has been grown in Central America for many centuries. It is closely related to I. tiliacea, and is believed by some persons to have originated from that species. In cultivation the plants often bear no flowers, and fertile capsules are a great rarity.

excluded

Ipomoea callida House, Muhlenbergia 3:42, fig. 1907.

3#
Probably thickets and forest edges. British
Honduras (8) Honduras (type, Wilson 534). Camotillo.

#3

Twining herbaceous or suffrutescent vines.
Leaves triangular in outline, sagittate, long acuminate,
the lateral lobes spreading, somewhat acuminate,
the sinus broad, 6-12 cm. long and 3-6
cm. broad at the base, glabrous to
sparsely or densely sericeous pilose pubescent
on both surfaces, petiles slender, pilose
or glabrous; inflorescence usually longer
than the subtending leaves, a rather
compact few- to 10-flowered cyme,
peduncles to 10 cm. long, pedicels bracteate,
slender, ultimate segment to 1 cm. long;
sepals coriaceous, unequal, ovate to

suborbicular, apex rounded or truncate, glabrous
scarious marginate, the
outer ones about 5 mm. long, the inner
ones to about 1 cm long; corolla infundibuliform
glabrous, pink to purple, (4)- 7-8 cm. long,
stamens inserted near the base of the corolla and
only about 2 cm. long.

Otop

NOTE
July 16, 69

[The type from New York has been requested.
The description notes that the leaves are glabrous,
the corolla only 4-5 cm. long; the calyx is
similar to Gaillardia 5480 but with hairs
said about the margins ?. This could be
a form of squamosa with sagittate leaves.

Ipomoea capillacea (HBK.) G. Don, Gen. Syst. 4: 267. 1838. Convolvulus capillaceus HBK. Nov. Gen. & Sp. 3: 97. Feb. 1819. Ipomoea muricata Cav. Icon. 5: 52, t. 478, fig. 2. 1799, non Jacq. 1798. I. armata Roem. & Schult. Syst. 4: 214. Spring 1819. I. muricatisepala Matuda, An. Inst. Biol. Mex. 34: 124. 1964, nom. illeg.

~~Ipomoea muricata Cav. Icon. 5: 52. pl. 478, f. 2. 1794. Convolvulus capillaceus HBK. Nov. Gen. & Sp. 3: 97. 1819. I. capillacea G. Don, Gen. Syst. 4: 267. 1838.~~

Open grassy places in pine forest, sometimes in wet meadows or on limestone, 800-2,000 meters; Zacapa; Chiquimula; Guatemala; Quiché; Huehuetenango. Southwestern United States; Mexico; Salvador; Honduras; Costa Rica; Panama; northwestern South America.

Perennial from a small tuberous root, the stems erect, simple or sparsely branched, usually 40 cm. long or less,

glabrous throughout or nearly so; leaves sessile, pedately parted into filiform segments 1-2 cm. long; peduncles equaling or shorter than the leaves, 1-flowered; sepals 4-5 mm. long, oval or broadly ovate, obtuse, sparsely or densely muricate dorsally; corolla bright pink or purple, about 2.5 cm. long; capsule globose, glabrous, 4-5 mm. long; seeds minutely puberulent.—Easy of recognition by the erect habit, small flowers, and filiform divisions of the leaves. Called Pinito in Salvador.

Ipomoea carnea Jacq. Enum. Pl. Carib. 13. 1760. Rocky brushy hillsides, 500 200-~~250~~ meters; Zacapa. ~~(between San Pablo and Zepezca, Stevermark 29341)~~ MEXICO (Yucatan); Nicaragua; Costa Rica; West Indies; northern South America. A large

woody vine, the branches usually stout and thick, pale, whitish-tomentose at first; leaves ~~long-petiolate~~, broadly ovate to suborbicular, 5-15 cm. long, rounded and apiculate at the apex or subacute, shallowly cordate at the base, pilosulous and densely puncticulate above or glabrate, pale-tomentose beneath; peduncles about equaling the petioles or shorter, several-flowered; sepals suborbicular, 5 mm. long, tomentose; corolla violet-pink or white, ~~6~~-7 cm. long, pilose outside; capsule ovoid, 1.5 cm. long, glabrous; seeds densely covered with very long, soft, spreading hairs. The Maya name of Yucatan is recorded as "Chocobcat." ~~The single Guatemalan collection is sterile, but probably is referred here correctly.~~

petiole usually shorter than the blade

5/30/69 based on material at US it appears that carnea is related to arborescens and that the guatemalan material is leucotricha which extends from Mexico to Costa Rica.

Ipomoea contrerasii L. Wms.

British Honduras. (Contreras 3640 [LL])

Twinning herbs with herbaceous stems, these with spreading , colorless, unicellular hairs about 2-5 mm. long; leaves broadly covate, cordate, abruptly acuminate, glabrous, the lamina 10-12 cm long and 8-10 cm. broad, the cordate base very open, petioles slightly shorter than the lamina, hispid like the stems; inflorescence 1-flowered, the peduncle pubescent, about 4 cm. long, the pedicel glabrous, enlarged upward (and perhaps hollw); calyx lobes glabrous, ~~xxxix~~ thinnly coriaceous, the margins chartaceous, ~~xxxxxxx~~ lanceolate or oblong lanceolate, acute, subequal, 25-30 mm. logg and 8-10 mm. broad; corolla blue, glabrous outside, narrowly campanulate, about 10-11 cm. long, [the tube about 7 cm. long], the limb about 8 cm. broad, anthers reaching to about the middle of the tube, 7-8 mm. long; style biglobose, reaching to the middle of the tube; capsule unknown.

The species is somewhat related to I. santae rosae in calyx ~~xx~~ side and shape but is distinguished by all those of Central "merica by the large calyx, single flowered inflorescence with large blue corolla and the spreading hispid stems and petioles.

It is a pleasure to name this rare species for the collector, whose excellent work has contributed much to our knowledge of the flora of the Petén.

Ipomoea costellata Torr. Bot. Mex. Bound. Surv. 149. 1859.
Brushy plains or limestone hillsides, 250-1,500 meters; Zacapa; Chiquimula; Huehuetenango. Southwestern United States; Mexico.

Plants annual, erect or ascending, the larger plants twining, very sparsely pilosulous or almost glabrous; leaves small, short-petiolate, cleft almost to the base into several linear, entire or lobate segments 1.5 cm. long or shorter; peduncles filiform, longer than the leaves, 1-flowered; sepals 4 mm. long, linear-oblong or lance-oblong, acute, glabrous, subcoriaceous; corolla about 12 mm. long, glabrous, the limb purple, the tube white; capsule subglobose, 6 mm. long; seeds glabrous.--This is a diminutive plant, in general appearance unlike most Central American Ipomoeas, but several similar species occur in Mexico.

O'Donell, Lilloa 29: 139, t. 9. 1959.

Petén.

Bolivia

Ipomoea crinicalyx S. Moore, Trans. Linn. Soc. II: 4: 402. pl. 27, f. 1. 1895; I. seleri Millsp. Bot. Jahrb. 36, Beibl. 80: 23. 1905 (type from Yucatan). British Honduras (El Cayo). Southern Mexico; ~~Yucatan Peninsula of Mexico;~~ Argentina, Brazil. A small or large, herbaceous vine, glabrous or sparsely short-pilose; leaves long-petiolate, rounded-cordate, abruptly acuminate, shallowly or deeply cordate at the base, entire, more or less punctate and minutely papillose beneath along the veins; peduncles shorter or longer than the petioles, 1-few-flowered, the pedicels slender, usually elongate, minutely puberulent; sepals herbaceous, about 1.5 cm. long, acute or obtuse, puberulent and puncticulate, densely covered with long spreading green fleshy spine-like appendages; corolla purple or blue, glabrous, 6-9 cm. long; capsule ~~globose~~, ovoid, glabrous, 12-15 mm. long; seeds pilose on the angles.

OK

Ipomoea demerariana Choisy in DC. Prodr. 9: 361. 1845. # Wet thickets or forest, often in wooded swamps, ~~200~~ 700 meters or less; Izabal, Peten, Alta Verapaz; British Honduras along the Atlantic coast to Panama; Lesser Antilles; northern South America. # A large vine, sometimes climbing to a height of 15 meters, herbaceous or somewhat woody below, the stems as much as 2.5 cm. thick, glabrous or nearly so; leaves long-petiolate, rounded-cordate, 8-20 cm. ~~broad~~ wide, abruptly acute or cuspidate-acuminate, often purplish beneath, shallowly or deeply cordate at the base, glabrate, sometimes short-pilose beneath along the veins; peduncles 10-20 cm. long or more, usually many-flowered; sepals broadly ovate, 15-18 mm. long, obtuse or subacute, purple or lavender, finely pubescent or almost glabrous, subequal; corolla 5-8 cm. long, purple, glabrous; capsule subglobose, glabrous, about 1 cm. long; seeds covered with long soft hairs. # This is an exceptionally showy and handsome morning-glory, and attains perhaps a greater size than any other Guatemalan species. It has been confused, rather strangely, with Stictocardia campanulata (L.) House, and has been reported from British Honduras and Panama under that name. Stictocardia, so far as available records indicate, is not found north of Costa Rica and Panama.

Does it belong in Rivea?
Mar 69

Ipomoea digitata L. Syst. Ed. 10. 924. 1759. ♀ Wet thickets, at or little above sea level; Izabal. British Honduras; Honduras; to Panama; West Indies; South America; Old World tropics. ♀ A stout vine, usually herbaceous, sometimes woody below, the stems sparsely pubescent or glabrous; leaves slender-petiolate, somewhat succulent, palmately lobate to or below the middle, cordate or truncate at the base, the lobes usually 5-7, ovate or lanceolate, acute or acuminate, entire, 5-8 cm. long, glabrous or sparsely pilose, pale beneath; peduncles usually longer than the petioles, pilosulous or glabrous, ~~several-flowered~~; pedicels much longer than the calyx; sepals equal, orbicular, subcoriaceous, 8-10 mm. long, glabrous or sparsely pubescent; corolla rose-pink, 4-6 cm. long, glabrous; ovary glabrous, 2-celled; seeds 4, long-pilose.

inflorescence cymose, few-several-flowered

♀ Known in Guatemala, Honduras and British Honduras at sea-level and doubtless will be found along the Atlantic shore in Nicaragua and Costa Rica. It is rare in collections.

Ipomoea fistulosa Mart. ex Choisy, DC. Prodr. 9: 349. 1845; O'Donell, Lilloa 29: 157, fig. 15. 1959. Batatas ? crassicaulis Benth., Voy. Sulph. 5: 134. 1845; Ipomoea crassicaulis Rob. Proc. Am. Acad. Sci. 51: 530. 1916. Campanilla; mañanita; campana; campanula lila.

Ipomoea crassicaulis (Benth.) Robinson, Proc. Amer. Acad. 51: 530. 1916. Batatas crassicaulis Benth. Bot. Voy. Sulph. 134. 1844. I. fistulosa Mart. ex Choisy in DC. Prodr. 9: 349. 1845. Campanilla; Mañanita; Campana; Campanula lila. Usually in wet open ground, especially in marshes about lakes or along streams, often becoming naturalized in thickets, 1000 meters or less; found wild in Peten, Izabal, Chiquimula, Jutiapa, and San Marcos, and probably elsewhere; cultivated commonly for ornament in parks and gardens of many parts of Guatemala. Southwestern Texas; Mexico; British Honduras to Salvador and Costa Rica; South America. An erect herb or shrub, sometimes 2.5 meters high or even more, the stems stout, minutely puberulent or glabrous, fistulose; leaves long-petiolate, lance-cordate or narrowly ovate-cordate, 10-25 cm. long, very narrowly long-acuminate, shallowly

cordate at the base, entire, minutely puberulent or glabrous; peduncles little longer than the peduncles, several-flowered, the pedicels short or elongate, thick; sepals subcoriaceous, suborbicular, 5-6 mm. long, minutely puberulent or glabrate; corolla deep pink or rose-purple, finely tomentulose, 5-8 cm. long; capsule subglobose, 2 cm. long or smaller, glabrous; seeds covered with very long, soft, spreading hairs.--Sometimes called "Campanilla de árbol" and "Campanola" in Salvador. The plant is not a particularly handsome or showy one, but it is much planted in Guatemalan gardens, perhaps because in thrives in spite of neglect. Its natural habitat in Central America seems to be marshes about the borders of lakes, but it grows well even during the dry season, in well drained soil.

Dr. O'Donell believes, l. c., believes that this species is native only in South America but has been introduced as an ornamental plant in in North America. It has the appearance of a native plant in Guatemala.

Florida

Ipomoea ~~sedifolia~~ L'Hér

Tuerckheim 3930.

Descr. Written

Keyed

Rem: use ms copy for Flora

[cf Ipomoea lasypoma Jacq. These in US seem to be the same as heterodoxa, see specimen borrowed from US. There are no specs of lasypoma in US from WI or CA]
In thicket and clearings, 300 meters or less, Petén.

; MEXICO (Yucatan, Campeche). Mario de León;
Cand Camotillo (S. Honduras).

Ipomoea heterodoxa Standl. & Steyerm. Bot. Ser. Field Mus. Bot. 23: 82. 1944.

British Honduras, ~~in moist thickets or open forest, little above sea level;~~ type from Maskall, Percy Gentle, 871; (Yucatan; Campeche). A slender twining herb, glabrous throughout; leaves long-petiolate, digitately 5-7-foliolate, the lower leaflets short-petiolulate or sessile, oblanceolate or linear-oblanceolate, 4-8.5 cm. long, 8-18 mm. wide, slightly narrowed to the obtuse apex, attenuate to the base, entire; terminal leaflets 6-12 cm. long, deeply 3-parted, often almost to the base, cuneately long-attenuate at the base, the lobes entire; ~~peduncles much shorter than the petioles, scarcely exceeding 14 mm., few-flowered, the pedicels slender, 1 cm. long;~~ sepals unequal, subcoriaceous, oval or suborbicular, the inner ones 5-6 mm. long, rounded and muticous at the apex; corolla white tinged with pink, or pale pink throughout, glabrous, 3.5-4 cm. long, the limb scarcely more than 1.5 cm. broad; capsule glabrous, ellipsoid-ovoid, ~~about~~ 1 cm. long; seeds covered with long soft spreading hairs.

inflorescence a few- several flowered cyme, the peduncle, ~~which~~ exceeded by leaf petioles, the peduncle to 1.5 cm. long, the slender pedicels less than 1 cm. long;

(The outer ones somewhat shorter

Last # → a curious species allied to I. cairica (L.) Sweet, ~~which might be expected in~~

Ipomoea indica (Burm.) Merrill, Int. Rumph. t. Herb. Amb. 445. 1917. Convolvulus indicus Burm. Index Universalis Herb. amb. 7: [6], 1755.

Ipomoea congesta R. Br. Fl. Nov. Holl. ed. 1, 485. 1810; O'Donell, Lilloa 29: 134. 1959. Convolvulus acuminatus Vahl, Symb. Bot. 3: 26. 1794. Ipomoea cathartica Poir. in Lam Encycl. Méth. Suppl. 4: 633. 1816. Ipomoea acuminata Roem. & Schult. Syst. Veg. 4:228. 1819, non I. acuminata Ruiz & Pavón, 1799. I. vahliana House, Ann. N. Y. Acad. Sci. 18: 204. 1908. Quilamul; sayúm (Cobán, Quecchí).

Moist or wet thickets, often a weed in second growth or in abandoned fields or hedge rows, 1,400 meters or less; Petén; Alta Verapaz; Zacapa; Sacatepéquez;; Suchetepéquez; Retalhuleu; Huehuetenango; San Marcos; doubtless in other departments. Pantropical, the type from Australia, and widely cultivated. In America from the southern United States to Argentina.

Plants herbaceous, twining, much branched and often elongated, rarely prostrate, the stems appressed-pilosulose to glabrate; leaves rounded-ovate, mostly 5-9 cm. long, usually acuminate, cordate at the base, entire or rarely 3-lobate, appressed-pilosulous or glabrate; peduncles mostly shorter than the petioles but sometimes elongate; 1-few-flowered; sepals pale green, herbaceous at least toward the apex, lance-ovate or ovate, 1-2 cm. long, acuminate or long-acuminate, appressed-pilosulous or usually glabrate; corolla blue or purple, glabrous outside, 5-7 cm. long or even larger, the limb 6-8 cm. broad; capsule globose, 1 cm. broad or less, glabrous; seeds glabrous, 3 mm. long.--Called "Gloria de la mañana" in British Honduras, a translation of the English name that has come into use along the banana coast of Central America; "Quiebra-plata" (Veracruz). The species is a variable one, especially in pubescence. House divided the material that we refer here into three species, but they can not be separated definitely by the characters that he suggested.

Ipomoea variabilis is probably only a variety of I. congesta.

indica

Ipomoea congesta var. variabilis (Schlecht. & Cham.) L. Wms. Fieldiana, Bot. XX: xxx. XXXX. Convolvulus variabilis Schlecht & Cham. Linnaea 5: 116. 1830. Ipomoea variabilis Choisy in DC. Prodr. 9: 383. 1845.

~~Ipomoea variabilis (Schlecht. & Cham.) Choisy in DC. Prodr. 9: 383. 1845. Convolvulus variabilis Schlecht. & Cham. Linnaea 5: 116. 1830.~~ Moist or wet thickets, ~~1400~~ 200 meters or less; ~~Alta Verapaz;~~ Escuintla; San Marcos. Southern Mexico. A slender herbaceous vine, the stems and leaves glabrous or nearly so; leaves thin, long-petiolate, cordate-ovate or triangular-ovate, 5-8 cm. long, acuminate or long-acuminate, rather shallowly cordate at the base, sometimes subhastate, entire; peduncles shorter than the petioles, 1-2 cm. long, 1-5-flowered, the bracts green, linear-lanceolate; sepals lanceolate or ovate-lanceolate, herbaceous, 12-15 mm. long, ~~long-~~hirsute or subsetose at the base; corolla bright purple, 5-6 cm. long, glabrous, with a very broad limb; capsule 8-10 mm. in diameter; seeds glabrous.

~~This species is perhaps hardly more than a variety of I. congesta, distinguished by the (usually) setose hairs on the base of the calyx~~

Distinguished from the species by the long setose or subsetose hairs at the base of the calyx.

Ipomoea leucotricha Donn.-Smith, Bot. Gaz. 23: 10. 1897. ~~Known only from the~~ ♀ Alta Verapaz;
type collected near Nentón, Huehuetenango, ~~1200~~ 900-1200 meters, ~~E. W.~~ Nelson
3512. Plants twining, densely silvery-sericeous throughout except on the corollas
and the upper leaf surface; leaves long-petiolate, orbicular-cordate, 7-10 cm.
long, ~~2/3~~ 6-8 cm. wide, entire, sparsely pilose and green on the upper surface;
peduncles longer than the leaves, with numerous flowers; bracts linear-lanceolate,
6 mm. long, the pedicels 1-2 cm. long; sepals 6 mm. long, subequal, oblong-ovate,
with a recurved mucro at the apex; corolla purple(?), 5 cm. long, 2.5 cm. broad in
the throat; ovary glabrous.

~~(No material seen).~~

, sericeous outside except in the plicae

OK.

