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# FLORA OF MIAMI

BEING DESCRIPTIONS OF

THE SEED-PLANTS GROWING NATURALLY ON  
THE EVERGLADE KEYS AND IN THE ADJACENT EVERGLADES  
SOUTHERN PENINSULAR FLORIDA

BY

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## PREFACE.

This handbook contains descriptions of the seed-plants growing naturally in the Miami Limestone Region. This area consists of a chain of limestone islands enclosed by the southern portion of the Everglades, except where some of the islands come in contact with the upper half of Bay Biscayne. The chain stretches, in crescent form, from somewhat north of the Miami River southwestward toward Cape Sable for a distance of about fifty-five miles. The islands, apparently, in ancient times formed a part of the Antilles. Their native vegetation is essentially of a tropical character, with strong relationships to the flora of Cuba and of the Bahamas. As far as the native flora is concerned the Everglade Keys represent a small tropical area isolated on the mainland of the United States.

The vegetation of the islands themselves is divided into two rather distinct plant-associations, namely, pineland and hammock, which are usually sharply differentiated from each other. These in turn are both rather abruptly marked off from the adjacent Everglades. With few exceptions the individual plant-species are distributed generally over the area under consideration. However, they are, in the majority of cases, confined to the one or the other of the plant-associations; consequently, on the following pages the local distribution of the species is indicated as "Pinelands," "Hammocks," "Everglades."

In addition to the area already described, two minor elements are included in our geographical range, the coastal sand-dunes of the narrow peninsula opposite Miami and also those of Virginia Key and Key Biscayne and the waters of Bay Biscayne itself.

As the plant-life of the Everglade Keys is closely related to that of the Florida Keys, when a species is common to both, the fact is indicated in this flora by "*F. K.*" (Florida Keys) following the habitat. The relationship of the plant-species of the Miami flora to the flora of the West Indies is also indicated; if a species grows on one or more of the West Indian islands, it is indicated by "*Ber.*" (Bermuda), "*Bah.*" (Bahamas), "*Cuba*," and if it also occurs in other parts of the West Indies it is indicated by "*Ant.*" (Antilles).

The flowering and fruiting seasons are not indicated; the plants flower most abundantly in spring and summer, and produce fruit in due time, and although most or essentially all of the rainfall normally occurs from late spring to early fall, the relative high and even temperature of the other

half of the year and the generally close proximity of the water-table to the land-surface make a rather continuous flowering and fruiting season for all vegetation.

The specimens on which this flora is based are preserved in the herbarium of the New York Botanical Garden, and the exploration work which has made this study possible was carried out under the auspices of that institution. The botanical exploration of the West Indies, carried on at the same time by the New York Botanical Garden has rendered possible the detailed indication of the geographical distribution of the species.

J. K. SMALL.

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# KEY TO THE ORDERS.

- Ovules, and seeds, borne on the face of a bract or a scale: stigmas wanting.  
Class 1. GYMNOSPERMAE.  
Ovules, and seeds, in a closed cavity (ovary): stigmas present.  
Class 2. ANGIOSPERMAE.

## 1. Gymnospermae.

- Plants growing by a single terminal bud, with pinnate leaves circinate in veneration: embryo prolonged into a spiral. Order CYCADALES.  
Plants growing by lateral as well as by terminal buds, with scale-like, flat or needle-like leaves not circinate: embryo not prolonged into a spiral. Order PINALES.

## 2. Angiospermae.

- Cotyledon 1: stem endogenous. Subclass 1. MONOCOTYLEDONES.  
Cotyledons normally 2: stem exogenous (with rare exceptions). Subclass 2. DICOTYLEDONES.

### 1. MONOCOTYLEDONES.

- Perianth rudimentary or degenerate, the members often bristles or mere scales, not corolla-like, or wanting.  
Flowers not in the axils of dry or chaffy bracts (scales or glumes). Order PANDANALES.  
Perianth of bristles or chaffy scales.  
Perianth fleshy or herbaceous, or wanting.  
Fruit baccate: endosperm present. Order ARALES.  
Fruit drupaceous: endosperm wanting. Order NAIADALES.  
Flowers in the axils of dry or chaffy, usually imbricated, bracts (scales or glumes). Order POALES.  
Perianth of 2 distinct series, the inner series usually corolloid. Order ALISMALES.  
Gynoecium of distinct carpels.  
Gynoecium of united carpels. Order XYRIDALES.  
Endosperm mealy.  
Endosperm fleshy, horny or cartilaginous.  
A. Ovary, and fruit, superior.  
a. Herbs, or rarely shrubs or trees, with simple leaves: ovules 2-many in each cavity of the ovary, or solitary only in the case of a few herbs.  
Inflorescence not a fleshy spadix. Order LILIALES.  
Inflorescence a fleshy spadix subtended by a spathe. Order ARALES.  
b. Trees or shrubs, with pinnately or palmately compound or lobed leaf-blades: ovules solitary in each cavity of the ovary. Order ARECALES.  
B. Ovary, and fruit, wholly inferior or half-inferior.  
Endosperm present and usually copious.  
Flowers regular: androecium not reduced. Order AMARYLLIDALES.  
Flowers very irregular: androecium much reduced and modified. Order SCITAMINALES.  
Endosperm wanting.  
Flowers regular, monoecious or dioecious: aquatic plants. Order HYDROCHARITALES.  
Flowers irregular, perfect: terrestrial or epiphytic plants. Order ORCHIDALES.

### 2. DICOTYLEDONES.

- A. Corolla wanting, except in the pistillate flowers of *Juglans* (Juglandaceae).  
Calyx wanting, at least in the staminate flowers, except sometimes in *Casuarina* (Casuarinaceae).  
Herbs.  
Flowers mainly perfect. Order PIPERALES.  
Flowers monoecious or dioecious. Order EUPHORBIALES.  
Trees or shrubs: flowers monoecious or dioecious, or polygamous.

## KEY TO THE ORDERS

- Leaves represented by appressed whorled scales: stems or branches loosely jointed. Order CASUARINALES.
- Leaves not appressed scales: stems or branches not loosely jointed.
- Fruit 1-seeded: seeds without tufts of hairs.
- Pistillate flowers without a calyx: ovule erect and orthotropous. Order MYRICALES.
- Pistillate flowers with a calyx: ovule pendulous and anatropous.
- Leaf-blades simple. Oleaceae in Order OLEALES.
- Leaf-blades compound: fruit a samara. Oleaceae in Order OLEALES.
- Fruit many-seeded: seeds each with a tuft of hairs. Order SALICIALES.
- Calyx present at least in the staminate or in the perfect flowers.
- Leaves represented by appressed whorled scales: branches loosely jointed. Order CASUARINALES.
- Leaves not appressed scales: branches not loosely jointed.
- Flowers, at least the staminate, in aments, or ament-like spikes.
- Pistillate flowers separate at maturity: fruit a nut or an achene. Order FAGALES.
- Pistillate flowers forming aggregate fruits: fruit drupe-like. Artocarpaceae in Order URTICALES.
- Flowers, at least the staminate, not in aments.
- a. Ovary superior.
- Gynoecium of 1 or several and distinct carpels: stigma and style solitary.
- Carpel solitary.
- Style lateral and oblique. Petiveriaceae in Order CHENOPODIALES.
- Style axile, erect.
- Ovary neither enclosed nor seated in a hypanthium or a calyx-tube. Urticaceae in Order URTICALES.
- Ovary enclosed in or seated in a hypanthium or a calyx-tube.
- Stamens borne under the gynoecium. Alliaceae in Order CHENOPODIALES.
- Stamens borne on the hypanthium or adnate to the calyx-tube. Order THYMELEALES.
- Carpels several.
- Stamens inserted below the ovary. Families in Order RANALES.
- Stamens inserted on the edge of a cup-shaped hypanthium. Rosaceae in Order ROSALES.
- Gynoecium of 2 or several united carpels: stigmas or styles 2 or several.
- Ovary, by abortion, 1-celled and 1-ovuled.
- Leaves with sheathing stipules (ocreae). Order POLYGONALES.
- Leaves estipulate, or if stipules are present they are not sheathing.
- Trees or shrubs.
- Anthers opening by slits: ovary not seated in a hypanthium. Ulmaceae in Order URTICALES.
- Anthers opening by hinged valves: ovary seated in an accrescent hypanthium. Lauraceae in Order THYMELEALES.
- Herbs or vines.
- Leaves with stipules. Families in Order CHENOPODIALES.
- Leaves without stipules. Order CHENOPODIALES.
- Stigmas entire. Order CHENOPODIALES.
- Stigmas 2-cleft. Euphorbiaceae in Order EUPHORBIALES.
- \*\* Ovary several-celled, or with several placentae, several-ovuled.
- Stamens hypogynous, inserted under the gynoecium in the perfect flowers, not on a disk in the pistillate flowers.
- Herbs.
- Flowers perfect.
- Ovary several-celled. Families in Order CHENOPODIALES.
- Ovary 1-2-celled.
- Stamens not tetradynamous, 4-8; ovary 1-celled. Order CHENOPODIALES.
- Stamens tetradynamous: ovary 2-celled. Brassicaceae in Order PAPAVERALES.
- Flowers monoecious or dioecious. Euphorbiaceae in Order EUPHORBIALES.

Trees or shrubs.

Gynoecium 5-carpellary, the carpels nearly distinct.  
 Buettneriaceae in Order MALVALES.

Gynoecium 2-4-carpellary, the carpels united.

Ovary 4-celled: fleshy maritime shrubs.  
 Batidaceae in Order CHENOPODIALES.

Ovary 2-celled: plants not fleshy.

Oleaceae in Order OLEALES.

Stamens perigynous or epigynous, inserted on the margin of a hypanthium or a disk.

Fruit a samara. Familes in Order SAPINDALES.

Fruit not a samara.

Fruit drupe-like or berry-like: shrubs or trees.

Order RHAMNALES.

Fruit a capsule: herbs. Order ARISTOLOCHIALES.

b. Ovary inferior.

Flowers not in involucrate heads.

Fruit 3-winged, splitting into 3 nutlets.

*Gouania* in Order RHAMNALES.

Fruit neither 3-winged nor splitting into carpels.

Fruit a berry or a drupe, or nut-like.

Calyx deciduous as a lid: stamens numerous.

*Calyptranthes* in Order MYRTALES.

Calyx of valvate or imbricated sepals: stamens few.

Stamens as many as the perianth-members and alternate with them, or fewer.

Tetragoniaceae in Order CHENOPODIALES.

Stamens as many as the perianth-members and opposite them, or twice as many.

Styles present.

Ovules mostly on basal placentae, sometimes pendulous: cotyledons not convolute: tree- or root-parasites. Order SANTALALES.

Ovules not on basal placentae: cotyledons convolute: not parasitic plants.

Familes in Order MYRTALES.

Styles wanting: stigmas sessile.

Gunneraceae in Order MYRTALES.

Fruit a capsule.

Order MYRTALES.

Flowers, at least the staminate, in involucrate heads.

Ambrosiaceae in Order CARDUALES.

B. Corolla present.

\*Petals distinct, at least at the base.

Carpels solitary, or several and distinct, or united only at the base.

Stamens at the base of the receptacle, *i. e.*, hypogynous.

Plants with relatively firm stems and leaves, not succulent.

Order RANALES.

Plants with succulent stems and leaves. Sedaceae in Order ROSALES.

Stamens on the margin of a hypanthium.

Plants without secreting glands in the bark.

Order ROSALES.

Plants with secreting glands in the bark.

Surlanaceae in Order GERANIALES.

Carpels several and united.

†Ovary superior.

‡Stamens inserted at the base of the ovary or receptacle.

§Stamens numerous.

¶Sepals imbricated.

Calyx deciduous.

Order PAPAVERALES.

Calyx persistent.

Styles or stigmas distinct or united, but not discoid.

Leaves glandular or pellucid-punctate.

Rutaceae in Order GERANIALES.

Leaves not glandular.

Capparidaceae in Order PAPAVERALES.

Styles or stigmas united into a disk.

Nymphaeaceae in Order RANALES.

Sepals valvate.

Stamens with distinct filaments.

Ovary 1-celled: placentae parietal.

Capparidaceae in Order PAPAVERALES.

Ovary 2-several-celled: placentae axile or central.

Familes in Order MALVALES.

Stamens with united filaments.

Order MALVALES.

§§Stamens few, not over twice as many as the petals.

## KEY TO THE ORDERS

- Stamens as many as the petals and opposite them.  
 Flowers monoecious. Euphorbiaceae in Order EUPHORBIALES.  
 Flowers perfect.  
 Ovules, or seeds, several or many; embryo coiled. Portulacaceae in Order CHENOPODIALES.  
 Ovules, or seeds, solitary; embryo straight. Plumbaginaceae in Order PRIMULALES.
- Stamens as many as the petals and alternate with them, or more, sometimes twice as many.  
 Stamens 6: petals 4: sepals 2 or 4. Families in Order PAPAVERALES.
- Stamens, petals and sepals of the same number, or stamens more, usually twice as many as the sepals or petals.  
 Ovary 1-celled.  
 Ovules, or seeds, on basal or central placentae. Families in Order CHENOPODIALES.  
 Ovules, or seeds, on parietal placentae.  
 Stigmas 2-cleft or brush-like.  
 Anther with an inconspicuous connective. Stigmas not brush-like. Droseraceae in Order SARRACENIALES.  
 Stigmas brush-like. Turneraceae in Order HYPERICALES.  
 Anther with the conspicuous connective produced beyond the sacs. Papayaceae in Order PASSIFLORALES.
- Stigmas entire.  
 Stamens with united filaments and no staminodia. Families in Order MALVALES.  
 Stamens with distinct filaments. Families in Order HYPERICALES.
- Ovary several-celled.  
 Stamens adnate to the gynoecium. Asclepiadaceae in Order ASCLEPIADALES.  
 Stamens not adnate to the gynoecium.  
 Stamens with wholly or partly united filaments.  
 Anthers opening lengthwise. Families in Order GERANIALES.  
 Anthers opening by pores. Polygalaceae in Order POLYGALALES.  
 Stamens with distinct filaments.  
 Anthers opening by pores. Families in Order ERICALES.  
 Anthers opening by slits.  
 Stigmas or styles distinct and cleft, or foliaceous, or united by pairs. Order EUPHORBIALES.  
 Stigmas or styles all distinct or all united, neither cleft nor foliaceous.  
 Stamens 2. Oleaceae in Order OLEALES.  
 Stamens more than 2. Leaves with compound blades. Families in Order GERANIALES.  
 Leaves with simple blades. Ovule solitary in each carpel. Families in Order GERANIALES.  
 Ovules 2 or more in each carpel. Placentae parietal. Cistaceae in Order HYPERICALES.  
 Placentae axile or central. Tillaceae in Order MALVALES.
- !!Stamens inserted on the margin of a disk or bypanthium (perigynous or hypogynous).  
 Stamens as many as the petals and opposite them.  
 Ovules and seeds numerous. Moringaceae in Order PAPAVERALES.  
 Ovules and seeds solitary or 2. Order RHAMNALES.
- Stamens as many as the petals and alternate with them, or more or many.  
 Styles distinct. Order SAPINDALES.  
 Styles united.  
 !!Hypanthium flat or obsolete: disk fleshy.

Plants with secreting glands in the bark.

Families in Order GERANIALES.

Hypanthium cup-shaped or campanulate: disk obsolete or inconspicuous.

Order MYRTALES.

††Ovary inferior.

Stamens numerous.

Styles and stigmas united into a disk: water-plants with endogenous stems.

Nymphaeaceae in Order RANALES.

Styles distinct, or united, but not forming a disk with radiating stigmas: land-plants with exogenous stems.

Families in Order ROSALES.

Styles distinct.

Styles united.

Shrubs or trees; not succulents, sometimes woody vines.

Families in Order MYRTALES.

Herbs, or shrub-like or tree-like succulents.

Order OPUNTIALES.

Stamens not more than twice as many as the petals.

Styles wanting: stigmas sessile.

Gunneraceae in Order MYRTALES.

Styles present.

Styles distinct.

Ovules several in each cavity of the ovary: fruit a capsule or a fleshy many-seeded berry.

Fruit, if dehiscent, valvate. Families in Order ROSALES.

Fruit circumscissile.

Portulacaceae in Order CHENOPODIALES.

Ovules solitary in each cavity of the ovary: fruit a drupe or 2-5 more or less united achenes.

Order AMMIALES.

Styles united, or single.

Plants without tendrils.

Anther-sacs opening by pores.

Vacciniaceae in Order ERICALES.

Anther-sacs opening by slits.

Ovules solitary in each cavity of the ovary.

Order AMMIALES.

Ovules several in each cavity.

Ovary with parietal placentae.

Loasaceae in Order OPUNTIALES.

Ovary with central or basal placentae.

Families in Order MYRTALES.

Plants with tendrils.

Herbs: fruit a pepo: leaf-blades palmately veined.

Cucurbitaceae in Order CAMPANULALES.

Shrubby vines: fruit drupaceous, separating into nuts: leaf-blades pinnately veined.

Frangulaceae in Order RHAMNALES.

\*\*Petals more or less united.

Ovary superior.

Stamens free from the corolla.

Gynoecium of a single carpel.

Families in Order ROSALES.

Gynoecium of several united carpels.

Filaments united.

Calyx and corolla very irregular.

Order POLYGALALES.

Calyx and corolla regular.

Families in Order ERICALES.

Filaments distinct.

Styles wanting or very short: stigma sessile.

Aquifoliaceae in Order SAPINDALES.

Styles elongated.

Ovary several-celled.

Families in Order ERICALES.

Ovary 1-celled.

Armeriaceae in Order PRIMULALES.

Stamens partially adnate to the corolla.

Stamens as many as the lobes of the corolla and opposite them, or twice as many or more.

Ovary 1-celled.

Order PRIMULALES.

Ovary several-celled.

Upper portion of the ovaries distinct.

Sedaceae in Order ROSALES.

Upper portion of the ovaries united.

Order EBENALES.

Stamens as many as the lobes of the corolla and alternate with them, or fewer.

Corolla not scarious, veiny: fruit various, but not a pyxis.

Gynoecium of 3-6 carpels.

Shrubs or trees: ovules and seeds few.

Aquifoliaceae in Order SAPINDALES.

Herbs or creeping or tufted shrubby plants: ovules and seeds numerous.

Families in Order POLEMONIALES.

## KEY TO THE ORDERS

- Gynoecium of 2 carpels.  
 Carpels distinct, except sometimes at the apex. Order ASCLEPIADALES.
- Carpels united.  
 Ovary 1-celled, with central placentae. Order GENTIANALES.
- Ovary 2-celled, or falsely 4-celled, or if 1-celled with parietal placentae.  
 Stamens 2 and opposite each other, or 3. Order OLEALES.
- Stamens usually 4 or 5, if 2 by reduction not opposite each other.  
 Leaves with stipules or stipular lines at their bases. Spigellaceae in Order GENTIANALES.
- Leaves with no traces of stipules. Order POLEMONIALES.
- Corolla scarious, veinless: fruit a pyxis. Order PLANTAGINALES.
- Ovary inferior.  
 Stamens with the filaments free from the corolla.  
 Stamens 10: anther-sacs opening by terminal pores or chinks. Vacciniaceae in Order ERICALES.
- Stamens 5 or fewer: anther-sacs opening by longitudinal slits. Order CAMPANULALES.
- Stamens adnate to the corolla.  
 Ovary with 2-many fertile cavities and 2-many ovules: calyx unmodified, at least not a pappus. Cucurbitaceae in Order CAMPANULALES.
- Plants tendril-bearing.  
 Plants not tendril-bearing. Ovules mostly on basal placentae: plants parasitic. Order SANTALALES.
- Ovules variously borne, but not on a basal placenta: plants not parasitic. Order RUBIALES.
- Ovary with one fertile cavity.  
 Ovules numerous on a basal placenta. Primulaceae in Order PRIMULALES.
- Ovule solitary, the placentae not basal. Order CARDUALES.



# FLORA OF MIAMI.

## Subkingdom SPERMATOPHYTA. SEED PLANTS.

Plants producing flowers and seeds. A seed contains an embryo consisting of a short stem (radicle or caulicle), one, two or several rudimentary leaves (cotyledons) and a terminal bud (plumule).

Ovules, and seeds, borne on the face of a scale: stigma none.

Class I. GYMNOSPERMAE.

Ovules, and seeds, borne in a closed cavity: stigma present. Class II. ANGIOSPERMAE.

## CLASS I. GYMNOSPERMAE. CONE PLANTS.

Carpel or pistil represented by a scale upon the face of which the ovules are borne, and on which the naked seeds mature.

Plants growing by a terminal bud only: leaves circinate; blades pinnate.

Order 1. CYCADALES.

Plants growing by a terminal and lateral buds: leaves not circinate; blades not pinnate.

Order 2. PINALES.

### Order CYCADALES.

Palm-like or fern-like plants. Leaves in a crown: blades pinnate. Flowers in cones of approximate scales or on slightly modified leaves. Staminate cones with scales bearing several pollen-sacs. Ovulate cones with two or more ovules on each scale. Seed drupe-like or nut-like.

### FAMILY 1. CYCADACEAE. SAGO-PALM FAMILY.

Dioecious plants with subterranean or erect stems. Leaves spreading: leaflets with 1 or several ribs or veins. Staminate cones deciduous. Ovulate leaves or cones persistent. Seeds exposed on the margins of the ovulate leaf or enclosed in a cone.

1. **ZAMIA L.** Plants with subterranean or erect stems. Leaflets separated, manifestly jointed to the rachis, several-many-veined. Scales of the ovulate aments flat, depressed or swollen at the apex. Ovules and seeds sessile, included.

1. **Z. floridana DC.** Leaves 4-9.5 dm. long: leaflets 28-40, the blades linear, 9-14 cm. long, 3-7 mm. wide: mature ovulate cones oblong, densely pubescent with dark brown persistent hairs; the seed-bearing scales thick.—Pinelands.—F. K.—COONTIE. COMFORT-ROOT. COMPTIE. FLORIDA-ARROWROOT.

### Order PINALES.

Shrubs or trees. Leaves alternate, sometimes clustered or in sheathed bundles: blades scale-like, narrow, or needle-like, or rarely dilated. Flowers mainly monoecious, in cones of spirally imbricate scales, or in *Taxaceae* the

ovulate flowers often solitary. Seeds borne in cones of dry or fleshy scales, or wholly or partially naked.

Carpellary scales with bracts, never peltate: ovules inverted: buds scaly: wing accompanying the seed a portion of the carpellary scale. Fam. 1. PINACEAE.

Carpellary scales without bracts, mostly peltate or fleshy: ovules erect: buds naked: wing of the seed, when present, a portion of the testa. Fam. 2. JUNIPERACEAE.

### FAMILY 1. PINACEAE. PINE FAMILY.

Mostly evergreen resiniferous shrubs or trees, typically conic, with flaky or brittle bark. Leaves narrow and solitary, or usually several together, each group with a sheath at the base. Ovulate aments with bracted scales. Mature ovulate cone of dry scales. Seed often samara-like.

1. **PINUS** [Tourn.] L. Leaves needle-like, in 2's or 3's, sheathed at the base, each with 2 fibro-vascular bundles. Cones spreading: scales at length woody and spreading or reflexed, each with a dorsal, usually spine-armed appendage. Seeds samara-like.—PINE.

Bracts of the ovulate aments not awn-tipped: staminate aments over 3 cm. long: resin-ducts of the leaf against the bundle. 1. *P. caribaea*.

Bracts of the ovulate aments awn-tipped: staminate aments less than 1.5 cm. long: resin-ducts of the leaf away from the bundles. 2. *P. clausa*.

1. ***P. caribaea*** Morelet. Tree with coarse, flaky bark, branched near the top: leaves in 2's or 3's, 18–30 cm. long, or sometimes shorter, bright-green: cones broadly conic when closed, ovoid or oblong-ovoid when open, 8–14 cm. long or rarely shorter, the scales with rather weak spines: seed-wing 2.5–3 cm. long or rarely smaller.—Throughout, except in the Everglades and hammocks, or occasionally scattered in hammocks and even on rock outcrops in the Everglades.—F. K. (*Bah., Cuba*).—CARIBBEAN-PINE. SLASH-PINE. SWAMP-PINE.

2. ***P. clausa*** (Engelm.) Vasey. Tree with relatively or quite smooth bark, branched near the base: leaves in 2's, 4–8 cm. long, deep-green: cones narrowly conic when closed, ovoid when open, 4.5–6 cm. long, the scales with minute brittle spines: seed-wing about 1.5 cm. long.—Inland sand-dunes or scrub.—SAND-PINE. SPRUCE-PINE.

### FAMILY 2. JUNIPERACEAE. JUNIPER FAMILY.

Mostly evergreen, often resiniferous shrubs or trees, with fibrous, shreddy bark. Leaves mainly appressed scales, sometimes subulate or linear and spreading. Ovulate aments with bractless scales. Mature ovulate cone of dry, often peltate scales, or baccate or drupaceous. Seeds wingless or winged.

Cones dry: scales woody, imbricate: seeds sharp-angled.

1. **TAXODIUM**.

Cones berry-like: scales fleshy: seeds not sharp-angled.

2. **SABINA**.

1. **TAXODIUM** L. C. Rich. Roots producing erect conic "knees." Leaves often 2-ranked, deciduous: blades narrow. Staminate aments in panicles or racemes. Ovulate aments with peltate scales. Cones spreading, the woody scales stalked.—CYPRESS.

1. ***T. distichum*** (L.) L. C. Rich. Tree with a conic trunk-base, the bark narrowly ridged: leaves 1–1.5 cm. long, often curved: staminate aments in drooping clusters: cones globular, about 2.5 cm. in diameter.—Hammocks and Everglades.—BALD-CYPRESS.

2. **SABINA** Haller. Roots not producing "knees." Leaves scale-like and imbricate, except sometimes on twigs, each with a gland on the back. Stami-

nate aments solitary and terminal on branchlets. Ovulate aments with broad scales. Cones erect, the fleshy scales not stalked.—CEDAR.

1. *S. barbadensis* (L.) Small. Tree with a tapering trunk and shreddy bark: scale-like leaves 4-ranked, 1-4 mm. long, rather blunt, closely appressed: staminate aments erect: cones ovoid or oval-ovoid, 3-4 mm. long.—HAMMOCKS.—(Cuba, Ant.)—BARBADOS-CEDAR.

## CLASS II. ANGIOSPERMAE.

Carpel or pistil formed by the uniting of the margins of one, or of several rudimentary leaves; within the cavity thus formed the ovules are borne and the seeds are matured.

Cotyledon 1: leaf-blades with the primary or lateral veins parallel: stem endogenous.

1. MONOCOTYLEDONES.

Cotyledons typically 2: leaf-blades with the veins netted:

stem exogenous.

2. DICOTYLEDONES.

### SUBCLASS 1. MONOCOTYLEDONES.

Stem consisting of a ground mass of soft tissue in which bundles of wood-cells are irregularly placed. Early leaves alternate.

#### Order PANDANALES.

Perennial, aquatic or marsh herbs, with elongate rootstocks. Leaves with narrow blades. Flowers in narrow racemes or globular spikes. Perianth of scales or bristles. Androecium of 2-7 stamens. Gynoecium 1- or 2-carpellary. Fruit nut-like.

#### FAMILY 1. TYPHACEAE. CAT-TAIL FAMILY.

Racemes solitary and terminal, subtended by deciduous bracts, the staminate portion uppermost. Perianth of bristles. Pistil stipitate: stigma spatulate, oblong or rhomboidal.

1. *TYPHA* [Tourn.] L. Erect herbs with sheathed stems. Leaves with erect linear blades. Racemes cylindric, the pistillate portion brown.

1. *T. angustifolia* L. Plants 1.5-3 m. tall: leaf-blades mostly 15-20 mm. wide: pistillate portion of the raceme 10-20 mm. thick.—Everglades and banks of streams.—F. K. (Ber., Bah., Cuba, Ant.)—CAT-TAIL.

#### Order NAIADALES.

Perennial, aquatic or marsh herbs. Leaves various, sometimes mere phyllodia. Flowers usually symmetrical. Perianth wanting or imperfect. Androecium usually of 1-4 stamens. Gynoecium simple or several-carpellary.

Gynoecium of distinct carpels: stigmas disk-like or cup-like.

Fam. 1. ZANNICHELLIACEAE.

Gynoecium of united carpels: stigmas 2-4, slender.

Staminate flowers consisting of 2 anthers terminating an elongate pedicel: perianth wanting: stigmas filiform: acaulescent plants with entire leaf-blades.

Fam. 2. CYMODOCEACEAE.

Staminate flowers sessile or nearly so, consisting of an anther surrounded by a perianth: stigmas subulate: caulescent plants with spiny-toothed leaf-blades.

Fam. 3. NAIADACEAE.

## FAMILY 1. ZANNICHELLIACEAE. PONDWEED FAMILY.

Aquatic caulescent herbs. Leaves alternate, filiform or with broad blades, entire. Flowers perfect or monoecious, in spikes or clusters, from a spathe. Androecium of 1, or mostly 2-4 distinct stamens. Gynoecium of several distinct carpels. Fruit a cluster or spike of drupelets.

Stamens 2 or sometimes solitary, the connectives without appendages: drupelets manifestly stipitate.

Stigma terminating a long style: anther 1.

1. ZANNICHELLIA.

Stigma sessile: anthers 2.

2. RUPPIA.

Stamens 4, the connectives with dilated appendages: drupelets sessile.

3. POTAMOGETON.

1. **ZANNICHELLIA** L. Delicate herbs of fresh or brackish water. Leaves with narrow blades and inconspicuous bases. Flowers monoecious: staminate with 1 stamen; pistillate with 2-6 carpels together. Drupelets clustered, curved, crested.

1. **Z. palustris** L. Leaves 2-7 cm. long, acute: drupelets 2-4, or sometimes 6, together, the body 2-4 mm. long, short-stipitate.—Everglades and creeks.

2. **RUPPIA** L. Delicate herbs of salt or brackish water. Leaves with slender blades and conspicuous bases. Flowers perfect. Stamens 2. Carpels 4. Drupelets clustered, oblique, crestless.

1. **R. maritima** L. Leaves 2.5-4 cm. long, capillary at the apex: drupelets few, the body ovoid, gibbous at the base, long-stipitate.—Creeks.—F. K. (*Ber., Bah., Cuba, Ant.*).—DITCH-GRASS.

3. **POTAMOGETON** L. Herbs growing mostly in fresh water. Leaves various, the submerged and floating ones different. Flowers perfect, spicate. Stamens 4, with appendaged anthers. Carpels 4. Drupelets 4 together, spicate, sessile.—PONDWEED.

Leaves with dilated blades; stipules free from the leaf-base.

1. *P. lucens*.

Leaves setaceous or filiform; stipules adnate to the leaf-base.

2. *P. pectinatus*.

1. **P. lucens** L. Plants submerged: leaf-blades elliptic or lanceolate, or oval above, 5-20 cm. long, acute or acuminate, often serrulate at the apex, nearly sessile: drupelets about 3 mm. long, slightly keeled.—Everglades.—(*Cuba.*)

2. **P. pectinatus** L. Plants submerged: leaves setaceous or filiform, 2-15 cm. long, sessile: drupelets 3.5-4.5 mm. long, crestless.—Streams.—(*Cuba.*)

## FAMILY 2. CYMODOCEACEAE. CYMODOCEA FAMILY.

Submerged herbs with jointed rootstocks. Leaves clustered at the nodes or on short branches, each with a sheath and a narrow blade. Flowers monoecious or dioecious. Perianth wanting. Androecium of a single anther terminating a long pedicel. Gynoecium of 2 distinct inequilateral carpels, each terminating in a style and 2 elongate stigmas. Fruit a pair of obliquely ovoid achenes.

1. **CYMODOCEA** Koenig. Rootstocks elongate. Flowers hidden in the leaf-sheaths.

1. **C. manatorum** Aschers. Plants growing on sandy bottoms, the short stems arising at the nodes: leaf-blades narrowly linear, 5-25 cm. long: fruits 6-7 mm. long, short-stipitate, prominently beaked.—Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*).

## FAMILY 3. NAIADACEAE. NAIAS FAMILY.

Mostly fresh-water herbs. Leaves mainly opposite: blades mostly toothed, the bases dilated. Flowers dioecious or monoecious, axillary: staminate a single stamen and a double perianth: pistillate an ovary with a style and 2-4 stigmas. Fruit drupaceous or a nutlet.

1. **NAIAS** L. Plants submerged, usually in dense tufts. Leaves narrow, but short, often toothed on the midrib as well as on the margins.

1. **N. flexilis** (Willd.) Rost. & Schmidt. Stems slender: leaves many, rather close together; blades 11-28 mm. long, mostly acuminate, with 50-60 marginal teeth: drupelets 3-4 mm. long, the pericarp shining, with 30-50 rows of delicate reticulations.—Everglades and streams.

## Order ALISMALES.

Marsh or aquatic herbs. Leaves alternate, mere phyllodia, or with dilated blades. Flowers regular. Perianth of sepals and usually also of petals. Androecium of 3-6 stamens or more. Gynoecium of 3-many carpels.

Sepals and petals nearly similar, or the petals wanting: carpels coherent during anthesis, at maturity forming a capsular or follicular fruit.

Fam. 1. SCHEUCHZERIACEAE.

Sepals and petals very dissimilar: carpels distinct, at maturity forming a head or whorl of achenes.

Fam. 2. ALISMACEAE.

## FAMILY 1. SCHEUCHZERIACEAE. ARROW-GRASS FAMILY.

Perennial herbs. Leaves narrow or slender above the dilated bases. Flowers perfect in spikes or racemes. Perianth herbaceous. Gynoecium 3-6-carpellary. Style wanting or obsolete. Fruit of 3-6 turgid carpels.

1. **TRIGLOCHIN** L. Acaulescent herbs, the perianth inconspicuous.

1. **T. striata** R. & P. A glabrous plant of salt marshes. Leaves 2-3 dm. long, attenuate: racemes 2-15 cm. long: sepals ovate or oval, less than 1 mm. long, greenish or light yellow: fruit 1.5-2 mm. in diameter, each carpel 3-ribbed.—Hammocks and shores of Bay Biscayne.—ARROW-GRASS.

## FAMILY 2. ALISMACEAE. WATER-PLANTAIN FAMILY.

Annual or perennial herbs. Leaves basal, the blades flat, often with basal lobes, or mere phyllodia. Flowers perfect, monoecious or dioecious, whorled. Sepals herbaceous. Petals tender, white or pink. Gynoecium of few to many carpels. Style manifest. Fruit a head of flattened achenes.

1. **SAGITTARIA** L. Leaves often with basal lobes, sometimes lobeless or mere phyllodia. Flowers monoecious or dioecious, the upper ones usually staminate. Stamens mainly numerous. Achenes numerous, in dense heads.—ARROW-HEAD.

Plants floating: pedicels of the pistillate flowers thickened and reflexed at maturity: achene-beak erect.

1. *S. lorata*.

Plants erect: pedicels of the pistillate flowers slender, ascending: achene-beak horizontal or ascending.

Achenes obovate: filaments about as long as the anthers: bracts acute or acuminate, glabrous.

2. *S. lancifolia*.

Achenes cuculate: filaments longer than the anthers: bracts obtuse, papillose.

3. *S. falcata*.

1. *S. lorata* (Chapm.) Small. Leaf-blades floating, elliptic, oblong, or ovate-oblong, 1.5-5 cm. long, or wanting, the phyllodia stout: scapes 1-10 dm. long or more, with 1 or several flower-whorls: achenes numerous, about 2 mm. long.—Streams.

2. *S. lancifolia* L. Leaf-blades elliptic or nearly so to narrowly elliptic-lanceolate, 30-60 cm. long, mainly 5-9-nerved: pedicels of pistillate flowers relatively long, their bracts of a lanceolate type: achenes 2.5-3 mm. long.—Everglades.—F. K. (*Bah., Cuba, Ant.*)

3. *S. falcata* Pursh. Leaf-blades narrowly elliptic, sometimes slightly broadest above the middle, or nearly linear, 10-35 cm. long, mainly 3-5-nerved: pedicels of the pistillate flowers relatively short, their bracts of an ovate type: achenes about 2 mm. long.—Everglades.

### Order HYDROCHARITALES.

Perennial aquatic herbs with rootstocks. Leaves usually with blades. Flowers monoecious or dioecious, or rarely perfect, from spathes. Perianth double, or corolla wanting. Androecium of 1-12 stamens. Gynoecium 3-15-carpellary. Ovary inferior. Fruit capsular or baccate.

Gynoecium 3-carpellary, or rarely 2-, 4- or 5-carpellary: ovary 1-celled: stigmas 3.

Fam. 1. ELODEACEAE.

Gynoecium 6-12-carpellary: ovary 6-12-celled: stigmas 6-12.

Fam. 2. HYDROCHARITACEAE.

#### FAMILY 1. ELODEACEAE. TAPE-GRASS FAMILY.

Plants with leafy stems, or leaves basal, often greatly elongate. Gynoecium 2-5-carpellary, the ovary 1-celled.

Leaves with petioled dilated blades: stigmas filiform: pollen filiform: marine plants.

1. HALOPHILA.

Leaves greatly elongate phyllodes, without petioles: stigmas short and broad: pollen spheroid: fresh-water plants.

2. VALLISNERIA.

1. *HALOPHILA* Thouars. Marine herbs. Leaves opposite or whorled. Flowers dioecious, the staminate pedicelled, the pistillate sessile in the spathes. Fruit included in the spathe.

1. *H. Engelmannii* Aschers. Leaf-blades linear, oblong, or oblanceolate, 1-3 cm. long, sharply serrulate, 3-nerved, sessile: bracts lanceolate: hypanthium flask-shaped, 8-9 mm. long; body ovoid; neck longer than the body: sepals minute.—Bay Biscayne.—F. K. (*Bah.*).

2. *VALLISNERIA* [Mich.] L. Fresh-water herbs. Leaves basal, with elongate, ribbon-like blades. Flowers dioecious, the staminate numerous, crowded on a spadix, the pistillate few, each solitary at the end of an elongate spiral scape. Fruit subtended by the spathe.

1. *V. americana* Michx. Leaf-blades narrowly linear, 3-8 dm. long, 2 cm. wide or less, often denticulate, obtuse: peduncles of the pistillate flowers 5-10 dm. long or more: spathe 2-2.5 cm. long: mature hypanthium about 1 dm. long: sepals oval, 5-6 mm. long: petals about 2 mm. long: stigma-lobes abruptly short-acuminate.—Everglades and streams.—TAPE-GRASS. EEL-GRASS.

#### FAMILY 2. HYDROCHARITACEAE. FROG'S-BIT FAMILY.

Plants with leaves in clusters on the rootstocks. Gynoecium 6-12-carpellary, the ovary 6-12-celled.

1. **THALASSIA** Banks. Marine herbs. Leaves mere strap-like blades. Flowers dioecious, on scapes arising from the leaf-clusters; the staminate distinctly pedicelled, with 3 petaloid sepals, and 9 stamens with very short filaments and long anthers; the pistillate flowers nearly sessile. Fruit rugose, echinate or mammillate, valvate.

1. **T. testudinum** Koenig & Sims. Leaves 2-5 together; blades linear, 5-30 cm. long, about 1 cm. wide or less, the bases persistent on the short stems: sepals oblong, 10-12 mm. long: anthers 8 mm. long: fruits erect, densely mammillate.—Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*).—TURTLE-GRASS.

### Order POALES.

Mostly perennial caulescent or acaulescent plants, known as grasses and sedges. Stems sometimes conspicuously jointed. Leaves alternate, mostly sheathing at the base: blades usually narrow and elongate, entire or nearly so. Flowers variously disposed in a simple or compound inflorescence, perfect or rarely monoecious or dioecious, incomplete, inconspicuous, borne in the axils of chaffy bracts or scales (glumes). Fruit a caryopsis (grain) or an achene, or rarely a nut, or baccate.

Leaves 2-ranked, their sheaths with ununited margins: stems mostly hollow: fruit a grain (caryopsis). Fam. 1. POACEAE.

Leaves 3-ranked, their sheaths with united margins: stem solid: fruit an achene. Fam. 2. CYPERACEAE.

### FAMILY 1. POACEAE. GRASS FAMILY.

Annual or perennial herbs, or rarely shrub-like or tree-like plants. Stems (culms) usually hollow, the nodes closed. Leaves with a scarious ring (ligule) at the sheath-orifice. Inflorescence of spikes, racemes, or panicles. Spikelets of 2-many 2-ranked imbricate bracts (scales), the upper ones bearing a flower surrounded by a bract-like organ (palea) which is placed with its back to the axis (rachilla), which is often thickened and appears as a hard projection (callus) at the base of the scale. Flowers perfect, staminate, or pistillate. Stamens 1-6, rarely more, usually 3. Fruit sometimes nut-like.

A. Spikelets falling from the pedicel entire (see also no. 27 of section B), naked, or enclosed in bristles or sometimes in a bur-like involucre, or immersed in the internodes of a readily disarticulating rachis, 1-flowered, or if 2-flowered the lower flower staminate; no upper empty scales: rachilla not extending beyond the uppermost scale.

Flowering scale and palea hyaline, thin, much more delicate in structure than the thick-membranous or coriaceous empty scales.