Ipomoea lindenii Mart. & Gal. Bull. Acad. Brux. 12, 2: 264. 1845;
Matuda, An. Inst. Biol. 36: 84. 1965.
Tuerckt. GUATEMALA. MEXICO.
Hayes S. N. Escuintal, Guat. cited by Matuda. Standl 24406

Twining plants with slender often suffruticose stems; leaves cordate-ovate to subtriangular, acuminate, glabrous to sparsely puberulent along the veins, 5-10 cm. long and 2-6 cm. broad, petioles slender, 3-5 cm. long; inflorescence axillary, one-two-flowered, the peduncles 1-5 mm. long, the pedicels to about 15 mm. long, glabrous to sparsely pilose; sepals unequal, oblong or lance-oblong, obtuse, 6-8 mm. long, glabrous or nearly so; corolla infundibuliform to campanulate, glabrous except toward the tip, 5-6 cm. long.

Prof. Matuda reports the species from Guatemala based on Standley 24406 in 1922 possibly in error.

There is no specimen so det by Matuda at US. a good distinct species. ♀ Hunbon 8592; 16038; 19589

Ipomoea Mairetii Choisy in DC. Prodr. 9: 374. 1845. Quiebra-cajete. Moist or often in pine-oak forest, Zacapa; rather dry thickets or forest, 650-1900 meters; Chiquimula; Jalapa; Jutiapa; Santa Rosa; Guatemala; Sacatepéquez; Chimaltenango. Southern Mexico. A woody vine, often large and climbing over trees, the stems densely sericeous or somewhat tomentose; leaves long-petiolate, rounded-ovate or subreniform, 7-15 cm. long or larger, often 3-lobate, acute or acuminate, shallowly or deeply cordate at the base, usually green above and rather densely appressed-pilose, very densely silvery-sericeous beneath; peduncles several-flowered, equaling or shorter than the leaves, the inflorescence a few flowered cyme open or dense and compact, the bracts large, ovate, acute or acuminate, persistent, the pedicels 1-3 cm long elongate or short; sepals ovate or broadly ovate, 2-2.5 cm. long, acute, densely sericeous; corolla bright rose-purple, 7-8 cm. long, the tube densely white-pilose outside; capsule glabrous, globose, 1 cm. in diameter; seeds blackish, densely and finely pubescent. One of the handsomest of the local Ipomoea species, abundant at many places in the central region at middle elevations, often growing in thin oak forest. It has been reported from Guatemala as I. tyrianthina Lindl.

inflorescence a few flowered cyme

TOTO Matuda det Heyde & Lux 4350 from Sta Rosa as I. venusta (Ma & C.) Hemsl. Check it. also Heyde 611).

Val
Do
not
copy

delete

petosa

Ipomoea melanotricha Brandeg, Univ. Calif. Publ. Bot. 4: 381. 1913. In thickets, ~~near sea level;~~ 1400 meters or less; Santa Rosa, ~~region of Capulin, Standley 79596~~, Chimaltenango. Southern Mexico. A large herbaceous vine, the stems stout, setose-hispid with long, spreading, somewhat fleshy, almost spine-like hairs; leaves long-petiolate, rounded in outline, as much as 20 cm. broad, almost glabrous, cordate at the base, pedately 7-9-lobate almost to the base, the lobes acuminate, contracted below, ovate or lanceolate, entire; peduncles stout, often longer than the petioles, setose-hispid, several-flowered, the stout pedicels hispid, 4-5 cm. long; sepals subequal, densely hispid, oblong or elliptic, about 2 cm. long, obtuse, closely investing the capsule; corolla purple or blue-purple, about 8 cm. long, glabrous; capsule glabrous, ovoid-globose, almost 2 cm. long; edges of the seeds densely pilose with long silky white spreading hairs.

Alta Verapaz;

Ipomoea Meyeri (Spreng.) G. Don, Gen. Syst. 4: 275. 1838. Convolvulus Meyeri Spreng. Syst. 1: 597. 1825. I. chiapensis Brandeg. ex in Univ. Calif. Publ. Bot. 6: 60. 1914, (type from Tonalá, Chiapas). I. brachypoda Benth. Bot. Voy. Sulph. 135. 1844. Moist thickets, 150-~~400~~ 500 meters; El Progreso; Chiquimula; Zacapa; Santa Rosa. Southern Mexico; British Honduras; Honduras; Costa Rica; Panama; West Indies; northern South America.

A small slender herbaceous vine, the stems glabrous or sparsely pilose; leaves

slender-petiolate or the upper ones short-petiolate, broadly or narrowly ovate, 4-10 cm. long, acute or acuminate, cordate at the base, entire or hastately 3-lobate, glabrate, often white-puncticulate beneath; ~~peduncles usually very short, 1-many-flowered, the cymes contracted and headlike, the pedicels very short, the bracts linear, green;~~ acuminate, sepals linear-lanceolate, pilose or hirsute with long pale spreading hairs, 1-2 ~~2-3~~ cm. long, green, herbaceous; corolla blue or purple with a white throat, 2.5-3 cm. long, glabrous; capsule globose, 8 mm. in diameter; seeds densely and finely pubescent. Called "Camotillo" in British Honduras; the Maya names "Tsusuc" and "Xhail" are reported from Yucatan. In Honduras call "campanilla".

with tuberculate bases

Inflorescence a few- several-flowered cyme as long as or usually shorter than the subtending leaf, peduncles ~~short~~ to 6 cm. long (usually much shorter in Guatemalan material), the pedicels short, bracts linear;

Sololá; Soecatepéquez;

Ipomoea microsepala Benth. Bot. Voy. Sulph. 136. 1844. Príncipe amarillo.

Wet to dry, sometimes rocky thickets, 1/600 meters or less; Suchitepéquez; Retalhuleu; San Marcos. Western and southern Mexico. A small slender herbaceous vine, climbing over shrubs, the stems sparsely hirsute with long spreading hairs; lower leaves long-petiolate, the upper on very short petioles, broadly ovate, mostly 3-6 cm. long, acuminate to obtuse, deeply cordate at the base, entire, glabrous or nearly so; ~~peduncles almost filiform, usually much longer than the leaves, mostly 2-4-flowered, the pedicels long and slender; sepals 2 mm. long, obtuse;~~ corolla bright yellow, 2-2.5 cm. long; capsules subglobose; seeds densely short-pilose. A common plant of the western Pacific plains, easily recognized by the small yellow flowers and elongate twining stems and very small, aphaclate sepals.

inflorescence a few-flowered axillary cyme on usually long almost filiform peduncles exceeding the leaves, The pedicels subfiliform, mostly less than 1 cm. long; sepals subequal, oblong, obtuse, aphaclate, about 2 mm. long and 1 mm. broad;

Ipomoea microsticta Hallier f. Bull. Herb. Boiss. ser. 1, 7: 411. 1899; L. Wms., Fieldiana, Bot. 1969. I. glabriuscula House, Bot. Gaz. 43: 409. 1907.

Moist thickets or forest edges, 325-1,200 meters, ~~endemic~~. Escuintla (type Seler & Seler 2427); Suchitepéquez; Sacatepéquez; Santa Rosa; Chiquimula; Jutiapa. Mexico; British Honduras; Costa Rica.

Herbaceous or suffrutescent vines, the branches becoming quite woody with age, glabrous, terete. Leaves broadly ovate to suborbicular, shallowly cordate, acuminate, obscurely puberulent below or glabrous, provided with abundant submicroscopic "glands", the blades 3-10 cm. long and 2.5-11 cm. broad, the petioles 2.5-6 cm. long, slender, usually with two inconspicuous glands at the apex; inflorescence a 1-several-flowered axillary cyme, the peduncles 2-8 cm. long, the pedicels about 1 cm. long, angulate, subclavate; calyx subglobose, glabrous, the sepals broadly elliptic to suborbicular, subcoriaceous, cochleate to somewhat concave, 6-8 mm. long; corolla campanulate, glabrous, pale pink to white, 4-5 cm. long; stamens inserted near the base of the corolla and about a third as long; style ~~xxx~~ exceeding the ~~xxxxxx~~ stamens; capsules broadly ovate, ~~xx~~ somewhat attenuate to the persistent base of the style, 10-15 mm. long.

Said by Standley to be one of the most attractive morning glories of Guatemala. The campanulate corolla, ~~xxx the microscopic glandular dots on the undersurface of the leaves and the~~ subglobose calyx and shallowly cordate leaves are distinctive marks of this species.

The small "glands", described by Hallier, from the undersurface of the leaves are on all the specimens we have seen. However we are not sure that these are not caused by a fungus

Ipomoea microsticta Hallier, Bull. Herb. Boiss. per. 1, 7: 411. 1899. Type from San Juan Perdido near Santa Lucía Cotzumalguapa, Escuintla, in thicket, C. & E. Selen 2427. A glabrous vine; leaves cordate, 4.5-9 cm. long, long-petiolate, acuminate, entire, puberulent beneath on the nerves, otherwise glabrous, paler beneath and black-puncticulate; peduncles elongate, several-flowered, the cymes umbelliform, the pedicels slender, elongate; sepals elliptic, glabrous, 6 mm. long, subcoriaceous, the 2 outer ones smaller; corolla white or pink, 4.5 cm. long, with a limb 3 cm. broad.

Look Matuda has it

Not included in the key. I am not able to place it satisfactorily from description, but suspect it is one of the species listed here. The type or a dupl. is in Gray Herb.

specimens from Gray Herb requested April 7, 1969

now in key

4/11/69 have written looking for the type

OK.

Ipomoea minutiflora (Mart. & Gal.) House, Muhlenbergia 5: 71. 1909. Convolvulus minutiflorus Mart. & Gal. Bull. Acad. Brux. 12, pt. 2: 262. 1845. I. filipes Benth. ex Meissn. in Mart. Fl. Bras. 7: 274. 1869. Moist shaded banks, brushy rocky slopes, wet meadows, sometimes a weed in cultivated ground, 1200 meters or less; Zacapa; Chiquimula; Jutiapa; Santa Rosa; Escuintla. Southern Mexico; British Honduras to Nicaragua and Costa Rica; northern South America. Plants annual, usually prostrate, very slender, the stems pilose or glabrate, often densely leafy; leaf blades broadly ovate to subreniform, 1-3 (-6.5) cm. long, acute to rounded at the apex, shallowly or deeply cordate at the base, entire or somewhat angulate, ciliate, sparsely pilosulous above, glabrous beneath, long-petiolate to almost sessile; peduncles filiform, 1-3-flowered, usually longer than the leaves, the pedicels recurved in fruit; sepals 2 mm. long, acute, pilose; corolla yellow, 1-1.5 cm. long; capsule subglobose, glabrous, 4-5 mm. long; seeds blackish, minutely puberulent or glabrate. An inconspicuous little plant, usually creeping, noteworthy for the very small, bright yellow corollas.

It is to be expected in other departments.

UNIVERSIDAD NACIONAL
AUTÓNOMA DE
MÉXICO

abril 14,1969

Dear Dr. Louis O Williams,

This will acknowledge you for your kind letter of 8 inst. I never known the Ipomoea morelii in our territory and vicinity. With regard on Matuda 2133 I am sorry to say that the specimen has been sent on loan to late O'Donnell in Argentin in last year and by his sudden death the specimen has never return as well some others 6-7 especimenes all convolvulaceae. We have no duplicates the loaned matterials in our herbarium. They lost away complately.

Hoping your continued success on your recent study on Guatemalan Convolvulaceae.

With best wishes and kindest concerans,

I beg to remain

Your most truly

E. Matuda

Eizi Matuda

4/10/62 Wait have written Hemsley for type of I. microstricta

Delete

Ipomoea Morelii Duchass. & Walp. Linnaea 23: 752. 1850. Moist thickets, often a weed in corn fields, 2100 meters or less; Zacapa; Chiquimula; Jutiapa; Escuintla; Suchitepéquez; (?); (Solola); Guatemala; Sacatepéquez; Chimaltenango; Quezaltenango; Huehuetenango. Southern Mexico; El Salvador; Costa Rica; Panama; Colombia. A small or rather large, herbaceous vine, glabrous or nearly so; leaves long-petiolate, ovate to rounded-ovate, 6-12 cm. long, and 3-11 cm. broad, acuminate, shallowly or deeply cordate at the base, usually entire, sometimes shallowly lobate; peduncles equaling or often much longer than the petioles; 1-few-flowered, the pedicels rather stout, 1-2 cm. long; sepals subequal, glabrous, oblong-ovate or oval, 5-6 mm. long, rounded at the apex, the outer ones shortest; corolla rose-purple, 5-6 cm. long, the limb 4-5 cm. broad, glabrous.

We have not seen authentic material of this species but believe that our concept is the same as that followed by Hallier f. Matuda does not give the species from Mexico although we have a specimen collected in Chiapas by him.

Part of this I have named exogonioides

OK

Ipomoea murucoides Roem. & Schult. Syst. 4: 248. 1819. Siete camisas; Tonché; Tutumuzco; Tutumuzcual; Tutumuste; Siete pellejos; Tutumuscuavo; Palo blanco; Siete capas; ~~Tuy~~ Tutusmuscuago.

Brushy, open, dry, often rocky slopes or plains or in open dry forest, frequently in hedges, or in oak forest, 600-2,000 meters; Chiquimula; Jalapa; Jutiapa; Santa Rosa; Guatemala; Sacatepéquez; Quiché; Huehuetenango. Southern Mexico; ~~Salvador.~~ A tree, commonly 5-9 meters high, the crown low and spreading, the bark almost smooth, white, the branches thick, the young branches densely white-tomentose; leaves slender-petiolate, oblong-lanceolate, mostly 7-12 cm. long, long-acuminate, obtuse or rounded at the base, entire, somewhat tomentose when young but soon glabrate; ~~peduncles axillary, somewhat longer than the petioles, stout, 1-flowered~~ inflorescence see opposite sheet; sepals 2-3 cm. long, subequal, coriaceous, rounded at the apex, tomentose outside, sericeous within; corolla pure white, 7-8 cm. long, tomentose outside; capsules 2.5 cm. long, ovoid, glabrous; margins of the seeds densely set with long soft spreading white hairs. ~~Sometimes called Palo de ceniza and Palo bobo in Salvador.~~ It is said that the ashes ~~are good for making lye.~~ make the best lye for soap-making. Cattle are fond of the ashes, which they eat in place of salt. This species belongs to the group of tree Ipomoeas that grow so profusely in the dryer parts of western Mexico. It is common and conspicuous in the central region, especially about Antigua, where it is often planted for living fence posts or for hedges. It is more abundant in the ~~Oriente~~ west, and is conspicuous on the arid hills about Sacapulas in Quiché. The trees are conspicuous because of their white trunks and branches, which look as if they had been used as roosting places by birds. The abundant large white flowers are very handsome, and the trees are strangely unlike most members of the morning-glory family. The flowers apparently remain open all day long, and, once open, probably do not close until they wither.

A possible synonym is I. glabriuscula glabriuscula, which see.

Delete

Ipomoea nicoyana House, Ann. N. Y. Acad. Sci. 18: 231. 1908. Campanilla; Madre de maiz (Huehuetenango).

Moist or wet thickets or open forest, sometimes in pine forest, 800-1,800 meters; Chiquimula; Jalapa; Jutiapa; Santa Rosa; Escuintla; Guatemala; Huehuetenango. Costa Rica; Panama.

A small or large, herbaceous vine, the stems puberulent or glabrous; leaves long-petiolate, broadly ovate or often oblong-ovate, mostly 5-15 cm. long, acute or acuminate, usually shallowly cordate at the base, sometimes subsagittate, finely pubescent beneath, glabrous or pubescent above; peduncles usually shorter than the petioles, ~~1-few-flowered,~~ the pedicels 1-2.5 cm. long; corolla dull dark purple, the throat black-purple or brown-purple,

5-6 cm. long, glabrous; sepals subequal ~~or very unequal,~~ 12-16 mm. long, subacute to rounded at the apex, subcoriaceous, ~~glabrous~~; capsule oblong-ovoid, 12-15 mm. long, 2-celled, tapering at the apex into a ~~long~~ stout beak; seeds densely pilose with long soft hairs. It is probable that the proper name for this species is I. costaricensis Kuntze. ~~The large fleshy root is sometimes eaten in Huehuetenango, being boiled, mashed, and mixed in tortillas.~~

(Type of I. costaricensis should be examined.)

This is the only Ipomoea in Guatemala with a thickened relatively short style terminated by a capitate stigma

+ OK.

(O'Donell, Lilloa 29: 197, f. 1959.

Ipomoea Nil (L.) Roth, Cat. 1: 36. 1797; Convolvulus Nil L. Sp. Pl. ed. 2. 219. 1762. Campanilla; Campana. Wet to dry, often rocky thickets, often in waste or cultivated ground, ~~1800~~ 1,750 meters or less; Zacapa; Chiquimula; Jutiapa; Santa Rosa; Guatemala; Quiché; Huehuetenango. Florida; Mexico; British Honduras to Panama; West Indies; South America; Old World tropics. A small or rather large, usually always annual, herbaceous vine, hirsute almost throughout with sparse or often dense, usually pustulate-based, unicellular brownish hairs; leaves 5-15 cm. long, shallowly or deeply cordate at the base, ~~generally 3-lobate to the middle or less deeply~~, the lobes entire, abruptly acute or acuminate; inflorescence 2-5-flowered, axillary, dense and head-like peduncles longer or shorter than the petioles; ~~mostly 1-5-flowered, the inflorescence dense and head-like, the petioles short~~; sepals subequal 1.5-2.5 cm. long, linear and herbaceous, the bases somewhat broadened, densely long-hirsute;

infundibuliform, corolla blue or purple, 3-5 cm. long, glabrous, the limb 4-5 cm. broad; ovary 3-celled; capsule globose, 8-12 mm. long; seeds finely and densely pubescent. ~~+~~ One of the most common weedy species of Ipomoea through much of the lowlands of Central America. The Maya name "Itzotz-cabil" is reported from Yucatan.

ovate to suborbicular, entire or trilobate (rarely 5-lobate),

style 17-30 mm. long, stigma bilobular;

Ipomoea ophiodes Standl. & Steyerm. Bot. Ser. Field Mus. Bot. 23: 82. 1944.

Moist thickets or forest, 200-400 meters; Santa Rosa (type from region of La Morenita, northeast of Chiquimulilla, Standley 78884); endemic. A small herbaceous vine, the stems sometimes prostrate and rooting at the nodes, densely hirsute with very long, spreading hairs, the internodes elongate; leaves long-petiolate, cordate-ovate, 4-10 cm. long, 3-6.5 cm. wide, acute or acuminate, hirsutulous above, ~~and rough to the touch~~, slightly paler beneath and puberulent, the petioles puberulent and very sparsely hirsute; peduncles scarcely 1 cm. long, inflorescence 1-flowered, the slender pedicels 2.5-3.5 cm. long, minutely puberulent and very sparsely hirsute; sepals subequal, subherbaceous, 12 mm. long, linear-lanceolate, acuminate, sparsely long-hirsute; corolla deep purple, 8-9 cm. long, glabrous, the limb 8 cm. broad.—Noteworthy for the very dense and long hairs of the stem, the pubescence of the leaves consisting wholly of short and inconspicuous hairs.

Ipomoea parasitica (HBK.) G. Don, Gen. Syst. 4: 275. 1838.

Convolvulus parasiticus HBK. Nov. Gen. & Sp. Pl. 3: 103. 1819. Campanilla; Quebra-cajete.

Brushy slopes and thickets, 800-1,500 meters. Jalapa, Jutiapa; Santa Rosa. Mexico through Central America. Northern South America.

A small or large, herbaceous vine, the stems glabrous or nearly so, often bearing, at least below, numerous wart-like fleshy tubercles; leaves long-petiolate, rounded-cordate, 6-10 cm. long, acuminate or rounded and cuspidate at the apex, strigillose above, glabrous beneath or nearly so, the petioles often tuberculate; peduncles shorter or slightly longer than the petioles, stout, 5-9-flowered, the pedicels much thickened upward; sepals 4-5 mm. long, the outer ones subacute and minutely cuspidate, minutely appressed-pilosulous, the inner ones rounded; corolla sericeous outside, 3 cm. long, bright purple; capsule ovoid-globose, 1 cm. long; seeds minutely puberulent.

Stamens reaching to about middle of the corolla; style as long as the stamens but breaking off shortly above the capsule after corolla falls.

This species is very closely allied to I. tricolor Cav. but can be distinguished by the smaller corollas which are sericeous outside, and by the broader calyx lobes.

OK

Ipomoea pauciflora Mart. & Gal. Bull. Acad. Brux. 12[2]: 266. 1845; Walp. Rep. 6: 532. 1847; L. Wms. Fieldiana, Bot. 1969. Ipomoea populina House, Ann. N. Y. Acad. Sci. 18: 227. 1908.

Dry thickets and hills, 400-900 meters; Chimaltenango; Chiquimula; Progreso. Western and southern Mexico; Honduras; Nicaragua.

~~Ipomoea populina House, Ann. N. Y. Acad. Sci. 18: 226. 1908.~~ ~~Rocky dry thickets, 400-800 meters; Chiquimula; El Progreso. Western Mexico.~~ A large vine, woody throughout, the stems sometimes 2 cm. thick, glabrous or nearly so; leaves mostly ovate, entire, 5-8 cm. long, acuminate or long-acuminate, rounded or very shallowly cordate at the base, glabrous or nearly so; peduncles 8-12 cm. long, often on defoliate branches, cymosely few-many-flowered, the pedicels 3 cm. long or shorter; sepals subequal, rounded-ovate, 5-8 mm. long; corolla apparently white with a dark red or purple throat, about 6 cm. long, glabrous, the limb 6-8 cm. broad; capsule thick-walled, ellipsoid, 2 cm. long, 1 cm. thick, 4-valvate, 2-celled; seeds covered with long soft spreading white hairs.

A most attractive woody vine that is in flower in dry regions from about the end of the rainy season. It is exceedingly common in parts of central Honduras.

It is keyed at two points

Look

[Great specimen not pedicellaris

Ipomoea pedicellaris Benth. Bot. Voy. Sulph. 135. 1844. Campanilla morada.

Moist thickets or hedges, 850 meters or less; Izabal; Zacapa; Jutiapa; Santa Rosa. Western Mexico; Pacific coast of Honduras. A large herbaceous vine, glabrous throughout or nearly sp, the stems rather stout and often angulate; leaves long-petiolate, ovate-cordate or rounded-cordate, 6-18 cm. long, entire, abruptly acute or short-acuminate, shallowly or deeply cordate at the base; peduncles sometimes 20 cm. long, usually bifurcate and many-flowered, the pedicels short or elongate, rather thick and hollow; sepals oblong-ovate, subcoriaceous, unequal, obtuse or rounded at the apex, 6-8 mm. long or in fruit somewhat longer; corolla bright purple or purple-pink, 6-8 cm. long; seeds black, long-pilose on the edges.

Key not changed 4/1968

32:193.1970.

Ipomoea perplexa L. Wms. Fieldiana, Bot. # 1969.

In thickets, clearings, or forest edges. Alt. up to 600 m.; Petén. British Honduras (type Bartlett 12868) and Honduras.

Slender twining herbaceous vines, stems about 1 mm. or less in diameter, glabrous. Leaves glabrous, small, narrowly ovate to broadly ovate in outline, cordate, acute or acuminate, blade entire, dentate to trilobulate, 1.5-6 cm. long and 0.6-4.5 cm. broad, petioles short, to about as long as the blade; inflorescence an axillary few-several-flowered corymb, peduncles about as thick as the stem, 1.5-6 cm. long, pedicels relatively stout, less than 1 cm. long; calyx coriaceous, glabrous, the lobes subequal, about 4 mm. long, the outer ones usually somewhat shorter, oblong to oblong-obovate, obtuse or truncate, the margins somewhat chartaceous, usually with a minute inframarginal apicule at the center; corolla small, pink or purple, narrowly funnelform, glabrous outside, 14-18 mm. long, stamens inserted near the base of the corolla, unequal, reaching to about the middle, anthers 1-1.2 mm. long, filaments bearded at the base, stigmas globose (or biglobose), large, about 0.8 mm. broad; capsule glabrous, subglobose, about 4-5 mm. long; seeds brown or black, glabrous, smooth.

The smallest flowered of Central American Ipomoeas with pink or purplish flowers. It is distinguished by the small flowers and the small obtuse or truncate calyx. The leaves are usually lobate but lobate and entire leaves occur on the same stem.

Perplexa
Confusa

Ipomoea perplexa L. O'Donn. Trelbiana, Bot. 1969

In thickets, clearings or forest edges, alt. up to 600 m.; Peten, British Honduras (type Bartlett 12868) and Honduras.

Slender twining herbaceous vines, stems about 1 mm. or less in diameter, glabrous. Leaves glabrous, small, narrowly ovate to broadly ovate in outline, cordate, ~~entire~~ acute or acuminate, blade entire, dentate to trilobulate, 1.5-6 cm. long and 0.6-4.5 cm. broad, petioles short, to about as long as the blade; inflorescence an axillary few- several-flowered corymb, peduncles about as thick as the stem, ± 1.5-6 cm. long, pedicels relatively stout, less than 1 cm. long; calyx coriaceous, glabrous, the lobes subequal, about 1 mm. long, the outer ones usually somewhat shorter, ~~broadly~~ oblong to oblong-ovate or ovate, obtuse or truncate, the margins somewhat chartaceous, usually with a minute infra-marginal apicule at the outer; corolla small, pink or purple, narrowly funnelform, glabrous outside, 14-18 mm. long, stamens inserted near the base of the

over

corolla, unequal, reaching to about the middle, anthers 1-1.2 mm. long, filaments bearded at the base, stigma globose (or bigloboze) large, about 0.8 mm. broad; capsule glabrous, subglobose, about 4-5 mm. long; seeds brown or black, glabrous, smooth.

The smallest flowered of Central American Ipomoeas with pink or purplish flowers. It is distinguished by the flowers and the small obtuse or truncate calyx. The leaves are usually hastate but lobate and entire leaves occur on the same stem.

British Honduras.

Sweet, Hort. Lond. 35. 1818.

Ipomoea Pes-caprae (L.) Roth, Nov. Sp. 109. 1821. Convolvulus Pes-caprae L. Sp. Pl. 159. 1753. On sea beaches; Izabal; Retalhuleu; San Marcos; Escuintla; doubtless in all coastal departments. Common on tropical seashores of both hemispheres. Plants herbaceous, glabrous, somewhat succulent, the stems prostrate, thick, sometimes 20 meters long or more, branched; leaves long-petiolate, suborbicular, 6-10 cm. long, broadly rounded and emarginate at the apex, rounded or subcordate at the base, entire; peduncles stout, about equaling the petioles, usually bifid, 1-several-flowered, the pedicels long, slender; inflorescence sepals oval or suborbicular, 1 cm. long, obtuse or rounded at the apex; corolla pink or purple, glabrous, 4-5 cm. long, the limb 5-8 cm. broad; capsule ovoid-globose, 1.5 cm. long; seeds densely pubescent. This is one of the most characteristic and widely distributed of tropical strand plants, and is found on most of the sandy seashores of Central America. The stems are coarse, rope-like, and strong, so that they can stand the wind and waves that prevail in such places. Along the Pacific coast of Guatemala the leaves and stems wither during the dry season.

American material of this species is said by van Oostroom and O'Donell seems to agree (Lilloa 30: 46. 1960), to be a subspecies distinct from the typical subspecies which is said to be limited to east Africa, tropical Asia and the Malay Archipeligo. An acceptable subspecific name for the American plant is subsp. brasiliensis (L.) Ooststr. If a varietal rank is desired the proper name would seem to be var. emarginata Hallier f.

OUT

Do not type

ng

Ipomoea phillomega (Vell.) House, Ann. N. Y. Acad. Sci. 18: 246. 1908. Convolvulus phillomega, Vell. Fl. Flum. 74. 1825. I. microsticta, Hallier, Bull. Herb. Boiss. 7: 411. 1899 (type from San Juan Perdido near Santa Lucía Cotzumalguapa, Escuintla, C. & E. Seler, 2427). I. glabriuscula House, Bot. Gaz. 43: 409. 1907 (type collected in Guatemala, the exact locality unknown, Heyde in 1892).

Campanilla.

Moist thickets or forest, 300-1,200 meters; Jutiapa; Santa Rosa; Escuintla; Sacatepéquez; Suchitepéquez. Honds; Nic.; Costa Rica; Panama; West Indies; northern South America.

A large, herbaceous or somewhat woody vine, the stems glabrous; leaves long-petiolate, broadly ovate, 5-12 cm. long, acuminate, subcordate or rounded at the base, almost glabrous above,

or puberulent

sparsely appressed-pilose beneath, black-punctate; peduncles mostly longer than the petioles but sometimes shorter, several-many-flowered, the inflorescences sometimes forming large corymbiform panicles; sepals ovate or orbicular, 8-12 mm. long, rounded at the apex, subcoriaceous; corolla pale pink or often white, about 5 cm. long, glabrous; ovary glabrous, 2-celled; seeds 4. Perhaps the most beautiful of all Guatemalan Ipomoeas, the delicately colored, pale flesh-pink blossoms often forming solid sheets of exquisite color over tree tops. It is a common and conspicuous plant in many parts of the country, but especially in the Oriente. House's description of I. glabriuscula as erect is very misleading, and the type specimen gives no justification for such an epithet.

(I do not believe that the guat. material is like phillomega dit O'Donell and beside I do not think the Vellozo plate is determinable.) L USZ 1069 apr.

(OK)

Honduras; Nicaragua.

Ipomoea praecana House, Ann. N. Y. Acad. Sci. 18: 227. 1908. Dry thickets or forest, 300-700 meters; Zacapa; El Progreso. Southern Mexico; ~~Hond. Nic.~~ A stout vine, woody throughout, the stems thick, densely whitish-tomentose; leaves on rather short petioles, suborbicular to broadly ovate, 7-12 20 cm. long, rounded to acute at the apex, shallowly cordate at the base, densely whitish-tomentose on both surfaces, thick; peduncles equaling or shorter than the petioles, 3-5-flowered, the pedicels 5-10 mm. long; sepals 18-20 5 mm. long, elliptic or oval, obtuse, densely white-tomentose outside, almost glabrous within; corolla white, 6-10 cm. long, sparsely or densely white-pilose outside, the limb 6-10 cm. broad. ~~There is some uncertainty whether the Guatemalan material is really referable to I. praecana, but there seems to be no other name for it. The available material is poor, and a definite decision can not be reached until further collections have been made in Guatemala.~~

64

Ipomoea pulchella Roth, Nov. Pl. Sp. 115. 1821; O'Donell, ~~Kirx~~ Lilloa 29: 221. 1959.

Moist thickets or grassy shores of lakes, 200-600 meters; Petén; Jutiapa. British Honduras. Southern United States to Argentina. Circum tropical.

~~Ipomoea heptaphylla (Rottl. & Willd.) Voight, Hort. Sub. Calc. 360. 1845. Convolvulus heptaphyllus Rottl. & Willd. Neue Schrift. Ges. Nat. Berlin 4: 196. 1803. I. pulchella Griseb. Fl. Brit. W. Ind. 470. 1861.~~ Moist thickets or ~~open grassy places near lake shores, 500-600 meters; Jutiapa (between Trapiche Vargas and Asunción Mita, Steyermark 31864), Campeche; West Indies; Old World tropics. Circumtropical, in America from Southern United States to Argentina.~~

Plants probably annual, very slender, twining or trailing, herbaceous, glabrous; ~~stems~~; leaves long-petiolate, pedately 5-foliolate, the leaflets lanceolate or linear-lanceolate, sessile, 1-4 cm. long, acute, entire; peduncles filiform, equaling or often much longer than the petioles, spirally coiled, 1-flowered; sepals ovate; sepals greenish, ovate or oval, 5-7 mm. long, obtuse or rounded at the apex; capsule globose, 8-10 mm. long, glabrous; seeds finely pubescent. This species may be recognized at once by the delicate, conspicuously coiled peduncles, a character not found in any other Ipomoea of Central America.

Ipomoea purga (Wender.) Hayne, Arzn. Gew. 12: pl. 33, 34. 1833. Convolvulus purga Wender. Pharm. Centralbl. 1: 457. 1830. I. seducta House, Ann. N. Y. Acad. Sci. 18: 241. 1908, (type from Cubilgüitz, Alta Verapaz, Tuerckheim 7926). Quilamul; Quiebra-cajete; Nacta (Quecchí).

Wet to dry thickets, often in waste ground or in hedges, 2,000 meters or lower, most frequent at low elevations; Alta Verapaz; Izabal; Jutiapa; Santa Rosa; Escuintla; Guatemala; Chimaltenango; Suchitepéquez; Retalhuleu; Quezaltenango; San Marcos; Huehuetenango. Southern Mexico; El Salvador and Honduras to Costa Rica.

Usually a large, herbaceous vine, glabrous throughout or nearly so; lower leaves long-petiolate, the upper ones almost sessile and clasping the stems; leaf blades ovate or broadly ovate, thin, mostly 5-11 cm. long, acute or acuminate, deeply cordate at the base, entire; peduncles usually longer than the subtending petioles, 1-2-flowered; sepals very unequal, the longest 8-9 mm. long, oval, very obtuse and usually mucuspidulate, glabrous; corolla red-purple or rose-purple, glabrous, salverform, 7-8 cm. long, the tube slender, the limb rotate or nearly so. Known in El Salvador as "Campanilla", "Campánula", and "Mechoacán." This plant has long been known in pharmacy as the source of the drug Jalapa or Jalapa, obtained from the roots, and formerly used extensively in medicine as a purgative. Large amounts of the crude drug have been exported from Mexico, and some amounts probably still are exported to the United States. The purgative properties are believed to exist in a resin that may be separated from the large tuberous roots, which are merely dried for export. The plant was used in medicine by the ancient Mexicans, and perhaps by the people living farther southward. It is one of the handsomest of Ipomoeas because of its brilliantly colored, red-purple flowers. A century and a half ago there was much confusion regarding the source of the drug Jalap, and for a while it was believed that it was derived from Mirabilis Jalapa, hence the erroneous specific name given to that plant. We have examined a specimen of the type collection of I. seducta, and believe that it is unquestionably a synonym of I. purga. The specimen is noteworthy for having the corolla tube gradually dilated upward and as much as 1.5 cm. wide in the throat, while the usual form of the tube in I. purga is terete, and very little if at all dilated above. It is

I. purga – cont.

believed that this specimen is somewhat abnormal, or the corollas perhaps distorted by great pressure in drying; and also in the numerous specimens of I. purga available for study there is considerable variation in the form of the corolla. The foliage of I. seducta as well as the distinctive capsules are wholly typical of I. purga.

seducta is segregated and of

Ipomoea purpurea (L.) Roth, Bot. Abh. 27. 1787. Convolvulus purpurea L. Sp. Pl. ed. 2, 219. 1762. Pharbitis diversifolius Lindl. Bot. Reg. 23: t. 1988. 1837. Ipomoea purpurea var. diversifolia O'Donell, Lilloa 26: 385, fig. 1953.

~~Ipomoea purpurea (L.) Lam. Tabl. Encycl. 1: 466. 1791. Convolvulus purpureus L. Sp. Pl. ed. 2, 219. 1763.~~ Campanilla; Quiebra-cajete; Quilamul.

Moist thickets or hedges, often in second growth or waste ground, frequently a weed in cornfields, sometimes in oak forest, 1,300-2,100 meters; Baja Verapaz; Jalapa; Escuintla; Guatemala; Sacatepéquez; Chimaltenango; Huehuetenango. United States; Mexico; Salvador to Costa Rica; West Indies; South America; Old World tropics, where introduced. A slender herbaceous vine, the stems pilose or hirsute with spreading or retrorse hairs; leaves broadly ovate or rounded, shallowly or deeply cordate at the base, entire or often 3-lobate, long-petiolate, hirsute or hirsutulous on both surfaces; petioles usually longer than the petioles, 1-5-flowered, the pedicels short or elongate; sepals herbaceous, lanceolate or oblong-lanceolate, 10-16 mm. long, acute, pilose or hirsute; corolla glabrous, blue, purple, pink, or white, sometimes with vertical stripes of different colors, 5-6 cm. long; ovary usually 3-celled; capsule depressed-globose, 10 mm. long; seeds black, glabrous. ~~Called Campanilla in Salvador and doubtless also in Guatemala.~~ In Central America this morning-glory does not seem to be come so noxious a weed as it often does in the United States, ~~In the North~~ where it sometimes forms such dense tangles in cornfields that it is all but impossible to force one's way through them, and in late summer it often is necessary to cut and remove the vines before a potato crop can be harvested. Like all or most Ipomoeas, this is a handsome plant, and it often is cultivated for ornament. In Guatemala there often are found in cultivation and sometimes as escapes from cultivation forms with "double" corollas, variously colored.

Forms with cordate entire or trilobate leaves are common in Guatemala and sometimes both leaf forms are found on the same specimen.

Ipomoea reptans (L.) Poir. in Lam. Encycl. Suppl. 3: 460. 1813. Convolvulus reptans L. Sp. Pl. 158. 1753. I. aquatica Forsk. Fl. Aegypt. Arab. 44. 1775. In wet soil or floating in water, at or little above sea level; British Honduras; ~~southern Mexico;~~ Costa Rica; Panama; West Indies; South America; Old World tropics. Plants herbaceous, the stems hollow, rooting at the nodes, trailing on wet soil or floating on water, glabrous or nearly so; leaves mostly hastate, with narrowly triangular or lanceolate, terminal lobes and small spreading basal lobes, acute or obtuse, shallowly cordate at the base, 4-12 cm. long, long-petiolate; ~~ex~~ peduncles short, 1-few-flowered, the pedicels slender and greatly elongate; sepals subequal, ovate-oblong, obtuse or subacute, mucronulate, glabrous, 7 mm. long; corolla glabrous, purple, 4-5 cm. long, with a broad limb; ~~exsit~~ capsule small, globose, with 4 or fewer seeds, these densely soft-pilose.

A Widespread species but uncommon in our region. To be expected in Izabal and in Mexico.

(OL)

Steyermark 51539).

In swamps, 300 meters; Huehuetenango (Ciénaga de Lagartero,

Ipomoea sagittata Lam. Ill. 1: 466. 1791. British Honduras (Pueblo Nuevo,

New River). Southeastern United States; ~~eastern~~ Mexico; West Indies.

Usually a small, herbaceous vine, the stems very slender, glabrous throughout or

nearly so; leaves slender-petiolate, 4-7 cm. long, very deeply hastate at the

base, entire, the terminal lobe almost linear, the basal lobes linear or lanceolate,

often almost as long as the terminal one; peduncles stout, shorter than the petio-

les, 1-flowered, the pedicel elongate, thick and dilated above; sepals oval, 8-9

mm. long, glabrous, subcoriaceous, obtuse or rounded at the apex and mucronulate;

corolla purple, glabrous, about 6-7 cm. long, the limb 6 cm. broad or larger.