Spikelets unisexual, the pistillate borne in the lower, the staminate in the upper, part of the same spike. TRIBE I. MAYDEAE.

Spikelets in pairs, one sessile, the other pedicellate, the former perfect, the latter sometimes perfect, more commonly with a staminate flower, often empty or reduced to one or two scales, or occasionally wanting; both spikelets pedicellate in no. 2.

TRIBE II. ANDROPOGONEAE.

Flowering scale, at least that of the perfect flower, similar in texture to the empty scales, or frequently thicker and firmer, never hyaline and thin.

TRIBE III. PANICEAE.

B. Spikelets with the empty scales persistent, the rachilla hence articulated above them (below them in no. 27 and the spikelet falling from the pedicel entire), 1-many-flowered; frequently the upper scales are empty: rachilla often produced beyond the uppermost scale.

Spikelets borne in open or spike-like panicles or racemes, usually upon distinct and often long pedicels.

Spikelets 1-flowered.  
Spikelets 2-many-flowered.  
Spikelets in two rows.

TRIBE IV. AGROSTIDEAE  
TRIBE VI. FESTUCEAE.  
TRIBE V. CHLORIDEAE.

## TRIBE I. MAYDEAE.

Fertile spikelets imbedded in the internodes of the thick rachis.

1. TRIPSACUM.

## TRIBE II. ANDROPOGONEAE.

Internodes of the rachis not thickened nor excavated for the reception of the spikelets.

Spikelets alike, perfect.

Axis of the racemes continuous, not articulated.

Axis of the racemes articulated.

Spikelets not alike.

Sessile spikelets alike throughout the inflorescence.

Racemes singly disposed: apex of the rachis-internodes a translucent cup-shaped, entire or irregularly toothed, appendage.

Racemes disposed in pairs or more: apex of the rachis-internodes not appendaged.

Some or all of the racemes sessile.

All of the racemes more or less pedunculate.

Lower spikelets differing from the others.

Internodes of the rachis much thickened, and excavated to receive the spikelets.

First scale of the spikelet flat or convex.

First scale of the spikelet globose.

2. IMPERATA.  
3. ERIANTHUS.

4. SCHIZACHYRIUM.

5. ANDROPOGON.  
6. CHRYSOPOGON.  
7. HETEROPOGON.

8. COELORACHIS.  
9. HAECKELOCHLOA.

## TRIBE III. PANICEAE.

Spikelets not sunken in the rachis.

Spikelets naked, not involucrate.

Empty scales 2.

Lower empty scale with a thickened ring-like callus.

Lower empty scale unappendaged.

Spikelets ovate to orbicular, usually obtuse, rarely acute.

Spikelets lanceolate, acute or acuminate.

Empty scales 3.

Empty scales awned or awn-pointed.

Stems erect: leaf-blades long and narrow: racemes usually of many spikelets.

Stems creeping: leaf-blades short and broad: racemes or clusters usually of few spikelets.

Empty scales not awned.

Second scale not saccate at the base.

Stems and branches not woody nor bamboo-like.

Fruiting scale rigid, the margins inrolled.

Palet of the third scale not enlarged.

Palet of the third scale enlarged, forcing the spikelet open.

Fruiting scale not rigid, the hyaline margins not inrolled.

Spikelets long-silky: fruiting-scale lanceolate-acuminate.

Spikelets glabrous or short-pubescent: fruiting scale elliptic.

Stems and branches woody, bamboo-like, outer scales papery, woolly-tipped.

Second scale saccate at the base.

Spikelets involucrate.

Involucre of numerous bristles.

Bristles persistent: spikelets deciduous.

Bristles deciduous with the spikelets.

Involucre of 2 spine-bearing valves.

Spikelets sunken in one side of the flat rachis.

11. ERIOCHLOA.

10. PASPALUM.  
12. SYNTHESMA.

13. ECHINOCHLOA.

14. OPLISMENUS.

15. PANICUM.

16. STEINCHISMA.

11g. VALOTA.

12. SYNTHESMA.

17. LARIACIS.  
18. SACCIOLEPIS.

19. CHAETOCHLOA.

20. CENCHROPSIS.

21. CENCHRUS.

22. STENOTAPHRUM.

## TRIBE IV. AGROSTIDEAE.

Flowering scale indurated when mature and very closely embracing the grain, or at least firmer than the empty scales.

Flowering scale 3-awned.



Flowering scale 1-awned.

Awn untwisted.

Awn twisted.

Flowering scale usually hyaline or membranous at maturity, at least more delicate than the empty ones: grain loosely enclosed.

TRIBE V. CHLORIDEAE.

Spikelets deciduous as a whole.

Spikelets with at least the empty scales persistent.

Spikelets with one perfect flower.

No scales above the flowering scale.

1-several scales above the flower.

Spikes in whorls or closely approximate.

Spikes scattered.

Spikelets scattered or distant.

Spikelets crowded.

Spikelets with 2 or 3 perfect flowers.

Spikes with terminal spikelets.

Spikes with the rachis extending beyond the spikelets in a manifest point.

TRIBE VI. FESTUCEAE.

Hairs on the rachilla or flowering scale very long, and enclosing the latter: tall reed-like grasses.

Hairs on the rachilla or flowering scales shorter than the scale: low grasses, not reed-like.

Flowering scales 1-3-nerved.

Flowering scales 5-nerved.

Empty basal scales 3-6.

Empty basal scales 2.

23. ARISTIDA.

26. SPOROBOLUS.

27. SPARTINA.

28. CAPRIOLA.

29. EUSTACHYS.

30. GYMNOPOGON.

31. BOUPELOU.

32. ELEUSINE.

33. DACTYLOCTENIUM.

34. PHRAGMITES.

35. ERAGROSTIS.

36. UNIOLA.

37. DISTICHLIS.

1. **TRIPSACUM** L. Erect monoecious plants with stout rootstocks.

Spikes articulate, elongate. Staminate spikelets 2-flowered, in pairs. Pistillate spikelets 1-flowered, in excavations in the rachis, the scales thick and shining.

—GAMA-GRASS or SESAME-GRASS.

Spikes in pairs, or more, terminal and axillary: leaf-blades mostly over 1.5 cm. wide, auricled at the base.

Spikes single, terminal: leaf-blades mostly less than 1 cm. wide,

not auricled at the base.

1. *T. dactyloides*.

2. *T. floridanum*.

1. **T. dactyloides** L. Stems 1-2.5 m. tall: leaf-blades 6 dm. long or less: spikes 1-3 dm. long, the  $\frac{1}{4}$  or  $\frac{1}{2}$  pistillate, the upper portion staminate.—Hammocks.—(*Bah., Ant.*)

2. **T. floridanum** Porter. Similar to no. 1, but much more slender: stems 6-10 dm. tall: leaf-blades long and narrow: spikes rather slender, 1.5-2 dm. long.—Pinelands and adjacent everglades.—F. K.

2. **IMPERATA** Cyr. Erect plants with long terminal cylindrical dense and spike-like panicles. Spikelets 1-flowered, unequally pedicellate. Scales 4, thin, hyaline, awnless, the outer 2 empty, pilose.

1. **I. brasiliensis** Trin. Stems tufted, 3-8 dm. tall, slender: leaf-blades 3 dm. long or less, 3-8 mm. wide: panicle 6-15 cm. long, oblong: spikelets about 4 mm. long, the one about equalling, the other about twice as long as its pedicel.—Everglades and pinelands.—(*Bah., Cuba, Ant.*)—BRAZILIAN BLADY-GRASS.

3. **ERIANTHUS** Michx. Tall plants with perfect flowers in open or contracted terminal panicles. Spikelets usually with a basal ring of long hairs, or rarely naked, in pairs. Scales 4, the outer 2 indurated, the fourth scale bearing an awn which is straight, spiral or contorted.

1. **E. saccharoides** Michx. Stems 1.5-3.5 m. tall, the summit and nodes together with the panicle-axis and top of the otherwise glabrous sheaths appressed-pubescent with long silky hairs: panicle 1.5-4 dm. long: spikelets about  $\frac{3}{4}$  as long as the basal hairs and a little exceeding the internodes, the awn 1.5-2.5 cm. long.—Hammocks and pinelands.—(*Cuba*).—PLUME-GRASS or BEARD-GRASS.

**4. SCHIZACHYRIUM** Nees. Erect plants, tufted or from rootstocks, with spike-like racemes. Spikelets in pairs at each node of the articulate and frequently hairy rachis. Sessile spikelet of 4 scales, the fourth scale entire or 2-toothed, bearing a straight, contorted, or spiral awn.—BEARD-GRASS.

Internodes of the racemes glabrous or nearly so, the racemes hence appearing naked.

1. *S. semiberbe*.

Internodes of the racemes and pedicels long-ciliate, the racemes hence appearing hairy.

2. *S. gracile*.

1. *S. semiberbe* Nees. Stems tufted, 6–12 dm. tall: racemes 5–8 cm. long, the rachis-internodes with a dense ring of short hairs at the base, thick, channeled on the inner surface: sessile spikelet with the first scale rounded on the back, roughened, acuminate, the awn of the fourth scale 12–15 mm. long, geniculate, tightly spiral at the base, the column exerted.—Everglades and pinelands.—(*Bah., Cuba, Ant.*)

2. *S. gracile* (Spreng.) Nash. Stems densely tufted, slender, 3–6 dm. tall: racemes 3–5 cm. long, silvery-white: sessile spikelet 5–6 mm. long, the awn geniculate, 13–20 mm. long, tightly spiral to the bend, loosely so above, the column much exerted.—Pinelands.—(*Bah., Cuba, Ant.*)

**5. ANDROPOGON** [Royer] L. Erect plants with spike-like racemes, which often protrude from the side of a membranous spathe-like sheath. Sessile spikelet of 4 scales, bearing a straight contorted or spiral awn, or sometimes awnless. Pedicellate spikelet usually sterile, of 1 or 2 scales, sometimes of 4 scales and enclosing a staminate or more rarely a perfect flower, or frequently entirely wanting.—BROOM-GRASS. BEARD-GRASS. SAND-GRASS.

Inflorescence oblong to oval or obovate, the branches many times divided, the lower ones elongated, forming 1 or more corymbiform masses; upper stem-leaves usually equaling or exceeding the inflorescence.

1. *A. tenuispathus*.

Inflorescence long and narrow, commonly linear, the branches not much divided nor the lower ones excessively elongated, hence forming no corymbiform masses; upper stem-leaves usually shorter than the inflorescence.

Sheaths and spathes not enlarged.

Pairs of racemes sessile or nearly so, the common peduncle not exceeding 5 mm. in length.

Pairs of racemes never sessile, the common peduncle over 5 mm. in length, usually exceeding 1 cm. or sometimes much exerted.

Stem slender, sparingly branched: leaf-blades 3 mm. wide or less: awns 1.5–2 cm. long.

Stem stout, much branched above: leaf-blades 4–7 mm. wide: awns 6–10 mm. long.

Sheaths and spathes, at least on the upper part of the stem, enlarged.

2. *A. longiberbis*.

3. *A. Tracyi*.

4. *A. Bakeri*.

5. *A. Elliottii*.

1. *A. tenuispathus* Nash. Stems 5–15 dm. tall: spathes 2.5–3 cm. long, fastigately crowded: racemes in pairs, 1–2 cm. long, protruding from the side of the broad spathe: sessile spikelet 3–4 mm. long, the awn 10–15 mm. long.—Everglades, pinelands and hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. *A. longiberbis* Hack. Stems 5–10 dm. tall, tufted: leaf-sheaths appressed-hirsute: blades 5 dm. long or less, 7 mm. wide or less, those on the innovations densely appressed-hirsute, those on the stem more or less so beneath, rough above: spathes 3–5 cm. long, usually considerably exceeding the racemes, commonly brown: racemes 3–4 cm. long, stout: sessile spikelet 4–4.5 mm. long, the awn straight or nearly so, 12–16 mm. long.—Pinelands.—F. K.

3. *A. Tracyi* Nash. Stems 5–8 dm. tall: spathes 4–5 cm. long, rather broad: racemes 3–4 cm. long, rather stout: sessile spikelet 5 mm. long, the awn 1.5–2 cm. long.—Pinelands.

4. *A. Bakeri* Scribn. & Ball. Stems stout, 8–12 dm. tall, tufted: leaf-blades up to 4 dm. long, 4–7 mm. wide, flat; spathes 4–5 cm. long; racemes 1.5–3

cm. long, the rachis slender, densely clothed with silky hairs longer than themselves; sessile spikelets linear-lanceolate, 5 mm. long, bearing a slender straight awn 6-10 mm. long.—Pinelands.

5. **A. Elliotti** Chapm. Stems tufted, 5-8 dm. tall: racemes 3-4 cm. long, the longer one at each node exserted, the others concealed in the spathes: sessile spikelet 4.5-5 mm. long, the awn geniculate, 1.5-2.5 cm. long, usually spiral at the base, the column exserted.—Everglades.

6. **CHRYSOPOGON** Trin. Erect plants with terminal panicles, whose branches usually bear clusters of 3 spikelets, or very rarely more, at the end, one spikelet sessile and perfect, the other 2 staminate or sterile and pedicellate. Sessile spikelet usually somewhat laterally compressed, of 4 scales, usually awned. Pedicellate spikelet dorsally compressed, awnless or awned.

1. **C. pauciflorus** (Chapm.) Benth. Annual: stems 6-12 dm. tall: panicle 2-3 dm. long: sessile spikelet about 15 mm. long, including the 6-7 mm. long and densely pubescent callus, cylindric or slightly laterally compressed, emitting a flexuous more or less contorted usually geniculate awn 14-16 cm. long.—Pinelands.—(Cuba.)

7. **HETEROPOGON** Pers. Erect plants with terminal solitary dense racemes. Spikelets 1-flowered, one sessile and fertile, the other pedicellate and staminate or empty. Scales of the sessile spikelet 4, the fourth scale, enclosing a pistillate flower, small and hyaline and bearing a long rigid contorted and geniculate awn. Pedicellate spikelet awnless.

1. **H. contortus** (L.) Beauv. Perennial: stems 2-8 dm. tall, rather sparingly branched above: racemes 4-6 cm. long: sessile spikelet 5-6 mm. long, the awn 4.5-8 cm. long: pedicellate spikelet about 1 cm. long, sterile or staminate, the first scale acute.—Pinelands.—(Cuba.)

8. **COELORACHIS** Brongn. Erect or diffuse plants with articulate racemes. Scales of the sessile spikelet 4, the outermost thick and coriaceous, sometimes more or less rugose or pitted, concealing, together with the pedicel of the other spikelet, the remaining scales and the excavation in the rachis.

1. **C. rugosa** (Nutt.) Nash. Stems 7-12 dm. tall, stout: racemes 5-8 cm. long, the rachis-internodes usually contracted at the base: sessile spikelet 3.5-4.5 mm. long.—Everglades.

9. **HACKELOCHLOA** Kuntze. Erect plants with branched stems. Spikelets in excavations at the rachis joints, Scales of the sessile spikelet 4, awnless, the outermost pitted, covering the excavation in the rachis.

1. **H. granularis** (L.) Kuntze. Stems 2-10 dm. tall, finally much-branched: leaf-sheaths papillose-hirsute: racemes 1-2 cm. long: sessile spikelet about 1 mm. in diameter.—Pinelands and everglades. Nat. from the tropics.—(Cuba.)

10. **PASPALUM** L. Erect or diffuse plants with an inflorescence composed of one or more unilateral racemes, arranged singly, in pairs, or in panicles. Spikelets 1-flowered, obtuse, or rarely short-acuminate, nearly sessile or short-pedicelled, singly or in pairs, on one side of a narrow and usually winged rachis. Scales 3 or rarely 4.

Stem with 1-several raceme-bearing naked branches from the uppermost sheath.

Leaf-blades conspicuously ciliate.

Leaf-blades not ciliate.

Stem simple, without raceme-bearing branches from the upper sheath.

1. *P. ciliatifolium*.

2. *P. rigidifolium*.

Stems tufted.

Spikelets 3 mm. long or less.

Spikelets obovate, 1.5 mm. long, pubescent with spreading glandular-tipped hairs.

Spikelets elliptic, 2 mm. long, sparsely pubescent with long appressed hairs.

Spikelets more than 3 mm. long.

Stems single, on a scaly rootstock.

3. *P. Simpsonii*.

4. *P. caespitosum*.

5. *P. giganteum*.

6. *P. monostachyum*.

1. *P. ciliatifolium* Michx. Stems tufted, 4-8 dm. tall: leaf-sheaths ciliate on the overlapping margin; blades smooth and glabrous on both surfaces: racemes single, or sometimes in 2's, 5-11 cm. long: spikelets in pairs, 1.5-1.8 mm. broad, oval to broadly obovate.—Hammocks.—F. K. (*Ber.*)

2. *P. rigidifolium* Nash. Stems tufted, 3-8 dm. tall: leaf-blades erect or ascending, glabrous: racemes single, or rarely in 2's, 6-13 cm. long: spikelets in pairs, 2.3-2.5 mm. long, 1.7-2 mm. wide, the second scale glabrous.—Everglades and hammocks.—(*Cuba.*)

3. *P. Simpsonii* Nash. Stems 4-8 dm. tall: leaf-blades lanceolate, glabrous on both surfaces, ciliate on the margins below the middle: racemes 3-5, spreading, 2-7 cm. long: spikelets about 0.8 mm. wide.—Everglades and pinelands.—F. K. (*Bah., Cuba, Ant.*)

4. *P. caespitosum* Fluegge. Stems 3-6 dm. tall: leaf-blades narrowed at both ends: racemes erect, 2-6, 1.5-6 cm. long, slender, the rachis flat, winged, about 0.5 mm. broad, about one-half as wide as the spikelets: spikelets about 1 mm. broad.—Everglades and pinelands.—F. K. (*Ber., Bah., Cuba, Ant.*)

5. *P. giganteum* Baldw. Stems 1-1.5 m. tall: leaf-blades erect, the lower ones 2-3 dm. long, 1.5-2 cm. wide: racemes 3-5, 1-1.5 dm. long: spikelets in pairs, about 3.25 mm. long and 2.5 mm. wide.—Everglades.

6. *P. monostachyum* Vasey. Stems rigid, erect, 6-10 dm. tall: leaf-blades elongate, stiff, involute, at least when dry, long-acuminate, glabrous: racemes solitary, or rarely 2 together, 1-2 dm. long, erect: spikelets in pairs, 3 mm. long and about 1.5 mm. wide, elliptic. [*P. solitarium* Nash.]—Everglades.—F. K.

11. **ERIOCHLOA** H.B.K. Erect plants with an inflorescence of spike-like one-sided racemes which are racemously arranged. Spikelets imbricated, arranged in 2 rows on a flat rachis, acute or acuminate. Scales 3, the 2 outer membranous, appressed-pubescent, empty, the third scale glabrous and shining, shorter, at length indurated, awn-pointed or short-awned at the apex.

1. *E. Michauxii* (R. & S.) A. Hitchc. Stems single, 7-15 dm. tall: leaf-sheaths glabrous or softly pubescent; blades 1-4.5 dm. long, 4-15 mm. wide: inflorescence 1.5-4 dm. long: racemes 8-20, 3-15 cm. long: spikelets 12-40, 5-5.5 mm. long, ovate, the third scale about 3.5 mm. long, rather finely transverse-rugose. [*Panicum molle* Michx.]—Pinelands.—F. K.

11a. **VALOTA** Adans. Perennial grasses with narrow densely hairy panicles. Spikelets lanceolate, acute or acuminate. Scales 4, the outer 3 membranous, empty, the second and usually also the much shorter first one densely silky-pilose or long-ciliate, sometimes with a short bristle at the apex, the fourth scale shorter, chartaceous, glabrous and shining, finally indurated. [*Trichachne* Nees.]

1. *V. insularis* (L.) Chase. Stems 1-1.5 m. tall: leaf-blades 1-3 dm. long: panicle usually 2-3 dm. long, 1-2 cm. wide: spikelets 4-5 mm. long, long-acuminate.—Everglades and waste grounds.—F. K. (*Ber., Bah., Cuba, Ant.*)

12. **SYNTHESISMA** Walt. Diffuse plants with an inflorescence of spike-like racemes. Spikelets narrow, acute, in 2's or 3's on one side of the flat and winged or triangular rachis, one of the spikelets usually longer-pedicelled than the rest. Scales 3 or 4, the 3 outer membranous, the first small or wanting, the fourth scale chartaceous, glabrous and shining, at length indurated.—CRAB-GRASS or FINGER-GRASS.

Rachis of the racemes with the angles naked, not winged: first scale wanting or sometimes present as an inconspicuous rudiment.

Second and third scales pubescent with appressed glandular tipped hairs: stems simple or sparingly branched at the base; nodes 5 or fewer.

Second and third scales glabrous.

Rachis of the racemes with the lateral angles broadly winged, thus making it appear flat: first scale usually present.

Racemes very slender, the rachis usually less than 0.5 mm. wide: spikelets  $\frac{1}{2}$  as wide as long, acuminate: fourth scale greenish when mature.

Racemes stouter, the rachis usually exceeding 0.7 mm. wide: spikelets  $\frac{1}{4}$  as wide as long or more, acute: fourth scale yellowish white when mature.

1. *S. filiforme*.
2. *S. Simpsonii*.

3. *S. digitatum*.

4. *S. marginatum*.

1. **S. filiforme** (L.) Nash. Stem 1.5-7 dm. tall: leaf-sheaths papillose-hirsute; blades 3-20 cm. long, 1-4 mm. wide: axis of the inflorescence 1-3 cm. long: racemes 2-5; spikelets 0.75 mm. wide, elliptic, acute, in pairs, the fourth scale exceeding the third, deep chestnut-brown when mature.—Hammocks and pine-lands.—F. K. (*Bah., Cuba, Ant.*)

2. **S. Simpsonii** (Vasey) Nash. Stems 8-12 dm. long: leaf-blades 7-30 cm. long, 5 mm. wide or less, papillose-hirsute on both surfaces: axis of the inflorescence 4-6 cm. long: racemes 6-8, 10-13 cm. long, erect or ascending, usually scattered: spikelets a little exceeding 3 mm. long, about 1 mm. wide, elliptic-lanceolate, acute, in pairs.—Pinelands.—(*Cuba*.)

3. **S. digitatum** (Sw.) A. Hitchc. Stems tufted, 4-10 dm. tall or less: leaf-blades 2-12 cm. long, 2-7 mm. wide, papillose-hirsute on both surfaces: axis of the inflorescence 4 cm. long or less: racemes 4-13, 4-13 cm. long, usually in a whorl at the base and the remainder alternate or approximately in pairs; spikelets about 2.5 mm. long, about 0.5 mm. wide, lanceolate, acuminate, in pairs, occasionally with a delicate basal bristle.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

4. **S. marginatum** (Link) Nash. Stems 8 dm. long or less: leaf-blades 2-8 cm. long, 5-10 mm. wide, glabrous or pubescent on both sides: axis of the inflorescence 2 cm. long or less: racemes 2-9, 2-12 cm. long, alternate, in pairs or whorled: spikelets 3-3.5 mm. long, about 0.8 mm. wide, lanceolate, slenderly acute, in pairs.—Everglades.—F. K. (*Ber., Bah., Ant.*)

13. **ECHINOCHLOA** Beauv. Erect plants with the inflorescence of several-many spike-like racemes. Spikelets crowded in small clusters or racemes in 2 rows on all sides of the flat rachis. Scales 4, the 3 outer membranous, spiny-hirsute or hispid, the first one often awn pointed, the second and third awn-pointed or awned (rarely awnless), the latter bearing the longer awn, the fourth scale chartaceous, glabrous and shining, at length indurated.

1. **E. Crus-galli** (L.) Beauv. Stems 6-12 dm. tall: leaf-blades 1.5-6 dm. long, 6-25 mm. wide, glabrous: panicle of 5-15 erect or ascending branches, or the lower branches spreading or reflexed and sometimes 6-8 cm. long: spikelets ovate, densely crowded in 2-4 rows on one side of the rachis, the second and third scales awned, the fourth scale abruptly pointed.—Everglades and pine-lands, and cultivated grounds. Nat. from Eu.—(*Ber., Bah., Cuba, Ant.*)—BARNYARD-GRASS.

14. **OPLISMENUS** Beauv. Creeping plants with broad flat leaf-blades and an inflorescence composed of spikes, bearing on the lower side scattered clusters of a few spikelets. Scales 4, the 3 outer membranous, the first and second awned, the third usually awned, the fourth one shorter than the others, obtuse, awnless, chartaceous, finally indurated.

1. **O. hirtellus** (L.) R. & S. Stems prostrate, rooting at the nodes: leaf-blades ovate to ovate-lanceolate, acuminate, 1.5-6 cm. long: panicle 2-8 cm. long, its short branches erect to spreading: spikelets 2.5-3 mm. long, the longer awns 6-8 mm. long.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

15. **PANICUM** L. Erect, or diffuse herbaceous plants varying much in habit, with elongate or broad leaf-blades, and the spikelets in open or contracted panicles. Spikelets 1-2-flowered, lanceolate, oblong, ovate to obovate or globose, obtuse to acute or acuminate. Scales 4, the 3 outer membranous, the first and second empty, the first usually much shorter than the spikelet, sometimes minute, the third one empty or enclosing a shorter hyaline palet and often also a staminate flower, the fourth scale shorter and usually more obtuse than the others, chartaceous, glabrous and shining, at length indurated, enclosing a palet of similar texture and a perfect flower.—PANIC-GRASS.

Spikelets disposed singly or in pairs in one-sided racemes, the pedicels short.

Spikelets in panicles, but not borne in one-sided racemes: the pedicels short or long.

Basal leaf-blades long and narrow, similar to those of the stem: no rosulate tufts of leaves in the fall: spikelets lanceolate to ovate, usually the former, acute or acuminate, rarely obtuse.

Basal leaf-sheaths round or but little flattened, not keeled.

Annuals, or perennials without rootstocks or stolons. Perennials with long stolons or rootstocks.

Rootstocks and stolons naked or with few large scales: sand-binders.

Rootstocks, at least when young, and stolons covered with numerous small broad acute scales.

Basal leaf-sheaths much compressed, broad, keeled, often equitant.

Basal leaf-blades commonly unlike those of the stem, ovate to ovate-lanceolate: perennial by rosulate tufts which form in the fall at the base of the stems: spikelets elliptic to spherical, usually obtuse, sometimes acute, never acuminate.

## I. PASPALOIDEA.

## II. CAPILLARIA.

## III. HALOPHILA.

## IV. VIRGATA.

## V. AGROSTOIDEA.

## VI. DICHOTOMA.

## I. PASPALOIDEA.

Fourth scale of the spikelet smooth.

Terrestrial plants: first scale acute.

Aquatic plants: first scale rounded or truncate.

Spikelets singly disposed, about 3 mm. long, the first scale rounded or truncate at the apex.

Spikelets in pairs, about 2 mm. long, the first scale acute at the summit.

Fourth scale of the spikelet transversely rugose.

1. *P. molle*.2. *P. paludtugum*.3. *P. hemttomon*.4. *P. adspersum*.

## II. CAPILLARIA.

Leaf-sheaths pubescent: panicle large, broad.

Leaf-sheaths glabrous: panicle small, virgate.

5. *P. Bartowense*.6. *P. tenerum*.

## III. HALOPHILA.

A single species in our range.

7. *P. amarulum*.

## IV. VIRGATA.

A single species in our range.

8. *P. virgatum*.

## V. AGROSTOIDEA.

Innovations intravaginal, hence stems tufted: spikelets not oblique to the pedicels, the apex straight, hence equilateral.

Panicle ovoid, the branches wide-spreading at maturity.  
 Panicle oblong, the branches erect.  
 Innovations extravaginal, the long stolons stout and scaly :  
 spikelets oblique to the pedicels, the apex decidedly  
 curved, hence inequilateral.

## VI. DICHOTOMA.

Blades of the stem-leaves long and narrow, linear and  
 narrowed at both ends, very different from the  
 early basal ones.

Leaf-blades erect.

Primary leaves of the stem with blades usually less  
 than 4 mm. wide, from 25-50 times as long as  
 broad.

Primary leaves of the stem with blades exceeding  
 4 mm. in width, 20 times as long as broad  
 or less.

Stems simple, or sometimes sparingly branched  
 at the nodes : plants usually bright green :  
 hairs on the leaf-sheaths reflexed.

Stems at length repeatedly dichotomous-  
 branched, forming dense mats : plants  
 grayish green : hairs on the leaf-sheaths,  
 if any, ascending or appressed.

Spikelets broadly obovoid, about 2 mm. long,  
 obtuse.

Spikelets obovoid, about 3.5 mm. long, acute.

Leaf-blades widely spreading.

Blades of the stem-leaves not long and narrow, usually  
 lanceolate to ovate-lanceolate, sometimes short and  
 linear.

Stems simple, or rarely a little branched at the lower  
 nodes, forming dense tufts.

Leaf-sheaths hirsute.

Leaf-sheaths glabrous, excepting the ciliate margin ;  
 blades strongly and beautifully ciliate on the  
 margins, otherwise glabrous.

Stems finally branching at the upper nodes, often  
 repeatedly branching.

\* Middle leaf-blades of the main stem less than  
 1.5 cm. in width, usually less than 1 cm.  
 wide, the base rounded or truncate, some-  
 times in the broadest ones cordate.

† Leaf-sheaths glabrous or puberulent, the lower  
 ones sometimes with a few scattered long  
 hairs, the margins often ciliate.

Stem-nodes barbed.

Stem-nodes naked.

Spikelets glabrous.

Spikelets less than 1.5 mm. long

Spikelets about 2 mm. long.

Spikelets pubescent.

Spikelets less than 2 mm. long.

Leaf-blades ciliate for at least  $\frac{1}{2}$   
 their length.

Panicle ovoid : spikelets few,  
 1.75 mm. long : leaf-blades  
 small.

Panicle oblong : spikelets nu-  
 merous, 1.3 mm. long : leaf-  
 blades large.

Leaf-blades naked on the margins,  
 or sometimes with few long  
 hairs at the very base.

Larger stem-leaves with blades  
 8-15 mm. wide.

Larger stem-leaves with blades  
 rarely over 6 mm. wide.

Leaf-blades with broad carti-  
 laginous thickened  
 white margins.

Stem with the upper  
 portion naked, the 2  
 leaves below the  
 middle.

9. *P. agrostoides*.

10. *P. condensum*.

11. *P. anceps*.

12. *P. glabrifolium*.

14. *P. laxiflorum*.

15. *P. neuranthum*.

16. *P. fusiforme*.

28. *P. equilaterale*.

14. *P. laxiflorum*.

13. *P. polycaulon*.

19. *P. subbarbulatum*.

23. *P. caerulescens*.

17. *P. Nashianum*.

17. *P. Nashianum*.

24. *P. erectifolium*.

24. *P. erectifolium*.

21. *P. albomarginatum*

- Stem leafy almost to the panicle, the leaves usually 3.  
 Leaf-blades without thick white margins.  
 Spikelets exceeding 2 mm. in length.  
 Blades of the primary leaves elongate, broadly linear, often 2 dm. long and 1.5 cm. wide, spreading.  
 Blades of the primary leaves lanceolate,  
 Rounded or truncate at the base,  
 Ciliate, at least on the lower half.  
 Eclillate, or sometimes with few hairs at the very base.  
 Leaf-blades spreading: first scale  $\frac{2}{3}$  as long as the spikelet, acute.  
 Leaf-blades erect: first scale  $\frac{1}{4}$ - $\frac{2}{3}$  as long as the spikelet, rounded at the apex.  
 Cordate at the base.  
 †† Leaf-sheaths pubescent with long hairs.  
 Spikelets over 2.5 mm. long: fruits over 2 mm. long.  
 Spikelets less than 2.5 mm. long: fruits less than 2 mm. long.  
 \*\* Middle leaf-blades of the main stem more than 1.5 cm. wide, sometimes 3-4 cm. in width, the base cordate and clasping.  
 Stems finally much branched and prostrate, forming large mats: spikelets very acute.  
 Stems erect, even in the late state, sparingly branched: spikelets obtuse or acutish.
22. *P. trifolium*.  
 20. *P. ensifolium*.  
 28. *P. equilaterale*.  
 17. *P. Nashianum*.  
 27. *P. epilifolium*.  
 18. *P. Webberianum*.  
 30. *P. commutatum*.  
 25. *P. ciliiferum*.  
 26. *P. pseudopubesccens*.  
 29. *P. manatense*.  
 30. *P. commutatum*.

1. *P. molle* Sw. Sterile stems 1-2 m. long or less, rooting at the nodes, the fertile stems erect, 6-10 dm. tall or more, the nodes densely barbed: leaf-sheaths often overlapping, papillose-hirsute: blades 1-3 dm. long, glabrous or pubescent, 7-15 mm. wide: panicle 1.5-2 dm. long, its branches spreading or ascending: spikelets about 3 mm. long, glabrous.—Pinelands and roadsides. Nat. from tropical America.—(*Ber.*, *Bah.*, *Ant.*)

2. *P. paludivagum* Hitchc. & Chase. Stems 6-12 dm. long: blades 2.5 dm. long or less, 6-10 mm. wide: racemes 10-20, the rachis broadly winged, appressed, 2-3.5 cm. long: spikelets ovate, acute, glabrous.—Everglades.—(*Ber.*, *Bah.*, *Cuba*, *Ant.*)

3. *P. hemitomom* Schult. Stems from stout rootstocks, 6-12 dm. tall or more: blades 3 dm. long or less, 6-12 mm. wide: racemes 6-20, appressed, 4-10 cm. long, the rachis barely if at all winged: spikelets with the scales prominently nerved, the fourth scale smooth.—Everglades.—MAIDEN-CANE.

4. *P. adpersum* Trin. Annual: stems 4-6 dm. tall: leaf-blades 2 dm. long or less, 1.5-2 cm. wide, glabrous: panicle 1-2 dm. long: spikelets usually borne in pairs, green, glabrous or pubescent.—Hammocks and cultivated grounds.—(*Bah.*, *Cuba*, *Ant.*)

5. *P. Bartowense* Scribn. & Mer. Annual: stems erect, commonly 1 m. tall or less, or much branched and decumbent: leaf-sheaths pubescent; blades 2-7 dm. long, 6-28 mm. wide: panicle 1.5-4.5 dm. long: spikelets 2.5-3 mm. long, glabrous, acuminate.—Everglades.—(*Bah.*)

6. *P. tenerum* Berg. Perennial, glabrous, except the sometimes pubescent lower leaf-sheaths: stems erect, 3-8 dm. tall: leaf-blades erect, involute when dry, 1.5 dm. long or less, 1-1.5 mm. wide: panicle narrow, 3-15 cm. long: spikelets about 2.5 mm. long, lanceolate, acute.—Everglades.—(*Bah.*, *Cuba.*)



7. *P. amarulum* Hitchc. & Chase. Glabrous, glaucous: stems 8–12 dm. tall: leaf-sheaths overlapping; blades generally 3–6 dm. long, 8–16 mm. wide, long-acuminate, thick, involute, at least toward the apex: panicle large, but narrow, 3–7 dm. long: spikelets 4–5 mm. long, usually rather narrow, the first scale about  $\frac{1}{2}$  as long as the spikelet.—Shores of Bay Biscayne.—F. K. (*Bah.*)
8. *P. virgatum* L. Glabrous: stems erect, 9–15 dm. tall: leaf-blades elongate, 3 dm. long or more, 6–12 mm. wide, flat, glabrous or pubescent: panicle 1.5–5 dm. long, its branches widely spreading or sometimes nearly erect: spikelets ovate, acuminate, 4–4.5 mm. long, glabrous.—Hammocks.—F. K. (*Ber., Cuba*).
9. *P. agrostoides* Muhl. Stems 4–8 dm. tall, much-branched, compressed: leaf-blades 3 dm. long or more, 4–8 mm. wide: panicle pyramidal, 1–3 dm. long: spikelets 1.5–2 mm. long.—Everglades.—F. K.
10. *P. condensum* Nash. Stems 6–10 dm. tall, branched, the lateral panicles often much exerted: leaf-blades 2–4 dm. long, 6–8 mm. wide, erect: panicle dense, 1–2 dm. long, contracted: spikelets numerous, about 2 mm. long.—Everglades.—(*Bah., Cuba, Ant.*)
11. *P. anceps* Michx. Stems erect, 4–15 dm. tall, branched: leaf-sheaths glabrous or pubescent; blades 3 dm. long or more, 4–10 mm. wide: panicle 1.5–3 dm. long; its branches erect to spreading: spikelets 2.5–3.5 mm. long, lanceolate, acuminate.—Hammocks.
12. *P. glabrifolium* Nash. Glabrous and shining: stems 1.5–4 dm. tall, erect, rigid, slender, leafy: blades rigid, thickish, long-acuminate, those on the shoots 1.5 dm. long or less, 3–4 mm. wide, those on the flowering stems 3–9 cm. long, 1–3 mm. wide: panicle ovate, 4–6 cm. long: spikelets 0.7 mm. wide, obovoid.—Pinelands.
13. *P. polycaulon* Nash. Stems naked above, yellowish-green, 2 dm. tall or less, erect: leaf-blades erect or ascending, narrowly oblong-lanceolate, 2–7 cm. long, 2–8 mm. wide: panicle broadly ovate, 3 cm. long or less, the main axis and generally the branches pilose: spikelets 0.8 mm. wide, obovoid, obtuse.—Pinelands.—(*Cuba.*)
14. *P. laxiflorum* Lam. Stems 2–4 dm. tall: leaf-blades 6–13 cm. long, 4–10 mm. wide, erect: panicle 5–10 cm. long, its axis and erect or spreading branches sometimes hirsute: spikelets elliptic or narrowly obovoid, strongly pubescent.—Hammocks.
15. *P. neuranthum* Griseb. Stems 3–6 dm. tall: primary leaves 4–6; blades erect, thickish, firm, 3–10 cm. long, 2–5 mm. wide, those on the branches much smaller and usually involute: panicle much-exserted, narrow, 5–8 cm. long: spikelets about 1 mm. wide, turgid, with short spreading hairs.—Everglades.—(*Bah., Cuba, Ant.*)
16. *P. fusiforme* A. Hitchc. Stems 2–5 dm. tall: primary leaves usually 4 or 5; blades erect, linear-lanceolate, ciliate on the margin near the base, 5–12 cm. long, 3–6 mm. wide, those on the branches much smaller, crowded, usually involute: panicle broadly ovate, long-exserted, 6–9 cm. long: spikelets obovoid, 1.3–1.6 mm. broad, strongly nerved, densely pubescent with spreading hairs.—Pinelands.—(*Cuba.*)
17. *P. Nashianum* Scribn. Stems slender, 1.5–4 dm. tall: leaf-blades erect or ascending, lanceolate, acuminate, 2–5 cm. long, 2–5 mm. wide, the blades on the branches smaller: panicle 2.5–5 cm. long, its branches widely spreading: spikelets obovoid.—Hammocks.
18. *P. Webberianum* Nash. Stems 2–4 dm. tall, erect or ascending, rigid, branched: blades lanceolate, 4–9 cm. long, 7–14 mm. wide, usually erect: panicle ovate, 6–9 cm. long: spikelets elliptic or obovoid, 2.5 mm. long and about 1.3 mm. wide, the apex of the fourth scale minutely pubescent.—Hammocks.

19. *P. subbarbulatum* Scribn. & Mer. Stems 6-12 dm. tall: leaves 6 or 7; blades spreading, 3-8 cm. long, 3-10 mm. wide, the lowermost pubescent on both surfaces: panicle 6-10 dm. long, ovate: spikelets 2-2.5 mm. long and about 1 mm. wide, elliptic.—Hammocks and pinelands.—(*Bah., Cuba.*)

20. *P. ensifolium* Baldw. Stems 1-3 dm. tall: leaves 2 or 3; blades widely spreading, lanceolate, usually less than 2 cm. long, 1-3 mm. wide, densely puberulent on the lower surface, the basal blades markedly larger and more erect: panicle small, ovate, 1-2 cm. long: spikelets about 1.3 mm. long and about 0.6 mm. wide, elliptic.—Hammocks.

21. *P. albomarginatum* Nash. Glabrous: stems 2-4 dm. tall, the upper part of the stem naked: leaves usually 2; blades erect, thick, stiff, lanceolate, with a prominent wide thickened white margin, usually 1.5-4 cm. long, 2-7 mm. wide: panicle 2-4 cm. long, broadly ovate: spikelets elliptic, about 1.3 mm. long, and 0.7 mm. wide.—Pinelands.—(*Cuba.*)

22. *P. trifolium* Nash. Stems 2-4 dm. tall: leaves 3, rarely 4, the uppermost one much above the middle of the stem and generally but a little below the panicle; blades erect or nearly so, firm, lanceolate, the margins thickened and cartilaginous, 1.5-6 cm. long, 1.5-5 mm. wide: panicle 2.5-6 cm. long, broadly ovoid: spikelets 1.5 mm. long and about 0.7 mm. wide, ellipsoid.—Pinelands.

23. *P. caerulescens* Hack. Glabrous: stems erect, 7-11 dm. tall: leaves 6-8; blades erect, firm, 4-11 cm. long, 4-8 mm. wide, lanceolate: panicle 9-13 cm. long, oblong, dense, 2-4 cm. wide: spikelets 1.3 mm. long and about 0.8 mm. wide, oval.—Pinelands.—(*Bah., Cuba.*)

24. *P. erectifolium* Nash. Stems 5-7 dm. tall: leaves usually 5-7; blades erect, firm, ciliate on the margins toward the base, lanceolate, acuminate, 5-10 cm. long, 5-13 mm. wide: panicle elliptic, 8-12 cm. wide: spikelets numerous, 0.6-0.8 mm. wide, elliptic to oval.—Pinelands.—(*Cuba.*)

25. *P. ciliiferum* Nash. Stems 2-5 dm. tall: leaves usually 3; sheaths densely hirsute with long ascending hairs; blades erect or ascending, lanceolate, the lower surface strongly strigose, the primary ones 3-8 cm. long, 4-10 mm. wide: primary panicle ample, 6-11 cm. long, broadly oval: spikelets about 2.75 mm. long and 1-1.2 mm. wide, elliptic.—Pinelands.

26. *P. pseudopubesces* Nash. Stems 2-4 dm. tall: leaves usually 3: blades erect, rather firm, lanceolate, 4-10 cm. long, 3-11 mm. wide: panicle 5-9 cm. long, broadly ovoid: spikelets 2.25-2.4 mm. long and 1-1.2 mm. wide.—Pinelands.

27. *P. epilifolium* Nash. Stems 2-3.5 dm. tall: leaves 2 or 3; sheaths ciliate on both margins with long slender hairs; blades linear-lanceolate, 4-7 cm. long, 5-7 mm. wide, minutely pubescent on the upper surface between the nerves: panicle 5-7 cm. long, ovate, obtusely apiculate.—Hammocks.

28. *P. equilaterale* Scribn. Stems 4-8 dm. tall: leaves 4 or 5; blades elongate, 8-18 cm. long, 7-15 mm. wide: panicle 7-9 cm. long, broadly ovate: spikelets about 3.5 mm. long and about 1.3 mm. wide, elliptic, acutish.—Pinelands.

29. *P. manatense* Nash. Stems 2-4 dm. long: leaf-blades erect or nearly so, lanceolate, 3-9 cm. long, 7-15 mm. wide: panicle 4-6 cm. long: spikelets elliptic, about 3 mm. long and 1.3 mm. wide, strongly pubescent with spreading hairs.—Hammocks.

30. *P. commutatum* R. & S. Stems 3-6 dm. tall: leaves 3 or 4; blades ciliate on the margin, 5-12 cm. long, 1-2 cm. wide, ovate-lanceolate: panicle 5-10 cm. long, broadly ovoid: spikelets 2.5-3 mm. long and about 1 mm. wide, elliptic, obtuse or acutish, pubescent.—Pinelands.

16. **STEINCHISMA** Raf. Erect tufted plants with loose open panicles. Spikelets with the 3 outer scales membranous, the third scale bearing in its

axil a much enlarged and inflated papery palet which exceeds in length the fourth scale; first scale short, the second one about as long as the spikelet; fourth scale indurated in fruit.

1. *S. hians* (Ell.) Nash. Glabrous: stems erect, 3-8 dm. tall, sometimes creeping at the base: leaf-blades 7-13 cm. long, 2-6 mm. wide, acuminate, usually erect: panicle 7-20 cm. long, its branches few, generally spreading: spikelets about 2 mm. long.—Everglades.

17. *LASIACIS* A. Hitchc. Shrubs with erect or reclining stems and branches, and flat leaf-blades. Spikelets very thick, often globular, paniculate, obliquely articulated to the pedicels. Scales 4, the 3 outer papery, shining, many-nerved, usually woolly at the apex, the first one less than  $\frac{1}{2}$  as long as the spikelet: fourth or fruiting scales bony-indurated, woolly at the apex, enclosing a palet of similar texture and a perfect flower.

1. *L. divaricata* (L.) A. Hitchc. Stems 2-3 m. tall, reclining: leaves crowded and numerous; sheaths overlapping, ciliate on the margin; blades spreading or ascending, glabrous, acuminate, the larger ones 8-10 cm. long, 13-35 mm. wide: panicle 1 dm. long or less: spikelets 4-5 mm. long, the first scale very broad, clasping the base of the spikelet.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—SMALL-CANE.

18. *SACCIOLEPIS* Nash. Diffuse or reclining plants with contracted dense panicles. Spikelets numerous. Scales 4, the 3 outer membranous; 2 outer scales empty, the first scale small and narrow, the third scale enclosing a palet and staminate flower, the fourth scale chartaceous, finally indurated, about one-half as long as the second scale, enclosing a palet of similar texture and a perfect flower.

1. *S. striata* (Lam.) Nash. Stems usually rooting at the lower nodes, finally dichotomously branched, 3-20 dm. long: leaf-sheaths papillose-hirsute, at least the lower ones; blades lanceolate, long-acuminate, sometimes hirsute on one or both surfaces, 4-20 cm. long, 4-22 mm. wide: panicle 6-30 cm. long, 1.5-2 cm. wide: spikelets 4-5 mm. long, ovate-lanceolate.—Everglades.—(*Cuba.*)

19. *CHAETOCHELOA* Scribn. Erect or diffuse plants with dense terminal cylindrical spike-like or narrowly thyrsoid panicles. Spikelets with 1, or a cluster of 2-several sterile barbed bristle-like persistent branches. Three outer scales membranous, the fourth scale usually shorter than the spikelet, chartaceous, glabrous, shining, finally indurated.—FOXTAIL. FOXTAIL-GRASS.

Inflorescence with the spikelets racemously arranged: bristles 5-16 at the base of each spikelet, involucrate.

1. *C. imberbis*.

Inflorescence with the spikelets in clusters or on branches:

bristles 1-3 at the base of each spikelet, not involucrate.

Second scale of the spikelet as long as the flowering scale or very nearly so.

2. *C. magna*.

Second scale manifestly shorter than the flowering scale.

Spikelets 3 mm. long or more.

3. *C. macrosperma*.

Spikelets less than 3 mm. long.

4. *C. corrugata*.

1. *C. imberbis* (Poir.) Scribn. Stems 3-7 dm. tall, slender: leaf-blades 1-3 dm. long, 3-7 mm. wide, the upper surface often with a few long hairs at the base: racemes 2-5 cm. long, nearly 1 cm. in diameter, exclusive of the bristles, the rachis pubescent: bristles 5-10 mm. long: spikelets ovoid, acute, 2-2.5 mm. long, the flowering scale acute, striate, finely transverse-rugose.—Everglades.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *C. magna* (Griseb.) Scribn. Stems stout, 1-4 m. tall, branching at the base: leaf-sheaths glabrous, compressed; blades 3-6 dm. long, 1-3 cm. wide,

rough: panicle usually interrupted below, 1-3.5 dm. long, 2-5 cm. in diameter; bristles 1-3, green, 8-11 mm. long: spikelets elliptic, acute, 2 mm. long.—Everglades.—F. K.

3. *C. macrosperma* Scribn. & Merr. Stems 6-12 dm. tall: leaf-blades linear-lanceolate, 1-3 dm. long: panicle 1-2.5 dm. long, 2-4 cm. in diameter, exclusive of the bristles: bristles single, 1.5-3 cm. long, green: spikelets narrowly ovoid, acute, 3 mm. long, the flowering scale acute, narrowly ovoid, finely transverse-rugose.—Hammocks.—F. K. (*Bah.*)

4. *C. corrugata* (Ell.) Scribn. Stems 3-10 dm. tall: leaf-blades narrowly linear, 1-3 dm. long: panicle 0.5-1.5 dm. long, 4-15 mm. in diameter exclusive of the bristles: bristles solitary or rarely 2 at each spikelet, 5-15 mm. long: spikelets ovoid, acute, about 2 mm. long, the fourth scale very strongly transversely and coarsely undulate-rugose.—Hammocks and low pinelands.

20. **CENCHROPSIS** Nash. Erect plants with long rootstocks and terminal spike inflorescence. Spikelets single, the involucre of 1 or 2 outer rows of barbed bristles and 1 or 2 inner rows of barbed spines which are 2-4 times as long as the bristles and about equalling the spikelet. Scales 4.

1. *C. myosuroides* (H.B.K.) Nash. Stems 6-14 dm. tall: leaf-blades 1-3 dm. long, 3-8 mm. wide: spikes 5-20 cm. long: involucres numerous: spikelets about 5 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

21. **CENCHRUS** L. Diffuse plants with terminal spikes. Spikelets 2-6, in an involucre of two thick hard valves. Scales 4, awnless.—SAND-BUR. SAND-SPUR. BUR-GRASS. COCKSPUR.

Involucre pubescent.  
Involucre glabrous.

1. *C. carolinianus*.  
2. *C. gracillimus*.

1. *C. carolinianus* L. Stems 2-6 dm. long, branching: leaf-blades 6-12 cm. long, 4-8 mm. wide: spikes 3-6 cm. long: involucres 6-20, the spines 3-4 mm. long: spikelets 6-7 mm. long, usually not exerted beyond the involucre.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *C. gracillimus* Nash. Stems 3-6 dm. tall, slender: leaf-blades 5-8 cm. long, about 2 mm. wide, acuminate: spikes usually long-exserted, 3-5 cm. long, bearing 3-6 distant purplish involucres with a deeply furrowed and glabrous base, the spines purple, 5-6 mm. long: spikelets about 8 mm. long, exerted beyond the involucre one-third to one-half their length.—Pinelands.

22. **STENOTAPHRUM** Trin. Creeping, much-branched plants, with terminal spikes or spike-like panicles. Spikelets 2- (rarely 1-) flowered, in 2's-4's in short spikes. Scales 4.

1. *S. secundatum* (Walt.) Kuntze. Stems compressed: leaf-blades rounded at the apex, usually less than 1 dm. long, 4-10 mm. wide: spikelets 3.5-5 mm. long.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)—SHORE-GRASS.

23. **ARISTIDA** L. Tufted plants with contracted or open panicles, which are sometimes nearly racemose. Spikelets narrow. Scales 3, the outer 2 membranous, the third scale narrow, rigid, strongly convolute, often with a prominent callus at the base, the generally spreading awns glabrous to plumose.—POVERTY-GRASS or WIRE-GRASS.

Leaf-blades flat, not villous at the base.

First scale of the spikelet usually shorter than the second: flowering scale less than 5.5 mm. long.

First scale of the spikelet usually longer than the second: flowering scale over 5.5 mm. long.

Leaf-blades involute, at least those of the lower ones and those of the innovations, densely villous.

1. *A. Chapmaniana*.  
2. *A. purpurascens*.  
3. *A. stricta*.

1. *A. Chapmani* Nash. Stems 7-10 dm. tall: leaf-blades 1-2 dm. long: panicle 2-4 dm. long: spikelets 6-8 mm. long, the flowering scale about 5 mm. long, the central awn widely spreading, at right angles to the scale, 1.8-2.5 cm. long, the lateral awns erect, usually a little more than one-half as long as the central awn.—Pinelands.

2. *A. purpurascens* Poir. Stems 3-8 dm. tall: leaf-blades 5-20 cm. long: panicle 1.5-3 dm. long: spikelets 9-12 mm. long, the flowering scale 6-8 mm. long, the awns more or less spreading, especially the central one which is 1.5-2.5 cm. long, the lateral awns from two-thirds as long to nearly equalling it.—Pinelands.—F. K. (*Bah.*)

3. *A. stricta* Michx. Stems 5-10 dm. tall: blades 5-30 cm. long, about 0.7 mm. in diameter: panicle 1-3 dm. long, the short appressed branches in alternate fascicles of 2 or 3: spikelets 10-11 mm. long, the flowering scale 7-9 mm. long, glabrous or sparingly hispidulous toward the summit, the awns more or less spreading, the central one 7-11 mm. long, the lateral ones from  $\frac{1}{2}$  to nearly as long.—Pinelands.—WIRE-GRASS.

24. **MUHLENBERGIA** Schreb. Tufted or diffuse plants with terminal contracted or open panicles. Spikelets small. Scales 3 (or rarely 4), the outer 2 persistent, membranous or hyaline, from minute to almost equalling the third scale, keeled, acute, mucronate or rarely short-awned, the second occasionally 3-toothed, the third scale somewhat rigid, convolute at the apex, entire or rarely 2-toothed, obtuse, acute, mucronate to long-awned, the awn very often capillary, a fourth awned scale very rarely present.

Empty scales awnless or awn-pointed.

Empty scales long-awned, the awn usually many times as long as the scale.

1. *M. capillaris*.

2. *M. filipes*.

1. *M. capillaris* (Lam.) Trin. Stems wiry, 5-12 dm. tall: leaf-blades long and narrow, often involute when dry, 1-3 mm. wide: panicle 1.5-4 dm. long, its branches spreading or ascending: spikelets, exclusive of the awn, 3.5-4 mm. long, lanceolate, acuminate, the empty scales usually one-half as long as the spikelet or less, commonly bearing a short awn.—Coastal sand-dunes.—F. K. (*Bah., Cuba.*)

2. *M. filipes* M. A. Curtis. Stem wiry, 5-10 dm. tall: leaf-blades long and narrow, involute at least when dry, 1-2 mm. wide: panicle 2-3 dm. long, often included at the base, its long branches spreading or ascending: spikelets, exclusive of the awns, 4-5 mm. long, lanceolate, acuminate, the empty scale  $\frac{1}{2}$  as long as the spikelet or less.—Everglades.

25. **STIPA** L. Tufted plants with contracted or open panicles. Spikelets narrow. Scales 3, the two outer persistent, narrow, keeled, acute, rarely awned, the third scale tightly convolute, rigid, narrow, usually attenuate into a more or less geniculate awn, (or rarely 2-toothed or shortly 2-cleft, with the awn strict and arising between the teeth), which is often spiral or twisted at the base, and generally deciduous at the articulation to the scales.

1. *S. avenacea* L. Stems 3-8 dm. tall: leaf-blades involute-filiform, those of the stem-leaves 7-13 cm. long: panicle 1-2 dm. long, its branches lax and finally spreading: flowering scale shorter than the empty scales, black, hairy at the base, and with a ring of short hairs at the top, the awn 4-7 cm. long, bent, loosely spiral below.—Pinelands.—BLACK OAT-GRASS.

26. **SPOROBOLUS** R. Br. Erect or diffuse plants with terminal panicles, which are contracted or open and diffuse. Spikelets small. Scales 3, membranous, acute or obtuse, the first shorter than the second. Stamens 2 or 3.—RUSH-GRASS.

Plants without long rootstocks: leaves with elongate erect blades.

Panicle-branches whorled: spikelets 2.5-3 mm. long.

Panicle-branches scattered: spikelets 1.5-2 mm. long.

Plants with long rootstocks: leaves with short spreading blades.

1. *S. gracilis*.

2. *S. angustus*.

3. *S. virginicus*.

1. *S. gracilis* (Trin.) Merr. Stems tufted, 3-6 dm. tall: leaf-blades filiform, the basal 1.5-3 dm. long, those on the stem few, 2.5-8 cm. long: panicle 7-18 cm. long, open: spikelets 2.5-3 mm. long, purple, the empty scales very unequal, the flowering scale equalling the second and the obtuse palet.—Pinelands.

2. *S. angustus* Buckl. Stems 3-12 dm. tall: leaf-blades 2-6 mm. wide, attenuate into a long slender point, the basal ones 2-3 dm. long: panicle 1-4 dm. long: spikelets 1.5-2 mm. long, crowded on the short panicle-branches: second scale oblong to ovate, about  $\frac{1}{2}$  the length of the spikelet.—Hammocks and roadsides.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *S. virginicus* (L.) Kunth. Stems 1.5-6 dm. tall: leaf-blades 2.5-20 cm. long, 4 mm. wide or less at the base, distichous, involute on the margins and at the summit: panicle 2.5-8 cm. long, 4-10 mm. wide: spikelets 2-2.5 mm. long.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

27. *SPARTINA* Schreb. Erect or decumbent plants with the spike-rachis extending beyond the spikelets. Spikelets sessile or nearly so, much crowded and imbricate. Scales 3, firm-membranous, the 2 outer keeled, the flowering scale equalling or a little longer and broader than the second scale.—MARSH-GRASS.

First scale less than  $\frac{1}{2}$  as long as the second: spikes usually few, erect or ascending.

1. *S. juncea*.

First scale about  $\frac{3}{4}$  as long as the second: spikes numerous, appressed.

2. *S. junciformis*.

1. *S. juncea* (Michx.) Willd. Stems often stout, 5-12 dm. tall: leaf-blades 1.5-6 dm. long, involute, erect or ascending: spikes 2-8, 2.5-5 cm. long: spikelets 7-10 mm. long.—Hammocks along Bay Biscayne.—(*Ber.*)

2. *S. junciformis* Engelm. & Gray. Stems rigid, often slender, 3-10 dm. tall: leaf-sheaths thick, hard, the lower ones shining; blades involute, 5 dm. long or less: panicle 1-2 dm. long, narrow, strict: spikelets about 7 mm. long.—Everglades.—F. K.

28. *CAPRIOLA* Adans. Stoloniferous plants, the stems as well as the stolons often creeping. Spikelets small. Scales 3, the 2 outer persistent, thin, keeled, the flowering scale membranous, broader, its keel ciliate.

1. *C. Dactylon* (L.) Kuntze. Stems 1-3 dm. tall, from long creeping and branching rootstocks: leaf-blades 2.5-5 cm. long, 2-4 mm. wide: spikes 1-5 cm. long: spikelets 2 mm. long.—Hammocks and pinelands, and cultivated grounds. Nat. from Eu., and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—BERMUDA GRASS.

29. *EUSTACHYS* Desv. Erect plants with the spikes single or in pairs, or 3-many and digitate. Spikelets usually 1-flowered, sessile. Scales 4, rarely 5, the 2 lower persistent, the remaining scales firmer than the empty scales.

Spikes usually 4-6, rarely more: second scale of the spikelet manifestly 2-toothed at the apex: leaf-blades usually 3-7 mm. wide.

1. *E. petraea*.

Spikes 10-25: second scale of the spikelet truncate at the apex: leaf-blades usually 1 cm. wide or more.

2. *E. glauca*.

1. *E. petraea* (Sw.) Desv. Stems 3-11 dm. tall: leaf-blades 3 dm. long or less: spikes erect, 4-11 cm. long: scales 4, the second 1.5-1.75 mm. long, the awn about 0.5 mm. long: third scale about 2 mm. long, the awn short or wanting: fourth scale 1.3-1.5 mm. long.—Pinelands.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *E. glauca* Chapm. Stems 6-15 dm. tall: leaf-blades 2.5 dm. long or less: spikes 6-15 cm. long: scales 4: second scale 1.5 mm. long, the awn about 0.3

mm. long: third scale 1.75 mm. long, awnless: fourth scale about 1.3 mm. long.—Pinelands.

**30. GYMNOPOGON** Beauv. Erect or diffuse plants with flat, generally short, leaf-blades and numerous long slender spikes which are alternately arranged or the lower ones subverticillate. Spikelets 1-flowered, narrow, the rachilla glabrous and produced beyond the flower, bearing at its apex a small usually awned scale. Scales 4, the 2 lower persistent, narrow, the third scale shortly 2-toothed, bearing a straight awn.

**1. G. ambiguus** (Michx.) B.S.P. Stems 3-5 dm. tall: leaf-sheaths with a villous ring at the summit, crowded at the base of the stem; blades 2-10 cm. long, 4-12 mm. wide, crowded at the base: spikes slender, 1-2 dm. long: spikelets 4-5 mm. long, the awn of the flowering scale 4-6 mm. long.—Pinelands.

**31. BOUTELOUA** Lag. Erect tufted plants with few scattered many-flowered spikes with the rachis sometimes conspicuously prolonged beyond the spikelets. Spikelets 1-2-flowered. Scales 3 or more, the 2 lower narrow, usually thinner and broader, 3-nerved, the nerves excurrent from the lobes or teeth as short awns, or protruding between the lobes, the small empty scales terminating the rachilla 1-3, 3-awned.

**1. B. oligostachya** (Nutt.) Torr. Stems 1.5-5 dm. tall: blades 2-10 cm. long, 2 mm. wide or less: spikes 1-3, 2.5-5 cm. long: spikelets about 6 mm. long.—Pinelands.—MESQUITE-GRASS.

**32. ELEUSINE** Gaertn. Annual, or perennial and creeping grasses, with flat leaf-blades, and an inflorescence composed of normally several spikes arranged digitately or approximately with sometimes an additional 1 or 2 spikes below. Spikelets numerous, much crowded, imbricate, sessile, alternate in 2 rows, several-flowered, the flowers perfect, or the upper ones staminate. Scales several, obtuse or acute, flattened, keeled, thin, the 2 lower ones empty, a little shorter than the others, the remaining scales usually more obtuse, each of the lower ones enclosing a scarcely shorter compressed 2-keeled palet and a flower, the terminal scales empty.

**1. E. indica** (L.) Gaertn. Stems 1.5-6 dm. tall, erect or decumbent: leaf-sheaths loose, overlapping, often short and crowded at the base of the stem; blades 7-30 cm. long, 2-6 mm. wide: spikes 2-10, whorled or approximate at the summit of the stem, or sometimes with 1 or 2 distant ones, 2-8 cm. long: spikelets 3-4 mm. long, 3-6-flowered.—Pinelands, cultivated and waste ground. Nat. from the Old World.—F. K. (*Ber.*, *Bah.*, *Cuba*, *Ant.*)—WIRE-GRASS. DOG-GRASS OR YARD-GRASS. CROW-FOOT.

**33. DACTYLOCTENIUM** Willd. Annual grasses, with flat leaf-blades, and an inflorescence consisting of 1-sided spikes terminally arranged in pairs or digitate. Spikelets numerous, crowded, imbricate, sessile, alternate in 2 rows, several-flowered, the flowers perfect, or the upper ones staminate. Scales several, acute or mucronate-pointed, or the second one awned, thin, flattened, keeled, the 2 lower empty, the remaining scales broader, each of the lower ones enclosing a scarcely empty compressed 2-keeled palet and a flower, the upper scales empty.

**1. D. aegyptium** (L.) Willd. Stems 1.5-6 dm. tall, usually decumbent and extensively creeping: leaf-sheaths loose, overlapping, often crowded; blades 1.5 dm. long or less, 2-6 mm. wide, ciliate toward the base: spikes in pairs, or 3-5

and digitate, 1-5 cm. long: spikelets 3-5-flowered.—Pinelands, cultivated and waste grounds. Nat. from the Old World.—F. K. (*Bah., Cuba, Ant.*)—EGYPTIAN-GRASS.

**34. PHRAGMITES** Trin. Tall erect plants with flat usually broad leaf-blades and ample terminal panicles. Spikelets 2-several-flowered, the lower flower staminate, the remainder perfect. Scales 4-several, the first much shorter than the second, the remaining scales long-acuminate.

1. *P. Phragmites* (L.) Karst. Stems 1-5 m. tall, from long rootstocks: leaf-blades 1.5-3 dm. long or more, 1-5 cm. wide, flat: panicle ample, 1.5-3 dm. long or more: spikelets crowded, the flowering scales 10-12 mm. long.—Shore hammocks.—F. K. (*Bah.*)—COMMON-REED.

**35. ERAGROSTIS** Beauv. Erect or diffuse plants, the stems sometimes prostrate or creeping, with open or contracted panicles. Spikelets numerous, arranged singly or in fascicles, 2-many-flowered, the flowers perfect or unisexual. Scales 4-many, membranous, compressed, keeled, the flowering scales 3-nerved, obtuse or acute at the apex: palet often incurved and persistent on the rachilla after the fall of the scale.

Palet of the spikelets glabrous on the keels or merely hispidulous: plants perennial.

1. *E. Elliottii*.

Palet of the spikelets conspicuously and beautifully ciliate: plants annual.

Panicle contracted, spike-like, the branches short and appressed.

2. *E. ciliaris*.

Panicle open, its branches spreading.

3. *E. plumosa*.

1. *E. Elliottii* S. Wats. Stems firm, 4-10 dm. tall: leaf-blades 4 dm. long or less, 3-5 mm. wide: panicle diffuse, 2-5 dm. long, its long slender branches finally widely spreading or ascending; spikelets 6-13-flowered, 5-10 mm. long, the flowering scales 1.75-2 mm. long.—Everglades.—F. K. (*Bah., Cuba, Ant.*)

2. *E. ciliaris* (L.) Link. Stems 1.5-4 dm. tall: leaf-sheaths usually ciliate on the margin and with a tuft of long hairs at the apex; blades 2-8 cm. long: panicle often interrupted below, 3-10 cm. long: spikelets 6-16-flowered, the hairs of the palet exceeding 0.5 mm. long.—Hammocks and cultivated grounds.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *E. plumosa* Link. Stems 1-4 dm. tall: leaf-sheaths usually ciliate on the margin and with a tuft of hairs at the apex; blades 2-10 cm. long: panicle oblong, 4-16 cm. long: spikelets 4-8-flowered, the nerves of the palet ciliate with hairs about 0.2 mm. long.—Hammocks and cultivated grounds.—F. K. (*Bah., Cuba.*)

**36. UNIOLA** L. Erect or reclining plants with contracted or open panicles. Spikelets laterally compressed, 2-edged, 3-many-flowered. Scales 6-many, compressed-keeled, sometimes winged, the flowering scales many-nerved.

1. *U. paniculata* L. Stems 1-2.5 m. tall: leaf-blades 3 dm. long or more: panicle 2-3 dm. long or more: spikelets many-flowered, ovate to oval, 12-25 mm. long, the flowering scales 8-10 mm. long.—Coastal sand-dunes.—F. K. (*Bah., Cuba.*)—SEA-OATS.

**37. DISTICHLIS** Raf. Tufted, dioecious plants with rigid creeping or decumbent stems concealed by the overlapping sheaths, and contracted panicles. Spikelets many-flowered, unisexual, more numerous in the staminate than in the pistillate panicles, the rachilla articulate in the pistillate spikelets. Scales many, acute, the flowering scales long and broad, firm, membranous, or nearly coriaceous.



1. *D. spicata* (L.) Greene. Stems 1-6 dm. long: leaf-blades 2-4 mm. wide: panicle 2-6 cm. long: spikelets 8-18 mm. long, 6-16-flowered, pale-green, the flowering scales 3-5 mm. long, acute or acuminate.—Everglades and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)—SPIKE-GRASS.

FAMILY 2. CYPERACEAE. SEDGE FAMILY.

Grass-like or rush-like caulescent or scapose herbs, often with root-stocks. Stems or scapes solid, or rarely hollow, often 3-sided or 3-angled. Leaves with closed sheaths: blades narrow. Flowers perfect or imperfect, in spikelets, one (rarely 2), in the axil of each scale (glume, bract), the spikelets clustered or solitary, 1-many-flowered. Scales 2-ranked or spirally imbricate. Perianth of bristles, or scale-like parts, or wanting. Androecium of 1-3 stamens, or rarely more. Gynoecium of 2 or 3 united carpels. Fruit an achene.

Flowers of the spikelets, at least one of them perfect.

Spikelets perfect, or mainly so, rarely of 2 scales and 1 flower.

Scales of the spikelets 2-ranked: spikelets several or many together in each spike.

Scales of the spikelets spirally imbricate all around or 2-ranked in *Abildgaardia* in which each scape is terminated by one spikelet.

Base of the style not at all, or only slightly, thickened, deciduous.

Perianth of dilated scales and bristles: spikelet-scales pubescent.

Perianth of bristles only, or wanting: spikelet-scales glabrous.

Base of the style manifestly swollen, persistent as a tubercle on the achene, or deciduous.

Perianth present.

Perianth wanting.

Achene not surmounted by a tubercle.

Spikelets terete, the scales spirally imbricate.

Spikelets flattened, the scales 2-ranked.

Achene surmounted by a tubercle.

Spikelets in umbels or cymes, without an imbricate involucre.

Spikelets in a head subtended by an imbricate involucre.

Spikelets polygamous, or rarely of 4 scales and only 1-flowered.

Scales of the spikelet 2-ranked.

Scales of the spikelets spirally imbricate.

Stigmas 3: style deciduous.

Inflorescence paniculate.

Inflorescence capitate.

Stigmas 2; style persistent.

Flowers monoecious or dioecious.

1. CYPERUS.

2. FUIRENA.

3. SCIRPUS.

4. ELEOCHARIS.

5. FIMBRISTYLIS.

6. ABILDGAARDIA.

7. STENOPHYLLUS.

8. DICHROMENA.

9. SCHOENUS.

10. MARISCUS.

11. REMIREA.

12. RYNCHOSPORA.

13. SCLERIA.

1. **CYPERUS** [Tourn.] L. Scapose herbs. Leaves basal: blades narrow.

Scapes, in our species, simple, triangular, and with one or more bracts at the summit forming an involucre to the umbellate or capitate inflorescence. Rays of the umbel sheathed at the base, usually very unequal, one or more of the heads or spikes commonly sessile. Spikelets flat or nearly terete. Perianth none. Achene not tubercled.—GALINGALE.

Style-branches or stigmas 2: achene lenticular.

Scales of the spikelets obtuse.

Scales of the spikelets acute or acuminate.

Style-branches or stigmas 3: achene trigonous.

Rachis of the flattened spikelets persistent, the scales falling away.

Wings of the rachis none or very narrow.

Stamens 3: plants annual.

1. *C. densus*.

2. *C. paniculatus*.

3. *C. compressus*.

700  
Cans

- Stamen 1: plants perennial.  
 Wings of the rachis manifest.  
 Leaves reduced to pointed sheaths.  
 Involucral bracts numerous: spikelets broad,  
 1.5-2 mm. wide, reddish-brown.  
 Involucral bracts mostly 2: spikelets slender  
 about 1 mm. wide, pale.  
 Leaves with elongate-linear blades.  
 Rachis of the spikelets deciduous.  
 Rachis breaking up into 1-fruited joints: spikelets  
 nearly terete.  
 Rachis deciduous above the lower pair of scales.  
 Achenes narrowly linear-oblong, 2½-4 times as  
 long as thick.  
 Spikelets distinctly flattened, several-many-  
 flowered.  
 Spikelets nearly terete to a little flattened,  
 1-few-flowered.  
 Spikes obovoid, the lower spikelets reflexed.  
 Spikelets with appressed scales: achenes  
 about 2 mm. long.  
 Spikelets with lax scales: achenes about  
 1.5 mm. long.  
 Spikes cylindric.  
 Achenes oblong to obovoid, not more than twice as  
 long as thick.  
 Spikelets with 1-4 achenes.  
 Rachis wingless or narrowly winged.  
 Umbel simple: leaf-blades narrow.  
 Umbel compound: leaf-blades broad.  
 Rachis with broad membranous wings.  
 Spikelets with 5-10 achenes.
4. *C. surinamensis*.  
 5. *C. alternifolius*.  
 6. *C. Haspan*.  
 7. *C. rotundus*.  
 8. *C. speciosus*.  
 9. *C. Martindalei*.  
 10. *C. retrorsus*.  
 11. *C. Pollardi*.  
 12. *C. Torreyi*.  
 13. *C. tetragonus*.  
 14. *C. ligularis*.  
 15. *C. echinatus*.  
 16. *C. brunneus*.

1. *C. densus* Link. Annual, 1-7 dm. tall: leaves generally 2 or 4; blades 1-3 mm. wide, smooth: umbel capitate, or 2-4 rays becoming 1-3 cm. long: spikelets few, linear to linear-lanceolate, 5-8 mm. long, acutish: scales straw-colored or yellowish-green, ovate, 2 mm. long: achenes oval or oval-obovoid, 1 mm. long, brown, dull, barely ½ as long as the scale. [*C. helvus* Liebm.]—Hammocks.—(*Cuba, Ant.*)

2. *C. paniculatus* Rottb. Annual, 1-4 dm. tall: leaves often 3-6; blades 1-4 mm. wide, or sometimes narrower or even filiform, not firm: umbel with 3-8 rays 1-5 cm. long, or rarely nearly capitate: spikelets few, linear or linear-lanceolate, 6-15 mm. long, acute: scales light chestnut-brown, oblong-lanceolate, 2-2.5 mm. long: achenes oblong, fully 1 mm. long, grayish, abruptly apiculate, fully ½ as long as the scale.—Everglades.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *C. compressus* L. Annual, with scapes 7-25 cm. long: leaves light-green; blades about 2 mm. wide: scapes smooth: umbel capitate or with 2-3 short rays: spikelets narrowly lanceolate, acute, 8-20 mm. long, 3-4 mm. wide, very flat, many-flowered: scales light-green with a yellow band on each side, ovate, acuminate: achenes obovoid, obtuse, dull-brown, about ½ as long as the scale.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

4. *C. surinamensis* Rottb. Perennial, 2-12 dm. tall: leaves overtopped by the scape; blades mostly 1.5-4 mm. wide, usually rough along the margins: scapes rough above: umbels mostly compound, of generally 8-12 rays of various lengths, several spikes sessile or clustered in the involucre: spikelets oblong or linear-oblong, 5-12 mm. long, yellow, blunt, 40-50-flowered: scales ovate, nearly 1.5 mm. long: achenes oblong, about 0.8 mm. long, brown, pinched at both ends.—Everglades.—(*Cuba, Ant.*)

5. *C. alternifolius* L. Perennial 0.5-2 m. tall: leaves without blades: scapes often tufted: bracts of the involucre numerous, pliable, elongate-linear, spreading or slightly drooping: umbel compound, the longer rays 2.5-9 cm. long or more: spikelets ovate to linear-oblong, 1.5-2.5 mm. wide; scales spreading: achenes obovoid, about 0.8 mm. long, brown.—Everglades. Nat. of Africa. (*Ber., Cuba, Ant.*)—UMBRELLA-PLANT.

6. *C. Haspan* L. Perennial, 3-10 dm. tall: leaves reduced to membranous acuminate sheaths: umbel simple or compound, the longer rays 2-5 cm. long: spikelets few, capitate, linear, acute, many-flowered, 6-12 mm. long, about 1 mm. wide: scales oblong or oblong-lanceolate, reddish-brown, acute, mucronulate: rachis winged: achene broadly obovoid, 0.5-0.7 mm. long, obtuse, nearly white, much shorter than the scale.—Everglades.—(*Cuba, Ant.*)
7. *C. rotundus* L. Perennial, 1-5 dm. tall: leaf-blades 3-6 mm. wide: umbel 3-8-rayed, the longer rays 5-11 cm. long: spikelets linear, clustered, few in each cluster, acute, 8-20 mm. long, 2-3 mm. wide: scales purple-brown or with green margins and center, ovate, acute, appressed: achene linear-oblong, about 1 mm. long, about  $\frac{1}{2}$  as long as the scale.—Pinelands and hammocks. (*Ber., Bah., Cuba, Ant.*)—NUT-GRASS.
8. *C. speciosus* Vahl. Annual, 1-4 dm. tall: leaf-blades rough-margined, 3-5 mm. wide, the midvein prominent: umbel 3-7-rayed, the primary rays 2-15 cm. long: spikes dull-brown: spikelets subterete, very narrowly linear, 8-25 mm. long, less than 2 mm. thick, 10-30-flowered: scales dull-brown, thin, not tightly appressed, ovate, obtuse: rachis-wings broad, clasping the achene, persistent: achene obovoid, barely 1.5 mm. long, pale, 3-angled, about  $\frac{1}{2}$  as long as the scale.—Everglades.—(*Cuba, Ant.*)
9. *C. Martindalei* Britton. Perennial, 2-7 dm. tall: leaves overtopped by the scape; blades filiform by the revolute margins, smooth: umbel capitate, or with 1-3 slender rays: spikes globular, 1-2 cm. in diameter: spikelets linear or linear-subulate, 6-10 mm. long, yellowish-green, densely crowded: scales broadly oblong, 2-2.5 mm. long, prominently ribbed: achenes oblong, 2 mm. long or nearly so, brown, dull.—Pinelands.—F. K.
10. *C. retrorsus* Chapm. Perennial, 4-7 dm. tall: leaves overtopped by the scape; blades 3-5 mm. wide, sometimes with rough margins and nerves beneath: umbel simple, of usually 8 slender rays: spikes narrowly obovoid, 1-1.5 cm. long: spikelets densely crowded, subulate, 3 mm. long, the lower ones becoming reflexed: scales oblong or nearly so, 2.5-3 mm. long, ribbed, closely appressed: achenes oblong-prismatic, nearly 2 mm. long, light-brown.—Pinelands.
11. *C. Pollardi* Britton. Perennial, 6-13 dm. tall: leaves shorter than the scape; blades usually less than 3 mm. wide: umbel of few unequally peduncled heads: spikelets 3-4.5 mm. long, the scales loose, or deciduous at maturity: achenes linear-oblong, about 1.5 mm. long.—Everglades and hammocks.—(*Cuba.*)
12. *C. Torreyi* Britton. Perennial by corms, 1-5 dm. tall: leaf-blades 2-3 mm. wide: umbel simple, the rays short, or the longer 2-7 cm. long: spikes very dense, cylindrical, 5-15 mm. long, 4-8 mm. in diameter, simple: spikelets 3-4 mm. long, flattish, 1-2-flowered, spreading or the lower reflexed: scales green, oblong: achenes linear-oblong about 1.5 mm. long, apiculate, slightly more than  $\frac{1}{2}$  as long as the scale.—Pinelands.
13. *C. tetragonus* Ell. Perennial, 3-8 dm. tall: leaves mostly overtopped by the scape; blades 4-10 mm. broad, smooth or nearly so: umbel mostly compound, of 6-12 slender erect or ascending rays and one or more spikes sessile in the involucre: spikelets linear-oblong, plump, 4-6 mm. long, acute, chestnut-colored, 4-6-flowered, spreading or the lower reflexed: scales oblong, fully 3 mm. long, 9-11-nerved, closely imbricate: achenes oblong or elliptic, 2 mm. long, chestnut-colored, dull.—Everglades.
14. *C. ligularis* L. Perennial, 5-12 dm. tall: leaves sometimes overtopping the scape; sheath colored at the base; blades 6-20 mm. broad, serrulate, somewhat revolute: umbel compound, of 6-many short rays, often rather dense, or the rays rarely elongate: spikes cylindrical or oblong, 1-2 cm. long: spikelets 4-6 mm. long, gray to brown, densely crowded, spreading; scales

oval, 2.5-3 mm. long, blunt, closely imbricate, delicately ribbed: achenes elliptic or slightly broadest above the middle, 1.5 mm. long, dark-brown, dull.—Everglades.—F. K. (*Bah., Cuba, Ant.*)

15. *C. echinatus* (Ell.) Wood. Perennial, 1-5 dm. tall: leaves pale-green; blades 3-4 mm. wide: umbel 6-13-rayed: rays filiform, their sheaths short, mucronate: spikelets 4-8 mm. long, linear, flat, capitate in globose heads: scales thin, pale-green, appressed, ovate-lanceolate, acute, 9-13-nerved, with narrow scarious margins: achene oblong-obovoid, 2 mm. long, about twice as long as thick.—Pinelands.—(*Ber., Ant.*)

16. *C. brunneus* Sw. Perennial, 3-7 dm. tall: leaves overtopped by the scape; blades 2-7 mm. wide, smooth, sometimes involute: umbel compound, capitate, or 3-5 of the rays becoming 1-7 cm. long: spikelets linear or linear-lanceolate, 10-15 mm. long, chestnut-colored, densely crowded: scales oval or ovate-oval, nearly 3 mm. long, often apiculate, conspicuously ribbed: achenes elliptic-obovoid, fully 1.5 mm. long, dark-brown. [*C. Ottonis* Boeckl.]—Coastal sandunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **FUIRENA** Rottb. Caulescent herbs with many-flowered terete spikelets in terminal and axillary clusters, or rarely solitary. Scales spirally imbricate, awned, the 1 or 2 lower commonly empty. Flowers perfect. Perianth of 3 ovate, oblong, or cordate-ovate, stalked, often awned sepals, usually alternating with as many downwardly barbed bristles. Achene stalked or nearly sessile, sharply 3-angled, smooth.—UMBRELLA-GRASS.

Leaves mere bladeless or nearly bladeless sheaths: stem reclining. 1. *F. scirpoidea*.  
Leaves with well-developed blades: stem erect. 2. *F. breviseta*.

1. *F. scirpoidea* Michx. Plants reclining: leaf-blades obsolete or rudimentary: spikelets not bristly; scales mucronate: sepal-blades oblong-ovate, not ciliate: achene-body fully 1 mm. long, longer than wide, stipitate.—Everglades.

2. *F. breviseta* Coville. Plants erect: leaf-blades linear: spikelets bristly; scales with recurved awn-tips: sepal-blades ovate-cordate, ciliate: achene-body less than 1 mm. long, fully as wide as long, not stipitate.—Everglades and low pinelands.

3. **SCIRPUS** [Tourn.] L. Caulescent or scapose herbs, the leaves sometimes reduced to basal sheaths. Spikelets solitary, capitate, spicate, or umbellate, usually involucrate. Scales spirally imbricate, the 1-3 lower sometimes empty. Flowers perfect. Perianth of 1-6 slender or rigid, barbed, pubescent or smooth bristles, or rarely none. Achene triangular, lenticular, or plano-convex.