Known from a single collection. The species reaches its southern limit here, in continental North America.

†

Ipomoea santae-rosae Standl. & Steyerm. Field Mus. Bot. 23: 81. 1944. Campanilla; Campana.

Baja Verapaz; GUATEMALA; Huehuetenango. EL Salvador, Honduras; Nicaragua. Morico (Chiapas).

Moist or wet thickets or dry brushy slopes, 300-1,400 meters; Zacapa; Santa Rosa (type from Chiquimulilla, Standley 79211); Quezaltenango;

A slender woody vine, glabrous throughout or nearly so; leaves long-petiolate, broadly ovate-cordate, 6-10 cm. long, 3.5-6.5 cm. wide, long-acuminate, deeply cordate at the base, hirtellous beneath at the base of the blade, otherwise glabrous; ~~peduncles almost obsolete~~, 1-flowered, ~~the pedicels rather stout, 2-4 mm. long~~; sepals unequal, subcoriaceous, the longer ones 18-25 mm. long, broadly oblong or oval, obtuse and slender-mucronate at the apex, venose; corolla campanulate, red-purple or rose-pink, 6.5 cm. long; glabrous, the tube 1.5 cm. broad at the mouth; capsule 4-celled, subglobose, glabrous, 8-12 mm. long; seeds 4, fuscous, minutely puberulent.

6.5-9 cm.

inflorescence a 1-3-flowered cyme, the peduncles mostly about 1 cm. long, the pedicels slender and thickened upward; sepals subequal, subcoriaceous, 18-30 mm. long, oblong to oval, obtuse and blt. arcstate at the apex, somewhat thickened and venose in fruit;

The large ~~calyx~~ sepals make this one of the most distinctive species of Ipomoea in Central America.

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Ipomoea saxorum Standl. & Steyerm. Field Mus. Bot. 23: 81. 1941.

Quiebra cajete.

endemic.

In thickets or woods, 150-1,000 meters, Chiquimula (type Steyermark 30254); Huehuetenango; Santa Rosa.

A herbaceous vine, the stems rather stout, densely reflexed or spreading pilose; leaves ~~long-petiolate~~, rounded-ovate, 6-8 cm. long, 5-7 cm. wide, broad, obtuse or acute, truncate or subcordate at the base, densely hirtellous or short-pilose on both surfaces; peduncles stout, 4-10 cm. long, densely spreading pilose, ~~several-flowered~~, the stout pedicels 1.5-2.5 cm. long, pilose; sepals unequal, coriaceous, rounded at the apex, the outer ones oval, 5 mm. long, sparsely hirtellous near the apex, the inner ones glabrous, broader, 8 mm. long; corolla white, glabrous, 6-7 cm. long, the tube 1 cm. broad in the throat; capsule subglobose, glabrous, 1 cm. long, broadly rounded at the apex and abruptly contracted into the style; seeds glabrous.

petioles shorter than the blades, 1-3.5 cm. long

inflorescence 1-few-flowered, cymes,

The style thickened at the base and with a thickened substate point of dehiscence about 2 mm above the capsule;

Ipomoea seducta House, Ann. N. Y. Acad. Sci. 18: 241. 1908.

Damp thickets and forest edges, 250-1,900 meters. ~~endemic~~. Alta Verapaz/ (type: von Tuerckheim 7926); Huehuetenango. Mexico (Chiapas).

Twining herbaceous vines with slender glabrous stems. Leaves suborbicular-ovate, acuminate, cordate, 5-10 cm. long and 3-7 cm. broad, glabrous, the petioles 1-1.5 cm. long, borne with the peduncle on a "short-shoot" about 1 mm. long, the petioles of sterile leaves often much longer; ~~peduncles~~ inflorescence two or three flowered with only one flower developing, peduncles mostly less than 2 cm. long, the pedicels less than 1 cm. long; sepals unequal, all apiculate, the outer ones broadly lanceolate, 4-6 mm. long, the inner ones 8-10 mm. long; corolla subcampanulate or funnel-form, ~~x~~ 5-7.5 cm. long, expanded from the base and about 1 cm broad at the throat, stamens reaching to the throat but not exserted, ~~limx~~ limb 4-5 cm. broad, style elongated and filiform.

This species is related to I. purga but is distinguished by the subcampanulate corolla and the leaves and associated peduncle being borne on a "short shoot", which is the fused bases of the petiole and peduncle. The ecology of the two species seems to be quite different in Guatemala.

The shortening of petioles at fertile nodes is of interest and occurs in several other species of related morning glories, including I. purga.

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Ipomoea sepacuitensis Donn.-Sm. Bot. Gaz. 56: 59. 1913. Ixcajen (Quecchí)

Probably to be found in thickets and in edges of clearings, (type from Finca Sepacuite, Cook & Griggs 590). ~~Endemic in Alta Verapaz.~~ PETÉN; ALTA VERAPAZ British Honduras.

Twining herb with herbaceous or suffrutescent stems, these with coarse setose pubescence or glabrous with age. Leaves trilobate, the lobes to near the middle or less, glabrous, with 7-9 nerves from near the base, the base cordate, the petioles glabrous or sparsely setose, to about 10 cm. long, the blade 10-17 cm. long and about as broad; peduncles coarse, setose or not, to about 15 cm. long; inflorescence cymose, few-flowered; flowers white with rose within; calyx fleshy, glabrous, the lobes very unequal in size, the outer ones broadly ovate and obtuse, 10-20 mm. long, the inner one ~~xxxxxxxxxxx~~ similar and 15-35 mm. long; corolla campanulate, about 5 cm. long, or perhaps more; capsule coriaceous, glabrous, to 25 mm. long or perhaps larger at maturity.

Known from only ~~three~~ four collections two of these distributed as different species of Calonyction.

Ipomoea sessilis L. Mant. Fuldiana, Bot. —

add Jour Mus.

Ipomoea solidicola Standl. & L. Wms., in Ceiba 3: 27. 1952.
I. serrulifera Standl. & L. Wms., l.c. 128.

O'Donell, Fieldiana 39: 237, fig. 1959.

moth.

Ipomoea setifera Poir. in Lam. Encycl. 6: 17. 1804; Convolvulus ruyber Vahl, Eclog. 2: 12. 1798. I. rubra Millsp. Field Mus. Bot. 2: 86. 1900, not I. rubra Murr., 1791. British Honduras, at sea level (Stann Creek, W. A. Schipp 495); West Indies; northern South America; tropical Africa. A rather coarse, herbaceous vine, the stems short-hirsute, the other parts of the plant glabrous; stems and petioles usually minutely aculeolate with short fleshy protuberances; leaves long-petiolate, about 4-14 cm. long, varying from broadly ovate-cordate to triangular-hastate, acute or obtuse, the basal lobes obtuse or acute; peduncles generally much longer than the petioles, sometimes 20 cm. long, 1-5-flowered, with large foliaceous bracts at the bases of the pedicels, the pedicels 1.5-2 cm. long; sepals unequal, glabrous, the 3 outer ones broadly ovate, 15 mm. long, obtuse or subacute, mucronate, the 2 inner sepals 12 mm. long, ovate-lanceolate, acute or acuminate; corolla rose-pink, 7 cm. long, glabrous; ovary glabrous, 2-celled. This has been reported from British Honduras as I. callida House. I. setifera was reported from Guatemala by Hemsley on the basis of a Friedrichsthal collection.

Izabal (Tuerckheim II 1128).

Ipomoea setosa Ker, Bot. Reg. 4: t. 335. 1818. I. melanotricha Brandegee, Univ. Cal. Publ. Bot. 4: 381. 1913. wet thickets and forest edges, 400 meters or less. Izabal; Santa Rosa. Mexico; British Honduras; Honduras; Nicaragua. South America.

A large coarse herbaceous vine, the stout stems and petioles hirsute or setose with stout, somewhat fleshy trichomes; leaves large and broad, 10-20 cm. long, deeply 3-7-lobate, cordate at the base, the lobes ovate or lanceolate, long-acuminate; peduncles as long as the petioles or sometimes much longer, 3-9-12-flowered; pedicels 2.5-3 cm.

Bot. 4: 381. 1913

long, thick and fleshy, glabrous or setose; sepals oblong, obtuse, subcoriaceous, glabrous or setose, 10-14 mm. long, enlarged in fruit; corolla pink or purple, 5-6 cm. long; capsule 4-celled, 1.5-2 cm. long, 4-celled, 4-seeded; seeds silky pilose.

The type of this from which the illustration cited was prepared was grown in England from Brazilian seeds. While O'Donell (Lilloa 29: 241. 1959) does not give Central America in the range of the species it does seem to match the illustration very well.

Ipomoea signata House, Muhlenbergia 3: 46. 1907. Known only from the type, between Jacaltenango and San Martín, Huehuetenango, 1600-2100 meters, E. W. Nelson 3595. Twining, the stems densely hirsute; leaves slender-petiolate, the petioles shorter than the blades, ~~hirsute~~ sparsely pubescent; leaf blades ovate-cordate, acute, 4-6 cm. long, green and sparsely pubescent above, densely hirsute beneath; peduncles longer than the leaves, 8-12 cm. long, 1-3-flowered, the pedicels 2-2.5 cm. long, rather thick, glabrous; sepals subequal or the outer somewhat shorter, ovate, coriaceous, acute, 9-10 mm. long; corolla "scarlet," 6-7 cm. long, the tube stout-tubular, not dilated above, spreading; the limb 3.5-4 cm. broad; style and stamens as long as the corolla but not exserted.

~~Not seen. Type to be examined if possible.~~

To see the type in Washington. This is either I purpurea or a close ally.

Dasgnata House
Ruiz
Copy from ms.

Ipomoea ~~exogonioides L. tom~~

Perennial, branched
Twining vines, the stems mostly 2-3 mm. in diameter, glabrous or sparsely pubescent, the internodes 6-10 cm. long. leaves ~~6-14 cm. long~~ ovate, cordate, acuminate, secondary nerves 6-8 pairs and with tertiary nerves connecting them, ~~pet~~ the blades 6-14 cm. long and 4-8 ~~mm~~ cm broad at maturity, ~~petiolate~~ sparsely pubescent on both sides or glabrate, petioles slender, shorter than the blades; inflorescence 1-few-flowered cymes, the peduncles mostly 5-10 cm. long but some to 20 cm. long, pedicels mostly 2-3 cm. long; calyx mostly about 1 cm. long, the outer lobes lance-ovate, apiculate, deep green with spathulate margins, the inner lobes similar but longer; corolla salverform, glabrous outside, the tube 4-6 cm. long and 0.5-0.7 cm. in diameter, the limbs spreading and 3-4 cm. broad; stamens reaching the throat or exserted, the anthers linear-oblong and 4-5 mm. long; pollen grains spinulose, globose, about 0.1 mm. in diameter; capsules and seeds unknown.

Guatemala: exsiccatatae.-

Pignata House
exogoniales

Iponoea ——— has been mostly included in I. mordii quite a different species and one that is quite rare in Guatemala. This species is outstanding among the three Iponoeas in having a salverform corolla with the stamens exserted or at least reaching the throat. The species is not uncommon in the highlands of Guatemala and so far as I know has no close relatives in Iponoea of North America nor in Exogonium where it might be placed.

Ipomoea silvicola House, Bot. Gaz. 43: 411. 1907. Quiebra-cajete; Campanilla; Nechaó (Huehuetenango).

Moist or wet thickets or thin mixed forest, 600-2,000 meters; Chiquimula; Jalapa; Santa Rosa (type from Río de las Cañas, Heyde & Lux 4022); Escuintla; Chimaltenango; Guatemala; Sololá; Suchitepéquez; Huehuetenango; San Marcos. Southern Mexico, Honduras.

H. A large or small, herbaceous vine, the stems thinly hirsutulous; leaves thin, long-petiolate, orbicular-cordate, abruptly acuminate, entire or often 3-lobate, 5-13 cm. long, appressedp-pilose above, more densely so beneath; peduncles shorter or longer than the petioles, inflorescence usually 1-3-flowered, the pedicels usually long and slender, short-hirsute; sepals subunequal, lanceolate, herbaceous, acuminate, 2-3 cm. long, pubescent and densely covered with long spreading green spine-like tubercles; corolla bright purple, glabrous, 6-7 cm. long, the limb very broad.—House reports the species from Panama on the basis of a collection made in July, 1860, by Sutton Hayes. A specimen of presumably the same collection in the Herbarium of Field Museum is labeled as collected in woods along the road from Escuintla to Antigua, Guatemala. So far as we know, the species has not been found in Panama.

Ipomoea steerei (Standl.) L. Wms

~~Ipomoea exogonioides L. Wms~~ n. sp.

goes here.

It is in Key ; descr. ~~with specimen~~ with Ms. 4/25/69

Copy of ms. made and put in second copy

Use Ms of exogonioides with indicated change + addition

ok.

GMEL. SYST. VEG. 1: 345. 1796.

Ipomoea stolonifera (Cyrill.) ~~Poir. in Lam. Encycl. 6: 20. 1804.~~ Convolvulus littoralis L. Syst. ed. 10. 924. 1759, not Ipomoea littoralis Blume, 1826. C. stoloniferus Cyrill. Pl. Rar. Neap. 1: 14. 1788. I. littoralis Boiss. Fl. Orient. 4: 112. 1879. Sandy seashores; Izabal. Southeastern United States; Mexico; British Honduras to Panama; West Indies; South America; Old World tropics. Plants prostrate and creeping, succulent, glabrous; leaves long-petiolate, mostly oblong or oval, rounded at the base, rounded or emarginate at the apex, 3-7 cm. long, the blades sometimes shallowly or deeply 3-5-lobate; peduncles short, usually 1-flowered; sepals equal or the outer ones shorter, oblong, obtuse, mucronulate, subcoriaceous, glabrous, 10-15 mm. long; corolla glabrous, 4-5 cm. long, white with a purple throat; ovary glabrous, 4-celled; capsule globose, 1-1.5 cm. long, with 4 or fewer seeds, these tomentose. A characteristic member of the seashore vegetation of the Atlantic coast of ~~trop~~ Central America, but seldom occurring in ~~much~~ abundance.

O'Donell in Ceiba 3:51 1960 gives authority as (Cyrill.) GMEL., Syst Veg. 1: 345. 1796.

Ipomoea suffulta (HBK.) G. Don, Gen. Syst. 4: 276. 1838. Convolvulus suffultus HBK. Gen. & Sp. Pl. 3: 102, t. 211. 1819.

Trailing over rocks, 800-1,200 meters. Huehuetenango. Southern Mexico.

Small herbaceous vines, the stems sparsely short hirsute pubescent; the leaves or leaf-like bracts pilose on both surfaces with slender bulbose-based hairs, borne on peduncles or "short shoots" 1-4 cm. long (and without buds in the axil on the main stem), rounded cordate or reniform-cordate, 2-5 cm. long and as broad or broader than long, sessile on the peduncles and with usually a single flower borne in the axil of the leaf or leaf-like bract; inflorescence 1-(2±)flowered and except the corolla often hidden in the conduplicate bract; calyx 5-6 mm. long, the sepals unequal, the outer ones e liptic-oval, the inner ones onlong, obtuse, apiculate, glabrous; corolla funnelform, 6-8 cm. long, glabrous outside, pink to purple.

A most unusual species in which the leaves or leaf-like bracts are borne on peduncles or "short shoots", these are sessile or nearly so and with usually a single nearly sessile flower in the axil. -- A single collection is known from Guatemala.

Do not Copy

Rewrite

Ipomoea suffulta (HBK.) G. Don, Gen. Syst. 4: 276. 1838. Convolvulus suffultus HBK. Nov. Gen. & Sp. 3: 102, ~~102~~ pl. 211. 1819. Trailing over rocks, 800-1,200 meters; Huehuetenango (between Nentón and Las Palmas, Steyermark 51602). Southern Mexico. A rather small, herbaceous vine, the stems sparsely short-hirsute; leaves on long slender petioles, rounded-cordate or reniform-cordate, mostly 3-4 cm. long and as wide or wider, broadly rounded at the apex and abruptly short-acuminate, entire or undulate-dentate, deeply cordate at the base, pilose on both surfaces with slender spreading bulbous-based hairs; flowers forming long terminal racemes, each flower or cluster of flowers borne at the base of a long-petiolate complicate bract resembling a leaf, all of the flower except the upper part of the corolla hidden within the bract; calyx 5-6 mm. long, the sepals narrow, pale green, muticous, obtuse, sparsely hirsute or glabrous; corolla funnelform, narrow, 6-8 cm. long, pink, glabrous outside. The form of the inflorescence in this species is curious and quite unlike that of any other North American species. Plants in fruit appear to bear leaves throughout, but examination shows that what appear to be upper leaves are really floral bracts, terminating peduncles as long as the petioles and looking like petioles, each bract embracing a few sessile flowers. Thus the peduncle and the large bract look almost exactly like one of the lower leaves.

Ipomoea teruae Molina & Williams, Fieldiana, Bot.: __. 1969.

Vine climbing over trees. Sololá (Williams, Molina & Williams 25331). Endemic.

Large twining herbaceous vines, the puberulent stems to 4 mm. or more in diameter. Leaves suborbicular and ovate, cordate, the apex acute or short acuminate, the blade 4-7 cm. long and as broad, densely sericeous pubescent below, glabrous or nearly so above, petioles 1.5-4 cm. long, pubescent, 1.5-4 cm. long; inflorescence about as long or longer than the subtending leaves, dichasioid, few-flowered, peduncle stout, 5-8 cm. long, pilose, pedicels 1.5-2 cm. long, stout, puberulent; calyx glabrous, about 1 cm. long, the lobes broadly ovate or suborbicular, apex obtuse or rounded, the outer ones only slightly shorter, cochleate, CORIACEOUS, the margins chartaceous; corolla lilac, campanulate, glabrous outside, the stamens reaching to about the middle; capsule and seeds unknown.

This attractive species may be distinguished from all those in Guatemala by the sericeous undersurface of the leaves, the subequal, broad and cochleate calyx lobes.

Ipomoea tiliacea (Willd.) Choisy in DC. Prodr. 9: 375. 1845. Convolvulus tiliaceus Willd. Enum. Pl. 1: 203. 1809. C. fastigiatus Roxb. Hort. Beng. 13. 1814. I. fastigiata Sweet, Hort. Brit. 288. 1826. Quilamul. Moist or dry thickets, often on rocky hillsides or in hedges, frequent in waste places or a weed in cultivated grounds, 1800 meters or less; Petén; Chiquimula; Santa Rosa; Escuintla; Guatemala; Suchitepéquez; Retalhuleu; San Marcos; Quezaltenango. Southern Florida; Mexico; British Honduras to El Salvador and Panama; West Indies; South America. A large or small, herbaceous vine, glabrous or sparsely pubescent; leaves long-petiolate, cordate-ovate or rounded-cordate, 5-8 cm. long, acute, entire or 3-lobate; peduncles equaling the petioles or often much longer, few-several-flowered, the pedicels mostly short; sepals subcoriaceous, oblong, mucronate or aristulate, unequal, the larger ones about 8 mm. long; corolla purple, pink, or rarely white, usually with a dark throat, 5-6 cm. long, glabrous; capsule subglobose, 2-celled, 8-10 mm. in diameter; seeds glabrous.—Known in El Salvador as "Campanola" and "Manto de Jesús"; "Hebil" (Yucatan, Maya). One of the common weedy species of the Central American lowlands.

(CR)

t. 208.

Ipomoea tricolor Cav. Icon. 3: 5, 1794. Campanilla; Quiebra-cajete. Moist thickets, sometimes in hedges or waste ground, occasionaly planted for ornament, 800-1850 meters; Jalapa; Jutiapa; Santa Rosa; Guatemala; Chimaltenango. Mexico to Costa Rica; West Indies; South America. A small or large, herbaceous vine, glabrous throughout; leaves long-petiolate, rounded-cordate, thin, entire or obscurely lobate, abruptly acuminate or obtuse; peduncles stout, hollow, 2-5 cm. long, usually several-flowered, the stout pedicels 5-40 mm. long; sepals oblong-lanceolate, obtuse, white-marginate, 6-7 mm. long; corolla blue with a white throat, 5-6 cm. long; the limb 6-8 cm. broad; capsule globose-ovoid, 1-1.5 cm. long, glabrous; seeds glabrous. The Maya name of Yucatan is reported as "Yaxcelil." This species has been reported from Guatemala under the name I. violacea L. The blue flowers are very handsome.

Possibly an escape from cultivation in many places.

[See cards for violacea and tricolor] OJO!

Ipomoea trifida (HBK.) G. Don, Gen. Syst. 4:280. 1838; O'Donell, Lilloa 30:58. 1960. Convolvulus trifidus HBK. Nov. Gen. & Sp. Pl. 3:107. 1819. Campanilla; campana; cajetilla; pisicuch (Cobán, quecchí). ~~Southern~~

Moist or wet thickets or hedges, in waste place or in fields, 2,500 meters or less. Petén; Alta Verapaz; Izabal; Jutiapa; Zacapa; Jalapa; Santa Rosa; Escuintla; Guatemala; Sacatepéquez; Suchitepequez; Retalhuleu; Quezaltenango; San Marcos. - Doubtless in all departments. Southern United States, Mexico to South America.

Small to often large much branched vines, the stems round or angled 1-3 mm. in diameter, pubescent or usually glabrous. Leaves with the blade ovate, the margins undulate, sometimes to cordate 2-10 cm. long, trilobate or rarely 5-lobate, the mid-lobe ovate to lanceolate, ~~base cordate~~, the sinus deep or shallow, mostly glabrous (ours) to densely pubescent, the petioles slender, about as long as the blades; inflorescence cymose,

few-(1-) many flowered, the peduncles 2-25 cm. long; pedicels 3-15 mm. long; sepals coriaceous or straw-like, the outer ones elliptic to ovate, obtuse or usually long acuminate, glabrous or sparsely pubescent, 4-10 mm. long and half as broad, the inner sepals ~~ovate~~ elliptic to ovate, acuminate and often cuspidate, glabrous or sparsely pubescent, 5-12 mm. long and half as broad; corolla infundibuliform, glabrous, 2-4 cm. long; anthers reaching to about the middle of the corolla; capsule subglobose, glabrous or sparsely pubescent, 5-7 mm. long.

A common and widely distributed ~~group~~ species needing study. Perhaps more than one species is included here.

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O'Donell, Lilloa 30: 54. 1960.

Ipomoea trifida (HBK.) G. Don, Gen. Syst. 4: 280. 1838; Convolvulus trifidus HBK. Nov. Gen. & Sp. 3: 107. 1819. Campana; Campanilla; Cajetilla; Sisicuch (Cobán, Quecchí). Moist or wet thickets or hedges, often in waste or cultivated ground, 2500 meters or less, most plentiful at low elevations; Petén; Alta Verapaz; Izabal; Zacapa; Jalapa; Jutiapa; Santa Rosa; Escuintla; Guatemala; Sacatepéquez; Suchitepéquez; Retalhuleu; Quezaltenango; San Marcos. Southern United States; Mexico; British Honduras to Salvador and Panama; West Indies (Cuba); South America. A small or large, herbaceous vine, often forming dense tangles; leaves thin, long-petiolate, ovate-cordate or rounded-cordate, glabrous or nearly so, acuminate to obtuse, entire or 3-lobate; peduncles mostly longer than the petioles, few-several-flowered, the inflorescence contracted, often umbelliform, the pedicels short; sepals 7-8 mm. long, subcoriaceous, glabrous, acute or subacuminate and mucronate or cuspidate, unequal; corolla 2-3 cm. long, glabrous, pale purple or pale pink with a dark red or dark purple throat; capsule glabrous, subglobose, 5-6 mm. in diameter; seeds glabrous.

Do not copy

April 7, 1969

Dear Dr. Shinners:

Pardon the typing which shall be mine. It is less professional than that of the secretary but easier for me in the long run.

I appreciate you long letter about the glorious morning-glories. I suspect that these are going to bug someone for a long time to come if someone has the fortitude to take them up seriously.

House's work was done more than 60 years ago and there were not enough specimens from tropical North America to make a good work possible. I am not at all sure that there are today, - or that there will ever be.

I now have 58 Ipomoeas recognised for Guatemala and there are indications that there may be eight or ten more that I can not place because of inadequate material. -- There are more than 250 species in my index for Mexico, Central America and Panama. Like some other genera of predominately Mexican Guatemala distribution there are fewer and fewer of them as you go southward in Central America. There then is another center further south in South America.

Distribution of genera that are predominantly lowland are likely to be wide-ranging and I suspect that this is the case in Ipomoea. If anyone gets down to comparing south and north American kinds the synonyms should fall right and left.

My descriptions of I. triloba, I. tricolor and I. tiliacea indicate that it would not be possible to key them in your Texas Key. I. trichocarpa I am going to assume does not occur in Guatemala,- so far as I know it does not. --- I. acuminata is one of the commonest Ipomoeas of the world, so far as I know. I am calling it I. congesta, and it seems to me that there is good basis for this.

Missouri Botanical Garden lacks an adequate collection to do any family for Flora of Panama. You will have to go to Washington and come here. The hit and run tactic used for collecting there now seem to me to be one of the less useful ways to find out that is there. Since the days of Standley no really effective collector has been in Panama. Paul Allen was good but he specialized in orchids and palms and others had to be in absolutly perfect state before he would put them in his press. Anyway Woodson let Allen's collections get full of bugs then he burned them. He didn't like Allen anyway. (Few people did, for that matter). A very complete set of Allen's collections are in Zamorano. I bought his personal herbarium and put it there.

Forgot to mention Lewis' pollen work. Some of his pollen comes out of this herbarium. He apparently accepts the names on labels which is a dangerous thing to do in Convolvulaceae, as you are well aware. Some of the specimens that he took pollen from are far from what the label said. This could lead to strange conclusions.

Don't Copy

I - TRILOBA

April 29, 1969

Dr. Lloyd H. Shinners, Director
Herbarium of Southern Methodist University
Dallas, Texas 75205

Dear Dr. Shinners:

I am much involved with Ipomoea from Central America and can not come to any conclusion, based on the limited time available to me, with regard to Ipomoea triloba L., I. trichocarpa Ell., I. ramonii Choisy, I. confertiflora Standl., and I. trichocarpa var. australis of O'Donnell.

These all look like one variable lot to me and I am inclined to call them all I. triloba.

Correll tells me that you did the Convolvulaceae for Flora of Texas and I have seen your note in Taxon so I wonder if you have a way of separating I. triloba and I. trichocarpa, - other than that used by House and Matuda which is of dubious worth.

With my regards, I am,

Sincerely,

Louis O. Williams
Chief Curator
Department of Botany

LOW:vc

HERBARIUM
SOUTHERN METHODIST UNIVERSITY
DALLAS, TEXAS 75222

Dr NA copy

4 May 1969

Dr. Louis O. Williams, Chief Curator
Department of Botany
Field Museum of Natural History
Chicago, Illinois 60605

Dear Skeptic:--

You certainly have my sympathy in your involvement with Ipomoea. It's just about the worst genus I've ever worked on, especially when dealing with herbarium specimens. I have been accepting the I. triloba group as comprised of several obviously close but distinct species. For whatever it's worth, here is an extract from my unpublished key to the Southeastern species, done in 1965 with later corrections:

18a. Anthers 1.5--3.2 mm. long
19a. Corolla 2.8--5.0 cm. long
20a. Bracts at summit of peduncle 1--2 mm. long, triangular-lanceolate (or rarely large and leafy), early deciduous; peduncles 2--16 cm. long, 2--15-flowered; filaments with short, thick, translucent hairs nearly to summit . . . . . I. tiliacea
20b. Bracts at summit of peduncle 1.5--9.0 mm. long, linear-filiform, persistent; peduncles 0.5--8.0 cm. long, 1--6-flowered . . filaments glabrous . . . . . I. trichocarpa
19b. Corolla 1.5--2.3 cm. long
21a. Petioles mostly shorter than or equalling their adjacent peduncles during flowering; peduncles (1--)3--6-flowered . . I. triloba
21b. Petioles longer than their adjacent peduncles (except on newest growth); peduncles 1--2(--3)-flowered . . . I. lacunosa
18b. Anthers 3.5--7.0 mm. long
22a. Sepals triangular- or ovate-lanceolate, widest at base
23a. Sepals 5--7 mm. long, acute, with prominent white scarious margins . . I. tricolor
23b. Sepals 13--25 mm. long, acuminate, not white-margined . . I. acuminata
22b. Sepals oblong- or elliptic-lanceolate, about as wide at middle as at base or wider
(several perennial species, incl. I. Batatas)

Since I. triloba is confined to southern Florida and is rather rare there, this may not be allowing sufficiently for the range of variation that species shows elsewhere. And of course the chiefly Mexican I. trifida is not included. A few comments on the two common U.S. species, I. trichocarpa and I. lacunosa, will suggest my reasons for accepting as distinct the more tropical species, in spite of the difficulty of separating them in the herbarium. I. trichocarpa often flowers the first year from seed, but is definitely perennial, developing a branching root system. Corolla size varies some but is medium large, color pale to dark (always with dark eye) but very rarely white. Petiole and peduncle lengths vary too much to be of any use as distinguishing features. I. lacunosa is strictly annual with a simple taproot. Corolla size also varies some but is consistently small, color usually pure white but occasionally colored just as in I. trichocarpa. I. lacunosa prefers damp situations, I. trichocarpa drier ones, but both are weedy invaders in a variety of habitats. They do not hybridize. Although corolla size offers the only usable key separation, there are several less obvious distinctions which hang together, and I regard the two as good, distinct species, in spite of the fact that herbarium specimens are often misidentified. I am inclined to believe that a comparable situation exists among the tropical representatives, at least I. triloba and I. trifida; I. ramoni perhaps is less distinct.

Do not copy

Owing to lack of field experience and lack of good herbarium material, I can't say much at the moment about I. trifida. It apparently is a robust perennial with very long, stout peduncles. Conjecturally some meber of this complex represents the ancestral stock of I. Batatas, which is a polyploid (a rare thing in the genus). Two geneticists (Dr. Jones at Tifton, Georgia, and Dr. Martin at Mayagüez, Puerto Rico) have been working on Ipomoea and allies as part of an extended sweet-potato project. Unfortunately Dr. Jones, who has published many chromosome counts, does not make voucher specimens, despite sharp remarks from both me and Dr. Martin, and his nomenclature is frequently incorrect.

Walter Lewis's pollen investigations are still continuing. At first they seemed to support the widely accepted generic delimitations of Ooststroom, O'Donell, Verdcourt and others, but then exceptions began to turn up. It was a great satisfaction to receive for Sida the King & Robinson paper on pollen variability in Stevia. My current opinion is that one must either return Merremia, Operculina, and Turbina to Ipomoea, or else distintegrate the last genus still more into a welter of microgenera, some of which have never had generic names. I am preparing to take the former route, and so far have a preliminary list of transfers and new names needed for New World representatives. My account for the Correll-Johnston Texas manual uses a very enlarged circumscription for Ipomoea. There still remains the near-hopeless problem of organization within it, which is a nightmare both taxonomically and nomenclaturally. So far I have a rough draft of a paper disposing of Rafinesque's names of subgenera, which antedate some of the well-known epithets like Quamoclit and Calonyction. Perhaps using sectional and subsectional names only (as Ooststroom did) is the best solution. But the amount of just book work is simply staggering. Fortunately we now have the new reprint of Flora Brasiliensis and various other items, and better yet our taxonomic library is nearly housed in the Herbarium, so I'm handicapped only by lack of time.

In what was probably an unwise moment, I offered to do the Convolvulaceae for the MBG Flora of Panama, and with even greater recklessness, the same for the Swedish Flora of Ecuador. Much preliminary work done for Panama, even some preliminary keys (unhappily as yet not including Ipomoea); only a little for Ecuador. Last summer in Washington I extracted all the Panama material to borrow, and canvassed to see how much there was from Ecuador, which proved to be extremely little. Bassett Maguire visited us last year and said that Camp's Ecuador material had now been mounted; apparently that will be the chief U.S. resource.

About all that can be said for Matuda's account of the Mexican Ipomoeas is that it's not as bad as House's, and he did get some phototypes into print. But he gives no explanation for his decision on what segregates to accept, and commits such gross nomenclatural blunders as his illegitimate I. muricatisepala (several older synonyms were available).

It seemed advisable in connection with the Panama flora to get some sort of perspective on all the New World Convolvulaceae, since the only comprehensive review is still the old one in Flora Brasiliensis. I soon concluded that I had taken on something very close to cleansing the fabled Augean Stables, and by now I believe it will end up a tie for all twelve of the labors of Hercules. But nevertheless I'm not ready to give up.

One item on the agenda is a visit to your herbarium, which for a while I thought might be this year. But the Seattle Congress will interfere, so I can only say for now that a visit is in the plans.

With best regards,

Sincerely yours,

Lloyd Shinners

Ipomoea triloba L. Sp. Pl. 161. 1753. I. confertiflora Standl. Carnegie Inst. Wash. Publ. 461: 83. 1935 (type from Río Grande, British Honduras, W. A. Schipp 1236). Campanilla; Quilamul; Resicuch (Cobán, Quecchí).

Moist or wet thickets or borders of forest, frequently in hedges or a weed in cultivated ground, 1500 meters or less, most abundant at low elevations; Petén; Alta Verapaz; Zacapa; Chiquimula; Jutiapa; Santa Rosa; Escuintla; Guatemala; Retalhuleu; Sololá; Quezaltenango; Huehuetenango. Southern United States; Mexico; British Honduras, to El Salvador and Panama; West Indies; South America, to Argentina; naturalized in the Old World tropics. A small or large, slender, herbaceous vine, sparsely or densely pubescent or glabrate; leaves long-petiolate, small, mostly 3-5 cm. long but often larger, cordate at the base, usually deeply 3-5-lobate, the lobes acute or acuminate, entire; inflorescences few-flowered, peduncles mostly longer than the petioles, the pedicels slender, 1-2 cm. long; sepals oblong or oval, 5-6 mm. long, acute or acuminate and often mucronate, usually pilose dorsally and long-ciliate; corolla pink or pale purple, with a dark red or dark purple throat, glabrous, commonly (1.5-)2.5-3.5 cm. long, the limb 1-2 cm. broad or more; capsule 2-celled, pilose or glabrous, about 7 mm. in diameter; seeds glabrous. I. confertiflora seems to be merely an unusually densely pubescent form of this species. The plant has been reported from Guatemala as I. longipes Garcke. This is perhaps the most abundant Ipomoea species of the Pacific lowlands, where, through much of the year it covers almost completely thousands of acres of thickets. It is not a pretty plant, and is decidedly weedy in nature.

Cont. page following

4 OK

(I. triloba L. cont.)

This is the oldest name for an exceedingly abundant and variable group of plants that extend from the southern United States through Mexico, Central America, the West Indies and South America to Argentina. Ipomoea triloba in the broad sense includes I. trichocarpa Ell., from the southern United States, I. ramonii Choisy from Cuba, I. confertiflora Standl. from British Honduras, and I. trichocarpa var. australis O'Donell from southern South America.

T probably includes also I. longipes Garke. See also purpusii House which is a this complex!

Quiebra-cajete.

Ipomoea tuxtlensis House, Ann. N. Y. Acad. Sci. 18: 256. 1908. Moist or wet thickets, often in rocky places, 450 meters or less; Petén; Alta Verapaz; Izabal; ~~Chiapas~~. Southern Mexico; British Honduras. A small or large, herbaceous vine, usually very densely pubescent throughout; leaves long-petiolate, ovate-cordate or rounded-cordate, 5-15 cm. long, deeply cordate to truncate at the base, entire or usually 3-lobate, the lobes acute or obtuse, densely appressed-pilose above, densely sericeous beneath with lustrous hairs; peduncles very short, usually less than 1 cm. long, few-many-flowered, the stout pedicels mostly 4-5 mm. long; sepals subequal, 10-12 mm. long, oblong-ovate, the outer ones densely sericeous, rounded at the apex, the inner ones glabrous or nearly so, retuse; corolla wine-red, 3.5-5 cm. long, glabrous, the limb 3-4 cm. broad; capsule globose, glabrous, 1 cm. in diameter, densely lanate with very long hairs.

Narrowly campanulate,

Ipomoea tyrianthina Lindl. Bot. Reg. 24: Misc. 87. 1838. Pharbitis tyrianthina Hook. Bot. Mag. 49: t. 4024. 1843. Pharbitis longipedunculata Mart. & Gal. Bull. Acad. 12, pt. 2: 271. 1845. Ipomoea longipedunculata Hemsl. Biol. Cent. Am. Bot. 2: 389. 1882. Quiebra cajete.

Hooker, Bot. Mag. 49: t. 4024. 1843

Ipomoea tyrianthina Lindl. Bot. Reg. Misc. 87. 1838. Pharbitis longipedunculata Mart. & Gal. Bull. Acad. Brux. 12, pt. 2: 271. 1845. I. longipedunculata Hemsl. Biol. Centr. Amer. Bot. 2: 389. 1882. Quiebra-cajete. Huehuetenango. Quiché; Mexico; Honduras. Moist thickets, 1,600-3,800 meters; A small or large, herbaceous vine, the stems sparsely reflexed-hirsute or glabrate; leaves long-petiolate, orbicular-ovate, 6-10 cm. long, abruptly acuminate, cordate at the base, entire or rarely 3-lobate, thinly hirtellous or short-pilose; peduncles long and slender, often much longer than the leaves, inflorescence 1-5-flowered, the pedicels 1-4 cm. long; sepals subequal, oblong-lanceolate, the outer ones acute or rarely obtuse, the inner acute, 12-15 mm. long; corolla rose-purple, 6-8 cm. long, glabrous.

Conv. Amphiam. Pl., Mem. Soc. Fr. 8: 103. 1844
Ipomoea purpurea Roth, Nov. Sp. 127. 1821

, long pilose pubescent becoming glabrate above, the hairs usually from thickened bases, or the inner ones quite glabrous

closely related to Ipomoea purpurea (L.) Roth and perhaps not distinct from it.

Ipomoea villifera House, Muhlenbergia 5:70. 1909
Wet thickets and forest, 1,100–1400 meters, endemic.
Huehuetenango (type, Nelson 3579; Molina 21404).