1. *S. validus* Vahl. Scapes stout, terete, smooth, 1-3 m. tall, sometimes 2 cm. in diameter, sheathed below: involucrel bract solitary, erect, shorter than the umbel: umbel compound, appearing lateral, its primary rays 3-10 cm. long: bracts linear-lanceolate: spikelets becoming oblong-cylindric, in mostly capitate clusters of 2-5, sessile or some of them peduncled, 5-16 mm. long, 3-4 mm. in diameter: perianth-bristles 4-6, downwardly barbed, equalling or longer than the achene: achenes plano-convex, obovoid, 2-2.5 mm. long, gray, abruptly mucronate, dull.—Everglades and stream-banks.—(*Ber., Bah., Cuba, Ant.*)—GREAT-BULRUSH.

4. **ELEOCHARIS** R. Br. Scapose herbs. Leaves reduced to sheaths or the lowest very rarely blade-bearing. Scapes simple. Spikelets solitary, terminal, erect, several-many-flowered, not involucrate or rarely with 2 small subtending bracts. Scales spiral. Perianth of 1-12 bristles, usually retrorsely

barbed, or wanting. Base of the style persistent on the achene as a tubercle.  
—SPIKE-RUSH.

Spikelet scarcely, if at all, thicker than the scape; scales leathery. 1. *E. cellulosa*.  
Spikelet manifestly thicker than the scape; scales mostly membranous.

Upper sheath scarious, hyaline; plants perennial. 2. *E. flaccida*.  
Upper sheath 1-toothed, not scarious; plants annual. 3. *E. capitata*.

1. *E. cellulosa* Torr. Perennial. Scapes obscurely 3-angled and invested by discolored sheaths at the base, terete above, 3-7 dm. tall: spikelet cylindric, 1.5-3 cm. long: scales with white hyaline margins: achene-body broadly obovoid, copiously pitted, 1.5-2 mm. long, about as long as the bristles; tubercle deltoid, about  $\frac{1}{2}$  as broad as the widest part of the achene.—Everglades.—F. K. (*Ber., Bah., Cuba.*)

2. *E. flaccida* (Spreng.) Urban. Scapes very slender, pale-green, 0.5-2.5 dm. tall: upper sheath with a white, hyaline, scarious limb: spikelet subacute, 2-3 times as thick as the scape, about 4 mm. long: scales pale-green, hyaline, each with a faint midvein: perianth-bristles about 6, slender, retrorsely barbed, somewhat longer than the achene: achene-body 0.7-1 mm. long, lenticular, obovoid, smooth, brown; tubercle conic, acute. [*E. ochreate* (Nees) Steud.] —Coastal sand-dunes.—(*Bah., Cuba, Ant.*)

3. *E. capitata* (L.) R. Br. Scapes tufted, almost filiform, 0.5-2.5 dm. tall: upper sheath 1-toothed: spikelet ovoid, obtuse, much thicker than the scape, 3-5 mm. long: scales brown except the greenish midvein, narrowly scarious-margined: perianth-bristles 5-8, slender, downwardly hispid, as long as the achene: achene-body obovoid, jet-black, smooth, shining, 1 mm. long; tubercle depressed, apiculate.—Everglades.—F. K. (*Ber., Bah., Cuba, Ant.*)

5. **FIMBRISTYLIS** Vahl. Scapose herbs. Spikelets umbellate or capitate, terete, several-many-flowered, the scales spiral, all fertile, deciduous. Involucre with 1-many bracts. Perianth none. Style with an enlarged base, but falling away from the top of the achene.

Achenes cancellate in many rows: style short-ciliate. 1. *F. castanea*.  
Achenes longitudinally ribbed and reticulate: style long-ciliate. 2. *F. Harperi*.

1. *F. castanea* (Michx.) Vahl. Plants without scaly rootstocks: leaves few; blades involute, less than 2 mm. wide: scapes 2-5 dm. tall: spikelets oblong, 6-10 mm. long: achenes obovoid or oblong, 1.5 mm. long.—Everglades.—F. K. (*Ber., Bah., Cuba.*)

2. *F. Harperi* Britton. Plants with scaly rootstocks: leaves rather numerous; blades flat or involute, mostly 2-3 mm. wide: scapes 3-6 dm. tall: spikelets cylindric in age, 8-14 mm. long: achenes obovoid or oblong-obovoid, about 1.5 mm. long.—Coastal sand-dunes.

6. **ABILDGAARDIA** Vahl. Acaulescent herbs. Leaf-blades narrow, commonly involute. Scapes tufted, jointless, simple. Involucre of a single small bract. Spikelets solitary or several in terminal umbels or clusters, pale: scales imbricate in 2 rows, or in 3 rows by the twisting of the rachis, deciduous. Perianth wanting. Style pubescent, with a swollen base, deciduous. Achenes 3-angled, warty.

1. *A. monostachya* (L.) Vahl. Leaf-blades nearly filiform above the discolored bases, slightly involute, sharp-pointed: scapes tufted, very slender or filiform, 1-4 dm. tall, erect, smooth: bracts of the involucre much shorter than the spikelets, inconspicuous: spikelet solitary or sometimes 2 together, flattened, ovoid or conic, 1-1.5 cm. long, pale: achenes slightly pear-shaped, 2-2.5 mm. long, yellowish-white, often apiculate.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

7. **STENOPHYLLUS** Raf. Scapose tufted herbs. Leaves basal: blades narrowly linear, filiform or setaceous, the sheaths ciliate or pubescent. Spikelets umbellate, capitate, or solitary, the scales spiral, mostly deciduous. Involucre of 1-several bracts. Flowers perfect. Perianth none. Style glabrous, the base much swollen and persistent as a tubercle on the achene.

Leaf-blades eciliate: achenes about 1 mm. long. 1. *S. coarctatus*.  
Leaf-blades ciliate: achenes about 0.5 mm. long. 2. *S. Carteri*.

1. *S. coarctatus* (Ell.) Britton. Scapes 2-3 dm. tall, smooth: umbel contracted: spikelets linear-oblong, 10-15-flowered: achenes obovoid, about 1 mm. long.—Pinelands.

2. *S. Carteri* Britton. Scapes 1-1.5 dm. tall, scabrous near the top: umbel not contracted: spikelets ovoid or nearly so, few-flowered: achenes broadly obovoid, about 0.5 mm. long.—Pinelands.

8. **DICHROMENA** Michx. Caulescent herbs with the spikelets crowded in a terminal head involucre by several bracts, which are often white at the base. Spikelets compressed, several-many-flowered. Scales spirally imbricate all around, several of them with imperfect flowers, or empty. Perianth none. Style subulate. Achene lenticular, transversely rugose, crowned with the broad persistent base of the style (tubercle).—WHITE-TOP.

Bracts of the involucre 4-6, linear: tubercle truncate on top of the achene.

Leaves filiform above the dilated base: achenes dark; tubercle low, blunt.

1. *D. floridensis*.

Leaves linear above the dilated base: achenes pale; tubercle long, acute.

2. *D. colorata*.

Bracts of the involucre 7-10, lanceolate: tubercle decurrent on the sides of the achene.

3. *D. latifolia*.

1. *D. floridensis* Britton. Stems copiously tufted, 2-4 dm. tall, slender: leaf-blades involute-filiform: bracts of the involucre attenuate: heads about 1 cm. in diameter: spikelets oblong: scales pale: achene-body obovoid, slightly over 1 mm. long, dark-brown, finely wrinkled.—Pinelands.

2. *D. colorata* (L.) A. Hitchc. Stem slender, rather sharply triangular, 3-6 dm. tall: leaf-blades narrowly linear, much shorter than the stem: bracts of the involucre reflexed when mature, yellowish-white at the base: head globose, 1-2 cm. in diameter: spikelets narrowly oblong, acute: scales membranous, lanceolate, nearly white, subacute: achene-body obovoid, a little over 1 mm. long, pale-brown, compressed.—Everglades and low pinelands.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *D. latifolia* Baldw. Similar to No. 2, but stem stouter, obtusely triangular or nearly terete: leaf-blades lanceolate or linear-lanceolate, tapering gradually to a long acuminate apex from a broad base, 3-8 mm. wide, sometimes overtopping the stem: bracts of the involucre strongly reflexed when old: head globose, 1-2 cm. in diameter: spikelets oblong, subacute: scales ovate-lanceolate, nearly white, rather obtuse: achene-body nearly orbicular in outline, a little over 1 mm. long, pale-brown, faintly wrinkled transversely and longitudinally so as to appear reticulated.—Everglades.

9. **SCHOENUS** L. Acaulescent rush-like herbs. Leaf-sheaths dark-colored; blades resembling the scapes, half-terete. Spikes in a terminal cluster, 1-8-flowered, subtended by an involucre of 1-2 bracts. Spikelets crowded, often dark-colored: scales imbricate in 2 rows, persistent. Perianth of 3-6 scabrous or plumose bristles. Styles barely enlarged at the base, almost wholly deciduous. Achene 3-angled, smooth.

1. *S. nigricans* L. Leaf-sheaths dark-brown or almost black at the base; blades erect, rigid, pungent: scapes tufted, 2-6 dm. tall: bracts of the involucre 2, the lower one surpassing the inflorescence: head about 1 cm. long, dark chestnut-colored: spikelets flattened, 6-8-flowered, narrowed upward: perianth-bristles 6, unequal, somewhat plumose: achenes oval, white and polished, about 2 mm. long.—Everglades.—F. K. (*Bah., Cuba.*)

10. *MARISCUS* [Hall.] Zinn. Caulescent, often large, herbs. Leaves with rough margins. Spikelets oblong to fusiform, few-flowered, variously clustered. Scales spiral, the lower empty, the middle ones mostly subtending imperfect flowers, the upper with fertile flowers. Perianth none. Style deciduous. Achene ovoid or globose, smooth or longitudinally striate, without a tubercle. [*Cladium* P. Br.]

1. *M. jamaicense* (Crantz) Britton. Stems 1.5-3 m. high: leaf-blades very glabrous, 6-20 mm. wide, the margins spinulose-serrulate: umbels several or numerous, decompound, forming a large panicle: spikelets mostly 2-5 together at the ends of the raylets, narrowly ovoid, acute, 4-5 mm. long: achene ovoid, wrinkled, 2 mm. long. [*C. effusum* (Sw.) Torr.]—Everglades and limesinks in pinelands and hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)—SAW-GRASS.

11. *REMIREA* Aubl. Caulescent herbs. Leaves imbricate: blades narrow, rigid. Involucre with numerous bracts, the outer spreading. Flowers perfect. Spikelets numerous, capitate, 1-flowered. Scales about 4, imbricate. Perianth wanting. Style barely enlarged below, the base continuous with the ovary. Achenes 3-angled, tightly enclosed in the inner scales.—TUFT-GRASS.

1. *R. maritima* Aubl. Stems 0.5-3 dm. tall, densely leafy, simple: leaves numerous; blades linear or linear-lanceolate, 2-10 cm. long, attenuate, slightly involute, smooth: bracts of the involucre resembling the leaves: spike 1-1.5 cm. long, ovoid, sometimes compound: spikelets 3-5 mm. long: achenes narrowly oblong, 2.5-3 mm. long, often curved, apiculate, rather granular.—Coastal sand-dunes.—F. K. (*Ant.*)

12. *RYNCHOSPORA* Vahl. Caulescent herbs. Leaves not imbricate: blades narrow, flat, or involute. Spikelets not capitate, ovoid, oblong, or fusiform. Scales thin, 1-nerved, imbricate, usually mucronate by the excurrent midvein. Upper flowers imperfect, the lower perfect. Perianth of 1-24 (mostly 6) upwardly or downwardly barbed or scabrous bristles, or wanting. Achene lenticular or swollen, not 3-angled, smooth, cancellate or transversely wrinkled, capped with the persistent tubercle.—BEAK-RUSH.

Style long, its branches much shorter than the united lower part.

Spikelets in 1-4 dense globular heads: achenes with a slender tubercle.

Spikelets in panicle clusters: achenes with a stout tubercle. Style short, its branches as long as the united part or longer.

Perianth-bristles wanting.

Perianth-bristles present.

Achene smooth or cancellate, not transverse-wrinkled.

Leaf-blades broadly linear, blunt or merely acute: achene 1.5 mm. long.

Leaf-blades narrowly linear, attenuate: achenes 2.5 mm. long.

Achene transverse-wrinkled.

Perianth-bristles shorter than the achene.

Achene 1 mm. long; tubercle depressed, wider than high.

Achene 1.5 mm. long; tubercle conic, about as high as wide.

Perianth-bristles about as long as the achene or longer.

1. *R. Tracvt.*

2. *R. corniculata.*

3. *R. divergens.*

4. *R. ciliata.*

5. *R. Grayi.*

6. *R. perplexa.*

7. *R. cymosa.*

Achene not stipitate.  
 Tubercle setose.  
 Tubercle not setose.  
 Achene stipitate.

8. *R. caduca*.  
 9. *R. mitacea*.  
 10. *R. stipitata*.

1. **R. Tracyi** Britton. Stems 5-12 dm. tall: leaf-blades channeled, 4-8 mm. wide, straight, erect or ascending: heads 1-6, globose 1-2 cm. in diameter: spikelets lanceolate, 5-6 mm. long, acuminate, pale: scales often 9, the fourth one fertile: perianth-bristles 6, very slender: achene-body flat, obovoid or cuneate-obovoid, 2.5-3 mm. long, minutely wrinkled, ciliate, exceeded by the bristles; tubercle subulate, fully twice as long as the achene-body.—Everglades.—(Bah., Cuba.)

2. **R. corniculata** (Lam.) A. Gray. Stems smooth, 1-2 m. tall: leaf-blades flat, 6-16 mm. wide, rough-margined: umbels sometimes 2-5 dm. broad: spikelets spindle-shaped, much over 1 cm. long when mature, clustered at the ends of the rays and raylets: scales lanceolate, thin, acute, light-brown: perianth-bristles about 6, rigid, upwardly scabrous: 1-2.5 cm. long, much exerted beyond the scales when mature: achene-body obovoid, flat, 4-6 mm. long, dark-brown, smooth.—Everglades.

3. **R. divergens** M. A. Curtis. Stems densely tufted, filiform or wiry, 1-4 dm. tall: leaf-blades very slender: spikelets elliptic to ovoid-elliptic, 3-3.5 mm. long, acute, in loose or rarely somewhat contracted corymbs: perianth-bristles wanting: achene-body plump-lenticular, orbicular-obovoid, pale, 0.5-0.8 mm. long, reticulate, pinched at the base; tubercle depressed, sessile.—Everglades.—F. K. (Bah., Cuba.)

4. **R. ciliata** (Michx.) Vahl. Stems not densely tufted, 3-8 dm. tall: leaf-blades broadly linear, 5-8 mm. wide, ciliate, glaucous, blunt or merely acute: spikelets narrowly ovoid or lanceolate, 5-6 mm. long, usually aggregated into a solitary terminal capitate cluster: achene-body lenticular, cancellate, oval or orbicular-oval, 1.5 mm. long; tubercle rather depressed, conic, exceeding the bristles.—Pinelands.

5. **R. Grayi** Kunth. Stems often solitary, 3-7 dm. tall: leaf-blades mostly 2-3 mm. wide, attenuate: spikelets ovoid, 5-6 mm. long, chestnut-colored, aggregated into usually 2-4 capitate clusters: achene-body lenticular, plump, cancellate, obovoid, or broadly oblong, 2-5 mm. long, dark-brown; tubercle depressed-conic, overtopped by the bristles.—Pinelands.

6. **R. perplexa** Britton. Stems 5-11 dm. tall, often tufted: leaf-blades flat, 1-2.5 mm. wide, usually much elongate: spikelets ovoid or orbicular-ovoid, about 2 mm. long, in a terminal and 1 or several axillary lax or rarely slightly congested corymbs on very slender peduncles: scales brown, blunt or merely acute: achene-body biconvex, not constricted under the tubercle, about 1 mm. long; tubercle depressed, wider than high, exceeding the bristles.—Pinelands.—(Bah.)

7. **R. cymosa** (Michx.) Ell. Stems tufted, 3-8 dm. tall: leaf-blades flat, 3-4 mm. wide or the basal ones broader: spikelets ovoid-oblong, acute, 3 mm. long, sessile or nearly so, capitate in 2's-7's on the ultimate branches of the axillary and terminal clusters: scales dark-brown, broadly ovate: achene-body broadly obovoid or oblong-obovoid, lenticular, 1.5 mm. long, transversely wrinkled; tubercle conic, about as high as wide, exceeding the bristles.—Pinelands.—(Cuba, Ant.)

8. **R. caduca** Ell. Stems often loosely tufted, 8-15 dm. tall: leaf-blades 4-10 mm. wide: spikelets ovoid, about 4 mm. long, numerous in 4-6 compound corymbs: achene-body lenticular, orbicular-obovoid, about 1.5 mm. long, finely transversely wrinkled: tubercle setose, conic, exceeded by the bristles.—Everglades and coastal sand-dunes.



9. *R. miliacea* (Lam.) A. Gray. Stems loosely tufted, 6-15 dm. tall: leaf-blades 3-8 mm. wide: spikelets numerous, ovoid, 2.5-3 mm. long, peduncled, in 6-8 open spreading corymbs: achene-body lenticular, obovoid or oval, fully 1 mm. or rarely nearly 1.5 mm. long, pale, transversely wrinkled; tubercle smooth, depressed-conic, exceeding the bristles.—Everglades.—(Cuba.)

10. *R. stipitata* Chapm. Stems tufted, 8-10 dm. tall: leaf-blades conspicuously elongate, 4-10 mm. wide: spikelets 7-8 mm. long, narrowly ovoid, numerous, in 4-5 compound drooping corymbs: achene-body lenticular, orbicular-obovoid, stalked, about 1.5 mm. long, finely transversely wrinkled, less than  $\frac{1}{2}$  as long as the bristles; tubercle depressed, setose.—Everglades and low pine-lands.—(Ber.)

13. *SCLERIA* Berg. Caulescent herbs. Spikelets small, clustered in terminal, or in terminal and axillary fascicles, or sometimes interruptedly glomerate-spicate. Flowers monoecious. Fertile spikelets 1-flowered. Staminate spikelets many-flowered. Scales imbricate. Perianth none. Ovary supported by a disk (hypogynium), or this wanting. Achenes globose or ovoid, obtuse, crustaceous or bony, white in our species.—NUT-RUSH.

Inflorescence of 1 or several terminal or lateral clusters: plants perennial

Inflorescence a single terminal cluster: hypogynium wanting.

Achenes 2-3 mm. long, obtuse, with 2 pits in each side of the 3-angled base.

Achenes 4 mm. long, acute, without pits.

Inflorescence of terminal and axillary clusters.

Achene smooth.

Hypogynium present, 3-angled: leaf-blades 3-9 mm. wide.

Hypogynium wanting: leaf-blades 1.5-2.5 mm. wide.

Achene reticulate, ridged or papillose.

Achene reticulate or irregularly ridged.

Achene papillose.

Hypogynium supporting 3 entire emarginate or 2-lobed tubercles.

Hypogynium supporting 6 distinct tubercles.

Inflorescence interruptedly glomerate-spicate: plants annual.

1. *S. gracilis*.
2. *S. Baldwinii*.

3. *S. triglomerata*.
4. *S. lithosperma*.

5. *S. setacea*.

6. *S. ciliata*.
7. *S. pauciflora*.
8. *S. verticillata*.

1. *S. gracilis* Ell. Perennial. Stems very slender, 2-4 dm. tall, smooth: leaf-blades involute, filiform, smooth: achenes ovoid, 2-3 mm. long, obtuse, shining or dull, distinctly ribbed lengthwise, with 2 pits on each side of the triangular base.—Everglades.—(Cuba.)

2. *S. Baldwinii* Steud. Stems relatively stout, 3-10 dm. tall, often rough above: leaf-blades linear, 2-5 mm. broad, or sometimes narrower, smooth or somewhat scabrous: achenes ovoid, about 4 mm. long, smooth and even (longitudinally ribbed in *S. Baldwinii costata*), dull, apiculate, obscurely triangular, without pits at the triangular base.—Pinelands.—(Cuba.)

3. *S. triglomerata* Michx. Stems 4-10 dm. tall: leaf-blades flat, glabrous or nearly so, 3-9 mm. wide, the upper attenuate: achenes ovoid or ovoid-globose, above the hypogynium, obtuse, bony, obscurely 3-angled, smooth, bright-white, shining, about 2 mm. high; hypogynium low, obtusely triangular, papillose-crustaceous.—Pinelands.

4. *S. lithosperma* (L.) Sw. Stems 3-6 dm. long: leaf-blades narrowly linear, 1.5-2.5 mm. wide, with scabrous-ciliate margins and keel; achenes obovoid or oblong, about 1.5 mm. long, smooth and glossy, without pores; hypogynium wanting.—Hammocks.—(Bah., Cuba, Ant.)

5. *S. setacea* Poir. Stems sometimes spreading, 2-7 dm. long, smooth: leaf-blades linear, 2-4.5 mm. wide, usually with cartilaginous marginal ribs, rather abruptly pointed: bracts glabrous: achenes globose or slightly depressed above the 3-lobed appressed hypogynium, 2-2.5 mm. in diameter, regularly reticulate, somewhat pubescent.—Pinelands.—(Cuba, Ant.)

6. *S. ciliata* Michx. Stems 3-6 dm. tall, pubescent especially on the angles above: leaf-blades narrowly linear, very variable in width: bracts ciliate: achenes subglobose or globose-ovoid, 3 mm. long, acute, roughened by unequal projections or short ridges, those near the base longer and deflexed: hypogynium a narrow obtusely 3-angled border supporting 3 entire or 2-lobed tubercles.—Pinelands.—(*Cuba, Ant.*)

7. *S. pauciflora* Muhl. Stems 2-5 dm. tall: leaf-blades narrowly linear, less than 2 mm. wide, the upper elongate and often overtopping the stem: spikelets in a small terminal cluster and in 1 or 2 axillary ones: achenes globular, 1.5-2 mm. in diameter, papillose, the lower papillae elongated and reflexed: hypogynium a narrow obtusely triangular border supporting 6 distinct tubercles.—Everglades.—(*Cuba.*)

8. *S. verticillata* Muhl. Stems 1-5 dm. tall: leaf-blades very narrowly linear, 0.5-1 mm. wide, erect, weak, shorter than the stem: spikelets in several separated clusters: achenes globose, fully 1 mm. in diameter, with short transverse ridges or somewhat reticulate: hypogynium none.—Everglades.—(*Bah., Cuba.*)

### Order ARECALES.

Shrubs or trees, with a single terminal bud. Leaves at the end of the stem: blades plaited, pinnate or flabellate. Flowers perfect, polygamous, or dioecious, on axillary compound spadices. Perianth of 6 fleshy members in 2 series. Androecium of 6, or 9-12 stamens. Gynoecium of 3 distinct or united carpels. Fruit drupaceous or baccate. Seeds usually hollow.

#### FAMILY 1. ARECACEAE. PALM FAMILY.

Stem with a terminal crown of leaves, or in the case of climbing plants with remote leaves. Inflorescence at first included in a large bract (spathe), from which it ultimately protrudes.

Leaves with flabellately parted or cleft blades, fan-shaped.

Calyx and corolla united into a 6-lobed or truncate cup, or obsolete.

Calyx and corolla distinct and manifestly in 2 series.

Style or stigma basal on the drupe.

Style or stigma terminal on the drupe.

Leaves with pinnately divided blades, pinnate.

Drupe with the style or stigmas nearly basal: stamens exserted.

Drupe with the style or stigmas terminal: stamens included.

1. COCCOTHRINAX.

2. SABAL.

3. SERENOA.

4. ROYSTONEA.

5. COCOS.

1. *COCCOTHRINAX* Sarg. Unarmed shrubs or trees. Leaf-blades flabellate silvery or pale-scurfy beneath: petioles smooth. Spadix relatively short. Stamens mostly 9: filaments distinct or nearly so. Style funnelliform. Drupe black or purple-black.

1. *C. argentea* (Lodd.) Sarg. A tree becoming 8 m. tall: leaf-blades 5-8 dm. broad, the ligule 2-3 cm. broad: spadix 5-7.5 dm. long: drupe 12-18 mm. thick. [*C. jucunda* Sarg., *C. Garberi* (Chapm.) Sarg.]—Pinelands.—F. K. (*Bah., Cuba, Ant.*)—SILVER-PALM.

2. *SABAL* Adans. Unarmed shrubs with horizontal or contorted root-stocks, or trees. Leaf-blades flabellate, glabrous. Spadix elongate. Seed spheroidal.—PALMETTO.

Stem subterranean: drupes over 10 mm. in diameter.

Stem erect: drupes less than 10 mm. in diameter.

1. *S. Etonia.*

2. *S. Palmetto.*

1. **S. Etonia** Swingle. Stem horizontal, S-shaped: leaf-blades deep-green, the segments copiously filiferous: spadix erect or ascending: anthers about 2 mm. long: seeds 10-13 mm. wide. [*S. megacarpa* (Chapm.) Small.]—Pinelands.—SCRUB-PALMETTO.

2. **S. Palmetto** (Walt.) R. & S. Stem 28 m. tall. Leaf-blades cordate at the base; ligules about 10 cm. long: spadix spreading or drooping: anthers about 1.5 mm. long: seeds 5-7 mm. wide.—Everglades, hammocks and pine-lands.—F. K. (*Bah., Cuba.*)—CABBAGE-PALMETTO. CABBAGE-TREE.

3. **SERENOA** Hook. Armed shrubs or trees. Leaf-blades flabellate, cordate at the base: petioles with recurved spines. Stamens unequal, those opposite the petals with broad filaments, those alternate with petals with narrow filaments. Drupe and seed oblong.

1. **S. serrulata** (Michx.) Hook. Rootstock elongate: stem horizontal or sometimes erect, becoming 2-7 m. tall: leaf-blades suborbicular, green or glaucous, 3-8 dm. broad, cordate at the base; petioles with firm spines: petals 4-4.5 mm. long: drupes 15-25 mm. long.—Everglades, hammocks and pine-lands.—F. K.—SAW-PALMETTO.

4. **ROYSTONEA** O. F. Cook. Unarmed trees. Leaf-blades pinnate: petiole nearly terete above, the sheathing bases very long. Spadix pendulous. Petals valvate. Seeds reniform.

1. **R. regia** (H.B.K.) O. F. Cook. A stately tree 30 m. tall, the trunk fusiform: leaf-blades 2.5-3.5 m. long, the larger segments 7-9 dm. long: perianth of the staminate flowers 6-7 mm. long, that of the pistillate barely  $\frac{1}{2}$  as large: drupes 12-14 mm. long, violet-blue.—Hammocks.—(*Cuba, Ant.*)—ROYAL-PALM.

5. **COCOS** L. Unarmed trees. Leaf-blades pinnate: petioles rounded on the back, the sheathing bases short. Spadix ultimately drooping. Sepals and petals of the staminate flowers valvate, those of the pistillate flowers imbricate. Drupe 3-angled, with a fibrous pericarp and a bony endocarp.

1. **C. nucifera** L. A stately tree 30 m. tall: leaf-blades 3-5 m. long, the numerous segments 5-7 dm. long: perianth of the staminate flowers fully 1 cm. long, that of the pistillate larger: drupes oval or ovoid, 2-3 dm. long: endosperm enclosing a milky juice.—Coastal sand-dunes and hammocks. Naturalized.—F. K. (*Bah., Cuba, Ant.*)—COCOANUT. COCO-PALM.

### Order ARALES.

Perennial, frequently bog or aquatic, herbs, in LEMNACEAE, mere floating thalloid bodies. Leaves mainly basal. Flowers complete or incomplete, borne on a spadix accompanied by a spathe, or in LEMNACEAE 1 or few in a pouch in the plant-body. Perianth inconspicuous or wanting. Fruit baccate or utricular.

### FAMILY 1. ARACEAE. ARUM FAMILY.

Fleshy, mostly acaulescent, plants. Leaves with simple or divided blades. Flowers perfect, monoecious, or dioecious. Perianth of 4-6 scale-like members, or wanting. Androecium of 4-10 stamens. Gynoecium of 1, or of several, united carpels.

1. **PELTANDRA** Raf. Tufted herbs with rootstocks. Leaf-blades of a hastate or sagittate type. Scapes recurved at maturity. Flowers monoecious. Spadix completely covered with flowers. Stamens 6-10. Spathe green or white. Fruits green or red.

1. **P. virginica** (L.) Kunth. Leaf-blades sagittate or hastate, with several prominent lateral ribs: spathes 8-20 cm. long, the edges crisped: spadix included,  $\frac{1}{2}$  pistillate,  $\frac{3}{4}$  staminate: fruits mostly over 1 cm. thick.—Everglades.—ARROW-ARUM.

### Order XYRIDALES.

Terrestrial, commonly bog, herbs, or epiphytes in BROMELIACEAE. Leaves often basal: blades prevaillingly narrow. Inflorescence usually not a spadix, but often with a spathe-like bract or a spathe. Flowers mostly complete. Corolla regular or nearly so (except in some genera of COM-MELINACEAE, PONTEDERIACEAE and BROMELIACEAE). Gynoecium compound, superior or rarely inferior. Fruit a capsule or utricle, or baccate.

Ovary 1-celled, with parietal placentae: inflorescence without a spathe.

Fam. 1. XYRIDACEAE.

Ovary 2-3-celled, if incompletely so or if nearly 1-celled then the flowers in a spathe.

Flowers minute, monoecious or dioecious, in dense heads each seated in an imbricated involucre.

Fam. 2. ERIOCAULACEAE.

Flowers conspicuous or relatively so, perfect.

Terrestrial or aquatic plants: foliage not scurfy: stigmas united.

Calyx and corolla free, of very different members: stamens free.

Fam. 3. COMMELINACEAE.

Calyx and corolla of quite similar members and partially united: stamens partially adnate to the perianth.

Fam. 4. PONTEDERIACEAE.

Epiphytes (our species), with scurfy foliage: stigmas 3.

Fam. 5. BROMELIACEAE.

### FAMILY 1. XYRIDACEAE. YELLOW-EYED GRASS FAMILY.

Leaves basal: blades thickish. Flowers perfect, in a compact terminal spike. Sepals 3, the two lateral ones firm, keeled and often appendaged, persistent, the third larger, deciduous. Petals 3, fugacious: anthers linear. Androecium of 3 stamens usually alternating with 3 staminodia. Gynoecium 3-carpellary. Fruit a capsule.

1. **XYRIS** [Gronov.] L. Rigid plants with basal equitant leaves and a terminal spike with indurated bracts.—YELLOW-EYED GRASS.

Lateral sepals included.

Spikes ovoid, oval or globular; bracts in several series.

1. *X. communis*.

Spikes oblong to conic-oblong; bracts in many series.

2. *X. elata*.

Lateral sepals exerted.

Corolla yellow: upper part of the scape and the spike green.

3. *X. arenticola*.

Corolla white: upper part of the scape and the spike glaucous.

4. *X. pallescens*.

1. **X. communis** Kunth. Leaves gradually attenuate, shorter than the scapes: scapes 2-7 dm. tall, 2-edged above: spikes oval or globular, 8-15 mm. long: bracts closely imbricate in few series: lateral sepals 3-4 mm. long; wing narrower than the sepal-body, erose- or incised-toothed above the middle.—Pinelands.—(Cuba, Ant.)

2. **X. elata** Chapm. Leaves few, 2-6 dm. long: scapes 3-12 dm. tall, 2-edged above: spikes oblong to conic-oblong, 16-23 mm. long: bracts numerous, closely imbricate in many series: lateral sepals 4-5 mm. long; wing narrow, toothed above the middle.—Low pinelands.

3. *X. arenicola* Small. Leaves with dark dilated bases, 1-4 dm. long, usually spirally twisted: scapes 3-7 dm. tall, somewhat flattened above, spirally twisted: spikes cylindrical or conic-oblong, 1.5-3 cm. long, often acute: lateral sepals 8-12 mm. long; fringe of the wing firm: corolla yellow.—Pinelands.—F. K.

4. *X. pallescens* (C. Mohr) Small. Leaves few, accompanied by the persistent purple or brown bases of those of previous years, 2-4 dm. long, spirally twisted: scapes 3-6 dm. tall, spirally twisted, 2-edged above: spikes oblong or conic-oblong, 1-1.5 cm. long; lateral sepals 6.5-9 mm. long, very delicate, narrow; fringe of the wing delicate: corolla white.—Pinelands and open hammocks.

## FAMILY 2. ERIOCAULACEAE. PIPEWORT FAMILY.

Perennial and perhaps rarely annual, mostly acaulescent, bog or aquatic herbs. Leaves clustered: blades narrow. Scapes simple, subtended by sheathing bracts. Flowers monoecious (androgynous), or rarely dioecious, densely crowded in a terminal involucrate head. Perianth in 2 series (the inner rarely obsolete). Staminate flowers with as many stamens as the sepals or twice as many. Pistillate flowers with a 2-3-celled ovary. Fruit a capsule.

Stamens 2 or 3, as many as the sepals; petals glandless.

1. LACHNOCAULON.

Stamens 4-6, twice as many as the sepals: petals each with a prominent gland.

2. ERIOCAULON.

1. **LACHNOCAULON** Kunth. Staminate flowers: sepals 3; petals obsolete; stamens 3; filaments united below, coalescent with a rudimentary corolla or pistil, this with 3 lobes at the top; anthers 1-celled. Pistillate flowers: sepals 3; petals obsolete.—HAIRY-PIPEWORT.

1. *L. glabrum* Körn. Leaf-blades spreading and ascending, linear-attenuate, 4-5 cm. long, glabrous: scape 15-30 cm. tall, twisted, glabrous: heads white, 3-4 mm. thick: bractlets and sepals ciliate.—Pinelands.

2. **ERIOCAULON** [Gronov.] L. Staminate flowers: sepals 2-3; petals 2-3, each with a gland; stamens usually 4-6; filaments distinct. Pistillate flowers: sepals as in the staminate flowers; petals much reduced and narrow; stamens wanting.—PIPEWORT.

Sheath at the base of the scape surpassing the leaves, except in the case of sub-merged plants.

1. *E. compressum*.

Sheath at the base of the scape surpassed by the leaves, or some of them.

Heads 10-16 mm. thick: bractlets, sepals and petals ciliate: bractlets acute.

2. *E. decangulare*.

Heads 3-5 mm. thick: bractlets, sepals and petals glabrous: bractlets obtuse.

3. *E. Ravenelii*.

1. *E. compressum* Lam. Leaves ascending-spreading; blades 2-12 cm. long, flaccid, longitudinally striate: scapes 2-10 dm. tall, 10-12-ridged: heads spheroidal, over 10 mm. thick: petals of the staminate flowers ciliate-fimbriate at the apex or above the middle.—Everglades.

2. *E. decangulare* L. Leaves erect or ascending; blades 10-50 cm. long, rather firm, finely many-striate, obtuse: scape stout, 3-10 dm. tall, 10-14-ridged: heads globular, 10-16 mm. thick: bracts of the involucre acute: bractlets, sepals, and petals ciliate, or pubescent on the back.—Everglades.

3. *E. Ravenelii* Chapm. Leaves various, the smaller spreading, the larger ascending or erect; blades 2-13 cm. long, pellucid, attenuate-acute: scapes

very slender, 4-30 cm. tall, 5-6-ridged: heads spheroidal, 3-5 mm. thick: bracts of the involucre obtuse: bractlets, sepals, and petals glabrous.—Everglades and low pinelands.

FAMILY 3. **COMMELINACEAE.** SPIDERWORT FAMILY.

Annual or perennial caulescent succulent herbs. Leaves alternate, sheathing at the base. Flowers perfect, the mostly umbel-like cymes involucrate. Calyx of 3 persistent herbaceous sepals. Corolla of 3 equal or unequal delicate petals. Androecium of 5-6 stamens, sometimes 2 or 3 mere staminodia. Gynoecium 2-3-carpellary. Styles united. Fruit a loculicidally 2-3-valved capsule.

Petals all alike: polleniferous stamens 6.

Petals unequal in size and shape: polleniferous stamens 3 or 2.

1. **RHAEO.**

2. **COMMELINA.**

1. **RHAEO** Hance. Leaves erect or nearly so, stiff, crowded: blades contracted above the sheathing base. Cymes congested, borne in an involucre of imbricate boat-like bracts. Petals equal, not clawed. Capsule sessile.

1. **R. discolor** (L'Her.) Hance. Leaves 2-4 dm. tall; blades very thick, broadly linear, acute, often purple, especially so beneath: flower-stalks clustered: spathes 3-4 cm. long: petals white or blue, 5-8 mm. long: capsules 4-5 mm. long.—Pinelands and cultivated grounds. Nat. of Mex., and cultivated.—(*Bah., Cuba, Ant.*)

2. **COMMELINA** [Plum.] L. Leaf-blades spreading, relatively short. Cymes borne in a specialized folded involucre. Perianth irregular. Stamens 3 or rarely 2. Capsules hidden in the spathe.—**DAY-FLOWER.** **DEW-FLOWER.**

Leaf-blades linear to narrowly linear-lanceolate: leaf-sheaths glabrous or nearly so.

Rootstocks and roots abbreviated, the latter slender-fusiform: internodes below the sheath pubescent or scabrous.

1. *C. hamipila.*

Rootstocks and roots elongate, the latter cord-like: internodes below the sheaths glabrous.

2. *C. angustifolia.*

Leaf-blades lanceolate, elliptic or oblong-lanceolate: leaf-sheath hirsute.

3. *C. elegans.*

1. **C. hamipila** Wright. Stem or branches 1-4 dm. long, from a cluster of fusiform roots: leaf-blades linear or narrowly linear-lanceolate, attenuate: spathe about 2 cm. long, acuminate: capsules about 5 mm. long. [*C. Swingleana* Nash.]—Pinelands.—F. K. (*Cuba.*)

2. **C. angustifolia** Michx. Stem or branches 2-8 dm. long, from cord-like roots: leaf-blades linear, sometimes narrowly so, flat, attenuate: spathes 2-2.5 cm. long, acute or acuminate: capsules 4-5 mm. long.—Pinelands. F. K.

3. **C. elegans** H. B. K. Stem and branches 2-9 dm. long: leaf-blades lanceolate to elliptic or oblong-lanceolate, 4-10 cm. long: spathes 1.5-2 cm. long, acute: capsules about 4 mm. long.—Coastal sand-dunes.—(*Ber., Bah., Ant.*)

FAMILY 4. **PONTEDERIACEAE.** PICKEREL-WEED FAMILY.

Bog or aquatic herbs with rootstocks. Leaves alternate: blades dilated, narrow, or mere phyllodia. Flowers 1 or several from a bract-like spathe. Calyx and corolla of rather similar partially united members. Androecium of 3-6 stamens: filaments unequally adnate to the perianth tube. Gynoecium 3-carpellary, but sometimes with a 1-celled ovary. Fruit a 1-seeded utricle or a many-seeded capsule.

1. **PONTERIA** L. Bog herbs. Leaf-blades narrow or broad, on tapering petioles. Spadix many-flowered. Perianth 2-lipped, the lobes nearly equal. Anthers versatile. Ovary 1-celled. Seed solitary.

1. *P. cordata* L. Leaves with tapering petioles and deltoid to ovate blades 10–20 cm. long (or with linear-lanceolate or lanceolate blades, *P. cordata lancifolia*): perianth bright-blue or white; tube 7–10 mm. long; limb 9–14 mm. broad, the lobes shorter than the tube.—Everglades.—(Cuba.) PICKEREL-WEED. WAMPEE.

#### FAMILY 5. BROMELIACEAE. PINEAPPLE FAMILY.

Epiphytic or rarely terrestrial herbs, commonly with scurfy foliage. Leaves usually crowded at the base of the stem; blades entire or spiny-toothed. Flowers perfect, regular, solitary or spicate. Calyx of 3 sepals. Corolla of 3 narrow petals. Androecium of 3–6 stamens. Gynoecium 3-carpellary, the ovary superior or inferior: styles united. Ovules numerous. Fruit baccate or capsular.

Ovary superior: fruit capsular: leaves spineless.

Sepals, and petals, distinct: filaments free.

Style filiform: capsule elongate: seed-appendage straight.

Drooping plants, with the flowers axillary to leaf-like

upright plants, with the flowers in distichous bracted spikes.

Style short or wanting: capsule ovoid: seed-appendage folded.

Sepals, and petals, partially united: filaments partially adnate to the corolla.

Ovary inferior: fruit a syncarp, baccate: leaves spiny.

1. **DENDROPOGON** Raf. Pendent festoon-like plants, with regularly leafy stems. Leaves remote: blades linear-filiform above the base. Flowers axillary.

1. *D. usneoides* (L.) Raf. Plant clothed with silver-gray scales. Stems filiform, often greatly elongate: leaves 2.5–8 cm. long: flowers fragrant: sepals 5–7 mm. long, green: petals linear-spathulate, about twice as long as the sepals, yellow or yellowish: capsules 15–30 mm. long.—Hammocks.—F. K. (Bah., Cuba, Ant.)—LONG-MOSS. SPANISH-MOSS. FLORIDA-MOSS.

2. **TILLANDSIA** L. Erect plants, with scape-like stems. Leaves mostly basal and crowded, those of the stem more or less reduced: blades tapering from a broad base. Flowers in terminal simple or branched spikes, the bracts firm. Sepals, and petals, distinct. Filaments, and anthers, free.—AIR-PLANT.

Flowering stems scape-like, filiform or nearly so, with 1 or 2 inconspicuous sheathing scales.

Flowering stems conspicuously leafy, their leaves smaller than the basal ones.

Basal leaves about as long as the stems or surpassing them.

Leaf-blades less than 2 cm. broad at the base.

Leaf-blades more than 2 cm. broad at the base.

Leaves dilated at the base but not bladder-like, erect or ascending, nearly straight.

Bracts ribbed: leaf-blades tender, flat or nearly so.

Bracts not ribbed: leaf-blades rigid, involute.

Leaves with bladder-like dilations at the base, diffusely spreading and twisted.

Basal leaves shorter than the stems.

Bracts and flowers erect or appressed to the rachis.

Leaves of the stem with long spreading or recurved tips.

Leaves of the stem merely clasping scales.

Bracts and flowers more or less strongly spreading.

bracts and remote.

1. DENDROPOGON.

2. TILLANDSIA.

3. CATOPSIS.

4. GUZMANNIA.

5. ANANAS.

1. *T. recurvata*.

2. *T. tenuifolia*.

3. *T. Valenzuelana*.

4. *T. fasciculata*.

5. *T. Balbisiانا*.

6. *T. circinata*.

7. *T. utriculata*.

8. *T. atiofolia*.

1. *T. recurvata* L. Plants fuzzy, 5-15 cm. tall: blades of the basal leaves recurved, setaceous-filiform from short bases 3-4 mm. wide: bracts lanceolate, 10-15 mm. long: sepals 7-9 mm. long: petals 12-14 mm. long: capsules 2-2.5 cm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. *T. tenuifolia* L. Plants sometimes reddish, 2-3 dm. tall: blades of the basal leaves with the dilated basal portion 8-12 mm. long: sepals 10-12 mm. long: capsules 18-20 mm. long.—Hammocks.—F. K. (*Cuba, Ant.*)

3. *T. Valenzuelana* A. Rich. Plants 2.5-6 dm. tall: blades of the basal leaves 2-3 dm. long, merely dilated at the base, tender: inflorescence branched: bracts ribbed, not lustrous: sepals 10-12 mm. long: capsule fully twice as long as the sepals.—Hammocks.—(*Bah., Cuba, Ant.*)

4. *T. fasciculata* Sw. Plants inconspicuously scurfy, 2-6 dm. tall: blades of the basal leaves attenuate from the dilated somewhat saccate bases, about as long as the stem or longer: bracts of the inflorescence 22-30 mm. long, becoming lustrous, keeled: sepals 25-28 mm. long: capsules 25-30 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

5. *T. Balbisiana* Schult. Plants gray-scurfy, 2-9 dm. tall: blades of the basal leaves rather abruptly narrowed into twisted and spreading tips above the bladder-like basal portion: inflorescence branched; bracts 15-20 mm. long, neither keeled nor ribbed: sepals 15-17 mm. long: capsules about 40 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

6. *T. circinata* Schlecht. Plants gray-scurfy, 1-2 dm. tall: blades of the basal leaves curved, attenuate from the saccate bases: inflorescence simple; bracts 20-25 mm. long, ribbed: sepals 20-22 mm. long: capsules 50-60 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

7. *T. utriculata* L. Plants somewhat scurfy, 3-20 dm. tall: blades of the basal leaves nearly flat, attenuate from the dilated bases: inflorescence branched; bracts 15-20 mm. long: sepals 15-20 mm. long: capsules 35-45 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

8. *T. aloifolia* Hook. Plants pale-scurfy, 3-9 dm. tall: blades of the basal leaves gradually narrowed from the dilated bases: inflorescence branched; bracts 17-31 mm. long, more or less spreading: sepals 20-25 mm. long: capsules 45-60 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

3. **CATOPSIS** Griseb. Plants resembling *Tillandsia* in habit, but inflorescence inconspicuously bracted. Flowers small and inconspicuous. Style short or wanting. Capsule ovoid.

Petals shorter than the sepals: capsules slightly longer than the sepals.

Petals longer than the sepals: capsules fully twice as long as the sepals.

1. *C. Berteroniana*.

2. *C. nutans*.

1. *C. Berteroniana* (Schult.) Mez. Blades of the basal leaves narrowed to the apex: bracts 10-12 mm. long: sepals 11-13 mm. long: capsules 12-13 mm. long, abruptly pointed.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. *C. nutans* (Sw.) Griseb. Blades of the basal leaves rather abruptly narrowed into long slender tips: bracts 4-5 mm. long: sepals 5-6 mm. long: capsules 11-13 mm. long, attenuate.—Hammocks.—(*Cuba, Ant.*)

4. **GUZMANNIA** R. & P. Plants resembling species of *Tillandsia*, but with the blades of the basal leaves less attenuate, the sides above the dilated base nearly parallel up to the abruptly narrowed apex. Flowers in conspicuously bracted spike-like panicles, the bracts becoming membranous. Sepals, and petals, partially united. Anthers coherent around the stigma.



1. *G. monostachya* (L.) Rusby. Plants 3-6 dm. tall: leaves bright-green or variegated, with recurving tips: spike stout: bracts as long as the corolla or longer: calyx firm, 12-15 mm. long: corolla-lobes oblong or ovate, shorter than the tube: capsules becoming 3-3.5 cm. long.—Hammocks.—(*Cuba, Ant.*)

3. **ANANAS** Adans. Terrestrial plants, with stout scape-like stems. Leaves mainly basal: blades narrow and elongate, spiny edged. Flowers in a terminal leafy-bracted spike, the lower part of which, both ovaries and bracts ripens into an aggregate juicy cone-like fruit.

1. *A. Ananas* (L.) Lyons. Leaves 25-50, crowded, 1-2 m. long, the marginal spines hooked: stem erect: corolla fully twice as long as the calyx: fruit ovoid, oblong, or oblong-conic, 1-4 dm. long, fragrant.—Pinelands and cultivated grounds. Nat. of the tropics, and cultivated.—F. K. (*Ant.*)—PINE-APPLE.

### Order LILIALES.

Herbs, commonly fleshy or grass-like, or vines or trees. Leaves with narrow or dilated blades, sometimes scale-like or terete. Flowers perfect, polygamous, or dioecious, complete, mostly regular. Perianth of 3-6 members which are usually distinguishable into calyx and corolla, sometimes partially united. Androecium of 3-6 stamens. Gynoecium 3-carpellary or rarely 2-carpellary. Ovary superior or essentially so. Fruit capsular or baccate.

Styles present, distinct or united: stigmas terminal.

Sepals and petals chaffy.

Sepals and petals not chaffy.

Herbs with bulbs, corms or rootstocks.

Plants with bulbs or corms.

Plants with elongate rootstocks.

Shrubby plants with woody caudices, or trees.

Styles wanting: stigmas introrse.

Fam. 1. JUNCACEAE.

Fam. 2. LILIACEAE.

Fam. 3. CONVALLARIACEAE.

Fam. 4. DRACAENACEAE.

Fam. 5. SMILACACEAE.

### FAMILY 1. JUNCACEAE. RUSH FAMILY.

Perennial or sometimes annual herbs, usually grass-like in habit. Leaves with flat blades, or terete. Flowers scattered along the inflorescence-branches, or in dense heads. Calyx of 3 chaffy sepals. Corolla of 3 petals nearly or quite similar to the sepals. Androecium of 3 or 6, or rarely 4 or 5, stamens. Gynoecium 3-carpellary. Ovary 1-3-celled. Fruit a loculicidal capsule, or opening irregularly. Seeds sometimes appendaged.

1. **JUNCUS** [Tourn.] L. Glabrous herbs. Leaves terete, or with flat blades. Bracts subtending the flowers mostly entire.—RUSH.

Uppermost leaf with an obsolete or very short blade: capsule about as long as the perianth.

1. *J. megagephalus*.

Uppermost leaf with a blade few-several cm. in length: capsule exerted beyond the perianth.

2. *J. scirpoides*.

1. *J. megagephalus* M. A. Curtiss. Stems 3-10 dm. tall: leaf-blades rather stout, those of the stem-leaves relatively short: heads 8-12 mm. thick, 1-40, scattered: lowest involucre bract almost bladeless: sepals subulate, 3-3.5 mm. long: petals shorter than the sepals, less attenuate: capsules subulate, about as long as the sepals.—Everglades and low pinelands.

2. *J. scirpoides* Lam. Stems 2-7 dm. tall: leaf-blades terete, 2-3 mm. thick, the septa complete: sepals subulate-lanceolate 2.5-3.5 mm. long: petals slightly

shorter than the sepals: beak of the capsule exceeding the perianth.—Hammocks and low pinelands.

### FAMILY 2. LILIACEAE. LILY FAMILY.

Perennial mainly caulescent herbs. Leaves alternate to whorled, sometimes all basal: blades entire or essentially so. Flowers solitary or variously clustered. Calyx of 3 sepals. Corolla of 3 petals, together with the sepals sometimes partially united into a tube. Androecium of 6 stamens, the anthers usually distinct. Gynoecium of 3 united carpels. Fruit a loculicidal capsule.

1. **OXYTRIA** Raf. Scapose rather wiry herbs, with bulb-like corms. Leaf-blades elongate and very narrow. Raceme or panicle with short bracts. Sepals, and petals, white or yellow, distinct.

1. **O. albiflora** (Raf.) Pollard. Leaf-blades 2-6 mm. wide: scapes 4-6.5 dm. tall: racemes branched: sepals and petals white, 5-6 mm. long: capsules 5-6 mm. wide.—Everglades and low pinelands.

### FAMILY 3. CONVALLARIACEAE. LILY-OF-THE-VALLEY FAMILY.

Perennial herbs with rootstocks. Leaves alternate, sometimes all basal. Flowers in a terminal cluster, raceme, or panicle, or axillary. Calyx of 2 or 3 sepals. Corolla of 2 or 3 petals, together with the sepals sometimes partially united. Androecium of 4 or 6 stamens. Gynoecium of 2 or 3 united carpels. Fruit a berry or rarely a tardily dehiscent capsule.

1. **SANSEVIERIA** Thunb. Succulent herbs with stout rootstocks. Leaves erect, flat or nearly terete. Flowers in narrow panicles, erect or ascending. Perianth white or greenish: lobes narrow, about as long as the cylindrical tube. Capsule membranous. Seeds baccate.

1. **S. guineensis** Willd. Leaves 4-10 dm. tall, mottled: panicle many-flowered: perianth-lobes linear or linear-spatulate, 14-18 mm. long, curled back.—Pinelands and cultivated grounds. Nat. of Africa, and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—AFRICAN BOWSTRING-HEMP.

### FAMILY 4. DRACAENACEAE. YUCCA FAMILY.

Shrubby plants or trees, with woody generally copiously leafy caudices. Leaves alternate: blades narrow, firm or rigid, sometimes filiferous. Flowers in racemes or panicles terminating scape-like stems. Calyx of 3 generally white or pale sepals. Corolla of 3 petals nearly like the sepals. Androecium of 6 stamens. Gynoecium superior, of 3 united carpels. Style stout, sometimes obsolete during anthesis. Fruit a primarily loculicidal capsule, sometimes indehiscent or baccate.

1. **YUCCA** [Rupp.] L. Caudex commonly leafy throughout. Flowers perfect, relatively large, in panicles or racemes. Sepals and petals several nerved, deciduous. Capsule dehiscent or baccate.—SPANISH-BAYONET.

Fruit a drooping pulpy indehiscent berry-like capsule.  
Fruit an erect dry dehiscent capsule.

1. *Y. aloifolia*.  
2. *Y. filamentosa*.

1. **Y. aloifolia** L. Caudex often 1-2.5 m. tall, commonly branched: leaves very numerous, spreading above, deflexed and deciduous below, scabrous-

margined: panicle ample and showy, 3-7 dm. long: sepals and petals 4-6 cm. long: capsules 7-9 cm. long.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)—SPANISH-DAGGER.

2. *Y. filamentosa* L. Caudex short: leaves firm, 3-6 dm. long, stiffly erect or spreading, with curly fibers: panicle-branches usually glabrous: capsules 5-6 cm. long.—Pinelands.—ADAM'S-NEEDLE.

#### FAMILY 5. SMILACACEAE. SMILAX FAMILY.

Perennial armed or unarmed vines. Leaves alternate: blades several-ribbed and netted-veined, commonly persistent: petiole usually bearing a pair of appendages. Flowers dioecious, in axillary peduncled umbels. Perianth regular, usually green, that of the staminate flowers larger than that of the pistillate. Calyx of 3 sepals. Corolla of 3 petals. Androecium of 6 stamens: anthers erect. Gynoecium 3-carpellary. Stigmas 3, sessile, sometimes elongate. Fruit a berry, with 3 bands of strengthening tissue in the pulp connecting the base and apex.

1. **SMILAX** [Tourn.] L. Leaf-blades leathery. Flowers not showy. Berries red, blue, or black. Vigorous shoots often bear very large leaves.—GREENBRIER. HORSEBRIER. SMILAX.

Peduncles of the pistillate plant much longer than the accompanying petiole.

Peduncles of the pistillate plant shorter than the petiole or barely surpassing it.

Berries globular or spheroidal: leaf-blades not spiny-toothed.

Leaf-blades elliptic, oblong, oblong-lanceolate or linear.

Leaf-blades of an ovate type, often lobed at the base.

Berries ovoid or oval: leaf-blades spiny-toothed.

1. *S. Bona-Nox.*

2. *S. laurifolia.*

3. *S. Beyrichii.*

4. *S. havanensis.*

1. *S. Bona-Nox* L. Leaf-blades broadly ovate to hastate or fiddle-shaped, 3-12 cm. long, sometimes spinulose-margined, truncate or cordate at the base: pedicels 4-8 mm. long: sepals and petals deep-green, those of staminate flowers 4-5 mm. long: berries 4-6 mm. in diameter.—Everglades, pinelands and hammocks.—F. K.

2. *S. laurifolia* L. Leaf-blades elliptic, oblong, or oblong-lanceolate, or rarely linear, 5-15 cm. long, acute at the apex, the base narrow: sepals and petals of the staminate flowers 5-6 mm. long: berries ovoid or globose-ovoid, 4-6 mm. long.—Everglades and low hammocks.—F. K. (*Bah., Cuba.*)

3. *S. Beyrichii* Kunth. Leaf-blades ovate, broadly oblong, or pandurate, 2-10 cm. long, cuspidate or mucronate at the apex, entire, more or less auricled or dilated at the base: pedicels 4-8 mm. long: sepals and petals of the staminate flowers 4-5 mm. long: berries subglobose, 3-6 mm. in diameter.—Hammocks and coastal sand-dunes.—F. K. (*Bah.*)

4. *S. havanensis* Jacq. Leaf-blades oblong to orbicular-ovate, 2.5-5 cm. long, spiny-toothed: pedicels 1-2 mm. long: sepals and petals of the staminate flowers 1-2 mm. long: berries oval or ovoid, 4-6 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

#### Order AMARYLLIDALES.

Perennial herbs or vines. Leaves with narrow or dilated blades. Flowers perfect or dioecious, complete. Perianth of 3 sepals and 3 petals, which are distinct or partially united. Androecium of 3-6 stamens. Gynoecium mostly 3-carpellary, the ovary partially or wholly inferior. Fruit capsular or baccate.

Stamens 6.

Stamens 3.

Filaments opposite the sepals.

Filaments opposite the petals.

Fam. 1. LEUCOJACEAE.

Fam. 2. IXIACEAE.

Fam. 3. HAEMODORACEAE.

## FAMILY 1. LEUCOJACEAE. AMARYLLIS FAMILY.

Herbs, commonly succulent, with rootstocks, bulbs, or corms. Leaves alternate, wholly or mainly basal. Flowers perfect. Calyx of 3 sepals. Corolla of 3 petals, with the sepals partially united into a tube. Androecium of 6 stamens, the filaments sometimes partially united into a crown. Gynoecium of 3 united carpels. Ovary inferior. Styles united. Ovules numerous. Fruit a capsule or a berry.

Perennial from corms or elongated rootstocks.

Ovary and capsule one-half inferior.

Ovary and capsule wholly inferior.

Inflorescence umbel-like: capsule circumscissile.

Inflorescence spicate, racemose or paniculate: capsules

3-valved.

Perennial from bulbs.

Filaments distinct.

Filaments connected by a cup-like or funnellform crown.

1. ALETRIS.

2. HYPOXIS.

3. AGAVE.

4. CRINUM.

5. HYMENOCALLIS.

1. **ALETRIS** L. Caulescent herbs with thick rootstocks and scape-like stems. Basal leaves spreading. Flowers in an interrupted spike or raceme. Perianth white to yellow, campanulate, cylindric, or obovoid, granular or mealy: lobes much shorter than the tube. Filaments adnate to the middle of the perianth or above it.—COLIC-ROOT. STAR-GRASS.

Perianth white, 6-7 mm. long during anthesis.

Perianth yellow, 8-9 mm. long during anthesis.

1. *A. bracteata*.2. *A. lutea*.

1. **A. bracteata** Northrop. Stem 3-6 dm. tall: blades of the basal leaves nearly linear to linear-lanceolate, 6-12 cm. long: perianth white, 6-8 mm. long; lobes lanceolate to triangular, spreading: capsule ovoid, long-beaked.—Pinelands and adjacent Everglades.—F. K. (*Bah.*)

2. **A. lutea** Small. Stem 3-11 dm. tall: blades of the basal leaves linear to linear-lanceolate, or sometimes broadest above the middle, 4-12 cm. long: perianth yellow, 8-10 mm. long; lobes mostly ovate: capsule conic-ovoid, long-beaked.—Everglades.

2. **HYPOXIS** L. Acaulescent herbs with corm-like rootstocks. Leaves with elongate-linear or nearly filiform blades. Scapes slender, sometimes tufted. Flowers solitary or clustered. Perianth mainly yellow. Filaments adnate to the base of the perianth. Anthers erect.

1. **H. juncea** J. E. Smith. Leaf-blades involute, linear-filiform, 1-3 dm. long, glabrous above: perianth-lobes oblong or oblong-lanceolate, 9-12 mm. long: capsule 4-6 mm. long.—Pinelands.—F. K. (*Bah., Cuba.*)—STAR-GRASS.

3. **AGAVE** L. Succulent or somewhat woody plants, with more or less elongate caudices upon which the leaves are crowded. Flowers in panicles. (Plants flower after long periods of growth.) Anthers versatile.—CENTURY-PLANT.

Caulescent: lobes of the perianth longer than the tube.

Leaves entire or obsoletely toothed.

Leaves with many minute teeth.

Acaulescent: lobes of the perianth shorter than the tube.

1. *A. rigida*.2. *A. decipiens*.3. *A. neglecta*.

1. **A. rigida** Mill. Flowering stem erect, 4.5-9 m. tall: leaves 12-18 dm. long: blades broadest at the middle or above it, the terminal spine 1-2

cm. long, the marginal teeth minute or obsolete: perianth greenish; lobes 21-25 mm. long: anthers about 20 mm. long.—Pinelands and cultivated grounds. Nat. from Trop. Am., and cultivated.—F. K. (*Bah., Cuba, Ant.*)

2. *A. decipiens* Baker. Flowering stem 5-6 m. tall: leaves 10-25 dm. long: blades broadest about the middle, the terminal spine 1-1.5 cm. long, the marginal teeth firm, recurved: perianth greenish; lobes 16-17 mm. long: anthers 14-16 mm. long.—Hammocks. F. K.

3. *A. neglecta* Small. Flowering stem 10-13 m. tall: leaves 15-28 dm. long: blades broadest at the middle, the terminal spine 1-1.5 cm. long, the marginal teeth minute, recurved: perianth yellowish-green; lobes about 23 mm. long: anthers 19-23 mm. long.—Pinelands.

4. **CRINUM** L. Herbs with succulent coated bulbs, the neck short. Leaves basal: blades linear or nearly so, elongate. Scape 2-6-flowered. Perianth white: tube long: lobes narrow. Filaments adnate to the perianth-tube, distinct.

1. *C. americanum* L. Bulbs 7.5-10 cm. thick: leaf-blades 6-12 dm. long, denticulate: scape 3-8 dm. tall: perianth-lobes linear to linear-lanceolate, 5-12 cm. long: capsules 4-6 cm. thick.—Everglades.—(*Cuba, Ant.*)—SWAMP-LILY.

5. **HYMENOCALLIS** L. Herbs with coated bulbs. Leaves basal, spreading: blades linear or nearly so. Scape terminated by a single flower or by a cluster, the flowers erect. Perianth showy, mostly white, pink, or purplish: tube elongate: lobes narrow. Filaments adnate to the perianth-tube above which they are connected by a crown.—SPIDER-LILY.

Perianth-tube 13 cm. long or more.

1. *H. caymanensis*.

Perianth-tube 10 cm. long or less.

Scape terminated by several flowers.

2. *H. occidentalis*.

Scape terminated by a single flower.

3. *H. Palmeri*.

1. *H. caymanensis* Herb. Leaf-blades 3-8 dm. long, 6-8 cm. wide, obtuse, tapering somewhat toward the base: flowers 6-12: perianth-tube 13-15 cm. long: lobes about 10 cm. long.—Coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. *H. occidentalis* Kunth. Bulbs large: leaf-blades broadly linear, glaucous, 3-5 dm. long, 2.4-3.5 cm. broad: flowers 3-6, terminating the scape: perianth-tube 6-10 cm. long; lobes linear, about as long as the tube: staminal crown 25-32 mm. long.—Everglades.

3. *H. Palmeri* S. Wats. Bulb narrowly oblong, 8-24 mm. in diameter: leaf-blades linear, 5 dm. long or less, 6-10 mm. wide: scapes 1.5-2.6 dm. tall: flower solitary: perianth-tube 7.5-10 dm. long; lobes nearly as long as the tube: staminal crown funneliform, 3-4 cm. long, with acuminate tips between the filaments.—Everglades.

## FAMILY 2. IXIACEAE. IRIS FAMILY.

Perennial, mostly caulescent, herbs with short or long rootstocks. Leaves equitant, usually elongate. Flowers perfect, mostly regular, arising from spathe-like bracts. Calyx of 3 sepals. Corolla similar to the calyx or of 3 very different members. Androecium of 3 stamens, the filament partially adnate to the perianth. Gynoecium of 3 united carpels. Ovary inferior. Styles entire or divided, sometimes petal-like. Ovules few to numerous. Fruit a loculicidal 3-valved capsule.

1. **SISYRINCHIUM** L. Scapose herbs with rootstocks. Leaf-blades flat. Flowers in 1 or more clusters arising from usually 2 bracts (spathe). Sepals and petals blue, white, or yellow, nearly equal, distinct, deciduous. Capsule globose to cubic. Seeds dry.—BLUE-EYED GRASS.

Tufts of plants densely fibrous at the base.

1. *S. fuscatum*.

Tufts of plants not fibrous at the base.

Scapes and leaf-blades mostly 2-4 mm. wide, or more: pedicels finally much spreading, or recurved.

2. *S. solstitiale*.

Scapes and leaf-blades mostly 1-2 mm. wide: pedicels erect or nearly so.

Leaves and scapes mostly smooth-edged: scapes becoming flexuous: peduncles very slender, 5-12 cm. long.

3. *S. flagellum*.

Leaves and scapes serrulate, erect: peduncles 3-7 cm. long.

4. *S. miamiense*.

1. ***S. fuscatum*** Bicknell. Plants rather stiff, 15-50 cm. high, more or less fibrous at base, dull-green and glaucescent, drying dark: leaf-blades 0.5-2.5 mm. wide, close-striate the edges smooth or roughened: scapes straight and slender, longer than the leaves, 0.75-2 mm. wide, narrowly winged: spathes narrow, 1.5-1.8 cm. long, the subequal bracts firmly herbaceous, striate, cuspidate-acuminate: interior scales much shorter than the bracts: flowers on erect exerted pedicels: perianth blue, about 10 mm. long, the narrow sepals and petals prominently veined: capsules 2.5-4 mm. high, broadly subglobose, drying dark.—Pinelands.

2. ***S. solstitiale*** Bicknell. Plants chaffy and slightly fibrillose at the base, 2-4.6 dm. tall or taller, pale-green or glaucescent, becoming brownish-green when dry: leaf-blades very straight, becoming 4 mm. wide, narrowed to the stiff acicular apex, striate-nerved and minutely rugulose, minutely serrulate, becoming smooth: scapes about twice as tall as the leaves, once or twice spirally twisted, becoming 3 mm. wide, the firm wings hyaline-margined and obscurely serrulate, becoming smooth: spathes dull-green, 20-25 mm. long, the bracts stiff, nearly equal, the outer one narrowly acuminate: interior scales finally equalling the bracts: flowers on slightly exerted pedicels: perianth blue, about 12 mm. long.—Pinelands.

3. ***S. flagellum*** Bicknell. Plants very slender and flexuous, 1-3.2 dm. high, slightly glaucescent, drying dark: leaf-blades narrow and flexuous, 0.5-3 mm. wide, few-striate, smooth-edged: scapes 0.75-1.5 mm. wide, narrowly margined, smooth-edged, often flexuous and geniculate at the nodes: spathes often deflected, 1.5-2 cm. long, the bracts subequal or the inner one longer, and often scarious-margined to the apex, the outer one narrowly acuminate: interior scales much shorter than the bracts: capsules on erect slightly exerted pedicels, subglobose, dark, about 4 mm. high.—Pinelands.—F. K.

4. ***S. miamiense*** Bicknell. Plants dull-green and glaucescent, drying dark, 2 dm. tall or more: leaf-blades 1-1.5 mm. wide, striate-nerved, serrulate: scapes of the width of the leaves, wing-margined, denticulate-serrulate, bearing 2-3 erect peduncles at the top and sometimes an ascending branch lower down: spathes 1.3-1.5 cm. long, the outer bracts stiffly acute, slightly longer than the scarious-obtuse inner one: perianth blue: capsules on exerted pedicels, dark, obovoid, 3-5 mm. high.—Everglades and pinelands.—(Bah.)

### FAMILY 3. HAEMODORACEAE. BLOODWORT FAMILY.

Perennial caulescent herbs. Leaves alternate, often mainly basal: blades narrow. Flowers perfect, in terminal clusters. Calyx of 3 sepals. Corolla of 3 petals, persistent. Androecium of 3 stamens opposite the petals. Gynoecium of 3 united carpels. Ovary inferior, 3-celled or rarely 1-celled. Styles united. Fruit a loculicidally 3-valved capsule.

1. **GYROTHECA** Salisb. Herbs with colored rootstocks. Leaves equitant. Flowers in a terminal cymose corymb. Perianth pubescent without. Capsule covered with the persistent perianth.

1. **G. tinctoria** (Walt.) Salisb. Stem 3–12 dm. tall, pubescent above: leaves shorter than the stem, the cauline gradually reduced: sepals and petals nearly linear, the latter 10–12 mm. long: capsules 5–6 mm. in diameter.—Everglades.—(Cuba.)—RED-ROOT.

### Order SCITAMINALES.

Large, commonly perennial, herbs with rootstocks or tubers. Leaves alternate, sometimes all basal: blades relatively large: petioles sheathing at the base. Flowers very irregular. Perianth white or bright-colored. Androecium very irregular or sometimes with one stamen or more reduced to staminodia. Gynoeceum compound. Ovary inferior. Fruit a capsule, a berry, or a utricle. Endosperm present.

Polleniferous stamens 5.

Fam. 1. MUSACEAE.

Polleniferous stamen 1.

Ovary 3-celled, all the cavities fructiferous: ovules numerous in each cavity of the ovary: fruit capsular: embryo straight.

Sepals partially united: anthers 2-celled.

Fam. 2. ALPINIACEAE.

Sepals distinct: anthers 1-celled.

Fam. 3. CANNACEAE.

Ovary 1-celled, or 3-celled, but 2 of the cavities usually abortive: ovules solitary in each cavity of the ovary: fruit utricular: embryo hooked.

Fam. 4. MARANTACEAE.

### FAMILY 1. MUSACEAE. BANANA FAMILY.

Caulescent, usually large herbs, or trees. Flowers perfect or somewhat monoecious. Calyx of 3 distinct sepals or united into a sheath-like organ. Corolla of 3 distinct petals or of partially united petals, sometimes partially adnate to the calyx. Androecium of 3 united carpels. Fruit baccate or capsular.

1. **MUSA** L. Tree-like herbs, the stem sheathed by the thick leaf-bases. Leaves with large prominently feather-veined blades. Inflorescence drooping, with large bracts. Petals shorter than the sepals, two of them partially adnate to the calyx-tube, the other short, ending in a bent tip. Berry elongate.—BANANA.

Leaf-blades sessile or nearly so: free petal less than  $\frac{1}{2}$  as long as the perianth.

1. *M. Cavendishii*.

Leaf-blades long-petioled: free petal over  $\frac{1}{2}$  as long as the perianth.

2. *M. sapientum*.

1. **M. Cavendishii** Lamb. Plants stocky, mostly 1–2.5 m. tall: leaf-blades broadly oblong, mostly 1–2 m. long, abruptly contracted at the base: perianth usually over 3.5 cm. long; lateral calyx-lobes prominently appendaged; corolla-lobes ovate: free petal oblong, the tip nearly erect: fruits oblong, mostly 10–15 cm. long, yellowish, the pulp sweet.—Hammocks. Nat. of China.—F. K.—DWARF-BANANA.

2. **M. sapientum** L. Plants rather slender, 3–7 m. tall: leaf-blades mostly 1–2 m. long, narrowed at the base: perianth usually less than 3.5 cm. long; lateral calyx-lobes minutely appendaged; corolla-lobes lanceolate: free petal broadly obovate, the tip inflexed: fruits oblong, 8–11 cm. long, bright-yellow, the pulp sweet.—Hammocks. Nat. of the E. Indies.—F. K.—COMMON-BANANA.

## FAMILY 2. ALPINIACEAE. GINGER FAMILY.

Caulescent, sometimes large, herbs mostly with horizontal rootstocks. Flowers mostly perfect, borne in spike-like, sometimes cone-like, thyrsoid, or open panicles. Calyx of 3, partially united sepals, sometimes spathe-like. Corolla of 3 petals partially united into a tube. Fruit capsular.

1. **LANGUAS** Koen. Herbs with horizontal rootstocks and erect stems. Leaves erect. Panicle thyrsoid, terminating a leafy stem, with often imbricate bracts. Calyx 3-lobed. Petals 3, the upper one larger than the others. Lip large and showy. Staminodia minute or wanting. Capsules sometimes baccate.

1. **L. speciosa** (Wendl.) Small. Plants 1-4 m. tall, the stem sheathed: leaf-blades oblong to oblong-lanceolate, 1.5-4 dm. long: flower-stalks drooping from sheaths: calyx 18-23 mm. long: corolla white, tinged with magenta: lip 5-6 cm. long, crisped, yellow, variegated with brown and red.—HAMMOCKS. Nat. of the E. Indies.—(Cuba, Ant.)—SHELL-FLOWER.

## FAMILY 3. CANNACEAE. CANNA FAMILY.

Caulescent herbs. Flowers perfect. Calyx of 3 erect sepals. Corolla of 3 partially united petals. Androecium more or less adnate to the corolla: one filament anther-bearing, the others petaloid. Ovary 3-celled, the placentae parietal. Style petaloid, the stigma marginal. Fruit a loculicidal papillose or bristly capsule.

1. **CANNA** L. Large or tall herbs, with relatively large leaves. Flowers mostly showy, borne in terminal thyrsoid panicles.

1. **C. flaccida** Roseoe. Plants 1.5 m. tall or less: leaf-blades 2.5-5.5 dm. long: flowers very showy, mainly yellow: sepals 2.5-3 cm. long: perianth-tube much longer than the sepals: corolla-lobes 5-6.5 cm. long: staminodia dilated: capsules 4-6 cm. long.—EVERGLADES.—INDIAN-SHOT.

## FAMILY 4. MARANTACEAE. ARROWROOT FAMILY.

Scapose or caulescent herbs. Flowers perfect or sometimes polygamous. Calyx of 3 distinct or partially united sepals. Corolla of 3 distinct or partially united petals. Androecium partially adnate to the corolla: one filament anther-bearing, the others petaloid. Ovary 1-3-celled. Style thick, the stigma 2-lipped. Fruit utricular, smooth.

Petals partially united: lateral staminodia 2.

1. **MARANTA**.

Petals distinct or nearly so: lateral staminodium 1.

2. **THALIA**.

1. **MARANTA** [Plum.] L. Relatively slender caulescent herbs, not white-powdery. Flowers solitary or few in panicles. Corolla-tube cylindrical. Perianth mainly white.

1. **M. arundinacea** L. Stems 1-2 m. tall, from scaly rootstocks: leaf-blades lanceolate to ovate-lanceolate, 8-25 cm. long: sepals 10-12 mm. long: corolla white about 2 cm. long: staminodia surpassing the corolla: fruit about 1 cm. long.—HAMMOCKS. Nat. of Trop. Am., and cultivated.—ARROWROOT.

2. **THALIA** L. Relatively stout scapose herbs, white powdery, at least above. Flowers numerous, in large panicles. Corolla-tube wanting or obsolete. Perianth white or purple.

1. **T. divaricata** Chapm. Leaf-blades lanceolate, sometimes broadly so, 2-6 dm. long: scapes mostly 1-3 m. tall, widely branched above; nodes of the panicle bearded: perianth purple or pale.—EVERGLADES.



Order ORCHIDALES.

Terrestrial, aquatic, or epiphytic herbs. Leaves usually fleshy, sometimes scale-like. Flowers mostly perfect and complete, very irregular, except in BURMANNIACEAE. Calyx of 3 sepals. Corolla of 3 petals. Gynoecium compound. Ovary inferior. Seeds numerous. Endosperm wanting.

Flowers regular: stamens and pistil distinct. Fam. 1. BURMANNIACEAE.  
Flowers irregular: stamens and pistil united into a column. Fam. 2. ORCHIDACEAE.

FAMILY 1. BURMANNIACEAE. BURMANNIA FAMILY.

Slight or relatively small herbs. Leaves mainly basal, those on the stem scale-like. Flowers regular. Sepals and petals partially united. Androecium of 3 or 6 stamens: filaments adnate to the perianth-tube. Gynoecium 3-carpellary. Fruit capsular, sometimes angled or winged.

1. **BURMANNIA** L. Annual herbs. Flowers spreading or erect, short-pedicelled, white or blue. Filaments unappendaged: connective prolonged beyond the anthers.

Flowers 1-several, often 2, in a terminal raceme: hypanthium broadly 3-winged.

Flowers several in a terminal cluster: hypanthium 3-angled.

1. *B. biflora*.
2. *B. capitata*.

1. **B. biflora** L. Stems 5-15 cm. tall: leaf-scales 1-3 mm. long: flowers solitary at the top of the stem, or 2-few together: corolla-lobes narrow: capsules 4-5 mm. long.—Everglades and low pinelands.

2. **B. capitata** (Walt.) Mart. Stems 5-20 cm. tall: leaf-scales 1-5 mm. long: flowers several or many in a terminal cluster: corolla-lobes obsolete: capsules 2-3 mm. long.—Everglades and low pinelands.—(*Cuba*.)

FAMILY 1. ORCHIDACEAE. ORCHID FAMILY.

Perennial mostly succulent herbs. Leaves basal or cauline, often sheathing at the base. Flowers very irregular. Sepals 3, 1 median, 2 lateral. Petals 3, 1 median often greatly specialized ("lip"), 2 lateral (petals). Androecium of 1 or more stamens adnate to the style, the 2-8 pollinia waxy or powdery. Gynoecium of 3 united carpels, the ovary twisted. Fruit capsular.

Lip with a long slender spur: pollinia developing tails at the base of the anther which are connected with the glands of the rostellum; filament very short and broad: anther persistent.

Base of the anther with long slender appendages: lip and petals parted, or lobed at the base.

Lip 3-parted: petals 2-parted: stigmas erect.

1. HABENARIA.

Lip obscurely lobed at the base: petals lobed on one side at the base: stigmas drooping.

2. HABENELLA.

Base of the anther without appendages: lip and petals neither parted nor lobed.

3. GYMNADENIOPSIS.

Lip spurless, sometimes saccate: pollinia without tails (or they are rarely developed): filament mostly thin and brittle, the anther therefore usually deciduous.

Flowering stem terminal.

Leaves convolute in the bud.

Anther generally rounded or very blunt, usually much exceeding the rostellum.

Lip not enclosing the column: blade 3-lobed at the apex: flowers erect: seed not covered with a crust: low herbs.

4. CARTERIA.

- Lip enclosing the column; blade not 3-lobed at the apex: flowers nodding: seed covered with a crust: high-climbing vines.
5. VANILLA.
- Anther as long as the rostellum or rarely with a long beak and exceeding the rostellum.
- Leaves fleshy; blades net-veined, seldom parallel-veined, not plaited: inflorescence simple.
- Pollinia not in distinct masses: lip without a long sac-like spur.
- Lip turned outward.
- Lateral sepals united at the base and prolonged into a long spur.
- Lip greatly prolonged at the base, the claw enclosed in the slender sepal-spur: medium sepal much longer than the petals.
6. PELEXIA.
- Lip not greatly prolonged at the base, the claw not enclosed in the stout sepal-spur: median sepal not much longer than the petals.
7. STENORRHYNCHUS.
- Lateral sepals free.
- Lip merely adherent to the column or free and not embracing it: stigma 2-cleft.
8. IBIDIUM.
- Lip adnate to the column and embracing it: stigma entire.
9. BEADLEA.
- Lip turned upward.
- Lip and petals free, or adnate only to the base of the column.
- Sepals free: petals not dilated above; lip narrow.
10. CRANICHIS.
- Sepals united at the base: petals dilated above: lip broad.
11. PRESCOTTIA.
- Lip and petals with claws wholly adnate to the column.
12. PONTHEVA.
- Pollinia in several distinct masses: lip with an extended sac between the lateral sepals: column short.
13. PHYRUS.
- Leaves firm; blades plaited: inflorescence branched.
14. TROPIDIA.
- Leaves duplicate in the bud.
- Leaves not plaited.
- Leaves commonly not articulated: pollinia unappendaged: lip not bearded.
15. MALAXIS.
- Leaves commonly articulated to the petioles or sheathing bases: pollinia with tails or stipes.
- Column with a distinct foot: lip about as large as the sepals.
16. POLYSTACHYA.
- Column without a foot: lip larger than the sepals.
- Column wholly adnate to the lip: plants without pseudobulbs at the base of the leafy flowering stems.
- Lip and column with short stout adnate bases: flowers axillary to spathe-like or scale-like bracts borne along a rachis terminating the leafy stems and branches.
17. SPATHIGER.
- Lip and column with elongate, often slender, adnate bases: flowers in an open or congested panicle or raceme which terminates the leafy stem.
18. AULIZA.
- Column partly adnate to the lip: plants with pseudobulbs at the base of the naked or scaly flowering stems.
- Lip 3-lobed, shallowly or deeply so, longitudinally crested or appendaged: sepals and petals relatively short, not attenuate.

- Column adnate at the base: lip deeply 3-lobed, with a dilated middle lobe and long and narrow lateral lobes: pseudobulbs terete: flowering stem not subtended by a foliaceous spathe. 19. ENCYCLIA.
- Column adnate to about the middle: lip obscurely 3-lobed, with a minute middle lobe and broad and short lateral lobes: pseudobulbs flattened: flowering stem subtended by a foliaceous spathe. 20. EPICLADIUM.
- Lip entire, clamshell-like, neither crested nor appendaged: sepals and petals elongate, attenuate. 21. ANACHEILUM.  
22. LIMODORUM.
- Leaves plaited: lip bearded.  
Flowering stem lateral.  
Leaves convolute in the bud.  
Lip surrounding the column or adnate to it, without a sac: pollinia 4 or 8, with caudiculae, but without stipes. 23. BLETIA.
- Lip articulate to the foot of the column, or forming with it a spur: pollinia 2 or 4, without caudiculae, but with short stipes.  
Lip contracted into a claw: foot of the column slender: epiphytic plants with long pseudobulbs. 24. CYRTOPODIUM.
- Lip sessile, the base truncate or cuneate: foot of the column dilated or abruptly narrowed at the base: terrestrial plants without pseudobulbs.  
Lip crestless, deeply 3-lobed, the lateral lobes widely spreading: foot of the column concave and grooved, not dilated, the margins thick. 25. TRIORCHOS.
- Lip with a crest of nipple-like papillae, shallowly 3-lobed: foot of the column flat, thin and dilated, the margins thin. 26. PLATYPUS.
- Leaves duplicate in the bud.  
Anther upright: lip with a narrow middle lobe. 27. MACRADENIA.  
Anther inclined: lip with a dilated middle lobe. 28. ONCIDIUM.

1. **HABENARIA** Willd. Caulescent herbs. Spike erect. Perianth white or colored. Sepals distinct or nearly so, the lateral ones spreading, slightly inequilateral. Petals unequally 2-parted. Lip 3-parted, spurred. Anther-sacs elevated, each with an appendage at the base. Stigma with narrow appendages, the glands naked.