Stout twining vines, the stems maculate, pilose with brownish hairs, becoming glabrous. Leaves suborbicular, cordate, entire or trilobate, sparsely appressed pubescent above, more densely so below, the blade 7–12 cm. long and as broad, the ~~petiole~~ petiole slender, pubescent, 5–7 cm. long; inflorescence few- several-flowered ^ subcapitate, villous; the peduncle at maturity exceeding the subtending leaf, villous, the ~~peduncle~~ bracts in the inflorescence ovate to ovate-lanceolate, acute, villous, 1–2.5 cm. long, the pedicels very short; sepals narrowly lanceolate, acuminate, villous, 16–22 mm. long; corolla narrowly campanulate, purple, sparsely villous outside on the tube and ~~plus~~ plicae.

A rare species from the mountains of Huehuetenango known only from the two collections cited above. It is closely related to I. mairetii.

Ipomoea Wallii (Morren) Hemsl. Biol. Centr. Amer. Bot. 2: 396. 1882. Batatas Wallii Morren, Ann. Soc. ~~xgx~~ Argic. Bot. ~~Xxxx~~ Gand 2: 285. 1846. Moist or wet thickets, 300 meters or less; Petén ~~(El Paso, C. L. Lundell 1682)~~. British Honduras. A small or large, herbaceous vine, glabrous throughout or nearly so; leaves long-petiolate, cordate-ovate or deltoid-ovate, 6-15 cm. long, acute, rather deeply cordate at the base; peduncles usually much longer than the petioles, sometimes short; usually several-flowered; sepals more or less unequal, subcoriaceous, ovate or oval, 7-8 mm. long, glabrous, rounded at the apex; corolla white, ~~4.5-6.5~~ cm. long, glabrous; capsule glabrous, 8 mm. long. No authentic material of this species is available, and it is not at all certain that the material we have referred here has been named correctly.

Check it
July 25, 69

Unrecognized Species

Type ?

Ipomoea brevipes Peter in Engl. & Prantl, Pflanzenfam. IV. Abt. 3a: 30. 1891, hyponym. No description of the species has been published, and it is merely listed in a skeleton key prepared by Peter to cover a few species of the genus. The native country is cited as Guatemala. The name, like some others published by Peter at the same time, has no formal status ~~until a description of the plant is published.~~

Excluded

put with Ipomoea Excluded Sp.

Calonyction campanulatum Hallier f., Bull. Herb. Boiss. ser. 1, 5:1050, t. 18, f. 2. 1897. Ipomoea setosa campanulata House, Ann. N. Y. Acad. Sci. 18: 219. 1908.

The identity of this species is not certain. We presume that of the several specimens cited by Hallier the collection made near Granada, Nicaragua, Lévy 1316, and from which the illustration was made may well be the type, although it does not correspond too closely to the description. There are two possibilities,- the species may be a synonym of I. setosa as treated in this flora or it may be the same as I. sepacuitensis Donn.-Sm. In the later case it will not replace I. sepacuitensis because if transferred to Ipomoea it would become a homonym of I. campanulata L.

Convolvulus mollissimus Bertol. ~~Rixford~~, Misc. Bot. 20: 11, pl. 3. 1859. Type from Volcán de Agua, Velásquez, ~~Publication not available.~~ May well be I. Mairetii, but that is a pure guess. (?)

Mrs Wilson

End of Work

Ipomoea ~~[illegible]~~ rostrata Peter in Engl. & Prantl, Pflanzenfam. IV. Abt. 3a: 30. 1891, hyponym. This was said to be based on Guatemalan material, but no description of the plant has been published.

END

Ipomoea sericophylla Peter in Engl. & Prantl, Pflanzenfam. IV. 4Abt. 3a: 31. 1891, hyponym. Based on material said to have come from Guatemala, but no description of the species has been published. Perhaps the same as I. tuxtlensis House.

End

Ipomoea tortugensis Peter in Engl. & Prantl, Pflanzenfam. IV. Abt. 3a: 31. 1891, hyponym. Based on a Guatemalan plant, but the collection not mentioned, and no description has been published to validate the species. name,

ITZAEA Standley & Steyermark

Large woody vines; leaves petiolate, firm-membranaceous, entire, densely sericeous beneath; flowers small, green, in few-many-flowered, compact, short-pedunculate, axillary cymes, these shorter than the petioles, or in fruit sometimes elongate; sepals subequal, suborbicular, rounded or very obtuse at the apex and obscurely apiculate, sericeous outside, glabrous within; corolla campanulate, shallowly 5-lobate, sericeous outside, the lobes induplicate-valvate; stamens inserted in the throat of the corolla, short-exserted, the filaments elongate, slightly dilated at the base; anthers oblong, the cells contiguous, the connective narrow; ovary 1-celled, 4-ovulate, pilose; styles 2, short, the stigmas large, globose-capitate; capsule subglobose, somewhat ligneous, the pericarp dry, 3-4-valvate, at the apex, finally separating into numerous longitudinal linear segments suggesting the staves of a barrel; seeds 3-4, surrounded by bright red pulp, glabrous.—The genus consists of a single species. The generic name is derived from Itzá, name of the race that founded the first Maya Empire.

Itzaea sericea (Standl.) Standl. & Steyerm. Bot. Ser. Field Mus. Bot. 23: 83. 1944.

Lysiostyles sericea Standl. Field Mus. Bot. 8: 322. 1931. British Honduras; ~~in swamp forest, Maohace, W. A. Schipp 1210~~; to be expected confidently in Petén, Izabal; Atlantic coast of Honduras, the type from Lancetilla Valley, Dept. Atlántida. A large woody vine as much as 15 meters long, the stems densely and minutely sericeous; leaves on slender petioles 1.5-3.5 cm. long, elliptic-oblong or elliptic-ovate, 7-13 cm. long, 3.5-6.5 cm. wide, obtuse to acuminate, subcordate to acute at the base, glabrous above, very densely lustrous-sericeous beneath; inflorescences solitary, very shortly pedunculate, the pedicels mostly 3-4 mm. long; sepals 4 mm. long; corolla 1 cm. long; capsule subglobose, about 13 mm. in diameter, ~~long~~, glabrous.—When fresh, the fruit with its orange-red pulp is strongly suggestive of that of the northern Bittersweet (Celastrus scandens).

JACQUEMONTIA Choisy (Jiles Simon)

Twining herbs, often densely pubescent; leaves petiolate, often cordate at the base, entire or sometimes dentate or lobate; ~~rather~~ flowers small or medium-sized; inflorescence ~~in~~ axillary, umbelliform or head-like cymes, rarely in scorpioid cymes or solitary; bracts small and linear or lanceolate or large and leaf-like; sepals 5, equal or unequal; corolla funnelform or campanulate, blue, lilac, or white, 5-dentate or almost entire; stamens and style included; style 1, filiform, the 2 stigmas elliptic or oblong and complanate, rarely globose or linear; ovary 2-celled, 4-ovulate; disk small or none; capsule globose, 2-celled, with ~~8~~ 4 valves, 4-seeded; seeds glabrous, tuberculate, or pilose. About 60 species, in tropical America, Africa, Asia, and Australia. ~~[struck-out typed text]~~ One or two others are known from southern Central America. – The genus is very closely allied to Convolvulus.

Inflorescences head-like, the bracts large, foliaceous.

Bracts linear or lanceolate; corolla blue........................J. tamnifolia.

Bracts broadly ovate to rounded; corolla white...............J. hirtiflora.

Inflorescences cymose, lax and open or rather dense, the bracts small and inconspicuous.

Leaves rounded or very obtuse at the apex, obtuse or rounded at the base, thick and fleshy, glabrous or nearly so..............................J. havanensis.

Leaves acute or acuminate, usually cordate or subcordate at the base, thin, often densely pubescent.

Sepals rounded at the apex, glabrous or nearly so; peduncles much shorter than the cymes; corolla white..................................J. nodiflora.

Sepals acute or acuminate, or at least apiculate, often densely pubescent; peduncles usually longer than the cymes.

Inflorescence glandular-pilose.......................................J. azurea.

Inflorescence without glandular pubescence.

Sepals mostly 10-15 mm. long; inflorescence lax..............J. mexicana.

Sepals all or chiefly 8 mm. long or shorter; inflorescence dense and compact.

Outermost bracts ovate...J. Houseana.

Outer bracts subulate or linear-lanceolate.

6/ Leaves green and glabrate beneath.....J. pentantha.

Leaves densely velutinous-pubescent beneath.

7/ Calyx 3-4 mm. long; leaves acute or subobtuse.....J. pinetorum.

Calyx 5-6 mm. long; leaves usually abruptly cuspidate-acuminate..J. apiculata.

Jacquemontia apiculata House, Muhlenbergia 5: 66. 1909. Moist or dry thickets, El Progreso; 900 meters or less; Retalhuleu; Quezaltenango. Mexico; British Honduras. A herbaceous vine, small or sometimes several meters long, the stems densely pale-tomentose; leaves long-petiolate, broadly ovate or rounded-ovate, 2-5 cm. long and often almost as broad, broad at the apex and usually abruptly cuspidate-acuminate, shallowly or deeply cordate at the base, densely and finely soft-pubescent above, densely tomentose beneath with whitish or brownish, soft hairs; peduncles 2-8 cm. long, the inflorescence lax or dense, the pedicels short or sometimes 1-2 cm. long, the flowers few or numerous; sepals unequal, the outer ones spatulate-obovate, 5-6 mm. long, subacute, pubescent, the inner ones shorter, ovate, acute; corolla blue or white, 2 cm. broad, glabrous.

Jacquemontia azurea (Desr.) Choisy, Mém. Soc. Phys. Hist. Nat. Genève 6: 476. 1833. Convolvulus azurea Desr. in Lam. Encycl. 3: 554. 1789. J. guatemalensis Standl. & Steyerm. Field Mus. Bot. 23: 84. 1944 (type from Chiquimula, Steyermark 30066).

Grassy or brushy plains or hillsides, often in rocky places or in pine forest, 200-1500 meters; Alta Verapaz; Zacapa; Chiquimula; Jutiapa; Huehuetenango. Southern Mexico; Costa Rica; Panama; South America. A slender annual vine, the stems herbaceous, pilose with rather long, soft, more or less spreading hairs; leaves long-petiolate, ovate-oblong to broadly ovate, 1-5 cm. long, acute to long-acuminate, shallowly cordate or truncate at the base, thinly or densely pilose with long spreading di- or tribrachiate hairs, especially beneath; peduncles about 3-flowered, very slender, often much longer than the leaves, the pedicels usually much longer than the calyx, glandular-pilose; sepals lanceolate, 3-5 mm. long, pilose with long spreading gland-tipped hairs; corolla usually blue, 6-10 mm. long, glabrous; capsule globose, glabrous, 4-5 mm. long. When well developed, the plant is elongate and twining. If stunted, it sometimes is procumbent or even erect.

Jacquemontia havanensis (Jacq.) Urban, Symb. Antill. 3: 342. 1902. Convolvulus havanensis Jacq. Obs. Bot. 2: 25. t. 45, f. 3. 1767. Known in our region only from Turneffe Island, British Honduras, growing on coral sand, frequent beneath coconut palms along the beach, F. E. Egler 42-41. Yucatan Peninsula of Mexico; Cuba. Plants suffrutescent, trailing or suberect, less than a meter long, the stems puberulent; leaves short-petiolate, succulent, ovate to oblong, 1-4 cm. long, rounded or subemarginate at the apex, rounded or obtuse at the base, minutely puberulent or almost glabrous; inflorescences sometimes 1-flowered but usually in short-pedunculate few-flowered cymes, the peduncles little longer than the petioles, the pedicels longer than the calyx; outer sepals obovate or suborbicular, rounded at the apex, 1.5 mm. long, the inner ones slightly longer; corolla 1 cm. long, white; capsule 3 mm. long, the seeds ovoid, narrowly marginate. The Maya name of Yucatan is recorded as "Xtabentuxiu."

Jacquemontia hirtiflora (Mart. & Gal.) O'Donell, Anal. Inst. Biol. Mex. 12: 81. 1941. Ipomoea hirtiflora Mart. & Gal. Bull. Acad. Brux. 12, pt. 2: 267. 1845. J. Perryana Duchass. & Walp. Linnaea 23: 751. 1850. I. lactescens Seem. Bot. Voy. Herald 171. 1854. J. platycephala Donn. Sm. Bot. Gaz. 57: 423. 1914, (type from Cubilgüitz, Alta Verapaz, Tuerckheim 4133). I. villifera House, Muhlenbergia 5: 70. 1909 (type from Jacaltenango, Huehuetenango, E. W. Nelson 3579).

Moist or wet thickets or open rocky forest, 1,500 meters or lower; Alta Verapaz; Santa Rosa; Huehuetenango. Southern Mexico; British Honduras; Costa Rica; Panama.

A large or small vine, herbaceous, the stems stout, hirsute or glabrous; leaves rounded-ovate to deltoid-ovate, 6-13 cm. long, abruptly short-acuminate or sometimes narrowly long-acuminate, shallowly or deeply cordate at the base, glabrous above or sparsely short-pilose, finely appressed-pilose beneath or glabrate; peduncles often much longer than the leaves, stout, the inflorescence capitate or at least head-like, 7 cm. broad or smaller, many-flowered, very dense, the outer bracts about 2 cm. long, orbicular, rounded or very obtuse at the apex, the inner ones almost as broad, densely hirsute; sepals elliptic, acuminate, 12 mm. long; corolla pure white, about 4 cm. long, villous outside. When in flower, this is a rather handsome plant, much showier than any other Central American species of the genus. Called "Mano de gato" in Veracruz.

Jacquemontia Houseana Standl. Field Mus. Bot. 11: 140. 1932. Known only from the El Cayo District of British Honduras, the type collected near El Cayo, H. H. Bartlett 12928. A herbaceous vine, the stems densely stellate-pilosulous; leaves slender-petiolate, broadly ovate or ovate-elliptic, 2.5-5 cm. long, abruptly acute or acuminate, shallowly or deeply cordate at the base, softly and densely stellate-tomentulose on both surfaces; cymes dense, many-flowered, head-like, about 2.5 cm. broad, the peduncles as much as 10 cm. long, the flowers sessile, densely crowded; bracts foliaceous, ovate, equaling the sepals; sepals ovate or broadly ovate, 6-8 mm. long, acuminate or long-acuminate, densely tomentulose; corolla blue, glabrous, almost 2 cm. broad.

Jacquemontia mexicana (Loes.) Standl. & Steyerm. Bot. Ser. Field Mus. Bot. 23: 84. 1944.
Aniseia mexicana Loes. Verh. Bot. Ver. Brandenb. 59: 155. 1917. Brushy hillsides, 400 meters; Santa Rosa (La Morenita, northeast of Chiquimulilla, Standley 78873). Chiapas. A small slender vine, herbaceous or suffrutescent, the young stems tomentulose, becoming glabrate; leaves thin, on long slender petioles, broadly ovate, 3-11 cm. long, acuminate, usually abruptly so, shallowly or deeply cordate at the base, thinly stellate-pubescent on both surfaces or glabrate; peduncles slender, about equaling the leaves, lax and few-flowered, the bracts lanceolate, 7-10 mm. long; outer sepals broadly ovate, 10-15 mm. long, acute or acuminate, puberulent, usually subcordate at the base; corolla white, 2-3 cm. long, glabrous.

Jacquemontia nodiflora (Desr.) G. Don, Hist. Dichl. Pl. 4: 283. 1838. Convolvulus nodiflorus Desr. in Lam. Encycl. 3: 557. 1789. Campanilla; Chata simpática; Loroquito de monte.

Moist or dry thickets or hedges, often in rocky places, 400-1,500 meters; Petén; Zacapa; Chiquimula; Jalapa; Jutiapa; Santa Rosa; Guatemala; Quiché. Mexico; British Honduras; Honduras; Nicaragua; Costa Rica; West Indies; South America.

A small or rather large, slender vine, herbaceous or suffrutescent below, the stems tomentose or almost glabrous; leaves on slender, short or elongate petioles, oblong-ovate to broadly ovate, 3-5.5 cm. long, acute or acuminate, rounded or shallowly cordate at the base, sparsely tomentulose or glabrate above, usually densely tomentulose beneath, sometimes glabrate in age; cymes many-flowered, dense, short-pedunculate, usually much shorter than the leaves; bracts

Dr Stearn says that nodiflora belongs in the genus Convolvulus, not in Jacquemontia. Aug 26, 1969

insert before J. pentantha

Recently Lewis and Oliver (Ann Mo. Bot. Gard. 52: 222. 1965) have stated that this species must be included in Convolvulus based upon a study of pollen. We prefer to leave it in Jacquemontia until a more thorough study is made of generic characters in this group of Convolvulaceae.

small and inconspicuous; sepals suborbicular, rounded and muticous at the apex, 2 mm. long, glabrous or nearly so; corolla white, 10-12 mm. long, glabrous; capsule glabrous, globose or ovoid, 4 mm. long.

Jacquemontia pentantha (Jacq.) D. Don, Hist. Dichl. Pl. 4: 283. 1838. Convolvulus pentanthus Jacq. Coll. Bot. 4: 210. 1790. J. violacea Choisy Mém Soc. Phys. Hist. Nat. Genève '; 61. 1838. J. violacea var. guatemalensis Meissn. in Mart. Fl. Bras. 7: 296. 1869 (type Friedrichsthal 1).

Dry to wet thickets in second growth, 1000 meters or less; Suchitepéquez; Retalhuleu; Quezaltenango; Huehuetenango. Southern Florida; Mexico; British Honduras; Costa Rica; West Indies; South America. Usually a small herbaceous vine, the stems pubescent or almost glabrous; leaves slender-petiolate, ovate or broadly ovate, 3-6 cm. long, acute to long-acuminate, shallowly or deeply cordate at the base; peduncles slender, exceeding the leaves, the cymes dense and almost head-like, few-many-flowered, the bracts small and inconspicuous, the pedicels shorter than the calyx; sepals ovate or lanceolate, acute or acuminate, 4-5 mm. long; corolla blue or white, 2 cm. broad, glabrous; capsule globose, about equaling the sepals. Maya names of Yucatan are Akilxiu, Sacmiz, Yaax-hebil, and Yaxhal.

Jacquemontia pinetorum Standl. & Steyerm. Bot. Ser. Field Mus. 22: 372. 1940.

Known only from the type, Izabal, open places in pine forest, Montaña del Mico, 500 meters, Steyermark 38533. Plants somewhat woody, prostrate or ascending, branched, the young branches densely velutinous-pilose; leaves long-petiolate, deltoid-ovate, 2-2.5 cm. long, acute or subacuminate, subcordate at the base, grayish, densely velutinous-pilose on both surfaces; peduncles longer than the leaves, the cymes dense, few-many-flowered, 12 mm. broad, the pedicels short, the bracts small, subulate; sepals 3-3.5 mm. long, densely pilose, rounded-ovate, muticous, rounded at the apex; corolla lavender-purple, 8 mm. long, glabrous.

Jacquemontia tamnifolia (L.) Griseb. Fl. Brit. W. Ind. 474. 1861. Ipomoea tamnifolia L. Sp. Pl. 162. 1753. Moist or dry thickets, about 900 meters; Chiquimula; Jutiapa. A small or large, herbaceous vine, sometimes 6 meters long, hirsute almost throughout, densely so in the inflorescence; leaves slender-petiolate, ovate or broadly ovate, 3-10 cm. long, acute or abruptly acuminate, cordate at the base, sometimes glabrate; peduncles often much longer than the leaves, the inflorescence head-

like, 3-4 cm. broad, many-flowered, the flowers sessile or nearly so; outermost bracts ovate, 1-3 cm. long; sepals linear, 10-15 mm. long; corolla blue, 1 cm. broad; capsule globose, glabrous, much exceeded by the sepals.

ILLUS Simon

OK to retype

MARIPA Aublet

Large woody vines, glabrous except in the inflorescence; leaves alternate, coriaceous, petiolate, entire, not cordate; flowers medium-sized or rather small, in many-flowered cymes, these usually corymbose or paniculate at the ends of the branches, the bracts scale-like or none; sepals ovate, obtuse, coriaceous, subequal, appressed to the base of the fruit; corolla campanulate, the limb plicate, shallowly 5-fid; stamens included or exserted, the anthers oblong or linear; disk annular; ovary 2-celled, 4-ovulate; fruit ovoid, oblong, or globose, fleshy or indurate, indehiscent, usually by abortion 1-seeded; seed erect, glabrous. About 10 species, all in tropical America. One other Central American one occurs in ~~Central America~~ Panama.

Maripa nicaraguensis Hemsl. Biol. Centr. Amer. Bot. 2: 382. 1882. Moist or wet forest, 1000 meters or less; Petén; Alta Verapaz; Izabal. British Honduras, along the Atlantic coast to Costa Rica, and South America. A large woody ~~vine~~, climbing to a height of 18 meters, glabrous or essentially so except in the inflorescence; leaves coriaceous, ovate or oblong, 7-12 cm. long, abruptly acute or cuspidate-acuminate, obtuse to subcordate at the base, short-petiolate; flowers rose or rose-purple, 3.5-5 cm. long, in small dense terminal panicles, the branches and pedicels at first ferruginous-puberulent; corolla shortly 5-lobate, strongly constricted below the middle, strigillose-puberulent outside above the middle, sparsely and minutely lepidote below the middle; stamens included, the filaments dilated and barbate at the base; ovary glabrous; fruit subglobose or broadly ellipsoid, about 3 cm. long, very hard and woody.

A monograph of the genus is being prepared. It is to be expected that this may be found to be the same species that occurs in the coastal regions of South America under an other name.

Oct 68

MERREMIA Dennstedt

Revisión de las especies americanas de "Merremia."
Reference: Carlos A. O'Donell, Lilloa 6: 467-554. 1941.

Plants usually herbaceous and twining, small or often very large; leaves entire, lobate, or palmately compound and with 3-7 leaflets, glabrous or pubescent; flowers solitary and axillary or in few-flowered cymes or dichasia, the bracts linear or lanceolate; sepals usually subequal; corolla campanulate, large or small, white, yellow, or purple; filaments equal or nearly so, usually glandular at the base, the anthers spirally twisted in age; ovary usually glabrous, 2-3-carpellate, 4-6-ovulate; style filiform, the stigma globose or biglobose, never exserted; capsule 2-4-celled, longitudinally dehiscent by 4-6 valves, the pericarp thin and fragile; seeds 4-6, glabrous or pubescent. About 60 species, in the tropics of both hemispheres. Probably all the Central American species are included in the following treatment.

Leaves reduced to scales; stems not twining.....M. aturensis.

Leaves normally developed; stems twining.

Leaves entire.

Flowers umbellate; sepals 6-8 mm. long.....M. umbellata.

Flowers solitary or on 2-flowered peduncles; sepals 20-30 mm. long..M. discoidesperma.

Leaves compound or deeply lobate.

Leaves ~~as primarily compound, the leaflets distinct~~ not compound, deeply lobate but the lobes united near the base.

Divisions of the leaves entire; corolla yellow.....M. tuberosa.

Divisions of the leaves lobate; corolla white.....M. dissecta.

Leaves palmately compound, the segments distinct.

Leaflets entire; pubescence not glandular.....M. aegyptia.

Leaflets evidently dentate or crenate; pubescence of the calyx of glandular hairs.

Sepals obtuse.....M. quinquefolia.

Sepals mostly long-acuminate.....M. cissoides.

Merremia aegyptia (L.) Urban, Symb. Antill. 4: 505. 1910. Ipomoea aegyptia L. Sp. Pl. 162. 1753. Convolvulus pentaphyllus L. Sp. Pl. ed. 2. 223. 1762. I. pentaphylla Jacq. Coll. Bot. 2: 297. 1788. M. pentaphylla Hallier f. Bot. Jahrb. 16: 552. 1893. Moist or wet thickets, sometimes a weed in cornfields, 400 meters or less; Zacapa; Chiquimula; Santa Rosa. Mexico; British Honduras to Panama; West Indies; South America; Old World tropics. A small or large, herbaceous vine, the stems usually hirsute with very long, spreading yellowish hairs; leaves long-petiolate, the 5 leaflets elliptic, entire, short-petiolulate, acuminate or long-acuminate, acute or acuminate at the base, sparsely hirsute on both surfaces; inflorescences long-pedunculate, 6-9-flowered, 15-30 cm. long, hirsute; pedicels 1-3 cm. long; flower buds acute, the sepals oblong, acute, 2 cm. long, hirsute; corolla white, glabrous, 2-3 cm. long; capsule subglobose, 1 cm. in diameter, 4-celled; seeds 4, glabrous.

Merremia aturensis (HBK.) Hallier f. Bot. Jahrb. 16: 552. 1893. Convolvulus aturensis HBK. Nov. Gen. & Sp. 3: 96. 1818. Ipomoea aturensis G. Don, Gen. Syst. 4: 226. 1838. I. aphylla Standley, Field Mus. Bot. 11: 139. 1932 (type from Cornhouse Creek, British Honduras, H. H. Bartlett 11316). In savannas or other open grassy places, little above sea level; British Honduras; Chiapas, Mexico; Colombia to Brazil. Plants erect or ascending, the stems often very numerous, slender, wiry, often suffrutescent at the base, striate, glabrous; leaves squamiform, 1.5-2 mm. long; flowers mostly solitary, axillary, the peduncles 1-2 cm. long; sepals oblong-lanceolate, obtuse, mucronulate, 6-10 mm. long; corolla white, 2.5-3.5 cm. long; anthers spirally twisted; ovary glabrous, 4-celled; capsule 4-valvate; seeds 4, glabrous; flower buds acute. The small scale-like leaves distinguish this plant from all other Central American members of the convolvulaceae.

Merremia cissoides (Lam.) Hallier f. Bot. Jahrb. 16: 552. 1893. Convolvulus cissoides Lam. Tabl. Encylcl. 1: 462. 1791. Ipomoea cissoides Griseb. Fl. Brit. W. Ind. 473. 1861. In thickets or waste ground, 1800 meters or less; Santa Rosa; Suchitepéquez. Mexico; British Honduras to El Salvador and Costa Rica; West Indies; South America. A large or small, herbaceous vine, the stems hirsute-pilose with rather short hairs or sometimes glabrate; leaves long-petiolate, the 5 leaflets elliptic or lanceolate, mostly 2-4.5 cm. long, short-petiolulate, acute or acuminate, shallowly

orentire

dentate, viscid-puberulent or glabrate; flowers usually in few-flowered cymes, rarely solitary, the cymes axillary, usually about equaling the leaves; flower buds acute; sepals 12-20 mm. long, ovate or lance-ovate, long-acuminate, foliaceous, viscid-pubescent; corolla white, 2.5-3 cm. long; ovary glabrous, 3-4-celled, 3-4-ovulate; capsule 7-8 mm. broad, the seeds black, pubescent. The Maya name of Yucatan is reported as Xixoloc; Bejuco coronal (Salvador).

Merremia discoidesperma (Donn.-Smith) O'Donell, Lilloa 6: 495. 1941. Ipomoea discoidesperma Donn.-Smith, Bot. Gaz. 14: 27. 1889. Quiebra-cajete.

Wet thickets or mixed forest, 2,600 meters or lower; Alta Verapaz (type from Pansamala, Tuerckheim 744); Huehuetenango. Cuba; Hispaniola.

Plants stout, twining, glabrous, the stems sometimes several cm. in diameter; leaves on petioles 3-6 cm. long, oval-cordate, 10-15 cm. long, 3-10 cm. broad, entire, coriaceous, acute or acuminate;

flowers solitary or the peduncles 2-flowered; sepals oblong, 2-3 cm. long; corolla yellow, 4-5.5 cm. long, glabrous; capsule very large, 3-4 cm. in diameter, subtended by the accrescent and persistent sepals, these in fruit 5-6 cm. long; capsule thin, irregularly dehiscent; seeds usually 1, depressed, 2-3 cm. in diameter, black, velutinous-pubescent.

Merremia dissecta (Jacq.) Hallier, Bot. Jahrb. 16: 552. 1893. Convolvulus dissectus Jacq. Obs. Bot. 2: 4. pl. 28. 1767. Ipomoea sinuata Ortega, Hort. Matr. Dec. 7: 84. 1798. Operculina dissecta House, Bull. Torrey Club 33: 500. 1906. I. dissecta Pursh, Fl. Amer. Sept. 145. 1814. Dry to wet thickets, 400 meters or less; El Progreso; Zacapa, Chiquimula. Southern United States; Mexico; Honduras and Salvador to Panama; West Indies; South America. A small or large, herbaceous vine, the stems hirsute or glabrous; leaves palmately divided almost to the base, the 7-9 segments coarsely sinuate-dentate, usually glabrous, sometimes sparsely hirsute; flowers solitary or in 2-4-flowered cymes, the peduncles 5-7 cm. long; pedicels thickened at the apex; sepals 18-25 mm. long, oblong, mucronate, glabrous; corolla white, 3-4.5 cm. long; anthers spirally twisted; ovary glabrous, 2-celled, 4-ovulate; capsule 1.5 cm. in diameter, depressed-globose, surrounded by the accrescent calyx, the sepals in fruit sometimes 3 cm. long; seeds 4, black, glabrous, 8 mm. long.

Merremia quinquefolia (L.) Hallier f., Bot. Jahrb. 16: 552. 1893. Ipomoea quinquefolia L. Sp. Pl. 162. 1753. Manecilla blanca (fide Aguilar). Moist or dry thickets or hedges, sometimes in open fields, 1500 meters or less; Izabal; Zacapa; Chiquimula; El Progreso; Jutiapa; Santa Rosa; Escuintla; Guatemala; Retalhuleu; San Marcos. Mexico; British Honduras to Salvador and Panama; West Indies; South America.

Usually a small herbaceous vine, sometimes prostrate, the stems glabrous or sparsely hirsute; leaves long-petiolate, the 5 leaflets subsessile, elliptic or lanceolate, glabrous, acute or acuminate, sinuate-dentate, 2-7 cm. long; ~~cymes usually longer than the leaves, 8-10-flowered,~~ the peduncles glandular-pilose, the pedicels 1-1.5 cm. long; ~~flower buds acute;~~ sepals unequal, oblong, obtuse, glabrous, the outer ones 3-5 mm. long, the inner ones 4-7 mm. long; corolla white, 1.5-2.5 cm. long; capsule glabrous, 7-8 mm. broad, subglobose, 4-celled; seeds 4, pubescent. ~~Called~~ Called "white cowslip" in British Honduras.

Merremia tuberosa (L.) Rendle in Thist.-Dyer, Fl. Trop. Amer. 4: 104. 1905. Ipomoea tuberosa L. Sp. Pl. 160. 1753. Operculina tuberosa Meisn. in Mart. Fl. Bras. 7: 212. 1869. I. nuda Peter in Engl. & Prantl, Pflanzenfam. IV. Abt. 3a: 31. 1891, hyponym (based on Guatemalan material). Quiebra-machete (Suchitepéquez; probably ~~xxxxxxxxx~~ an erroneous rendering of Quiebra-cajete); Rosa de barranco; Foco de luz; Bejuco de golondrina; Quinamacal (Petén).

Moist or wet thickets, 750 (1,200) meters or lower; Petén; Alta Verapaz; Baja Verapaz; Izabal; Escuintla; Suchitepéquez; Retalhuleu; Quiché; Quezaltenango; San Marcos. Mexico; British Honduras to Panama; West Indies; South America.

inflorescence a simple 3-flowered, or or rarely compound, dichasium or reduced to a single flower, axillary and usually ~~exceeding~~ longer than the leaf,

[tuberosa—Cont.]

---. Usually a very large, herbaceous vine, often growing over good-sized trees, the stems stout, glabrous or nearly so; leaves large, long-petiolate, 8–15 cm. long or more, deeply 7-lobate, often almost to the base, the lobes lanceolate to elliptic, acuminate, entire, glabrous; peduncles 10–20 cm. long, the pedicels 1–2 cm. long, clavate, the flowers usually several in each inflorescence, sometimes solitary; sepals unequal, the outer ones 2.5–3 cm. long in anthesis, oblong, obtuse, mucronate; corolla bright yellow, 5–6 cm. long; anthers spirally twisted; capsule irregularly dehiscent, with 4 or fewer seeds, 2-celled; sepals in fruit as much as 7 cm. long; seeds to 17 mm. in diameter, covered with a very dense, short, black pubescence.—Called "Seven-fingers" in British Honduras. In Honduras the vine is called "Mala hierba," it being claimed that the huge tuberous roots are poisonous to pigs and horses. In the Canal Zone this vine is known as "Tivoli vine," because it was formerly at least

planted about the Tivoli Hotel in Panama City. It is ~~perhaps~~ one of the ~~most~~ rare showy of ~~all~~ Central American ~~Ipomoeae~~ morning-glories, and under favorable conditions attains a great size and is covered with the ~~very~~ large blossoms. In Guatemala the dry capsules with their enveloping sepals are much used as decorations in houses or on altars, either in their natural brown color or ~~dipped in~~ embellished with silver or gold paint.

Merremia umbellata (L.) Hallier f., Bot. Jahrb. 16: 552. 1893. Convolvulus umbellatus L. Sp. Pl. 155. 1753. ~~Ipomoea~~ I. polyanthes Roem. & Schult. Syst. 4: 234. 1819. Cajete; Quilamulillo (fide Aguilar). Dry to wet thickets or hedges, often in second growth, or a weed in cultivated ground; 1500 meters or less; Petén; Alta Verapaz; Baja Verapaz; Izabal; El Progreso; Zacapa; Jutiapa; Santa Rosa; Escuintla; Guatemala; Suchitepéquez; Retalhuleu; San Marcos. Mexico; British Honduras to Salvador and Panama; West Indies; South America; Old World tropics. A small or large, herbaceous vine, the stems slender, glabrate; leaves long-petiolate, narrowly triangular to broadly ovate, usually long-acuminate, cordate or hastate at the base, densely pubescent or almost glabrous, entire; peduncles 6-15 cm. long; the inflorescence umbelliform, usually many-flowered; flower buds obtuse; sepals equal, oblong, 6-8 mm. long, glabrous or pubescent, rounded at the apex, scarious-margined; corolla bright yellow, 3-3.5 cm. long, glabrous; anthers not twisted; ovary glabrous, globose, 2-celled, 4-ovulate; capsule 8 mm. in diameter, regularly 4-valvate; seeds 4, and 5-6 mm. long, densely pubescent. Known in El Salvador as "Cuelgatabaco," "Jícama cimarrona," and "Cuajo de ule." The tough stems are used commonly for hanging tobacco to dry, and the milky sap has been utilized for coagulating Castilla rubber sap. The plant is a common weed through much of Central America. The yellow flowers, in head-like clusters, are rather pretty, and they apparently remain open throughout the day.

Ipomoea

OPERCULINA Manso

Reference: H. D. House, Studies in the North American Convolvulaceae, II. The genus Operculina, Bull. Torrey Bot. Club 33: 495-503. 1906.

Large or small vines, herbaceous or somewhat woody, the stems, petioles, and pedicels often winged; leaves entire or variously lobate, often cordate; flowers large, axillary, in few-flowered cymes or solitary; sepals large, scarious, glabrous, enlarged in fruit and becoming somewhat coriaceous, often irregularly erose on the margins; disk small or none; corolla large, broadly funnelform or campanulate, white, yellow, or salmon-red; stamens and style included; ovary glabrous, each cell with 2 ovules, style one simple, filiform, included, the stigma biglobose; capsule large, dry, epicarp circumscissle in or above the middle, the upper part more or less fleshy and separating from the lower part and from the endocarp.

Species perhaps 20 in the tropics of both hemispheres. One or two additional species in Mexico, no others are known from Central America.

Leaves entire, cordate; corolla salmon-colored..... O. pteripes.

Leaves coarsely lobate or dentate..... O. pinnatifida.

Leaves entire, cordate; peduncles winged..... O. pteripes.

Leaves digitate, lobate or dentate; peduncles not winged.

Leaves digitate, the segments dissected or serrate-lobate... O. dissecta.

Leaves lobate or dentate, the segments entire or lobulate.... O. pinnatifida.

Operculina dissecta (Jacq.) House, Bull. Torr. Bot. Club 33: 500. 1906. Convolvulus dissectus Jacq. Obs. Bot. 2: 4. 1764. Ipomoea dissecta Pursh, Fl. Bor. Sept. 145. 1814. Merremia dissecta Hallier f. Bot. Jahrb. 18: 114. 1894.

In thickets or edges of forest, alt. 500 m. or less; chiquimula; Zacapa. [illegible]. Florida, Texas. Mexico; West Indies; tropical South America.

Twining herbaceous vines, the slender stems, petioles and peduncles with slender, erect fulvous hairs from enlarged bases, these about 5 mm. long and [illegible] soon deciduous. Leaves suborbicular-cordate in outline, 5-7 digitate, 3--10 cm. long and as broad, glabrous except the nerves, petioles as long as the blades, densely to sparsely spreading hirsute pubescent, leaf segments narrowly elliptic to elliptic-ovate, prominently dissected or deeply serrate-lobate; inflorescence axillary, 1-2-flowerd, exceeding the leaves; calyx lobes ovate-lanceolate or lanceolate, acute, scarious, 2-3 cm. long; corolla white, about 3 cm. long and as broad or perhaps broader at anthesis, sparingly sericeous pubescent in lines apposite lobes; capsule depressed globose, 1.5-2 cm. in diameter.

Rather a rare species in Guatemala but easily distinguished by the dissected or serrate-lobate leaf segments and bu the long erect hairs found on stems, petioles and peduncles. It is called "Xicalmecatl" or "Tomatillo" in San Luis Potosí, Mexico.

once by the unusual color of its flowers, which are showy and attractive.

Operculina pinnatifida (HBK.) O'Donell, Lilloa 23: 432. 1950. Convolvulus pinnatifida HBK. Nov. Gen & Sp. Pl. 3: 85. 1819. Ipomoea pinnatifida G. Don, Gen. Syst. 4: 280. 1838. Merremia pinnatifida Hallier f. in Engler, Bot. Jahrb. 16: 552. 1893. Ipomoea ornithopoda Robinson, Proc. Am. Acad. 19: 183. 1893. Operculina ornithopoda House, Bot. Gaz. 44: 414. 1907. Operculina pectinata House, Muhlenbergia 5: 69. 1909. Quiebra cajete.

A vine in thickets or growing over trees at 300 meters or less; Texas. Huehuetenango. Petén; Texas. Mexico (widely distributed).

A glabrous rampant vine, the internodes of the stems to 15 cm. long. Leaves with petiole shorter than the blade, the blade ovate in outline, 2-12 cm long and about as broad, with 5-9 pinnate divisions or lobes, the segments linear to ovate or rarely obovate and some times lobulate, acute or acuminate, the base cordate or subtruncate; inflorescence a simple, axillary 2-3flowered dichasium or cyme, sometimes with a single flower, the peduncles 3-12 cm. long, sometimes subalate above; sepals obovate, obtuse, glabrous, 15-16 mm. long and 10-13 mm. broad; corolla white, subcampanulate, 3-5 cm. long and about as broad, the interpetaline area sericeous; capsules subglobose-depressed, 1.5-2 cm. in diameter; seeds black, 6-7 mm. long.