Spur much longer than the ovary: lip over 15 mm. long.

Spur about as long as the ovary: lip less than 10 mm. long.

1. *H. quinqueseta*.

2. *H. repens*.

1. **H. quinqueseta** (Michx.) C. Mohr. Stems 2-5 dm. tall: leaf-blades oblong to oblong-lanceolate, 4-10 cm. long: lateral sepals oblong-ovate 8.5-10 mm. long: narrow lobe of each petal somewhat longer than the narrowly oblong or linear-oblong broader one: middle lobe of the lip linear-spatulate.—Pinelands.—F. K.

2. **H. repens** Nutt. Stems 3-6 dm. tall: leaf-blades oblong-lanceolate to linear-lanceolate, 5-30 cm. long: lateral sepals ovate, about 5 mm. long, obtuse: narrow lobe of each petal slightly longer than the obtuse oblong broader one: middle lobe of the lip narrowly linear.—Everglades.—(*Cuba, Ant.*)

2. **HABENELLA** Small. Caulescent herbs. Spike erect. Perianth yellowish, becoming green. Sepals distinct, the lateral ones spreading, very inequilateral. Petals much smaller than the sepals, sinuately lobed at the apex and with a small basal lobe. Lip entire, with 2 small basal lobes. Anther-sacs with filiform appendages at the base. Stigma with a short appendage, the glands naked.

1. *H. Garberi* (Porter) Small. Stems 3-6 dm. tall: leaf-blades oblong to oblong-lanceolate, 6-10 cm. long: lateral sepals very broad, 5.5-6.5 mm. long: petals about 4 mm. long, sinuately 3-lobed at the apex: lip 6-10 mm. long, broadly linear, obtuse: spur 12-18 mm. long: capsule-body 10-15 mm. long.—Hammocks.—F. K. (*Cuba*.)

3. *GYMNADENIOPSIS* Rydb. Caulescent herbs. Spike erect. Perianth white, greenish, pink, or orange-yellow. Sepals distinct, the lateral ones slightly inequilateral. Petals mostly smaller than the sepals, undulate, sinuate-lobed or erose. Lip entire or 3-lobed at the apex, or crenulate or erose. Anther-sacs parallel, approximate, the glands naked, contiguous. Stigma with 2 or 3 appendages at the beak.

1. *G. integra* (Nutt.) Rydb. Stems 2-5 dm. tall: leaves reduced on the upper part of the stem, the lower ones with linear or linear-oblong blades 5-20 cm. long: perianth white or pink: lateral sepals ovate or oblong-ovate, 4-6 mm. long, curved, the tip oblique: lip linear or linear-lanceolate, 6-7 mm. long, entire; spur about 1 cm. long.—Everglades.

4. *CARTERIA* Small. Caulescent herbs with clustered fleshy tubers. Leaves various, the basal ones with firm narrow plicate blades, the cauline mere sheathing scales. Flowers erect, several, axillary to scale-like bracts. Perianth colored. Sepals nearly equal, longer than the petals. Petals decidedly narrower than the sepals. Lip short, sessile, slightly 3-lobed at the apex, with 5 longitudinal crests. Capsules erect.

1. *C. corallicola* Small. Stems 2-3.5 dm. tall: basal leaves 2-7 cm. long; blades nearly linear, narrowed at both ends: flowers erect: lateral sepals linear-lanceolate to broadly linear, 6.5-7.5 mm. long: lip oval to orbicular-oval, 6-7 mm. long, the middle lobe much larger than the lateral ones: capsules not seen mature. Pinelands.—(*Bah.*.)

5. *VANILLA* Mill. Succulent vines with aerial roots. Leaves remote, often much reduced. Flowers in axillary clusters or spikes. Perianth mainly pale, but showy. Lateral sepals narrow, slightly broadened upward. Petals slightly shorter than the sepals. Lip cornucopia-like, involute and adnate to the long column, the free dilated tip fringed or lobed. Capsule elongate.—*VANILLA*.

Lip notched at the apex: leaves obsolete.

1. *V. articulata*.

Lip abruptly pointed at the apex: leaves mere narrow scales.

2. *V. Eggersii*.

1. *V. articulata* Northrop. Stem and branches very stout: leaves obsolete: lateral sepals narrowly oblong, 28-33 mm. long: petals oblong-spatulate: lip 28-32 mm. long, the edge undulate-cripsed: capsules 7-9 cm. long, stout-clavate.—Hammocks.—(*Bah.*)

2. *V. Eggersii* Rolfe. Stem and branches rather slender: leaf-blades linear to lanceolate, often partially scale-like, 5-7 cm. long: lateral sepals spatulate 33-36 mm. long: petals narrowly spatulate: lip 30-36 mm. long, abruptly pointed, the edges crisped: capsules clavate, 5-7 cm. long, slender-clavate.—Hammocks.—(*Bah., Cuba.*)

6. *PELEXIA* Poit. Caulescent herbs with scape-like stems. Leaves various, the lower cauline with dilated long-petioled blades, the upper cauline mere sheathing scales. Flowers in a spike. Perianth greenish. Lateral sepals united at the base and produced into a spur. Petals adnate to the narrow

elongate median sepal. Lip elongate, the upper part of the narrow blade crisped: callosities wanting.

1. *P. setacea* Lindl. Plant 3-6 dm. tall; blades of the lower cauline leaves oblong to elliptic, 4-10 cm. long; lateral sepals linear-filiform, 15-17 mm. long, exclusive of the spur: lip 30-37 mm., the body narrowly elliptic or linear-elliptic with a slender tip: capsules 14-17 mm. long.—Hammocks.—(*Bah., Ant.*)

7. **STENORRHYNCHUS** L. C. Rich. Caulescent brightly colored succulent herbs. Leaves various, the basal with more or less elongate blades, early decaying, upper cauline leaves mere sheathing scales. Flowers in a conspicuous spike. Perianth reddish, yellowish, or white. Lateral sepals narrow, united at the base and decurrent as a spur which is adnate to the hypanthium. Petals shorter than the lateral sepals. Lip entire, scarcely as long as the lateral sepals, the blade lanceolate, the claw ciliate, with thickened margins, destitute of callosities. Stigma-beak subulate.

1. *S. orchioides* (Sw.) L. C. Rich. Stem 3-7 dm. tall, stout: blades of the basal leaves elongate, oblong to linear or broadest above or below the middle: spike conspicuous; red or yellow: lateral sepals linear-lanceolate, 20-27 mm. long: petals lanceolate, 15-20 mm. long, slightly curved: lip slightly shorter than the lateral sepals, with a lanceolate body and a stout claw with lateral ridges and cilia.—Hammocks. (*Bah., Cuba, Ant.*)

8. **IBIDIUM** Salisb. Caulescent herbs. Leaves various, the basal and lower cauline with usually narrow blades, the upper cauline leaves mere sheathing scales. Spike spiral, compact. Perianth pale. Median sepal and petals coherent: lateral sepals erect. Lip erect, or with a spreading tip, with 2 basal callosities, the lower portion folded around the very short column. Stigma with a 2-forked beak. [*Gyrostachys* Pers.]—LADIES'-TRESSES.

Flowers borne in a single rank: spike secund.

Basal leaves short; blades wide: spike scarcely spiral.

1. *I. longilabre*.

Basal leaves elongate; blades very narrow: spike strongly spiral.

Blades of the basal leaves flat: lip 7-9 mm. long.

2. *I. laciniatum*.

Blades of the basal leaves channeled: lip 4-6 mm. long.

3. *I. tortile*.

Flowers borne in several ranks: spike not secund.

4. *I. cernuum*.

1. *I. longilabre* (Lindl.) House. Plants 2-4 dm. tall: basal leaves 2-5 cm. long; blades lanceolate to oblong-lanceolate: median sepal 8-10 mm. long: lip 7-8 mm. long, often with a very broad base.—Pinelands.

2. *I. laciniatum* (Small) House. Plants 3-9 dm. tall: basal leaves mostly 10-40 cm. long; blades elongate-linear or slightly tapering to both ends: median sepal 8-10 mm. long: lip 7-9 mm. long, much longer than wide, with long slender callosities.—Everglades.

3. *I. tortile* (Sw.) House. Plants 2-4.5 dm. tall: basal leaves 8-30 cm long; blades elongate-linear, often rather slender: median sepal 5-6 mm. long: lip mostly 4-6 mm. long, slightly longer than wide, with short, stout, callosities.—Pinelands.—(*Bah., Cuba, Ant.*)

4. *I. cernuum* (L.) House. Plants 1.5-7 dm. tall: basal leaves 5-30 cm. long; blades linear to narrowly oblong, flat: median sepal 8-12 mm. long: lip mostly 8-11 mm. long, oblong or with a dilated base. [*I. odoratum* (Nutt.) House.]—Everglades and along creeks.

9. **BEADLEA** Small. Caulescent herbs. Leaves various, the basal and lower cauline with wide blades, the upper cauline mere sheathing scales.

Spike lax. Perianth whitish. Median sepal and petals coherent: lateral sepals erect. Lip with a large body, completely involute, about the long column and a short nearly erect tip, the basal callosities commonly minute or obscure. Stigma-beak not forked.

1. *B. cranichoides* (Griseb.) Small. Stems 1-2.5 dm. tall: blades of the basal leaves ovate, somewhat oblique, 2-3 cm. long: lateral sepals lanceolate, mostly 4-5 mm. long, acuminate: petals linear, acute: lip 4-5.5 mm. long, the body cuneate, the tip rhombic, about as broad as long, the callosities minute or obscure. [*B. Storeri* (Chapm.) Small.]—Hammocks.—(*Cuba*.)

10. **CRANICHIS** Sw. Caulescent succulent herbs with coarse roots. Leaves various, the lower cauline with mostly long-petioled dilated blades, the upper ones reduced to partially sheathing scales. Flowers in a terminal spike. Perianth white or whitish. Lateral sepals broad, slightly inequilateral. Petals narrow, much smaller than the sepals. Lip longer than the petals, concave.

1. *C. muscosa* Sw. Plants 1-3 dm. tall, the stem scaly: leaf-blades oblong-elliptic, oval or ovate, 2.5-7 cm. long: lateral sepals ovate, 3-3.5 mm. long: petals narrowly elliptic to cuneate-spatulate, 2.5-3 mm. long: lip oblong or nearly so, about 3 mm. long, sessile.—Hammocks.—(*Bah.*, *Cuba*, *Ant.*)

11. **PRESCOTTIA** Lindl. Caulescent herbs with stout roots. Leaves various, the basal ones with broad blades, the cauline ones reduced to sheathing scales. Flowers in a terminal spike. Perianth white, pink, or greenish. Lateral sepals broad, nearly equilateral. Petals much smaller than the sepals. Lip very broad, the blade auricled at the base.

1. *P. oligantha* (Sw.) Lindl. Plants 2-4 dm. tall, the stem with narrow scales: blades of the lower leaves ovate or oblong to oval, 2-6 cm. long: lateral sepals ovate, about 1.5 mm. long: petals ovate to oblong-ovate, about 1 mm. long: lip 1.2-1.5 mm. long, the blade suborbicular, with minute auricles at the base.—Hammocks.—(*Bah.*, *Cuba*, *Ant.*)

12. **PONTHIEVA** R. Br. Caulescent herbs with scape-like stems from clustered roots. Leaves various, the lower cauline with dilated blades, the upper mere scales. Raceme lax. Perianth greenish. Lateral sepals ovate, slightly inequilateral. Petals drooping, the blades very inequilateral, slender-clawed. Lip relatively small, concave, beaked, short-clawed.

Petal-blades about as wide as long: anther linear.

1. *P. racemosa*.

Petal-blades decidedly longer than wide: anther oblong.

2. *P. Brittonae*.

1. *P. racemosa* (Walt.) C. Mohr. Plants 2-5 dm. tall: blades of the lower cauline leaves oblong to ovate-oval, 4-13 cm. long or more: lateral sepals ovate, 5-5.5 mm. long, acutish: petals about as long as the sepals, the claw shorter than the blade: lip 4-4.5 mm. long.—Hammocks.—(*Cuba*, *Ant.*)

2. *P. Brittonae* O. Ames. Plants 1-4 dm. tall: blades of the lower cauline leaves oblong, ovate, or obovate, 3-11 cm. long: lateral sepals ovate, 4-4.5 mm. long, acute: petals about as long as the sepals: lip 3-3.5 mm. long.—Pinelands.—(*Bah.*)

13. **PHYSURUS** L. C. Rich. Caulescent succulent herbs, the stems leafy. Leaves with wide blades. Spike compact. Perianth whitish or greenish. Lateral sepals relatively broad, decurrent, together with the base of the lip, as a sac partially adnate to the hypanthium. Petals mostly smaller than the sepals. Lip 3-lobed, the terminal lobe quite as long as the body of the lateral lobes, with a reflexed tip, the broad claw-like base forming part of the spur.

1. *P. querciticola* Lindl. Plant 1-3 dm. tall: leaf-blades lanceolate to ovate, 1-6 cm. long: lateral sepals 4-4.5 mm. long: petals 3.5-4 mm. long, narrower than the sepals, inequilateral.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

14. **TROPIDIA** Lindl. Caulescent somewhat woody herbs with fibrous roots. Leaves with plicate blades terminating long sheathing bases. Panicle stalked. Perianth greenish-white. Lateral sepals nearly equilateral. Petals somewhat smaller than the sepals, slightly curved. Lip shorter than the petals, with a saccate base and a slightly curved blade.

1. *T. polystachya* (Sw.) O. Ames. Stems 3-5 dm. tall, branched: leaf-blades elliptic to elliptic-lanceolate, 5-20 cm. long, persistent: lateral sepals oblong or nearly so, 6-7 mm. long: petals 5-6 mm. long: lip 4-4.5 mm. long, constricted about the middle: capsules 9-11 mm. long.—Hammocks.—(*Cuba, Ant.*)

15. **MALAXIS** Soland. Terrestrial scapose herbs with corms. Leaves mainly elongate sheaths, the upper one, or two, bearing a dilated blade at the top. Raceme erect. Perianth white or greenish. Lateral sepals slightly equilateral. Petals linear-filiform or filiform, shorter than the sepals. Lip broad, cordate at the base, sometimes lobed at the apex. Capsules spreading.

1. *M. floridana* (Chapm.) Small. Leaves mostly 2; blades ovate to oblong-ovate, 3-10 cm. long: scape 1-3 dm. tall: racemes stoutish: lateral sepals oblong or nearly so, about 3 mm. long, obtuse: lip about 3.5 mm. long, auricled at the base, with a broad blunt tip: capsules 6-7 mm. long.—Hammocks.—ADDER'S-MOUTH.

16. **POLYSTACHYA** Hook. Epiphytic herbs. Leaves several, approximate at the base of the flower-stem. Panicle often 1-sided. Perianth mainly yellow. Lateral sepals broad, adnate to the long column-foot. Petals narrow. Lip dilated, 3-lobed, jointed to the column-foot, folded up against the edges of the lateral sepals. Capsules nodding.

1. *P. minuta* (Aubl.) Britton. Plants 1-6 dm. tall: blades of the lower cauline leaves oblong to broadly linear, 1-3 dm. long: lateral sepals triangular, 5-6 mm. long, acute: petals spatulate or linear-cuneate, 3-3.5 mm. long, obtuse: lip 5-6 mm. long, the lateral lobes directed forward and nearly equaling the broad middle lobe: capsules 9-11 mm. long.—Hammocks.—(*Bah., Cuba, Ant.*)

17. **SPATHIGER** Small. Epiphytic herbs with creeping stems and branches. Leaves mostly ascending or spreading, with rather narrow blades, and sheathing bases. Flowers in the axils of clasping bracts. Perianth small and inconspicuous. Lateral sepals broad, often wider than the median one. Petals rather broad, scarcely dilated upward. Lip concave; blade ovate, sub-orbicular, or reniform. Column short, wholly adnate to the lip. Capsule erect.

1. *S. rigidus* (Jacq.) Small. Plants with creeping stem and branches 1-5 dm. long: leaf-blades oblong, sometimes narrowly so, 4-8 cm. long: perianth greenish: lateral sepals ovate or oblong-ovate, 5-7 mm. long: petals broadly linear to oblong-spatulate: lip green; blade 2-3 mm. long, triangular-reniform to suborbicular, bearing callosities near the base: capsules 15-18 mm. long. [*Epidendrum rigidum* Jacq.]—Hammocks.—(*Bah., Cuba, Ant.*)

18. **AULIZA** Salisb. Epiphytic herbs with erect or ascending, often tufted, stems. Leaves ascending or spreading, with broad or narrow blades,

and sheathing bases, the lower portion of the stem often merely scaly and sometimes thickened after the manner of an elongate pseudobulb. Flowers in a terminal open or contracted raceme or panicle, usually long-pedicelled. Perianth rather large, often showy. Lateral sepals obtuse, acute, or attenuate, often elongate. Petals spatulate or slender and attenuate. Lip relatively large, entire or fimbriate, the middle lobe, wanting, minute or elongate. Column elongate, wholly adnate to the lip-base. Capsules drooping.

Lip with 2 lateral lobes directed forward and an elongate slender middle lobe: petals slenderly attenuate: lateral sepals narrow. 1. *A. nocturna*.

Lip with 2 broad spreading lateral lobes and a broad short notched middle lobe: petals spatulate: lateral sepals broad. 2. *A. difformis*.

1. *A. nocturna* (L.) Small. Plants 3-11 dm. tall: leaf-blades oblong to broadly linear, 8-16 cm. long: perianth showy: lateral sepals linear-attenuate, 40-60 mm. long, green: petals narrower than the sepals: lip white; blade with 2 ovate or oblong-ovate lateral lobes directed forward and a linear-setaceous middle lobe 35-50 mm. long: capsule-body 3-5 cm. long. [*Epidendrum nocturnum* L.]—Hammocks.—(Bah., Cuba, Ant.)

2. *A. difformis* (Jacq.) Small. Plants 1-3.5 dm. tall: leaf-blades oblong or nearly so, 4-8 cm. long: perianth green: lateral sepals more or less oblique, sometimes broadly simitar-shaped, 12-15 mm. long: lip green; blade 7-8 mm. long, reniform to orbicular-reniform, with broad rounded lateral lobes and a short notched middle lobe: capsule-body 13-16 mm. long. [*Epidendrum difforme* Jacq.]—Hammocks.—(Cuba, Ant.)

19. **ENCYCLIA** Hook. Epiphytic herbs with terete pseudobulbs which bear several erect or arching elongate leaves and a scaly elongate branched flowering stem at the apex. Flowers nodding, subtended by small bracts. Perianth often conspicuous. Lateral sepals rather broad, usually about as wide as the median one. Petals usually of a spatulate type. Lip 3-lobed, the middle lobe much broader than the lateral ones. Column slightly adnate to the lip. Capsules drooping, ribbed.

1. *E. tampense* (Lindl.) Small. Plants 1.5-6 dm. tall: leaf-blades linear to narrowly linear-lanceolate, 8-20 cm. long: flower-stem typically branched: lateral sepals 17-20 mm. long, slightly broadened upward; petals spatulate, deeper brown-shaded than the sepals: lip white and rose-purple; blade 15-17 mm. long, the lateral lobes oblong-lanceolate, the middle lobe orbicular or reniform-orbicular: capsule-body 25-30 mm. long. [*Epidendrum tampense* Lindl.]—Hammocks.—F. K.

20. **EPICLADIUM** Small. Epiphytic herbs with short flattened pseudobulbs which bear several short erect leaves and a relatively short mostly simple flowering stem which is subtended by a long foliaceous spathe. Flowers erect or ascending, subtended by minute bracts. Perianth showy. Lateral sepals rather short, about as wide as the median one. Petals nearly resembling the lateral sepals or more dilated upward. Lip shorter than the sepals and petals, the blade usually rhombic. Column partly adnate to the lip. Capsules nodding, winged.

1. *E. Boothianum* (Lindl.) Small. Plants 1-2 dm. tall, with flattened suborbicular pseudobulbs: leaf-blades spatulate, 6-12 cm. long: flower-stem simple: lateral sepals 11-13 mm. long, elliptic or slightly broadened upward: petals broadly spatulate, brown-spotted like the sepals: lip yellow or mainly so; blade rhombic, 4-6 mm. long, the broad lateral lobes spreading; capsule-body 25-30 mm. long. [*Epidendrum Boothianum* Lindl.]—Hammocks.—F. K. (Bah., Cuba.)



**21. ANACHEILIMUM** Hoffmg. Epiphytic herbs with elongate flattened pseudobulbs which bear several elongate erect leaves and a simple flowering stem at the apex. Flowers nodding, subtended by often lanceolate bracts. Perianth usually showy. Lateral sepals narrow and elongate, usually attenuate, resembling the median one. Petals usually slightly shorter than the sepals. Lip much shorter than the sepals and petals; blade very broad, clamshell-like, entire. Column partly adnate to the lip. Capsules drooping, wing-angled.

1. *A. cochleatum* (L.) Hoffmg. Plants 2-5 dm. tall; leaf-blades linear or nearly so, 1.5-4 dm. long; flower-stem simple; lateral sepals 25-30 mm. long, linear-lanceolate and attenuate; lip brown or purplish; blade orbicular-reniform, 16-20 mm. long, entire, abruptly pointed; capsule-body 20-30 mm. long. [*Epidendrum cochleatum* L.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

**22. LIMODORUM** [Gronov.] L. Scapose herbs with corms. Leaves few, consisting of several sheathing scales, except one with an elongate blade. Flowers in a terminal raceme-like spike. Perianth mainly purple, pink-purple or white. Lateral sepals inequilateral, shorter than the median one. Petals nearly equilateral, somewhat narrowed at the base. Lip with 2 minute lateral lobes, and a dilated middle lobe bearded with clavate hairs.—GRASS-PINK.

Dilated portion of the middle lobe of the lip narrowed down to the lateral lobes.  
Lateral sepals broadly ovate: crest of the lip extending to the margins.

Lateral sepals oblong-ovate: crest of the lip central.  
Dilated portion of the middle lobe of the lip separated from the lateral lobes by a linear stalk-like base.

1. *L. multiflorum*.
2. *L. pinetorum*.
3. *L. Simpsonii*.

1. *L. multiflorum* (Lindl.) C. Mohr. Leaf-blades linear, 8-15 cm. long; scape 2-4 dm. tall; perianth deep-purple: lateral sepals ovate, 10-12 mm. long, acute: petals 12-13 mm. long, the blades ovate or obovate: middle lobe of the lip broadly cuneate, 8-9 mm. wide, truncate and mucronate: column-wings rhombic.—Everglades.

2. *L. pinetorum* Small. Leaf-blades narrowly linear, 0.5-1.5 dm. long; scape 1-2.5 dm. tall; perianth deep-rose: lateral sepals oblong-ovate, 10.5-11.5 mm. long, acutish: petals 11-12 mm. long, the blade oblong: middle lobe of the lip cuneate, 6-8 mm. wide, nearly truncate at the apex and mucronate: column-wings half-orbicular.—Pinelands.

3. *L. Simpsonii* Small. Leaf-blade narrowly linear, 30-40 cm. long; scape 5-9 dm. tall; perianth purple or rarely white: lateral sepals half-orbicular, 17-18 mm. long, cuspidate: petals 20-22 mm. long, the blade oblong-ovate: middle lobe of the lip 8-10 mm. wide, obreniform, emarginate, mostly over 11 mm. wide: column-wings broadly obovate.—Everglades.—(*Bah., Cuba.*)

**23. BLETIA** R. & P. Caulescent herbs with corms. Leaves several from the top of the corm, mostly persisting until after the lateral flower-stem arises. Raceme loosely flowered. Perianth mainly pink or purplish. Lateral sepals slightly inequilateral. Petals nearly or quite similar to the lateral sepals. Lip wide, crested, 3-lobed, the middle lobe crisped. Capsules mostly erect.

1. *B. purpurea* (Lam.) DC. Leaf-blades broadly linear to linear-elliptic, 1.5-3.5 dm. long, attenuate: flower-stem 3-11 dm. tall: lateral sepals oblong-ovate to broadly oblong, 11-16 mm. long, abruptly acuminate: petals oval or ovate-oval, barely as long as the sepals: lip 11-15 mm. long, with a broad

base, ear-like lateral lobes and a crisped and crested middle lobe: capsule 3-4 cm. long. [*B. verecunda* Sw.]—Pinelands—F. K. (*Bah., Cuba, Ant.*)

24. **CYRTOPODIUM** R. Br. Epiphytic herbs. Leaves borne on a stout club-like pseudobulb, from the base of which arises the lateral flower-stem. Panicle diffuse. Perianth mainly brown or yellow. Lateral sepals relatively broad. Petals longer than the sepals. Lip wider than long, the lateral lobes larger than the middle one, the claw jointed to the slender column-foot. Capsules drooping.

1. *C. punctatum* Lindl. Pseudobulbs 1.5-4 dm. long: leaf-blades broadly linear-attenuate, 3-7 dm. long: flower-stem 8-15 dm. long: perianth yellowish-green: lateral sepals oval or obovate, 14-16 mm. long: petals oblong, 18-21 mm. long: lip butterfly-like, 21-24 mm. wide, the median lobe reniform, with a beaded margin, the lateral lobes larger than the middle one: capsule 6-10 cm. long.—Hammocks.—(*Cuba.*)

25. **TRIORCHOS** Small & Nash. Caulescent herbs with corms. Leaves several, arising from the corm before the lateral flower-stem. Racemes with elongate bracts. Perianth mainly brown. Lateral sepals curved, slightly adnate to the column-foot. Petals nearly equilateral, shorter than the lateral sepals. Lip fully as wide as long, crestless, 3-lobed, the lateral lobes spreading. Capsules erect.

1. *T. ecristatus* (Fernald) Small. Leaf-blades linear to narrowly linear-elliptic, 2-5 dm. long: flower-stem virgate, 14-21 dm. tall: lateral sepals oblong to oblong-lanceolate, 8-9 mm. long: petals usually elliptic-lanceolate, 7-8 mm. long: lip 7-8 mm. long, the middle lobe much larger than the lateral lobes: capsules about 2 cm. long.—Pinelands.—(*Cuba.*)

26. **PLATYPUS** Small & Nash. Caulescent herbs with corms. Leaves several from the top of the corm, persisting until the lateral flower-stem arises. Flowers in a terminal raceme with small bracts. Perianth mainly brown and purple. Lateral sepals slightly dilated upward, broader than the median one, decurrent to the base of the forked column-foot. Petals shorter than the lateral sepals, less decurrent. Lip concave at the base, papillose-crested, shallowly 3-lobed, the middle lobe drooping. Capsules mostly ascending.

1. *P. altus* (L.) Small. Leaf-blades narrowly linear-elliptic to almost linear, 2-5 dm. long: flower-stem 5-12 dm. tall: lateral sepals oblong or nearly so, 14-16 mm. long: petals broader than the lateral sepals: lip 16-18 mm. long, the middle lobe 8-10 mm. wide, papillose-crested.—Everglades.—(*Cuba, Ant.*)

27. **MACRADENIA** R. Br. Epiphytic caulescent herbs with pseudobulbs. Leaves terminating the pseudobulbs from the base of which arises the drooping flower-stem. Flowers in lax racemes. Perianth mainly yellowish. Lateral sepals slightly inequilateral. Petals nearly like the lateral sepals, slightly smaller. Lip sessile, with 2 broad basal lobes and a narrow middle lobe.

1. *M. lutescens* R. Br. Pseudobulbs 2-4 cm. long: leaf-blades broadly linear to oblong-linear, 8-16 cm. long: flower-stem mostly shorter than the leaves, drooping: perianth yellowish: lateral sepals elliptic-lanceolate, 8-9.5 mm. long: lip 8-10 mm. long, the lateral lobes forming a reniform body terminated with the linear-lanceolate middle lobe.—Hammocks.—(*Cuba, Ant.*)

28. **ONCIDIUM** Sw. Epiphytic or sometimes terrestrial herbs, with pseudobulbs. Leaves with broad or narrow and elongate blades, terminating the pseudobulb from the base of which arises the flower-stem. Flowers in a raceme or panicle. Perianth often mottled. Lateral sepals slightly inequilateral, reflexed or spreading. Petals often similar to the sepals. Lip crested, clawless or short-clawed, 3-lobed, the middle lobe larger than the lateral ones.

Epiphytic: middle lobe of the lip 20-24 mm. wide: leaf-blades not elongate

1. *O. undulatum*.

Terrestrial: middle lobe of the lip 11-14 mm. wide: leaf-blades elongate.

2. *O. sphacelatum*.

1. ***O. undulatum*** (Sw.) Salisb. Pseudobulbs 1-2 cm. long: leaf-blades oblong, elliptic, or oblong-lanceolate, 3-6 dm. long: flower-stem, 12-19 dm. long: lateral sepals 16-19 mm. long, the blade oval or obovate, crisped: petals 15-18 mm. long, the blade obovate to cuneate: lip 18-20 mm. long, the middle lobe 20-24 mm. wide.—Hammocks.—(*Cuba, Ant.*)

2. ***O. sphacelatum*** Lindl. Pseudobulbs 8-11 cm. long: leaf-blades linear, 3-9.5 dm. long: flower-stem 9-21 dm. long: lateral sepals 15-16 mm. long, the blade oblong-lanceolate: petals 14-15 mm. long, the blade ovate-lanceolate: lip 13-15 cm. long, the middle lobe 11-14 mm. wide.—Pinelands and hammocks.—(*Bah., Cuba.*)

## SUBCLASS 2. DICOTYLEDONES.

Stems consisting of pith, wood, and bark (endogenous in rare cases). Early leaves opposite.

### Series 1. CHORIPETALAE.

Petals separate and distinct from each other, or wanting.

#### Order CASUARINALES.

Shrubs or trees, with loosely jointed branches resembling stems of *Equisetum*. Leaves reduced to scales, whorled at the nodes and decurrent on the internodes. Flowers monoecious, the staminate in slender terminal spikes with imbricate bracts, often with a posterior and anterior perianth-part, 1 stamen with a large anther. Pistillate flowers in dense spikes or cones: perianth wanting: ovary 1-celled: style-branches slender. Fruit an aggregate of winged achenes.

#### FAMILY 1. CASUARINACEAE. BEEFWOOD FAMILY.

Stems with more or less whorled branches. Staminate spikes long-stalked. Pistillate spikes short-stalked. Gynoecium 2-carpellary.

1. **CASUARINA** Adans. Stem clothed with a smooth or smoothish bark, except when very old. Stamens with long filaments and short anthers. Stigmas elongate. Fruiting spike compact.

1. ***C. equisetifolia*** Forst. A tree often 10 m. tall, with many slender branches: leaves (scales) 1-3 mm. long, 6-8 in each whorl: staminate spikes 1-4 cm. long: pistillate spikes globular, becoming 1-2 cm. in diameter in fruit: seed-wing nearly thrice as long as the body.—Cultivated grounds and waste places.

Nat. from Oceanica, and cultivated.—F. K. (*Bah., Cuba, Ant.*)—BEEFWOOD. AUSTRALIAN-PINE.

### Order PIPERALES.

Herbs of wet or moist places, usually with rootstocks, or shrubs or trees. Leaves with simple blades. Flowers perfect or unisexual. Perianth wanting. Androecium of several stamens. Gynoecium of 1, or of several distinct or united carpels. Fruit baccate, drupaceous, capsular, or nut-like.

Carpels distinct or nearly so, 3-4 : ovules 2-8 in each cavity. Fam. 1. SAURURACEAE.  
Carpels united to form a single pistil : ovule 1 in each cavity. Fam. 2. PIPERACEAE.

#### FAMILY 1. SAURURACEAE. LIZARD'S-TAIL FAMILY.

Herbs with rootstocks. Leaves alternate, sometimes basal. Flowers spicate or racemose. Androecium of 3-8 stamens. Gynoecium of 3 or 4 distinct or nearly distinct carpels. Stigmas simple. Fruit capsular.

1. **SAURURUS** [Plum.] L. Marsh herbs. Leaf-blades membranous, cordate. Raceme with a drooping tip, the bractlets adnate to the pedicels or ovaries. Pistils 3 or 4. Mature carpels veiny, opening introrsely.

1. **S. cernuus** L. Stems 3-12 dm. tall: leaf-blades ovate to ovate-lanceolate, 8-15 cm. long, acuminate, petioled: racemes 1-2 dm. long: filaments clavate, about 4 mm. long: fruit depressed, the carpels about 2 mm. high.—Everglades.—LIZARD'S-TAIL.

#### FAMILY 2. PIPERACEAE. PEPPER FAMILY.

Herbs, shrubs, or trees. Leaf-blades mostly fleshy or leathery. Spikes, or rarely racemes, simple or compound, the bractlets cup-like or peltate. Androecium of 2-6, or rarely 8-10, stamens. Gynoecium of 3, or rarely more, united carpels, the ovary 1-celled. Fruit drupaceous.

1. **PEPEROMIA** R. & P. Herbs, commonly epiphytic. Leaf-blades fleshy. Spikes stiff, the bractlets peltate. Stamens 2. Pistil solitary. Stigmas tufted. Drupe with a thin pericarp.

1. **P. obtusifolia** (L.) A. Dietr. Plants glabrous: stems creeping, 2-8 dm. long: leaf-blades 6-12 cm. long, oval varying to ovate or obovate: spikes 4-6 mm. thick, green. [*P. magnoliaefolia* (Jacq.) C.DC.]—Hammocks.—(*Bah., Cuba, Ant.*)

### Order SALICALES.

Shrubs or trees. Leaves alternate: blades simple, entire or toothed. Flowers dioecious, in aments, the staminate consisting of an androecium of 1 or 2 stamens or more, the pistillate consisting of a gynoecium of 2 or 4 united carpels. Ovules numerous. Fruit capsular.

#### FAMILY 1. SALICACEAE. WILLOW FAMILY.

Shrubs or trees, with soft wood. Leaf-blades very narrow to very broad. Aments erect or drooping, the bracts mostly ciliate or toothed. Capsules narrowed to the apex. Seeds usually with a tuft of hairs.

1. **SALIX** [Tourn.] L. Shrubs or trees, the buds with a single scale. Leaf-blades pinnately veined, relatively short-petioled. Stamens 2, or rarely 1-7: anthers yellow or reddish. Ovary stipitate: stigmas not dilated.

1. **S. amphibia** Small. Shrub, or small tree becoming 16 m. tall, the twigs purplish or purple: leaf-blades linear-lanceolate or oblong, 3-13 cm. long: staminate aments 1.5-5 cm. long, the bracts finely pubescent: capsules conic in outline, about 3 times as long as the pedicels.—Everglades and about hammocks.—WILLOW. Owl  
well

### Order MYRICALES.

Shrubs or small trees, usually aromatic. Leaves alternate: blades simple, sometimes toothed or pinnatifid. Flowers dioecious or monoecious, the staminate in long aments, each flower consisting of an androecium of 2-8 stamens, the pistillate in short aments, each flower consisting of a gynoeceium of 2 united carpels on a bract subtended by 2 bractlets and surrounded by 2-8 scales. Stigmas 2. Ovule solitary. Fruit a nut, the epicarp often waxy.

#### FAMILY 1. MYRICACEAE. BAYBERRY FAMILY.

Leaves resinous-dotted. Staminate and pistillate flowers in scaly aments. Perianth wanting. Ovary 1-celled.

1. **CEROTHAMNUS** Tidestrom. Dioecious shrubs. Leaf-blades entire or merely toothed. Pistillate aments not bristly. Fruit globose, drupe-like with a fleshy waxy epicarp.

1. **C. ceriferus** (L.) Small. Shrub, or tree becoming 12 m. tall: leaf-blades oblanceolate to oblong-oblanceolate, 3-10 cm. long, entire or sharply toothed: staminate aments 1-1.5 cm. long: nuts 2-3 mm. in diameter. [*Myrica cerifera* L., *Morella cerifera* (L.) Small.]—Pinelands and hammocks.—F. K. (Ber., Bah., Cuba, Ant.)—BAYBERRY. WAX-MYRTLE. MYRTLE.

### Order FAGALES.

Shrubs or trees. Leaves alternate: blades simple. Flowers monoecious or rarely dioecious, at least the staminate borne in aments, the pistillate sometimes with an involucre which becomes a bur or cup in fruit. Calyx usually present. Corolla wanting. Fruit a nut or rarely a samara.

#### FAMILY 1. FAGACEAE. BEECH FAMILY.

Shrubs or trees, the wood usually coarse-grained. Leaves sometimes persistent: blades simple, entire, toothed, or lobed. Staminate aments elongate or globular, the calyx of 4-7 partially united sepals. Pistillate flowers solitary or several together, each subtended by a bristly involucre, the sepals thick. Fruit a bur-like or cup-like involucre enclosing or subtending 1 or more nuts.

1. **QUERCUS** [Tourn.] L. Shrubs or trees, with coarse-grained wood. Leaf-blades entire, toothed, or lobed. Staminate aments drooping: calyx 4-7-lobed: stamens 6-12, the filaments relatively short. Pistillate flowers solitary or several: ovary usually 3-celled: stigmas 3, dilated. Mature involucre saucer-like or cup-like subtending the nut, or rarely enclosing it.—OAK.

Plants with subterranean stems: in pinelands.

Leaf-blades entire: cup saucer-shaped to hemispheric; nut rounded at the apex.  
1. *Q. pumila*.

Leaf-blades (lower) pinnately toothed or lobed: cup turbinate:  
nut tapering. 2. *Q. minima*.

Plants with erect stems: in hammocks.

Cup turbinate or hemispheric: nut long: leaf-blades pale be-  
neath, pubescent. 3. *Q. virginiana*.

Cup saucer-shaped: nut very short: leaf-blades not pale be-  
neath, glabrous. 4. *Q. myrtifolia*.

1. *Q. pumila* Walt. Shrub with underground stems, the branches 3-6 dm. tall, or sometimes taller: leaf-blades narrowly oblong, varying to lanceolate or oblanceolate, 5-12 cm. long, finely tomentose beneath, entire, sometimes slightly crisped: acorns sessile or nearly so; cup saucer-shaped, sometimes deeply so, 12-15 mm. wide; nut ovoid, 10-15 mm. long.—Pinelands.

2. *Q. minima* (Sarg.) Small. Shrub with underground stems, the branches less than 1 m. tall: leaf-blades obovate, or sometimes oblong or oblanceolate in outline, 3-10 cm. long, glabrous or finely pubescent beneath, repand-toothed, or those of the upper leaves sometimes entire: acorns solitary or several on a peduncle; cup hemispheric, about 15 mm. wide; nut ovoid or elliptic, 15-18 mm. long.—Pinelands.

3. *Q. virginiana* Mill. Tree becoming 30 m. tall: leaf-blades oval or oblong, varying to obovate or oblanceolate, 3-12 cm. long, entire, smooth; acorns solitary or spicate on peduncles; cup hemispheric, 15-20 mm. wide; nut ovoid or oblong-ovoid, 20-25 mm. long, twice as long as the cup.—Hammocks.—(Cuba.)—LIVE-OAK.

4. *Q. myrtifolia* Willd. Shrub, or tree becoming 6 m. tall: leaf-blades obovate or oval, 2-5 cm. long, entire, shining above, dull beneath: acorns sessile or nearly so; cup saucer-shaped, 10-13 mm. wide; nut ovoid or oblong-ovoid, 10-14 mm. long.—Hammocks.

### Order URTICALES.

Shrubs or trees, or herbs. Leaves alternate, or in the case of herbs often opposite: blades simple, entire, toothed, or divided. Flowers various, not in aments. Calyx present. Corolla wanting. Androecium often of as many stamens as there are sepals. Gynoecium of a single carpel or of 2 united carpels. Fruit an achene, a samara, drupe, syncarp, or syconium.

Fruit an achene, the achenes sometimes in the accrescent sepals and disposed in a syncarp.

Flowers not on a receptacle: fruits not forming syncarps: sepals neither thick and juicy, nor enveloping the achenes. Fam. 1. URTICACEAE.

Flowers on the outside or inside of a receptacle: fruits forming syncarps: sepals accrescent, enveloping the achenes. Fam. 2. ARTOCARPACEAE.

Fruit a samara or a drupe, sometimes nut-like. Fam. 3. ULMACEAE.

### FAMILY 1. URTICACEAE. NETTLE FAMILY.

Herbs or shrubby plants (ours), often with stinging hairs. Leaf-blades entire, toothed, or rarely lobed. Flowers dioecious, monoecious, or polygamous, cymose. Calyx of 2-5 distinct or partially united sepals. Androecium of 2-5 stamens. Gynoecium a single carpel. Fruit an achene.

Flower-clusters not involucreate: leaves mostly opposite.

Sepals of the pistillate flowers distinct or nearly so, not investing the achene: stigma tufted. 1. PILEA.

Sepals of the pistillate flowers united, the tube investing the achene: stigma elongate. 2. BOEHMERIA.

Flower-clusters involucreate: leaves mostly alternate. 3. PARIETARIA.

1. **PILEA** Lindl. Depressed, often creeping, succulent herbs. Leaves mainly alternate: blades entire, 1-ribbed. Flowers monoecious. Sepals of the pistillate flowers 3, very unequal, 2 of them flat, the third one much larger, helmet-like, often enclosing the achene. Stigma tufted.