Operculina pteripes (G. Don) O'Donell, Lilloa 23: 435. 1950. Calonyction pteripes G. Don, Gen Syst. 4: 264. 1838. Ipomoea alatipes Hook. Bot. Mag. 88: t. 5330. 1862. Operculina alatipes House, Bull. Torr. Bot. Club 33: 499. 1906. Chorreque (Jutiapa)

A vine in thickets, usually 950 m. or less; Chiquimula; Jutiapa, Santa Rosa; Escuintla; perhaps in all lowland departments. Mexico to El Salvador and Panama. South America.

A large herbaceous vine growing over good-sized trees, glabrous throughout; leaves long-petiolate, ovate, mostly 3-8 cm. long, long-acuminate, cordate at the base, entire; peduncles narrowly winged, 2-7-flowered, usually strongly curved, the pedicels thickened; calyx 2.5 cm. long, the sepals acute or acuminate; corolla almost salverform, 6-7 cm. long, salmon-colored or brick-red.—Known in Salvador as Mechoacán, Quiebra-cajete, and Campanilla chocolate. ~~The plant has been reported from Guatemala as Ipomoea alata Rose and as "O. pteropus."~~ The large turnip-like roots often weigh several pounds. Among all the related plants of Guatemala, this may be recognized at once by ~~the~~ unusual color of the flowers, which are attractive.

Illus cholulensis

Illus

QUAMOCLIT Moench

References H. D. House, Studies in North Amerixan Convolvulaceae--V. Quamoclit, Bull. Torrey Club 36: 595-603. 1909; C. A. O'Donell, has especies americanas de Ipomoea Ky, Sect. "Quamoclit" (Moench.) Griseb., Hilloa 29: 19-86. 1959.

Herbaceous vines; leaves alternate, entire, lobate, or pinnately divided; flowers small or large, often showy, usually red, yellow, or greenish, axillary, in often dichotomous, few-many-flowered cymes; sepals membranaceous or herbaceous, equal or nearly so, often appendaged at the apex; corolla tube short or elongate, the limb more or less salverform or funnelform, shallowly or rather deeply lobate; stamens and style exserted, usually declinate, the filaments filiform; ovary 2-celled, 4-ovulate; stigma capitate; capsule globose or somewhat elongate, the style often persistent; seeds glabrous.--About a dozen species, in tropical America. Only the following are known from Central America. The genus perhaps is not distinct from Ipomoea.

[Quamoclit]

Leaves pinnately parted into linear segments; sepals not awned at apex . . . . [Q. pennata.]

Leaves entire or palmately lobed; sepals awned at apex.

Corolla, limb subsessile with very short tube; inflorescence a bifid cyme with secund flowers. Q. lobata.

Corolla, limb campanulate, tube long or short; inflorescence cymose, or corymbiform, the flowers not secund.

~~Limb of corolla 3-4 cm. broad, scarcely lobed, red or orange.~~ Q. quamoclit.

Limb of corolla less than 2.5 cm. in diameter, color various.

Limb of corolla deeply lobed, the lobes 0.7-1.5 cm. long. Q. vitifolia.

Limb of corolla subentire or shallowly lobed, the lobes broad and short.

Branches of inflorescence short, corymbiform; corolla yellow or sometimes reddish Q. lutea.

Branches of inflorescence long;
Corollas red or reddish.

Leaves bifate — Q. hoderifolia.

~~Inner sepals 4-6 mm. long~~ Q. cholulensis.

Leaves not bifate, rarely dentate — ~~Q. cholulensis~~

Quamoclit cholulensis (HBK.) G. Don,
Gen. Hist. 4: 259. 1838. Ipomoea cholulensis
HBK. Nov. Gen. & Sp. Pl. 3: 88. 1819; O'Donell,
Kilroa 29: 28. 1959. O. coccinea var. pubescens
(Schlecht. & Cham.) G. Don, l.c. 258. O. coccinea
of authors, in part. Campanita roja.

Vines growing in thickets or over other plants, often weedy, 1,000-4,500 m.; Alta Verapaz; Sacatepéquez (Chimaltenango); Guatemala; Santa Rosa. El Salvador; Honduras; Nicaragua, Costa Rica. South America.

An annual or possibly more enduring, much branched, glabrous or tomentose. Leaves ovate or ~~ovate~~ lanceolate-ovate, cordate, entire or sometimes dentate, acute to acuminate or caudate, ~~glabrous~~ tomentose to pilose or nearly glabrous, 2-12 cm. long and 1-7 cm. broad; inflorescence cymose, 2-8-flowered or rarely the flowers

Cholulensis cont

Solitary, peduncles 7-19 cm. long; pedicels 0.5-1.5 cm. long; exterior sepals oblong or ovate 2.5-3.5 mm. long and 1.5-2.5 mm. broad, obtuse with a subterminal awn, glatrous or pubescent; the interior sepals elliptic to ovate, 3-4.5 ~~#/5~~ mm. long ~~2.5-3.5~~ 2-3 mm. broad, awned; corolla hypocrateriform, tube slightly spread at the apex, 1.5-2.5 cm. long and to 0.15-0.23 cm. in diameter, limb broadly campanulate, obscurely 5-lobate; stamens barely exserted; ovary ovoid, 4-locular, 4-ovulate; stigma figlobose; capsules subglobose.

This is one component of the complex that has been called Q. coccinea (Ait.) Moench. ~~and~~ Most Central American material has been determined with that name. O'Donell, in his revision of this group, limits Q. coccinea to the United States.

dubite

Quamoclit grandiflora (Llave & Lex.) G. Don, Gen. Syst. 4: 259. 1838. Morenoa grandiflora Llave & Lex. Nov. Veg. Descr. 1: 17. 1824. Ipomoea Llaveana Meissn. in Mart. Fl. Bras. 7: 219. 1869. Moist or wet forest, 900-1800 meters; Escuintla; Chimaltenango; Suchitepéquez; San Marcos. Southern Mexico. A large herbaceous vine; leaves long-petiolate, cordate or cordate-hastate, mostly 8-15 cm. long, deeply 3-lobate, the lobes irregularly ovate, often angulate, acuminate or long-acuminate, sparsely pubescent beneath or almost wholly glabrous; peduncles usually longer than the leaves, few-flowered, the pedicels 1-3 cm. long; sepals ovate-lanceolate or rounded, 3-5 mm. long, the subapical awns of about the same length; corolla scarlet, 5 cm. long, the ~~tube~~ tube very gradually dilated upward, less than 1 cm. broad at the apex, slightly curved, the limb 5-angulate, 2 cm. broad; capsule 1 cm. in diameter or smaller. A handsome and showy vine, well worthy of cultivation.

Ipomoea funis Schlecht. & Cham. Linnaea 5:118, 830.

Quamoclit hederifolia (L.) G. Don, Gen. Hist. 4: 259. 1838. Ipomoea hederifolia L. Syst. Nat. ed. 10. 925, 1759. Q. brevipedicellata Hallier f. Bull. Herb. Boiss. 7: 416. 1899. Q. coccinea var. hederifolia House, Ann. N. Y. Acad. Sci. 18: 262. 1908. Q. coccinea, of many authors, in part. Campanita; xocxop (Huehuetenango).

1908. Moist thickets or hedges, often a weed in cornfields, 1800 meters or less; Zacapa; Chiquimula; Jutiapa; Santa Rosa; Escuintla; Sacatepéquez; Chimaltenango; Retalhuleu; Huehuetenango. Southern United States; Mexico; British Honduras to Panama; West Indies; South America; Malaysia; Africa. Usually a small herbaceous vine, glabrous or to nearly so; leaves long-petiolate, ovate or rounded-ovate, 4-10 cm. long, acute or acuminate, cordate at the base, (rarely) entire or shallowly to deeply angulate-lobate; peduncles equaling or longer than the leaves, few-many-flowered; sepals oblong, 4-6 mm. long, the outer ones with subulate awns 2-5 mm. long arising on the outside below the apex; corolla scarlet, the tube 3-4 cm. long, slightly dilated near the apex, the almost rotate limb 1.5-2 cm. broad, 5-angulate; capsule globose, 6-7 mm. long. Called "Indian creeper" in British Honduras; "Hiedra colorada" (Yucatan). Var. hederifolia differs only in having deeply lobate leaves. It occurs in Guatemala but is less common that the typical form. Both forms are found in the same regions, and the variety has scant if any taxonomic importance. The plant is a weedy one, not very decorative, in spite of its brilliantly colored flowers.

Quamoclit coccinea var. pubescens (Cham. & Schlecht.) Choisy in DC. Prodr. 9: 335. 1845. Ipomoea coccinea var. pubescens Cham. & Schlecht. Linnaea 5: 118. 1830. Moist thickets or cultivated fields, sometimes in oak forest, 1200-2000 meters; Zacapa; Jalapa; Guatemala; Sacatepéquez. Southern Mexico. Differing from the typical glabrous form in having the leaves rather densely and softly pubescent.

Quamoclit Lindleyi House, Bull. Torrey Club 36: 597. 1909. Calboa globosa Lindl. Journ. Hort. Soc. 5: 82. 1850, Q. globosa G. Don, 1838. Moist or wet forest, 900-1800 meters; Escuintla; Chimaltenango; Suchitepéquez; San Marcos;

Quamoclit lobata (Llave & Lex.) House, Bull. Torrey Bot. Club 36: 602. 1909. Mina lobata Llave & Lex. Nov. Veg. Descr. 3. 1824. Ipomoea versicolor Meisn. in Mart. Fl. Bras. 7: 220. 1869. Banderita de España; Banderita española; Bandera española. Cultivated occasionally for ornament. Perhaps native of Mexico. A slender herbaceous vine; leaves slender-petiolate, ovate, deeply cordate at the base, deeply 3-lobate, the middle lobe constricted near the base, the lateral lobes often lobate, glabrous or nearly so; peduncles much longer than the leaves, dichotomous, few-many-flowered, the flowers secund; sepals 3-4 mm. long, the apical appendages recurved; corolla bright yellow, tinged above with red, about 2 cm. long, the tube proper very short, scarcely exceeding the calyx, the throat much dilated, 1 cm. broad, the margin somewhat constricted, with 5 very small and short lobes; stamens twice as long as the corolla. A showy and handsome plant, deserving wide cultivation. The plants wither when the rains stop, but if watered might remain in bloom for a longer period. The name "Bandera española" is given because the corollas bear the colors of the flag of Spain.

Quamoclit lutea (Hemsl.) Hallier f. in Engler Bot. Jahrb. 16: 557. 1893. Ipomoea lutea Hemsl. Diagn. Pl. Nov. 34. 1878 (type from Guatemala, Salvin & Godman); in Godman & Salvin. Biol. Cent. Am. Bot. 2: 389, t. 60. 1882. I. lutea var. rubra O'Donell, Lilloa 29: 67. 1959.

[lutea]

possibly above Palín). Moist thickets or forest, 1300-1500 meters; Guatemala; Quezaltenango; San Marcos; perhaps endemic. A large vine, glabrous throughout or nearly so, herbaceous; leaves long-petiolate, cordate or hastate at the base, sometimes broadly ovate and entire, usually 3-lobate, the lobes acute to long-acuminate, the outer ones often angulate; peduncles greatly elongate, the flowers usually numerous, long-pedicellate, in small compact cymes; sepals 5 mm. long, the slender appendages of equal or greater length; corolla yellow or orange-yellow, about 5 cm. long, the tube slightly curved, very gradually dilated upward, 7-8 mm. broad in the throat, the lobes rounded, small, scarcely more than 8 mm. long; stamens shortly exserted.—This species was much misunderstood by House, who treated it as a variety of Q. coccinea, from which it is altogether distinct. There is some question whether actually it is more than color variant of Q. grandiflora. The two forms seem to be exactly alike except in color of the corolla.

Quamoclit pennata (Desr.) Bojer, Hort. Maurit. 224. 1837. Ipomoea Quamoclit L. Sp. Pl. 159. 1753. Convolvulus pennatus Desr. in Lam. Encycl. 3: 567. 1789. 1791. Q. vulgaris Choisy, Mém. Soc. Phys. Hist. Nat. Genève 6: 434. 1833. Clarincillo; Clarín. Probably native in tropical Asia, but planted in many temperate and tropical regions for ornament; grown commonly in Guatemalan gardens, at low and middle elevations; naturalized in many places, usually in moist thickets or in hedges, 1500 meters or less; Izabal; Zacapa; Chiquimula; Jutiapa; Escuintla; Guatemala; Suchitepequez; Retalhuleu. Naturalized widely in tropical America. A slender glabrous vine, often several meters long; leaves 2-10 cm. long, parted to the costa into very numerous linear segments; peduncles mostly longer than the leaves, and mostly 1-2-flowered, the pedicels 2-3 cm. long, thickened in fruit; sepals oblong, obtuse, mucronate, not appendaged, 3-5 mm. long; corolla scarlet, 2.5-3.5 cm. long, the tube slender, the limb rotate, with short ovate acute lobes; capsules ovoid, 8-10 mm. long. Known in El Salvador by the names Clavellina, Cundeamor, and Lazo de amor; Cambustera (Yucatan). The plant is often grown in the United States, where usually it is called "Cypress vine." Plants with white flowers sometimes are found in cultivation, but they have not been noted in Central America.

The specific name of this plant is often spelled pinnata, which is the form most commonly used in botanical Latin. The original, however, uses the form we have followed, which is preferred in classical Latin.

Quamoclit vitifolia (Cav.) G. Don, Gen. Syst. 4: 259. 1838. Calboa vitifolia Cav. Icon. 5: 51, pl. 476, 1799. ~~Morenoa globosa Llave & Lex. Nov. Veg. Descr. 1: 5. 1824. Q. globosa G. Don, loc. cit.~~ Ipomoea peduncularis Bertol. Fl. Guat. 408. pl. 38, 1840 (type from Escuintla, Velásquez). Usually in moist or wet thickets, often in second growth, 1500 meters or less; Alta Verapaz; Jutiapa; Santa Rosa; Escuintla; Guatemala; Sacatepéquez; Suchitepéquez; Retalhuleu; Quezaltenango; San Marcos. Mexico; Salvador to Panama. Usually a large coarse herbaceous vine with milky sap, often climbing over medium-sized trees, glabrous; leaves long-petiolate, about as broad as long, cordate or cordate-sagittate at the base, ~~sometimes~~ entire but ~~more often~~ deeply 3-lobate, the lobes ovate to lanceolate, acute to long-acuminate; peduncles usually longer than the leaves; few-many-flowered, the flowers in dense or open cymes; sepals ovate or rounded, 4-5 mm. long, the terminal appendages of less or equal length; corolla 2.5-3.5 cm. long, thick in texture, bronze-yellow, brownish yellow, or pale greenish yellow, the lobes and upper part of the tube usually tinged with maroon or brown, the tube proper short and thick, the throat abruptly dilated and funnelform, the limb deeply 5-lobate, the lobes ovate, obtuse or acutish, ascending; stamens long-exserted; capsule globose-ovoid, about 7 mm. long. Called "Campanilla" and "Ala de cucaracha" in Salvador. ~~House, like some other authors, considered Q. vitifolia and Q. globosa as distinct species, but we are unable to find any characters by which to separate them. A specimen of the type collected, obtained by Née at San Blas, Mexico, agrees perfectly with all the Guatemalan material.~~ This plant is less conspicuous than other species of Quamoclit, the color of the flowers being bizarre but rather dull.

Ipomoea hartwegii Meissn. in Mart. Fl. Bras. 7: 220. 1869 (syntype from Guatemala, Hartweg 603).

It seems to be limited to the Pacific watershed in Guatemala, as far as known.

This species has often been considered to include Q. globosa (Llave & Lex.) G. Don or that that is a distinct species. O'Donell considers ~~it~~ Q. globosa to be a synonym of ~~Q. hastigera (HBK.) G. Don~~ Ipomoea hastigera HBK., a species of Quamoclit as delimited here, limited to a small area in Mexico.

TURBINA Rafinesque

The outer ones prominently sphacelate.

Woody vines, pubescent or glabrous; leaves petiolate, usually cordate and entire; peduncles axillary, 1-many-flowered, often paniculate at the ends of the branches; sepals ovate or lanceolate, often very unequal (and accrescent in fruit); corolla usually large and funnelform; ~~rarely salverform~~; stamens and style usually not exserted; ovary glabrous; with ~~4 or~~ 2 cells; stigmas 2, globose; fruit dry, usually ligneous, globose or ellipsoid, apiculate, 1-celled and commonly 1-seeded; seeds glabrous. ~~About 20 species, in the tropics of America, Africa, and Asia.~~ Perhaps a half dozen species in America. Only the following are known from Central America.

Oostroom
S. J. van OOstroom, Blumea 5: 355. 1943, points out that our species does not belong in the genus Rivea Choisy and transferred it to Legendrea, a genus more recent than Turbina, with the same circumscriptions.

Turbina corymbosa (L.) Raf. Fl. Tell. 11:81.1836. Convolvulus corymbosus L. Syst. nat ed. 10. 293. 1759. Rivea corymbosa Hallier f. in Engler Bot. Jahrb. 18:157. 1893. Convolvulus sidaefolia HBK. Nov. Gen & Sp. 3:99. 1818. Ipomoea sidaefolia Choisy, Mém. Soc. Phys. Hist. nat. Genève 6: 459. 1833. Xtabentún (Petén, Maya).

Rivea corymbosa (L.) Hallier, Bot. Jahrb. 18: 157. 1893. Convolvulus umbellatus L. Syst. ed. 10. 923. 1759. C. sidaefolius HBK. Nov. Gen. & Sp. 3: 99. 1818. Ipomoea sidaefolia Choisy, Mém. Soc. Phys. Hist. Nat. Genève 6: 459. 1833. Flor de Guadalupe (Petén); Turbina corymbosa Raf. Fl. Tell. 4: 81. 1838. Xtabentún (Petén, Maya). Moist or wet thickets, or hedges, often in second growth, 400 meters or less; Petén; Alta Verapaz; Izabal; Zacapa; El Progreso; Santa Rosa. Mexico; British Honduras to Panama; West Indies; South America. A large or small, woody vine, often climbing over small trees, glabrous or nearly so; leaves slender-petiolate, ovate, 4-10 cm. long, acute or acuminate, cordate at the base, entire; peduncles axillary, equaling or longer than the leaves, few-many-flowered, often forming large dense terminal panicles, the pedicels slender; sepals oblong, persistent, the inner ones 8-12 mm. long, almost twice as long as the outer ones; corolla white, 2.5-3 cm. long; capsule ovoid-oblong, acute, shorter than the inner sepals, 1-seeded. Called "Pascua" and "Flor de Pascua" in Yucatan, presumably in allusion to the fact that it is in bloom there at Christmas time. In Panama the latex is said to be employed for coagulating Castilla rubber sap. latex.

Excluded:

Rivea bernoulliana (Peter) Hallier in Engler, Bot. Jahrb. 18: 158. 1893. Ipomoea bernoulliana Peter in Engler & Prantl, ~~Rxxx xxxxx~~ Pflanzenf. IV. Abt. 3a: 30. 1891, nomen nudum.

This name is based upon material from Guatemala collected by Bernoulli but no description of the plant has been published.