1. **P. microphylla** (L.) Liebm. Plants with spreading or creeping succulent branches 2-15 cm. long: leaf-blades elliptic, oblanceolate, or obovate, 2-6 mm. long, acute or acutish: cymes sessile or nearly so: sepals ovate, thin, about 0.5 mm. long, abruptly pointed, greenish or pink: achenes about 0.4 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

2. **BOEHMERIA** Jacq. Perennial herbs. Leaves opposite: blades toothed, often 3-ribbed. Flowers monoecious, in clusters on branches, the pistillate with 4 united sepals surrounding the ovary. Stigma elongate. Achene included in the horseshoe-like accrescent calyx.

1. **B. scabra** (Porter) Small. Stem 2-15 dm. tall, typically rough-pubescent: leaf-blades firm, ovate to elliptic-ovate, 2-5 cm. long, or rarely longer, short-petioled: flower-clusters mostly contiguous: achenes about 1.5 mm. wide.—Everglades.—FALSE-NETTLE.

3. **PARIETARIA** [Tourn.] L. Flimsy succulent herbs. Leaves alternate: blades entire. Flowers polygamous, in clustered involucrate axillary cymes, the involucre of 2-6 more or less united bracts. Stigma tufted.

1. **P. floridana** Nutt. Stems 1-5 dm. long, usually puberulent, often much branched: leaf-blades ovate to subrhombic, 0.5-5 cm. long: sepals acute: achene ovoid, 1 mm. long.—Hammocks.—F. K. (*Ber., Cuba*).—PELLITORY.

## FAMILY 2. ARTOCARPACEAE. MULBERRY FAMILY.

Shrubs or trees, the sap milky. Leaves mostly alternate: blades equilateral, entire, toothed, or lobed. Flowers monoecious or dioecious, in ament-like spikes or enclosed in a receptacle, the staminate with 3 or 4 stamens, the pistillate with a calyx of 3-5 sepals which greatly enlarge and subtend or envelope the achene: gynoecium of 1 or of 2 united carpels; styles or stigmas 1 or 2. Fruit a syncarp or syconium.

Flowers on the outside of a receptacle: styl. wanting: stigmas not eccentric.

Flowers on the inside of a receptacle: style present, eccentric.

1. **MORUS.**  
2. **FICUS.**

1. **MORUS** [Tourn.] L. Shrubs or trees, with scaly bark. Leaves deciduous: blades commonly serrate, sometimes lobed. Flowers in pedunculate spikes: staminate in cylindric spikes, with 4 sepals and 4 stamens. Pistillate spikes cylindric: sepals 4, the lateral ones larger than the others: stigmas 2, short. Fruit cylindric, the achenes included in the calyx.—MULBERRY.

1. **M. rubra** L. Tree becoming 20 m. tall, with nearly glabrous twigs: leaf-blades ovate to oval-ovate, 6-20 cm. long, softly pubescent beneath: staminate spikes 4-8 cm. long: fruit cylindric, 3-6 cm. long, deep-red or purplish.—Hammocks.—(*Ber.*)—RED-MULBERRY.

2. **FICUS** [Tourn.] L. Shrubs, trees, or vines, with smoothish bark. Leaves mainly persistent: blades entire, toothed, or lobed. Flowers in hollow receptacles, the staminate with a calyx of 2-6 sepals, or these obsolete, and 1 or 2, or rarely 3, stamens. Pistillate flowers numerous: style rather long:

stigma clavate, peltate, or 2-lobed. Fruit depressed, globular, or elongate, the achenes included.—FIG.

Receptacle sessile: leaf-blades narrowed at the base.

1. *F. aurea*.

Receptacle stalked: leaf-blades rounded or cordate at the base.

2. *F. brevifolia*.

1. *F. aurea* Nutt. Tree, often starting as a vine, becoming 20 m. tall, with glabrous twigs: leaf-blades oblong, or oval, 3–10 cm. long, acute or short-acuminate at the base: fruit spheroidal or obovoid, about 2 cm. in diameter.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—GOLDEN-FIG.

2. *F. brevifolia* Nutt. Shrub, or tree sometimes 15 m. tall, with glabrous twigs: leaf-blades ovate, oval, or rarely obovate, 3–10 cm. long, mainly rounded or cordate at the base: fruits subglobose, 2–2.5 cm. in diameter. [*F. populnea* Nutt.]—Pinelands and hammocks.—F. K. (*Bah., Cuba, Ant.*)—WILD-FIG.

### FAMILY 3. ULMACEAE. ELM FAMILY.

Shrubs or trees, the sap watery. Leaves alternate: blades inequilateral, commonly toothed. Flowers perfect, polygamous, or monoecious, variously disposed. Calyx of 4 or 5, or rarely 3–9, partially united sepals. Androecium of usually as many stamens as there are sepals. Gynoecium of 2 united carpels. Fruit a samara or a drupe, or nut-like.

Flowers in dichotomous cymes: drupes in axillary cymes.

1. TREMA.

Flowers solitary or clustered: drupes solitary.

2. CELTIS.

1. **TREMA** Lour. Unarmed shrubs or trees, the bark smoothish. Leaves persistent: blades toothed, slightly inequilateral. Calyx rotate, the lobes much longer than the tube. Stigmas 2, entire. Drupe ovoid or globose.

1. *T. floridana* Britton. Shrub, or tree 6 m. tall, with copiously pubescent foliage: leaf-blades ovate, oblong-ovate, or lanceolate, 4–10 cm. long, softly pubescent beneath: calyx greenish: drupes subglobose, 2.5–3.5 mm. in diameter, yellow or orange.—Hammocks.—F. K.

2. **CELTIS** [Tourn.] L. Unarmed shrubs or trees, the bark often warty. Leaves deciduous: blades entire or toothed, very inequilateral. Calyx rotate, the lobes much longer than the tube. Stigmas 2, entire. Drupe subglobose or oval.

1. *C. mississippiensis* Bosc. Tree becoming 30 m. tall, the twigs sometimes pubescent: leaf-blades lanceolate varying to ovate-lanceolate or oblong-lanceolate, 6–12 cm. long, long-acuminate, entire or nearly so: drupes globose or ovoid-globose, 5–7 mm. in diameter, dark-purple or orange-red.—Hammocks.—(*Ber.*)—HACKBERRY. SUGARBERRY.

### Order POLYGONALES.

Shrubs, herbs, trees, or vines. Leaves alternate, or sometimes opposite or whorled: blades mostly entire: stipules present, usually as a sheath. Flowers perfect, monoecious, dioecious, or polygamous, variously disposed. Hypanthium long or short. Calyx of 2–6 sepals, which sometimes develop keels or wings. Corolla wanting. Androecium of 2–9 stamens. Gynoecium of 2 or 3 united carpels, the ovary superior. Ovule orthotropous. Fruit an achene.



## FAMILY 1. POLYGONACEAE. BUCKWHEAT FAMILY.

Plants various in habit. Leaves with manifest, usually sheathing, stipules (ocreae) and inflorescence not involucre, or the stipules obsolete and the inflorescence involucre.

Flowers or flower-clusters involucre: stamens 9. 1. **ERIOGONUM**.

Flowers or flower-clusters not involucre: stamens 4-8.

Hypanthium little developed, not investing the achene.

Internodes of the stem and branches partially adnate.

Inner sepals not fimbriate, sometimes conspicuously accrescent.

Sepals (inner) accrescent: achene included. 2. **POLYGONELLA**.

Sepals not accrescent: achene partially exposed. 3. **DELOPYRUM**.

Inner sepals fimbriate. 4. **THYSANELLA**.

Internodes of the stem and branches not adnate. 5. **PERSICARIA**.

Hypanthium strongly developed, investing the achene. 6. **COCCOLOBIS**.

1. **ERIOGONUM** Michx. Herbs, partially woody plants or shrubs. Leaves mainly alternate, without ocreae, the stipules scale-like. Flowering-stems with alternate or whorled bracts. Flowers involucre. Hypanthium jointed to a pedicel which is subtended by a minute bractlet. Sepals 6, often unequal. Stamens 9. Gynoecium 3-carpellary: stigmas capitate.

1. **E. tomentosum** Michx. Basal leaves 5-18 cm. long; blades oblong to spatulate: flowering-stems 4-12 dm. tall, the leaves in whorls of 3-5; blades ovate to obovate or oblanceolate: involucre about 4 mm. high: sepals white, the inner ones becoming 6-7 mm. long, broadly cuneate to truncate at the base, tomentulose without: achenes 5 mm. long.—Pinelands.

2. **POLYGONELLA** Michx. Woody plants. Leaves alternate, jointed near the top of the ocreae. Flowers in spreading racemes. Sepals mainly white or pink, the 3 inner accrescent. Stamens 8: filaments irregular, the inner ones more or less dilated.

1. **P. brachystachya** Meisn. Plant slender, 2-6 dm. tall, copiously branched: leaves 5-13 mm. long, rather persistent: racemes short and relatively stout: inner sepals becoming ovate: achenes rhombic, 1.5 mm. long.—Pinelands.

3. **DELOPYRUM** Small. Herbs resembling *Polygonella* in habit, but annual and loosely branched. Flowers in erect racemes. Sepals essentially unchanged in shape at maturity. Stamens 8: filaments various, the 3 inner more or less dilated below.

Inner sepals oblong or nearly so at maturity: ocreae eciliate. 1. **D. gracile**.

Inner sepals linear-spatulate at maturity: ocreae eciliate. 2. **D. ciliatum**.

1. **D. gracile** (Nutt.) Small. Stems 3-17 dm. tall: stem-leaves with oblong, spatulate, or linear-spatulate blades 1-2.5 cm. long: stipe-like base of the hypanthium less than 1 mm. long: inner sepals becoming 1.5 mm. long, slightly longer than the outer: achenes about 2.5 mm. long. [*Polygonella gracilis* (Nutt.) Meisn.]—Pinelands.

2. **D. ciliatum** (Meisn.) Small. Stems 6-13 dm. tall: stem-leaves with filiform or linear-filiform blades 2-4 cm. long: ocreolae acuminate: hypanthium less than 1 mm. long: inner sepals becoming 2.5 mm. long, much longer than the outer: achenes about 2.5 mm. long. [*Polygonella ciliata* Meisn.]—Pinelands.

4. **THYSANELLA** A. Gray. Woody plants. Leaves alternate, jointed near the top of the fringed ocreae. Flowers polygamo-monoecious, those of the upper racemes fruit-producing. Sepals white or pink, not accrescent, the 3 inner at least pectinate-fimbriate. Stamens 8. Filaments slender.

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1. *T. robusta* Small. Plants mainly 6-9 dm. tall, sometimes diffuse: leaf-blades 2-6 cm. long: ocreae copiously fringed: racemes 4-7 cm. long: filaments about 4 mm. long: achenes fully 1.5 mm. wide, long-beaked.—Pinelands.

5. **PERSICARIA** [Tourn.] Adans. Erect or spreading herbs. Leaves alternate, not jointed at the cylindric naked or fringed ocreae: blades narrowed at the base. Flowers borne in spike-like panicles. Sepals white or colored, 5, flat or concave. Stamens 4-8: filaments slender. Stigmas 2, or sometimes 3. Achenes lenticular or 3-angled, included.—SMART-WEED.

Calyx glandular-punctate.

Ocreae and ocreolae eciliate.

Ocreae and ocreolae ciliate.

Calyx not punctate.

1. *P. portoricensis*.

2. *P. punctata*.

3. *P. hydropiperoides*.

1. *P. portoricensis* (Bertero) Small. Perennial, generally glabrous: leaf-blades lanceolate, usually narrowly so, 3-25 cm. long, acuminate: ocreae very thin: panicles lax: ocreolae eciliate: sepals white or whitish, about 3 mm. long, punctate: achenes turgid-lenticular, 2.5 mm. long.—Everglades.—(Bah., Cuba, Ant.)

2. *P. punctata* (Ell.) Small. Annual or perennial, usually glabrous: leaf-blades lanceolate to oblong-lanceolate, 2-16 cm. long: ocreae long-fringed: panicles narrow: ocreolae fringed: sepals whitish or green, prominently punctate: achenes 3-angled or turgid-lenticular, about 2.5 mm. long, shining.—Everglades.—(Ber., Bah., Cuba, Ant.)

3. *P. hydropiperoides* (Michx.) Small. Perennial, strigillose in parts: leaf-blades lanceolate, varying to oblong-lanceolate or linear-lanceolate, 4-13 cm. long: ocreae long-fringed, sparingly strigillose: panicles slender, erect, ocreolae short-fringed: sepals deep-pink or greenish, not punctate: achenes 3-angled, 2-2.5 mm. long, shining.—Hammocks.—(Bah.)

6. **COCCOLOBIS** P. Br. Shrubs or trees, or rarely vines. Leaves alternate, the ocreae cylindric or funnellform. Spikes or racemes elongate. Sepals 5, surmounting the accrescent hypanthium. Stamens 8. Stigmas 3, entire. Achene 3-angled, included in the hypanthium.

Leaf-blades longer than wide, narrowed at the base: fruits about 1 cm. thick.

1. *C. laurifolia*.

Leaf-blades wider than long, cordate at the base: fruits 1.5-2 cm. thick.

2. *C. uvifera*.

1. *C. laurifolia* Jacq. Tree: leaf-blades oblong to ovate or obovate, 5-10 cm. long, narrowed or rounded at the base: panicles less than 1 dm. long during anthesis, the lower flower-clusters usually with 3 or 4 pedicels: sepals 2.5-3.5 mm. long: fruit globose-ovoid.—Hammocks.—F. K. (Bah., Cuba, Ant.)—PIGEON-PLUM.

2. *C. uvifera* (L.) Jacq. Shrub or small tree: leaf-blades suborbicular, 4-20 cm. wide, cordate at the base: panicles over 1 dm. long in anthesis, dense: sepals 2-3 mm. long: fruit subglobose, borne in grape-like clusters.—Coastal sand-dunes.—F. K. (Ber., Bah., Cuba, Ant.)—SEA-GRAPE.

### Order CHENOPODIALES.

Herbs, often partially woody, or shrubs, or trees. Leaves alternate or opposite, occasionally scale-like. Flowers mostly perfect, sometimes monoecious or dioecious. Calyx usually present, the sepals mainly separate. Corolla wanting, or present and of minute or large petals. Androeium of 1-several stamens. Gynoeium of a single carpel or of several

united carpels, the ovary mostly superior. Fruit an achene, utricle or a berry, or sometimes an anthocarp.

- A. Fruit a utricle, achene or berry, sometimes an anthocarp, not valvate, or merely circumscissile.  
 Fruit various, not an anthocarp.  
 Fruit utricular.  
   Bracts not scarious: stipules wanting.  
     Erect or diffuse plants. Fam. 1. CHENOPODIACEAE.  
     Climbing vines. Fam. 2. BASELLACEAE.  
   Bracts or stipules scarious. Fam. 3. AMARANTHACEAE.  
 Fruit baccate or an achene, or aggregate.  
 Fruit an achene or a berry: flowers not in cones.  
   Hypanthium wanting: stamens borne below the ovary: stigmas not penicellate. Fam. 4. PHYTOLACCACEAE.  
   Hypanthium present: stems borne on the edge of the hypanthium: stigma penicellate. Fam. 5. PETIVERIACEAE.  
   Fruit aggregate: flowers in axillary cones. Fam. 6. BATIDACEAE.  
 Fruit an anthocarp, the achenes surrounded by the calyx-tube. Fam. 7. ALLIONIACEAE.
- B. Fruit a capsule dehiscent by apical or longitudinal valves.  
 Ovary several-celled: corolla wanting. Fam. 8. TETRAGONIACEAE.  
 Ovary 1-celled: corolla mostly present.  
   Sepals 2: leaves mostly alternate. Fam. 9. PORTULACACEAE.  
   Sepals 4 or 5: leaves mostly opposite.  
     Sepals distinct: ovary sessile: petals not clawed. Fam. 10. ALSINACEAE.  
     Sepals united: ovary stipitate: petals clawed. Fam. 11. CARYOPHYLLACEAE.

### FAMILY 1. CHENOPODIACEAE. GOOSEFOOT FAMILY.

Herbs or woody plants. Leaves alternate or opposite: blades simple. Flowers perfect, polygamous, monoecious, or dioecious, mostly in congested spikes. Calyx of 1, 2, 3, 4, or 5 persistent sepals. Corolla wanting. Androecium of as many stamens as there are sepals. Gynoecium of 2 or more united carpels. Ovary 1-celled. Fruit a utricle, sometimes achene-like.

Embryo annular or conduplicate: endosperm copious (except in *Salticornia*).

Leaves with dilated blades: endosperm copious.

Flowers perfect, or some of them pistillate: calyx fleshy or herbaceous.

1. CHENOPODIUM.

Flowers dioecious or monoecious: pistillate flowers without a calyx: fruit enclosed in 2 bracts.

2. ATRIPLEX.

Leaves mere scales: endosperm wanting.

3. SALICORNIA.

Embryo spirally coiled: endosperm wanting or scant.

4. DONDIA.

1. **CHENOPODIUM** L. Mealy or aromatic glandular herbs. Leaves alternate: blades mainly toothed, pinnatifid, or pinnately lobed: sepals flat, keeled and often hooded. Anther-sacs commonly contiguous. Ovary depressed or elongate.

1. **C. anthelminticum** L. Stem 5-12 dm. tall, branched: leaf-blades lanceolate to oblong-lanceolate or ovate-lanceolate, those of the stem-leaves 3-15 cm. long, coarsely toothed or incised: seeds 0.7-0.8 mm. wide. [*Chenopodium ambrosioides* L.]—Pinelands and coastal sand-dunes.—F. K. (*Ber.*, *Bah.*, *Cuba*, *Ant.*)—MEXICAN-TEA. WORM-SEED.

2. **ATRIPLEX** [Tourn.] L. Scaly herbs or shrubs. Leaves alternate or sometimes opposite: blades often angulate or toothed. Flowers monoecious or dioecious, the staminate bractless, the pistillate bracted. Calyx herbaceous.

Utricle wholly or partly surrounded by the crested, tubercled, or winged accrescent bracts.

1. *A. cristata* H.B.K. Plants green, 3-6 dm. tall: leaf-blades oblong to oblong-lanceolate, 1.5-3 cm. long: mature bracts flabellate, 2-3 mm. wide, sharply toothed, the faces with 2-4 tubercles.—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*)—ORACHE.

3. *SALICORNIA* [Tourn.] L. Fleshy herbs or shrubs. Leaves opposite, mere scales. Flowers perfect or polygamous, in cavities at the rachis-nodes. Calyx fleshy. Utricle included in the spongy perianth.—GLASSWORT-SAMPHIRE.

Annual: stems erect.

1. *S. Bigelovii*.

Perennial: stems decumbent or trailing.

2. *S. ambigua*.

1. *S. Bigelovii* Torr. Annual, stout, 1-6 dm. tall: internodes of the inflorescence about as long as thick.—Coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. *S. ambigua* Michx. Perennial, the decumbent or trailing stems 1-7 dm. long: internodes of the inflorescence 3-4 mm. thick and about as long.—Shores of Bay Biscayne and coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

4. *DONDIA* Adans. Fleshy leafy herbs. Leaves alternate: blades thick or terete, entire. Flowers perfect or polygamous. Sepals hooded, keeled at maturity. Filaments very short.

1. *D. linearis* (Ell.) Millsp. Plants glabrous, 1-9 dm. tall, diffusely branched: leaf-blades nearly terete, linear, 1-5 cm. long, acute: seeds about 2 mm. wide, reticulate.—Shores of Bay Biscayne.—F. K. (*Bah., Cuba.*)—SEA-BLITE.

#### FAMILY 2. BASELLACEAE. MADEIRA-VINE FAMILY.

Somewhat succulent vines, with tuber-bearing rootstocks. Leaves alternate: blades relatively broad, entire. Flowers perfect in spike-like racemes. Calyx of 2 sepals, sometimes winged in fruit. Corolla of 5 often somewhat colored petals. Androecium of 5 stamens borne opposite the petals. Gynoecium 3-carpellary. Ovary superior, 1-celled. Fruit utricular.

1. *BOUSSINGAULTIA* H.B.K. Vines. Leaf-blades of an ovate type, rather fleshy. Racemes axillary and terminal. Sepals 2, nearly flat, not winged. Petals 5, longer than the sepals. Stigmas cleft.

1. *B. leptostachya* Moq. A glabrous much branched vine. Leaf-blades ovate, 2.5-6 cm. long, acute, entire, abruptly narrowed or subcordate at the base: racemes slender, 5-17 cm. long: petals greenish-white or maroon, oval or elliptic-oval, 1.5-2.5 mm. long, spreading in anthesis.—Pinelands. Nat. of Trop. Am., and cultivated.—F. K. (*Cuba, Ant.*)—MADEIRA-VINE.

#### FAMILY 3. AMARANTHACEAE. AMARANTH FAMILY.

Herbs, shrubs, or trees. Leaves alternate or opposite, stipulate: blades entire or nearly so. Flowers perfect, polygamous, or dioecious, in spikes or panicles with scarious or colored bracts. Calyx of 2-5 mostly distinct sepals. Corolla wanting. Androecium of 5, or fewer, distinct or monodelphous stamens. Gynoecium of 2 or more united carpels. Ovary 1-celled. Fruit a utricle or pyxidium, or rarely baccate.

Anthers 2-celled.

Leaves alternate.

Filaments united at the base: ovules 2-8 in a cavity.

Filaments distinct: ovules solitary in each cavity.

Perianth present in all flowers.

Perianth wanting in pistillate flowers.

Leaves opposite.

Anthers 1-celled.

Stigmas capitate, notched or brush-like.

Filaments united into a short cup at the base.

Filaments united into a long tube: calyx crested and

often tubercled or spiny at maturity.

Stigmas 2-3, subulate or filiform.

Flowers in head-like spikes, perfect.

Flowers in panicles, dioecious.

1. CELOSIA.
2. AMARANTHUS.
3. ACNIDA.
4. ACHYRANTHES.
5. ALTERNANTHERA.
6. FROELICHIA.
7. PHILOXERUS.
8. IRESINE.

1. **CELOSIA** L. Herbs or shrubs. Leaves alternate: blades mainly entire. Flowers perfect, spicate: sepals 5, scarious. Filaments partially united. Styles united. Ovules 2-8. Utricle circumscissile.

1. **C. paniculata** L. Perennial, glabrous, 1 m. long or more: leaf-blades ovate, deltoid-ovate, or ovate-lanceolate, 1.5-7 cm. long: spikes 1-3 cm. long: sepals oblong, 3.5-4 mm. long: utricle included: seed about 1 mm. long.—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Bah., Cuba, Ant.*)

2. **AMARANTHUS** [Tourn.] L. Herbs. Leaves alternate: blades entire. Flowers polygamous, monoecious, or dioecious, densely spicate or clustered, each subtended by mostly 3 bracts. Sepals 2-5. Filaments distinct. Stigmas 2 or 3, distinct. Ovule solitary. Utricle circumscissile, irregularly opening or indehiscent.

1. **A. spinosus** L. Stems 2-12 dm. tall, spiny: leaf-blades ovate, rhombic-ovate, or lanceolate, 1.5-8 cm. long: staminate calyx 2-2.7 mm. long: pistillate calyx 2-2.5 mm. long: sepals broadened upward, abruptly pointed.—Pine-lands and cultivated grounds. Nat. of Trop. Am.—F. K. (*Ber., Bah., Cuba, Ant.*)—THORNY-AMARANTH.

3. **ACNIDA** L. Herbs, mostly annuals and large. Leaves alternate: blades entire. Flowers dioecious, the spike sometimes interrupted, the staminate with 5 sepals and 5 distinct filaments, the pistillate flowers without a perianth.

1. **A. cuspidata** Bertero. Stems 1.5-7 m. tall, widely branched: leaf-blades lanceolate to elliptic-lanceolate, 10-30 cm. long: staminate calyx about 2 mm. long: sepals oblong to oblong-ovate, mostly obtuse: pistillate calyx 1.7-2 mm. long: sepals lanceolate: utricles 1-1.5 mm. long.—Everglades.—F. K.—WATER-HEMP.

4. **ACHYRANTHES** L. Herbs or woody plants. Leaves opposite: blades entire. Flowers perfect, in slender elongate spikes, commonly deflexed. Sepals 4 or 5, becoming firm. Stamens 5 or rarely fewer. Styles united.

1. **A. aspera** L. Plants 6-14 dm. tall, copiously pubescent: leaf-blades elliptic or nearly so, 7-16 cm. long, acuminate: bracts 4-4.5 mm. long, abruptly long-aristate: sepals linear-lanceolate, 6-7 mm. long: utricle about 3 mm. long.—Hammocks. Nat. of Trop. Am.—(*Cuba, Ant.*)

5. **ALTERNANTHERA** Forsk. Herbs (ours perennial). Leaves opposite: blades entire or nearly so. Flowers perfect, in head-like spikes. Sepals 5, unequal. Filaments united at the base. Staminodia sometimes surpassing the anthers. Styles united.

Spikes axillary and sessile: outer sepals longer than the inner. 1. *A. maritima*.  
 Spikes terminal and peduncled: outer and inner sepals equal in length. 2. *A. floridana*.

1. *A. maritima* J. St.Hil. Stem and branches prostrate, 2-11 dm. long, glabrous: leaf-blades cuneate, obovate, or elliptic, 1.5-6 cm. long: sepals ovate to ovate-lanceolate, slightly acuminate, glabrous, the outer ones becoming 5 mm. long: staminodia with broad bases.—Coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. *A. floridana* (Chapm.) Small. Stem and branches diffuse, 6-14 dm. long: leaf-blades lanceolate to elliptic, 1.5-6 cm. long, glabrous or nearly so, at least at maturity: sepals lanceolate, becoming about 4 mm. long, sparingly pubescent.—Hammocks, shores of Bay Biscayne and sand-dunes.—F. K.

6. **FROELICHIA** Moench. Herbs (ours annual or biennial). Leaves opposite: blades entire. Flowers perfect, in dense spikes on long peduncles. Calyx crested or tubercled at maturity. Filaments united into a long tube.

1. *F. floridana* (Nutt.) Moq. Plants rather slender, 4-18 dm. tall: leaf-blades linear to oblong-linear or nearly so, 3-12 cm. long, appressed-pubescent beneath: calyx-tube with deeply toothed crests and 1 or 2 tubercle-like or spiny ridges on one or each face at maturity.—Pinelands.

7. **PHILOXERUS** R. Br. Herbs with prostrate or creeping branches. Leaves opposite: blades narrow. Flowers perfect, in dense head-like spikes. Sepals 5, very unequal, the outer ones, at least, obtuse. Filaments united at the base. Staminodia wanting.

1. *P. vermicularis* (L.) R. Br. Plant somewhat succulent, the branches 2-18 dm. long: leaf-blades half-terete, linear to clavate, 1-3.5 cm. long: spikes 1-2.5 cm. long, silvery-white: sepals 3.5-4 mm. long, the outer oblong, the inner lanceolate. [*Lithophila vermicularis* (L.) Uline.]—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Bah., Cuba, Ant.*)

8. **IBESINE** R. Br. Herbs with erect stems. Leaves opposite: blades broad. Flowers dioecious, paniculate. Sepals 5, equal, acute or acuminate. Filaments united at the base. Staminodia wanting. Stigmas sessile.

1. *I. paniculata* (L.) Kuntze. Plants 6-12 dm. tall, glabrous: leaf-blades ovate or narrowly lanceolate, 5-10 cm. long: sepals lanceolate or nearly so, 1 mm. long, those of the pistillate flowers woolly without.—Everglades and hammocks.—F. K. (*Bah., Cuba, Ant.*)

#### FAMILY 4. PHYTOLACCACEAE. POKEWEED FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades entire, rather fleshy. Flowers perfect or dioecious, in racemes or panicles. Hypanthium wanting. Calyx of 4 or 5 sepals. Corolla wanting. Androecium of 4-8 stamens, or more, borne below the ovary. Gynoecium 1-many-carpellary, borne in the calyx. Fruit baccate.

Gynoecium 1-carpellary: style single: fruits laterally flattened. 1. *RIVINA*.  
 Gynoecium 2-many-carpellary: styles 2-many: fruits vertically flattened. 2. *PHYTOLACCA*.

1. *RIVINA* [Plum.] L. Relatively small often partially woody plants. Flowers racemose. Sepals narrow, partly enclosing the simple fruit.

1. *R. humilis* L. Plants 3-7 dm. tall, or with elongate vine-like stems: leaf-blades ovate, lanceolate, or oblong, 3-15 cm. long, undulate: sepals cuneate to linear-oblong, 2-2.5 mm. long: berries 2-3.5 mm. long, mostly red.—Hammocks and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. **PHYTOLACCA** [Tourn.] L. Relatively large or stout plants. Flowers paniculate, the panicles often raceme-like. Sepals broad, spreading under the compound fruit.

1. *P. rigida* Small. Plants 1-3 m. tall, or sometimes arborescent and becoming 6 or 7 m. tall, the branches greenish-purple: leaf-blades lanceolate to oblong-lanceolate, 7-34 cm. long: berries 10-12 mm. wide.—Hammocks.—F. K.—POKE. INK-BERRY.

FAMILY 5. **PETIVERIACEAE.** PETIVERIA FAMILY.

Woody plants, usually strong-scented. Leaves alternate: blades firm, entire. Flowers perfect, in virgate spikes. Hypanthium present. Calyx of 4 nearly equal sepals. Corolla wanting. Androecium of 4-8 stamens, borne like the calyx on the long hypanthium. Gynoecium a single carpel borne in the hypanthium. Fruit an achene with reflexed spines at the top.

1. **PETIVERIA** [Plum.] L. Plants with extensively creeping or horizontal rootstocks. Leaves with narrow stipules. Achenes appressed to the spike-rachis.

1. *P. alliacea* L. Stems 3-10 dm. tall, often with virgate branches: leaf-blades obovate, elliptic-obovate, or elliptic, 4-12 cm. long: spikes 1-3 dm. long, interrupted: sepals linear to linear-lanceolate, 3-4 mm. long, about as long as the hypanthium: achenes linear-cuneate, 6-10 mm. long, the spines  $\frac{1}{2}$  as long as the body or less.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

FAMILY 6. **BATIDACEAE.** SALTWORT FAMILY.

Maritime partially succulent shrubs. Leaves opposite, fleshy, half-terete, linear or clavate, entire. Flowers small, dioecious, in axillary cones. Staminate cones with persistent imbricate scales each subtending a flower: calyx cup-shaped, 2-lobed: stamens 4-5, inserted at the base of the calyx: filaments thick, alternating with staminodia. Pistillate cones peduncled, 4-12-flowered, the scales deciduous: the flowers each consisting of merely a 4-celled ovary with a sessile stigma. Ovule 1 in each cavity. Fruit a fleshy cone.

1. **BATIS** P. Br. Plants with smooth and glabrous foliage. Leaves without stipules.

1. *B. maritima* L. Plant pale-green strong-scented, the stem and branches spreading or prostrate, 0.5-1.5 m. long: leaves curved, 1-2.5 cm. long: cones 5-10 mm. long, ovoid: bracts reniform to suborbicular, often apiculate: fruits oblong or ovoid, 1-2 cm. long, short-stalked, drooping.—Salt or brackish shores.—F. K. (*Bah., Cuba, Ant.*)—SALTWORT.

FAMILY 7. **ALLIONIACEAE.** FOUR-O'CLOCK FAMILY.

Herbs with dichotomous stems or shrubs or trees. Leaves opposite: blades entire or nearly so. Flowers mostly perfect, 1 or more in an involucre. Calyx of several united sepals, usually corolloid, deciduous above the ovary. Corolla wanting. Androecium of 1-many stamens, borne below the ovary. Gynoecium a single pistil. Fruit an anthocarp.

Herbs: embryo hooked.

Involucre present, of 3-5, or more, distinct or united bracts.

Stamens 3-6: fruit not subterranean.

Stamens 14-18: fruit subterranean.

1. MIRABILIS.

2. OKENIA.

Involucre wanting or imperfect.  
 Shrubs or trees: embryo straight.  
 Fruits without glands.  
 Fruits with 5 rows of glands.

3. BOERHAAVIA.  
 4. TORRUBIA.  
 5. PISONIA.

1. **MIRABILIS** L. Perennial herbs. Leaves opposite. Flowers typically 1 in an involucre. Calyx salverform, the limb large. Stamens 3-6: filaments united at the base. Fruit of an ovoid type, constricted near the base.

1. **M. Jalapa** L. Plants glabrous, except the young parts: leaf-blades ovate, sometimes broadly so, 3-12 cm. long: involucre 7-8 mm. long; lobes acute: calyx deep-red to purple or white: fruits broadly ovoid.—Cultivated grounds and roadsides. Nat. of Mex., and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—FUR-O'CLOCK.

2. **OKENIA** Schlecht. & Cham. Annual prostrate herbs. Leaves opposite: blades inequilateral. Flowers solitary in the 3-bracted involucre. Calyx short-funnelform, the lobes emarginate. Stamens 14-18: filaments united at the base. Fruit somewhat elongate, bent, 1-striate and transversely wrinkled, subterranean.

1. **O. hypogaea** Schlecht. & Cham. Stem and branches creeping, densely viscid-pubescent, 2-11 dm. long: leaf-blades fleshy, ovate to oblong-ovate, 2.5-4 cm. long, obtuse at the apex, truncate or cordate at the base, stout-petioled: corolla deep-blue.—Coastal sand-dunes.—F. K.

3. **BOERHAAVIA** [Vaill.] L. Annual or perennial usually diffuse herbs. Leaves opposite: blades often undulate. Flowers subtended by minute bracts. Calyx campanulate to rotate, the tube not prolonged beyond the ovary. Fruit clavate to obovoid, 5-10 ribbed.

Fruits glandular, rounded at the apex: plants perennial.  
 Fruits glabrous, flat at the apex: plants annual.

1. *B. paniculata*.  
 2. *B. erecta*.

1. **B. paniculata** L. C. Rich. Stem branched at the base, the branches diffusely spreading, 6-12 dm. long: leaf-blades ovate to oblong-ovate, 2-8 cm. long, both surfaces of almost the same color: calyx pink or purplish; tube glandular-pubescent; limb campanulate, 1.5 mm. high, glabrous or sparingly pubescent: fruits obpyramidal, 3 mm. long, the ribs glandular, the top rounded.—Pinelands and hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **B. erecta** L. Stem simple below, erect or branched at the base, the branches decumbent or spreading, 3-12 dm. long: leaf-blades ovate to deltoid-ovate, 2-8 cm. long, minutely black-dotted on the lower whitish surface: calyx white or purple; tube glabrous; limb campanulate, 1-1.5 mm. long, sparingly pubescent: fruit obpyramidal, 3.5-4 mm. long, 5-angled, the grooves transversely wrinkled, the top flat.—Cultivated grounds and roadsides. Nat. of Trop. Am.—F. K. (*Ber., Bah., Cuba, Ant.*)

4. **TORRUBIA** Vell. Unarmed shrubs or trees. Leaves opposite: blades entire. Flowers in cymes.

1. **T. longifolia** (Heimerl) Britton. Leaves 3-7 cm. long; blades spatulate to obovate, oblong-spatulate, or oval-spatulate: fruits broadly or narrowly obovoid, 5-6 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—BLOLLY.

5. **PISONIA** [Plum.] L. Armed woody vines. Leaves opposite: blades entire. Flowers in compound cymes.

1. **P. aculeata** L. Stems with spreading thorn-armed branches: leaf-blades elliptic, oval, or ovate, 2.5-7 cm. long: pedicels slender: calyx-lobes mostly



longer than wide: fruits slender, 3-3.5 mm. thick.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—COCK-SPUR.

FAMILY 8. **TETRAGONIACEAE.** CARPET-WEED FAMILY.

Herbs, firm or succulent, or partially woody plants. Leaves alternate or opposite, sometimes apparently whorled. Flowers mostly perfect or polygamous, regular or nearly so. Calyx of 4 or 5 sepals. Corolla wanting (in our species). Androecium of 4 or 5 hypogynous or perigynous stamens, or sometimes fewer or more numerous. Gynoecium of 2-several united carpels. Ovary superior or partly inferior. Fruit a capsule or pyxis, or baccate or nut-like.

1. **SESUVIUM** L. Annual or perennial succulent herbs, or partially woody plants. Leaves opposite: blades narrow. Sepals 5, petaloid, each horned at the apex. Stamens 1-many, sometimes grouped.

1. **S. Portulacastrum** L. Plants usually sparingly branched, the branches often 1-2 m. long: leaf-blades spatulate to oblanceolate or rarely oblong, 1.5-4 cm. long: flowers short pedicelled: sepals 8-10 mm. long: capsule 9-10 mm. long.—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*)—SEA-PURSLANE.

FAMILY 9. **PORTULACACEAE.** PURSLANE FAMILY.

Herbs, mostly fleshy or succulent, or partially woody. Leaves alternate or opposite: blades entire. Flowers perfect, regular. Calyx of 2 sepals. Corolla of 4 or 5, or rarely more, fugaceous petals. Androecium of as many stamens as there are petals, or fewer or more. Gynoecium of 3 or more united carpels. Ovary superior or inferior, 1-celled. Fruit a capsule or pyxis.

1. **PORTULACA** [Tourn.] L. Succulent herbs. Leaves flat or terete. Flowers erect. Sepals 2, deciduous. Petals 4-6. Style short; stigmas 3-8, slender.—PURSLANE.

Leaves hairy in the axils; blades terete.

Seeds black, papillose: corolla pink or purple.

1. *P. pilosa.*

Seeds brown, rugulose: corolla yellow.

2. *P. phaeosperma,*

Leaves glabrous in the axils; blades flat: corolla yellow.

3. *P. oleracea,*

1. **P. pilosa** L. Plants erect or diffuse, the branches villous: leaf-blades terete, 1-2 cm. long: petals pink or purple, 4-6 mm. long: capsules mostly 4-5 mm. long.—Roadsides and cultivated grounds.—F. K. (*Cuba, Ant.*)

2. **P. phaeosperma** Urban. Plants diffusely branched, the young parts pubescent: leaves relatively few; blades nearly terete, 4-13 mm. long: flowers mostly solitary: corolla yellow: capsules 3-4 mm. long: seeds over 0.5 mm. broad, brown.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

3. **P. oleracea** L. Plants prostrate: leaf-blades cuneate to obovate, 1-3 cm. long, rounded at the apex: petals yellow, 3-5 mm. long: capsules 5-9 mm. long.—Pinelands, hammocks and cultivated grounds. Nat. of Eu.—F. K. (*Ber., Bah., Cuba, Ant.*)

FAMILY 10. **ALSINACEAE.** CHICKWEED FAMILY.

Herbs, sometimes woody at the base. Leaves opposite: blades entire. Flowers mostly perfect. Calyx of 4 or 5 persistent, distinct sepals. Corolla of 4 or 5 clawless petals, or wanting. Androecium of twice as

many stamens as sepals or fewer. Gynoecium of 2-5 united carpels. Ovary superior. Fruit a capsule subtended by the calyx.

1. **ARENARIA** L. Herbs. Leaf-blades flat, sometimes narrow. Flowers axillary or cymose. Sepals 5, firm, often ribbed. Petals 5, entire or notched, or wanting. Stamens typically 10. Stigmas 3, or rarely 2-5. Capsule erect.

1. **A. lanuginosa** (Michx.) Rohrb. Plants diffuse, the branches 0.3-4 dm. long: leaf-blades linear-spatulate to narrowly elliptic, 1-2 cm. long: sepals lanceolate, 2.5-3.5 mm. long, acute: petals shorter than the sepals, or wanting: capsules 3-4.5 mm. long.—Hammocks.—(*Ber., Ant.*)—SANDWORT.

#### FAMILY 11. CARYOPHYLLACEAE. PINK FAMILY.

Herbs with stems usually swollen at the nodes. Leaves opposite: blades often with connate bases. Flowers perfect, polygamous or dioecious. Calyx of 4 or 5 partly united sepals. Corolla of 4 or 5 distinct petals, the claws borne in the calyx-tube, the blades often appendaged at the base. Androecium of usually 8 or 10 distinct stamens. Gynoecium of 2-5 united carpels. Ovary often stalked. Fruit a capsule opening by apical valves.

1. **VACCARIA** Medic. Annual herbs. Leaf-blades relatively wide. Flowers pedicelled. Calyx inflated: tube angled or winged. Petals 5: blades broad. Capsule slightly longer than thick.

1. **V. Vaccaria** (L.) Britton. Stems 2-9 dm. tall, glaucous: blades of the upper cauline leaves lanceolate to ovate-lanceolate, 3-11 cm. long: calyx 10-15 mm. long, ovoid at maturity; lobes acute: petal-blades obovate, rose-colored: capsules 5-10 mm. long.—Pinelands. Nat. of Eu.—COW-HERB.

#### Order RANALES.

Herbs, shrubs, or trees. Leaves mostly without stipules, with entire or dissected blades, in aquatics often various on the same plant. Flowers perfect, monoecious, or dioecious. Calyx and corolla of distinct sepals and petals. Androecium of usually more hypogynous stamens than there are sepals. Gynoecium of 1 or several distinct or united carpels. Ovary superior. Fruit various.

Land plants: leaf-blades not peltate.

Carpels 1 or more, distinct, at least at maturity.

Sepals 3-15: petals about as many: fruits dry: endosperm even.

Sepals 5: petals 6: fruits pulpy: endosperm channeled.

Carpels more or less coherent or united into a cone-like structure, or immersed in the pulpy receptacle.

Sepals valvate.

Sepals imbricate.

Water plants: emersed or floating leaves peltate.

Fam. 1. RANUNCULACEAE.

Fam. 2. ANNONACEAE.

Fam. 2. ANNONACEAE.

Fam. 3. MAGNOLIACEAE.

Fam. 4. NYMPHAEACEAE.

#### FAMILY 1. RANUNCULACEAE. CROWFOOT FAMILY.

Herbs or woody vines. Leaves alternate (opposite in Clematideae): blades simple or compound. Calyx of 3-5 distinct, imbricate (valvate in Clematideae) sepals. Corolla of about as many petals as there are sepals,

occasionally more, or wanting. Androecium of several or many hypogynous stamens. Gynoecium of 1, several, or many distinct carpels. Fruit an achene or a follicle, or baccate.

1. **VIORNA** Reichenb. Perennial herbs or vines. Leaf-blades entire or lobed, or pinnate. Flowers solitary or few together. Sepals 4 or 5, thick, valvate, petal-like. Petals wanting. Stamens erect: anthers long and narrow. Achenes with long plumose, silky, or naked style-tails.

1. **V. Baldwinii** (T. & G.) Small. Plants 2-6 dm. tall: leaf-blades oblong to lanceolate or linear, sometimes pinnately parted, 1.5-10 cm. long: sepals purple or paler, 2.5-4 cm. long, each with a thin crisped margin and a slender apex: achene-bodies 4.5-5.5 mm. wide, with style-tips 6-10 cm. long.—Everglades and pinelands.—PINE-HYACINTH.

### FAMILY 2. ANNONACEAE. CUSTARD-APPLE FAMILY.

Shrubs or trees. Leaves alternate: blades entire. Flowers perfect, monoecious, or dioecious. Calyx of 3, or 2, sepals. Corolla of mostly 6 petals much larger than the sepals, those of the inner series smaller than those of the outer, or wanting. Androecium of many stamens, the anthers terminating in a blunt glandular appendage. Gynoecium of few or many distinct carpels. Fruit a simple or aggregate berry.

Anther-sacs separated: petals imbricate: ovules numerous: fruits with distinct carpels. 1. ASIMINA.

Anther-sacs contiguous: petals valvate: ovules solitary: fruits with confluent carpels. 2. ANNONA.

1. **ASIMINA** Adans. Ill-scented plants. Leaves mostly deciduous: blades broadened upward. Petals 6, much larger than the sepals, spreading. Carpels few; style subulate. Fruits with distinct carpels.—PAPAW.

1. **A. reticulata** Shuttl. Shrub 5-10 dm. tall, the twigs densely tomentose: leaf-blades narrowly oblong to oblanceolate or cuneate, 2.5-9 cm. long: inner petals broadly ovate, mostly less than 15 mm. long: berries mostly oblong, 3.5-5.5 cm. long.—Pinelands.—CUSTARD-APPLE.

2. **ANNONA** L. Pungent-aromatic plants. Leaves persistent: blades oblong, oval, or ovate. Petals larger than the sepals, converging. Carpels numerous: style linear. Fruit aggregate.

Sepals over 10 mm. wide: outer and inner petals about equal in length.

1. *A. glabra*.

Sepals less than 9 mm. wide: outer petals much longer than the inner.

2. *A. palustris*.

1. **A. glabra** L. Tree becoming 14 m. tall: leaf-blades oblong to oval or ovate, 10-18 cm. long: outer petals 3-3.5 cm. long: filaments 4 mm. long: fruits 8-12 cm. long: seeds 15-20 mm. long.—Hammocks.—F. K. (*Bah., Cuba*.)—POND-APPLE.

2. **A. palustris** L. Shrub or small tree: leaf-blades oblong to ovate or oblong-lanceolate, 3-12 cm. long, or rarely larger: outer petals 1.5-2 cm. long: filaments 3 mm. long: fruit 5-7 cm. long: seeds 9-12 mm. long.—Everglades.—F. K. (*Bah., Cuba, Ant.*)—ALLIGATOR-APPLE.

### FAMILY 3. MAGNOLIACEAE. MAGNOLIA FAMILY.

Shrubs, trees, or vines. Leaves alternate, sometimes apparently whorled: blades entire, toothed, or lobed. Flowers perfect or monoecious.

Calyx of 3 petaloid sepals, or rarely more. Corolla of 5 imbricate petals as large as the sepals or larger, or more. Androecium of many stamens, or rarely of few. Gynoecium of several or many distinct carpels. Fruit a cone of accrescent carpels which become baccate or follicular.

1. **MAGNOLIA** L. Shrubs or trees. Leaves deciduous or persistent: blades entire or auricled at the base. Flowers perfect, white. Sepals and petals about equal in size. Fruit an echinate cone.

1. **M. virginiana** L. Shrub, or tree becoming 25 m. tall, the twigs silky: leaf-blades oblong, elliptic, or oval, 5-15 cm. long: flowers white, globose-campanulate, 3-8 cm. wide: petals elliptic, oblong, oval or obovate: fruit oval or ovoid, 3-5 cm. long.—Everglades.—SWEET-BAY. LAUREL-MAGNOLIA.

#### FAMILY 4. NYMPHAEACEAE. WATER-LILY FAMILY.

Aquatic acaulescent plants with rootstocks. Leaves with erect or floating blades. Flower terminating a long scape. Calyx of 4 or 5 sepals. Corolla of numerous petals, passing into the androecium. Androecium of numerous stamens. Gynoecium of several united carpels. Fruit a leathery berry.

Petals small, filament-like: stamens hypogynous.  
Petals as large as the sepals: stamens epigynous.

1. NYMPHAEA.  
2. CASTALIA.

1. **NYMPHAEA** [Tourn.] L. Plants with erect leaves (ours) and yellow flowers. Leaf-blades peltate, with a deep sinus at the base. Sepals 5 or 6, concave, converging. Petals 10-20, erect, somewhat resembling the filaments. Stamens consisting of 2 narrow anther-sacs on the face of a flat filament. Stigmas united into a disk with stigmatic-lines.

1. **N. advena** Soland. Leaves (emersed) with long petioles; blades oval or ovate, 1-4 dm. long, leathery: flowers erect on stout scapes, depressed-globose: sepals obovate: petals obsolete, yellow: berry ovoid, 3-4 cm. long.—Everglades.—(Cuba).—SPLATTER-DOCK. YELLOW POND-LILY. BONNETS.

2. **CASTALIA** Salisb. Plants with floating leaves and white, pink, blue, or yellow flowers. Leaf-blades peltate and cleft at the base. Sepals mostly 4, spreading. Petals numerous, spreading, the outer ones about as large as the sepals. Stamens consisting of narrow anthers terminating slender filaments. Stigmas distinct, converging.

1. **C. odorata** (Dryand.) Woodr. & Wood. Leaf-blades suborbicular, mostly 1-1.5 dm. wide, entire, dark-green above, usually dull-purple beneath: flowers floating: sepals oblong-ovate to ovate-lanceolate: petals 24-32, the outer ones oblong-ovate to narrowly oblong, the inner ones oblong-ob lanceolate, all white varying to pink: gynoecium 13-25-carpellary: capsules globular or slightly depressed.—Everglades.—WATER-LILY. POND-LILY.

#### Order PAPAVERALES.

Herbs, shrubs, trees, or vines. Leaves with entire, toothed, dissected, or compound blades. Flowers perfect. Calyx of distinct or nearly distinct sepals. Corolla of distinct or nearly distinct petals, or wanting. Androecium of few or many hypogynous stamens. Androecium of 2-several united carpels. Ovary superior, sessile or stipitate. Fruit capsular or baccate.

Sepals 2, or very rarely 3 or 4: endosperm present.

Fam. 1. PAPAVERACEAE.

Sepals 4-8: endosperm wanting.

Capsules 2-celled: stamens 6, tetradynamous.

Fam. 2. BRASSICACEAE.

Capsules 1-celled: stamens when 6 not tetradynamous.

Fam. 3. CAPPARIDACEAE.

### FAMILY 1. PAPAVERACEAE. POPPY FAMILY.

Herbs or rarely woody plants, the sap colored. Leaves alternate or opposite: blades entire, toothed, or divided. Flowers perfect, regular. Calyx of 2, or rarely 3, caducous sepals. Corolla of 4, 8 or 12, or rarely more, deciduous petals. Androecium usually of many distinct stamens. Gynoecium 2-several-carpellary. Fruit a capsule.

1. **ARGEMONE** L. Herbs. Leaf-blades incised-pinnatifid. Flower-buds erect. Sepals 2 or 3, hooded or horned. Petals 4 or 6, broad. Gynoecium 4-6-carpellary, the ovary with 4-6 nerviform placentae. Stigma 4-lobed. Capsule elongate.

1. **A. mexicana** L. Plants glaucous, 3-9 dm. tall: leaves 10-25 cm. long; blades runcinate-pinnatifid, blotched, spiny-toothed and commonly spiny along the midrib, sessile and clasping: sepals acuminate and bristle-tipped: corolla yellow, 2.5-7 cm. broad: capsules oblong, 2.5-3 cm. long, spine-armed.—Waste and cultivated grounds. Nat. of Mex.—F. K. (*Ber., Bah., Cuba, Ant.*)—PRICKLY-POPPY.

### FAMILY 2. BRASSICACEAE. MUSTARD FAMILY.

Herbs or partially woody plants, the sap watery. Leaves alternate: blades entire, toothed, or dissected. Flowers perfect, in spikes or racemes. Calyx of 4 mostly erect or appressed sepals. Corolla of 4, usually clawed, petals, or wanting. Androecium of 6, or rarely 2 or 4, didynamous stamens. Gynoecium of 2 united carpels. Stigma depressed or 2-lobed. Fruit capsular, elongate (silique) or short (silicle), flat, terete or angled.

Pods not stipitate.

Pods flattened contrary to the narrow partition, winged or margined.

1. **LEPIDIUM**.

Pods not flattened contrary to the partition: neither winged or margined.

Pods dehiscent lengthwise.

2. **SINAPIS**.

Pods separating into joints, with transverse partitions.

3. **CAKILE**.

Pods stipitate.

4. **WAREA**.

1. **LEPIDIUM** [Tourn.] L. Herbs. Leaf-blades entire to pinnatifid. Racemes terminal. Sepals 4, spreading. Petals 4, longer than the sepals, or wanting. Stamens usually fewer than 6. Ovule, and seed, 1 in each carpel. Pods suborbicular to oblong.

1. **L. virginicum** L. Stems 2-9 dm. tall: blades of the cauline leaves narrow, sharply toothed or incised: pedicels spreading, 3-4 mm. long at maturity: sepals oblong, about 1 mm. long: petals slightly longer than the sepals: pods 3-4 mm. wide.—Pinelands and cultivated grounds.—F. K. (*Ber., Bah., Cuba, Ant.*)—PEPPERGRASS.

2. **SINAPIS** [Tourn.] L. Herbs. Leaf-blades lobed or pinnatifid. Sepals 4, herbaceous. Petals 4, mostly yellow, the blades broad. Stamens 6: anthers narrowly oblong. Style columnar: stigma depressed. Pod elongate, the beak sword-like. Seeds thick, marginless.

1. *S. arvensis* L. Stems 3-9 dm. tall, hispid: leaves 4-17 cm. long; blades of the lower ones coarsely toothed or lyrate-pinnatifid: sepals becoming 5-6 mm. long: petals 5.8-8.5 mm. long, the suborbicular or obovate blades abruptly contracted into the slender claws: pods 21-24 mm. long.—Pinelands and waste places. Nat. of Eu.—(*Ber., Bah., Cuba, Ant.*)—CHARLOCK.

3. *CAKILE* [Tourn.] Ludwig. Chiefly maritime fleshy herbs. Leaf-blades entire to pinnatifid. Sepals 4, succulent. Petals 4, white or purple. Stamens 6: anthers ovoid. Style very short: stigma depressed. Pod of two dissimilar portions.

1. *C. lanceolata* (Willd.) O. E. Schulz. Plants spreading or procumbent: leaves 3-9 cm. long; blades oblanceolate to broadly linear or lanceolate, 3-8 cm. long, entire, crenate or dentate, or some of the lower ones pinnatifid: flowers fragrant: sepals becoming 3.5-4 mm. long: petals 4-7 mm. long: pods 1.7-2 cm. long, the upper joint conic or ovoid-conic.—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*)—SEA-ROCKET. SEA-MUSTARD.

4. *WAREA* Nutt. Wiry herbs. Leaf-blades entire. Sepals 4, narrow. Petals 4, white, rose or purple, each abruptly narrowed into a slender claw. Stamens 6: anthers oblong to oblong-sagittate. Style wanting. Pod very narrow, thick, long-stipitate.

1. *W. Carteri* Small. Plants 4-15 dm. tall: leaf-blades linear or sometimes cuneate on the lower part of the stem, 1.5-3.5 cm. long: sepals 4.5-5.5 mm. long: petals white or nearly so, the claws prominently sharp-toothed: pedicels becoming 9-12 mm. long: pods 5-6 cm. long.—Pinelands.

### FAMILY 3. CAPPARIDACEAE. CAPER FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate or rarely opposite: blades simple or compound. Flowers perfect, in racemes or cymes, or solitary. Calyx of 4 or 5 sepals. Corolla of 4 or 5, often unequal petals. Receptacle often produced into a gland. Androecium of 4-6 stamens, or more. Gynoecium of 2 united carpels. Ovary often stipitate. Fruit capsular, sometimes baccate.

Herbs: fruit a dry, 2-valved capsule.  
Shrubs or trees: fruit pulpy, indehiscent.

1. ALDENELLA.  
2. CAPPARIS.

1. *ALDENELLA* Greene. Herbs. Leaf-blades 3-foliolate, except some of the upper ones, the leaflets very narrow. Sepals 4, reflexed. Petals 4, unequal, the posterior pair before a solid gland, barely clawed. Stamens 9-11: anthers linear, curved. Ovary short. Style slender. Capsule narrowly linear.

1. *A. tenuifolia* (T. & G.) Greene. Stems 2-8 dm. tall: leaflets 1-4 cm. long; blades narrowly linear or filiform-linear: sepals 2-2.5 mm. long: petals white, the larger ones 6-8 mm. long; blades oval or ovate, entire: capsules 4-6 cm. long.—Pinelands.

2. *CAPPARIS* [Tourn.] L. Shrubs, trees, or vines. Leaf-blades simple, entire. Sepals 4 or 5, often spreading or deflexed. Petals 4 or 5, sessile. Receptacle unappendaged. Stamens numerous: anthers oblong to linear. Ovary long-stipitate: style wanting. Fruit sometimes baccate, often torulose.—CAPER-TREE.

Foliage glabrous: leaf-blades reticulate: sepals imbricate: capsules glabrous.

1. *C. cynophallophora*.

Foliage scaly: leaf-blades not reticulate: sepals valvate:  
capsules scaly.

2. *C. jamaicensis*.

1. *C. cynophallophora* L. A shrub or a small tree: leaf-blades oblong to oblong-cuneate, mainly 5-8 cm. long: sepals suborbicular: corolla 5.5-7.5 cm. wide: fruit-body mostly 10-20 cm. long.—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Bah., Cuba, Ant.*)—BAY-LEAVED CAPER-TREE.

2. *C. jamaicensis* Jacq. A shrub or small tree: leaf-blades elliptic, oblong, or oval, mainly 4-10 cm. long: sepals lanceolate to ovate-lanceolate: corolla about 3 cm. wide: fruit-body mostly 20-30 cm. long.—Coastal sand-dunes and hammocks.—F. K. (*Bah., Cuba, Ant.*)—JAMAICA CAPER-TREE.

### Order SARRACENIALES.

Insectivorous, usually scapose herbs, with viscid-fluid secreting tissues. Leaves alternate, various, filiform, or with dilated, sometimes sensitive, blades, or hollow. Flowers usually perfect and regular. Calyx of distinct sepals. Corolla of distinct petals. Androecium of few or many stamens. Gynoecium of 2-5 united carpels. Ovary 1-celled, with 3-5 parietal or basal placentae, or 3-5-celled. Fruit capsular. Endosperm fleshy.

#### FAMILY 1. DROSERACEAE. SUNDEW FAMILY.

Annual, biennial, or perennial glandular-pubescent herbs. Leaves circinate in the bud, merely filiform, or with broad blades. Flowers spicate or racemose. Calyx of 4-8 persistent sepals. Corolla of 4-8 petals. Androecium of 4-8, usually 5, distinct stamens. Capsule loculicidally 3-5-valved.

1. *DROSERA* L. Biennial or perennial (ours) scapose herbs. Leaves clustered. Scape nodding at the apex.

1. *D. capillaris* Poir. Plants 5-40 cm. tall: leaves 3-8 cm. long; blades broadly spatulate, with long, ultimately glabrous, petioles: sepals becoming about 3 mm. long: corolla pink, 7-9 mm. wide: capsules about equalling the sepals: seeds oval, scarcely 0.5 mm. long.—Everglades.—SUNDEW.

### Order ROSALES.

Herbs, shrubs, or trees, or rarely aquatic plants or vines. Leaves with simple or compound blades. Flowers mostly perfect. Calyx and corolla present and sometimes irregular, or the latter occasionally, or both rarely wanting. Androecium of few or many stamens. Gynoecium of 1-several distinct or united carpels. Fruit various.

Flowers regular or nearly so (actinomorphic).

Succulent plants.

Woody plants or wiry-stemmed herbs.

Leaf-blades simple: fruit a drupe.

Leaf-blades compound: fruit a legume.

Flowers irregular (zygomorphic).

Upper petals enclosed by the lateral ones in the bud.

Upper petal enclosing the lateral ones in the bud.

Fam. 1. SEDACEAE.

Fam. 2. AMYGDALACEAE.

Fam. 3. MIMOSACEAE.

Fam. 4. CASSIACEAE.

Fam. 5. FABACEAE.

FAMILY 1. **SEDACEAE.** ORPINE FAMILY.

Herbs, usually succulent, or partially woody plants. Leaves alternate, opposite, or whorled: blades thick, flat to terete. Flowers perfect or dioecious, cymose. Calyx of usually 4-6 persistent sepals. Corolla of as many petals as sepals, or wanting. Androecium of as many stamens as sepals or twice as many. Gynoecium of as many distinct or partially united carpels as there are sepals, or fewer. Fruit follicular.

1. **BRYOPHYLLUM** Salisb. Perennial coarse herbs. Leaf-blades simple or pinnately compound. Flowers perfect, borne in simple or compound cymes. Calyx 4-lobed. Corolla exerted, 4-lobed. Follicles 4.

1. **B. pinnatum** (Lam.) S. Kurz. Plants 4-15 dm. tall, often glaucous: leaves 1-3 dm. long; blades of the leaflets oblong to elliptic, crenate: panicles 1-4 dm. long: calyx becoming 3-3.5 cm. long: corolla reddish, longer than the calyx; lobes lanceolate to narrowly ovate.—Hammocks and cultivated grounds. Nat. of Asia and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—LIFE-PLANT.

FAMILY 2. **AMYGDALACEAE.** PLUM FAMILY.

Shrubs or trees. Leaves alternate, with free, often early deciduous stipules: blades simple, mostly toothed. Flowers perfect, in corymbs, cymes, racemes, or panicles, sometimes clustered. Calyx of 5 sepals, borne on the edge of the hypanthium, deciduous. Corolla of 5 petals. Androecium of many stamens. Gynoecium of a single carpel, or rarely of 2 or 3 carpels. Ovary 1-celled: style entire. Fruit a drupe.

Style basal: ovules erect.

Inflorescence axillary: drupe with a fluted stone.

Inflorescence terminal: drupe with a terete stone.

Style terminal: ovules pendulous.

1. **CHRYSOBALANUS.**

2. **GEOBALANUS.**

3. **LAUROCERASUS.**

1. **CHRYSOBALANUS** L. Shrubs or trees. Leaf-blades of an orbicular or obovate type. Cymes axillary. Petals clawed. Filaments distinct or nearly so. Stone of the fruit pointed at the base, ridged.—COCOA-PLUM.

Drupe globular or spheroidal: petals cuneate.

Drupe obovoid or oblong-obovoid: petals spatulate.

1. *C. Icaco.*

2. *C. pellocarpus.*

1. **C. Icaco** L. Shrub, when growing on beaches, with radially creeping branches, or a tree sometimes 10 m. tall: leaf-blades broadly obovate to orbicular-obovate, mostly 4-8.5 cm. long, typically retuse: sepals about 2.5 mm. long: drupes globose or spheroidal, 3-4 cm. long, yellow, red, or purple: stone broadly obovoid, blunt-ridged.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **C. pellocarpus** Mey. Shrub or small tree: leaf-blades oval, obovate, or orbicular, mostly 2-6 cm. long, typically rounded or abruptly pointed: sepals about 2 mm. long: drupes obovoid, 1.5-2 cm. long, purple: stone oblong or oblong-obovoid, sharp-ridged.—Everglades and adjacent hammocks. (*Bah., Cuba, Ant.*)

2. **GEOBALANUS** Small. Shrubs, with underground stems. Leaf-blades more elongate than in *Chrysobalanus*: cymes terminal. Petals not clawed. Filaments markedly united. Stone of the fruit terete, not pointed at the base.—GOPHER-APPLE. GROUND-OAK.

Ovary glabrous: drupes 2-2.5 cm. long.

Ovary pubescent: drupes 3-4 cm. long.

1. *G. oblongifolius.*

2. *G. pallidus.*



1. *G. oblongifolius* (Michx.) Small. Plants 1-3 dm. tall: blades of the upper leaves oblanceolate to oblong, 3-12 cm. long, glabrous, obtuse or retuse and mucronate: drupes ovoid to obovoid.—Coastal sand-dunes.

2. *G. pallidus* Small. Similar to *G. oblongifolius* in habit: blades of the upper leaves elliptic to oblong, 4-10 cm. long, acute, densely white-tomentose beneath, the hairs partly deciduous: drupes subglobose.—Pinelands.

3. **LAUROCERASUS** Reichenb. Shrubs or trees. Leaves persistent, copiously impregnated with prussic acid. Flowers in axillary racemes. Hypanthium white. Sepals minute. Petals more or less angulate. Drupe with a dry exocarp.

1. *L. myrtifolia* (L.) Britton. Tree becoming 16 m. tall: leaf-blades elliptic or oval: racemes loosely flowered, the pedicels slender: petals slightly angled: drupes 8-12 mm. in diameter: stone sphaeroidal. [*L. sphaerocarpa* (Sw.) Roem.]—Hammocks.—(Bah., Cuba, Ant.)—WEST-INDIAN CHERRY.

### FAMILY 3. MIMOSACEAE. MIMOSA FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades compound, usually 2-3-pinnate: stipules sometimes spine-like. Flowers mostly perfect, borne in capitate or elongate usually dense spikes or racemes. Calyx of 3-6 partially united sepals. Corolla of 3-6 equal, distinct or partially united petals. Androecium of 3-6, or many, stamens which are usually conspicuously exerted. Gynoecium 1-carpellary. Fruit a legume.

Stamens numerous, more than 10.

Filaments partially united into a tube.

Valves of the pod not separating from the continuous margin.

Valves of the pod separating from the continuous margin.

Filaments distinct, or the inner ones sometimes slightly united at the base.

Ovary stipitate: petals distinct or united, commonly only to below the middle: pods flat, dry, the seeds not in two distinct rows.

Ovary sessile: petals united into a tubular-funneliform, shallowly lobed corolla: pods nearly terete or broader than high, pulpy within, the seeds in two separate rows.

Stamens as many as the petals or the corolla-lobes or twice as many.

Anthers without glandular appendages at the top.

Valves of the pod not separating from the continuous margin.

Valves of the pod separating from the continuous margin.

Anthers, at least in the bud, topped by glandular appendages.

1. PITHECOLOBIUM  
2. LYSILOMA.

3. ACACIA.

4. VACHELLIA.

5. LEUCAENA.

6. MORONGIA.

7. NEPTUNIA.

1. **PITHECOLOBIUM** Mart. Shrubs or trees. Leaves 2-pinnate: leaflets few, often 4. Spikes capitate. Calyx-lobes minute. Corolla prominently lobed. Pods narrow, often pulpy within. Seeds with colored arils.

Ovary glabrous, shorter than the stipe: petioles larger than the petiolules.

1. *P. Unguis-Cati*.

Ovary pubescent, larger than the stipe; petioles shorter than the petiolules.

2. *P. guadelupensis*.

1. *P. Unguis-Cati* (L.) Benth. Unarmed shrub or small tree: blades of the leaflets thinnish, broadly obovate, oval, or suborbicular, 1-4.5 cm. long: calyx 1.5-2 mm. long; lobes wider than long, blunt: corolla 3.5-4.5 mm. long: pods long-stipitate.—Coastal sand-dunes.—F. K. (Bah., Cuba, Ant.)—CAT'S-CLAW.

2. *P. guadelupensis* Chapm. Armed shrub or small spreading tree: blades of the leaflets leathery, oblong to cuneate, oval or suborbicular, 3-7 cm. long: calyx 2.5-3 mm. long; lobes longer than wide, acute: corolla 5-6 mm. long:

Pods short-stipitate.—Coastal sand-dunes and hammocks.—F. K. (*Bah., Cuba, Ant.*)—BLACK-BEAD.

2. **LYSILOMA** Benth. Shrubs or trees. Leaves 2-pinnate: leaflets numerous. Spikes capitate. Calyx-lobes relatively long. Corolla slightly longer than the calyx. Pod oblong to linear.

1. *L. bahamensis* Benth. Tree becoming 20 m. tall, with spreading branches: leaves with 4-8 pinnae; leaflets 20-40; blades oblong to oblong-lanceolate, 8-11 mm. long; calyx about 2 mm. long; corolla 2.5-3 mm. long; lobes ovate: pods oblong, 8-15 cm. long, long-stipitate.—Hammocks.—F. K. (*Bah., Cuba.*)—WILD-TAMARIND.

3. **ACACIA** [Tourn.] L. Shrubs or trees, or sometimes herbs. Leaves mostly 2-pinnate, sometimes reduced to phyllodia: leaflets usually numerous. Spikes capitate or cylindric. Calyx cupulate or resembling the corolla. Petals distinct or partially united. Filaments distinct, or some of them slightly united at the base. Pods flat.—ACACIA.

1. *A. angustissima* (Mill.) Kuntze. Shrub with hirsute foliage: leaf-pinnae mostly 10-30: leaflets very numerous; blades oblong or narrowly oblong, 4-5 mm. long; calyx less than 1 mm. long; lobes deltoid, acute: corolla 2-2.5 mm. long; pods linear-oblong, 3-4 cm. long, 6-9 mm. wide. [*A. filicioides* (Cav.) Trelease.]—Pinelands.

4. **VACHELLIA** Wight & Arn. Shrubs or small trees. Leaves 2-pinnate: leaflets numerous, small. Spikes globose. Calyx-lobes minute, relatively short. Corolla about twice as long as the calyx; lobes short. Filaments distinct. Pod very turgid.

1. *V. Farnesiana* (L.) Wight & Arn. Shrub with diffuse branches, or small tree: leaf-pinnae 8-16; leaflets 20-50, the blades linear-oblong, 2-4 mm. long; calyx about 1.5 mm. long; corolla 2-2.5 mm. long; pods 3-7.5 cm. long.—Pinelands and hammocks.—F. K. (*Bah., Cuba, Ant.*)—YELLOW-OPOPANAX.

5. **LEUCAENA** Benth. Shrubs or trees. Leaves mostly 2-pinnate: leaflets often small and numerous. Spikelets capitate. Calyx-lobes minute. Petals distinct, or rarely slightly coherent. Filaments distinct or nearly so. Pod linear, flat.

1. *L. glauca* (L.) Benth. Shrub, or tree becoming 10 m. tall: leaflets 6-12 mm. long; blades narrowly oblong to lanceolate, over 1.5 mm. wide; calyx 2-2.5 mm. long or rarely shorter; petals 4-4.5 mm. long; pods 10-15 cm. long.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)—LEAD-TREE.

6. **MORONGIA** Britton. Perennial herbs or partially woody plants, with spreading or prostrate prickly stems. Leaves 2-pinnate: leaflets numerous, usually sensitive. Spikes globular. Calyx-lobes minute. Petals united to the middle or above it. Filaments distinct or nearly so. Pod narrow, turgid, not jointed, prickly.

1. *M. angustata* (T. & G.) Britton. Stem and branches reclining or prostrate: blades of the leaflets narrowly oblong, 1.5-7 mm. long; peduncles armed like the stem: calyx-lobes minute: corolla about 3 mm. long; lobes linear-lanceolate: pods 5-15 cm. long, beaked.—Pinelands.—SENSITIVE-BRIER.

7. **NEPTUNIA** Lour. Perennial unarmed diffuse, prostrate, or floating plants. Leaves 2-pinnate: leaflets numerous, small or minute. Spikes

globose or cylindric. Calyx-lobes shorter than the tube. Petals distinct or partially united. Filaments distinct or nearly so. Ovary short-stipitate. Pod oblique.

1. *N. floridana* Small. Stem and branches sparingly pubescent or glabrate: leaflets 3-4 mm. long; blades linear to linear-lanceolate: calyx-lobes triangular-lanceolate, acuminate: petals acuminate: pods 2.5-3.5 cm. long.—Pine-lands.—F. K. (*Cuba*.)

#### FAMILY 4. CASSIACEAE. SENNA FAMILY.

Trees, shrubs, or herbs. Leaves alternate: blades compound, usually 1-2-pinnate, rarely 1-foliolate. Flowers perfect, polygamous, monoecious, or dioecious, more or less irregular. Calyx of 3-5, usually slightly united sepals, sometimes borne on the edge of a well-developed hypanthium. Corolla of 3-5 unequal distinct petals. Androecium of 6-10 distinct or nearly distinct stamens. Gynoecium 1-carpellary. Fruit a legume.

Sepals, and petals, usually 5: stamens 5-10.

Leaves with 1-pinnate blades.

Pods indehiscent or tardily dehiscent: corolla nearly regular, the five petals slightly unequal: calyx-lobes obtuse. 1. CASSIA.

Pods elastically dehiscent: corolla very irregular, one of the lateral petals (standard) and the lowest petal large, the others greatly reduced: calyx-lobes acuminate. 2. CHAMAECRISTA.

Leaves with 2-pinnate blades.

Pods long, smooth: petals with suborbicular or reniform blades. 3. POINCIANA.

Pods short, prickle-armed: petals with cuneate or spatulate blades. 4. GUILANDINA.

Sepals 4: petals 3, often accompanied by 2 rudiments: stamens 3. 5. TAMARINDUS.

1. *CASSIA* [Tourn.] L. Herbs, shrubs, or trees. Leaves abruptly 1-pinnate: stipules deciduous. Flowers in axillary racemes or panicles. Sepals nearly distinct, leathery or petaloid. Petals mainly yellow or whitish. Pod more or less turgid, indehiscent or tardily dehiscent.—SENNA.

Plants herbaceous.

Petiolar gland near the base of the rachis: blades of the leaflets not obovate.

Petiolar gland globular, sessile: pods broad-margined. 1. *C. occidentalis*.

Petiolar gland elongate, stipitate: pods narrow-margined. 2. *C. ligustrina*.

Petiolar gland between the lower pair of leaflets: blades of the leaflets obovate or cuneate.

3. *C. Tora*.

4. *C. bahamensis*.

Plants woody.

1. *C. occidentalis* L. Plant annual, 5-15 dm. tall, nearly glabrous: leaflets 8-12; blades lanceolate, becoming lanceolate-elliptic, somewhat acuminate, 3.6-5 cm. long; petiolar gland globular, near the base of the rachis: stipules broadly lanceolate: sepals 11-14 mm. long: petals 15-19 mm. long: pods linear, glabrous, with the septa externally prominent, 8-13 cm. long, 6 mm. wide.—Pinelands and cultivated grounds. Nat. of Trop. Am.—F. K. (*Ber., Cuba, Ant.*)

2. *C. ligustrina* L. Plant perennial, 6-20 dm. tall, nearly glabrous: leaflets 12-16; blades lanceolate to elliptic-lanceolate, 4-4.2 cm. long; petiolar gland at the base of rachis, elongate, stipitate: stipules linear-lanceolate: sepals 9-12 mm. long, the larger ones obovate: petals 13-16 mm. long, nearly uniform in shape: pods curved, flat, prominently margined, 7-8 mm. wide.—Hammocks.—(*Ber., Bah., Cuba, Ant.*)

3. *C. Tora* L. Plant annual, 4-15 dm. tall, nearly glabrous: leaflets 4-6; blades obovate or cuneate-obovate, very slightly cuspidate, the terminal pair much the largest, 3-5 cm. long: petiolar gland elongate, between the lower pairs of leaflets: stipules linear-spatulate to setaceous: sepals 7-9 mm. long,

the larger ones ovate: petals 13-15 mm. long, very diverse in shape: pods falcate, more or less tetragonal, 3-4 mm. wide.—Pinelands and waste grounds. Nat. of Trop. Am.—F. K. (*Bah., Cuba, Ant.*) •

4. *C. bahamensis* Mill. Plant woody: leaflets 6-10; blades subcoriaceous, ovate or acutely elliptical, mucronate, 3.5-5 cm. long: petiolar gland depressed, between the lower pairs of leaflets to near base of rachis: stipules ovate to lanceolate: sepals 7-12 mm. long: petals 15-20 mm. long, or sometimes smaller: pods flat, with lateral depressions between the seeds, 9-11 cm. long, 5 mm. wide.—Pinelands.—F. K. (*Bah., Cuba.*)

2. **CHAMAECRISTA** Moench. Herbs or shrubs. Leaves abruptly 1-pinnate: stipules persistent. Flowers clustered in leaf-axils. Sepals nearly distinct, membranous. Petals mainly yellow or whitish. Pod flattish, promptly dehiscent, the valves elastic.—SENSITIVE-PEA. SENSITIVE-PLANT.

Tall woody plants: smaller petals over 15 mm. long: pod glabrous. 1. *C. brachiata*.  
Low herbaceous plants: larger petals less than 10 mm. long: pod pubescent.

Stem and branches erect or ascending: leaflets mostly 40-54.

2. *C. aspera*.

Stem and branches prostrate or decumbent: leaflets mostly 16-34.

3. *C. Simpsonii*.

1. *C. brachiata* Pollard. Stem 2 m. tall or less, often widely branched above: leaflets 20-28; blades linear, cuspidate, glabrous, midvein somewhat excentric: petiolar gland much depressed, discoid: stipules lanceolate: sepals 15-20 mm. long, glabrous or nearly so: standard 17-24 mm. long: pods 6-7 cm. long, glabrous, often conspicuously banded.—Pinelands.

2. *C. aspera* (Muhl.) Greene. Stem copiously hirsute, erect or ascending: leaflets 40-54; blades narrowly linear, 15 mm. long or less, acuminate: petiolar gland slender, erect, elongate: stipules linear-lanceolate: sepals 5-7 mm. long, sparingly long-hairy: standard somewhat reniform, crenate, only about  $\frac{1}{2}$  as long as the large wing-petal: pod hirsute, 2.8 cm. long, 6 mm. wide.—Pinelands and edges of hammocks.—F. K. (*Bah.*)

3. *C. Simpsonii* Pollard. Stem branching from the base, the branches prostrate or decumbent, more or less puberulent and often partially hirsute: leaflets 16-34; blades glabrous or nearly so, narrowly linear, 8 mm. long, or less, each tipped with a black, rigid acuminate tip: petiolar gland minute, stipitate, obconical: stipules lanceolate: sepals 5-7 mm. long, sparingly short-pubescent: standard obovate, 6-7 mm. long, about as long as the large wing-petal: pods linear, hirsute, 2 cm. long, 4-5 mm. wide.—Pinelands.—F. K.

3. **POINCIANA** [Tourn.] L. Erect much-branched shrubs or trees. Leaflets usually few and relatively large: blades rather broad. Sepals much shorter than the petals. Blades of the short-clawed petals not flabellate. Pod flat, narrow, the valves leathery. Seeds flattened.

1. *P. pulcherrima* L. Shrub or small tree: leaflets glabrous; blades oblong to cuneate, 15-25 mm. long: sepals 15-16 mm. long: corolla mainly red; standard 25-27 mm. long: filaments 40-45 mm. long: pods 9-13 cm. long.—Pinelands and cultivated grounds. Nat. of the W. Indies.—F. K. (*Bah., Cuba, Ant.*)—BARBADOS-FLOWER.

4. **GUILANDINA** L. Reclining or spreading prickly shrubs. Leaflets relatively few or numerous and large: blades broad. Sepals as long as the petals or nearly so. Blades of the narrow petals mainly spatulate. Pod nearly as wide as long, turgid. Seeds turgid.

Leaves with foliaceous stipules: seeds gray or lead-colored.

Leaves without stipules: seeds yellow.

1. *G. Crista*.

2. *G. Bonduc*.

1. *G. Crista* (L.) Small. Straggling or spreading shrub: leaflets numerous; blades ovate, oblong-ovate, or nearly oblong, 1.5-3.5 cm. long, mucronate: racemes or panicles 1-4 dm. long: sepals 9-11 mm. long, mostly obtuse: petals dull-yellow, the narrower ones 10-13 mm. long, truncate and 3-toothed at the apex: pods oval or oval-oblong, 5-7 cm. long.—Coastal sand-dunes and shore hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)—GRAY-NICKER.

2. *G. Bonduc* L. Plants similar to *G. Crista* in habit, but leaflets relatively larger: sepals mostly acute: narrower petals rounded and merely uneven at the apex.—Coastal sand-dunes and shore hammocks.—F. K. (*Bah., Cuba, Ant.*)—YELLOW-NICKER.

5. **TAMARINDUS** [Tourn.] L. Unarmed trees. Leaves relatively small: leaflets numerous. Sepals 4. Petals 3, often with 2 additional rudiments. Stamens 3, the filaments united to about the middle, alternating with 3 minute staminodia. Ovary elongate: pod indehiscent, succulent within.

1. *T. indica* L. Tree with spreading branches: leaflets 18-36, 1-2 cm. long, the blades oblong to linear-oblong, becoming reticulate: sepals 10-12 mm. long: petals yellowish or reddish, 13-16 mm. long, crisped: pod thick, 6-13 cm. long, more or less curved, the edges rounded.—Hammocks. Nat. of the E. Indies.—F. K. (*Bah., Cuba, Ant.*)—TAMARIND.

FAMILY 5. **FABACEAE.** PEA FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades 1-compound, 1-many-foliolate, or rarely simple. Flowers mostly perfect, irregular. Calyx of 5 more or less unequal partially united sepals. Corolla of 5 (or of 1 petal in *Amorpha*), unequal distinct or nearly distinct petals which are 2 keel-petals, 2 wings, and 1 standard which surrounds the others. Androecium of 10 monodelphous, diadelphous or rarely distinct stamens, or rarely 9 or 5. Gynoecium 1-carpellary. Ovary superior. Fruit a dehiscent or indehiscent legume, or a loment.

Stamens 10: filaments distinct.

TRIBE I. SOPHOREAE.

Stamens 10 or fewer: filaments monadelphous or diadelphous.

Leaves destitute of tendrils.

Herbs or shrubs, or trees or woody vines with 1-foliolate or pinnate leaf-blades.

Fruit 2-valved or indehiscent, not a loment.

Foliage not glandular-dotted.

Anthers of 2 kinds: filaments monadelphous.

TRIBE II. GENISTEAE.

Anthers all alike: filaments diadelphous at least beyond the middle.

Pods dehiscent.

TRIBE III. GALEGEAE.

Pods indehiscent.

TRIBE IV. DALBERGIEAE.

Foliage glandular-dotted.

TRIBE V. PSORALEAE.

Fruit a loment.

TRIBE VI. HEDYSAREAE.

Herbaceous vines, or herbs with stipellate leaflets, or shrubs or trees with 3-foliolate leaf-blades.

TRIBE VII. PHASEOLEAE.

Leaves bearing tendrils.

TRIBE VIII. VICIEAE.

TRIBE I. SOPHOREAE.

Inflorescence racemose: pods moniliform.

1. SOPHORA.

TRIBE II. GENISTEAE.

Stipules at least the upper ones decurrent: pods inflated.

2. CROTALARIA.

TRIBE III. GALEGEAE.

Leaf-blades unequally pinnate.

Pods 4-angled or very turgid.

3. INDIGOFERA.

Pods flattened.  
Leaf-blades equally pinnate.

4. CRACCA.  
5. GLOTTIDIUM.

TRIBE IV. DALBERGIEAE.

Leaf-blades 1-folliolate: pods suborbicular, 1-seeded.  
Leaf-blades pinnately several-folliolate: pods linear, several-seeded.

6. DALBERGIA.  
7. ICHTHYOMETHIA.

TRIBE V. PSORALEAE.

Stamens 9 or 10.

Corolla of a single petal (standard).

Corolla of 5 petals.

Stamens 5.

Spikes not involucrate: calyx-lobes rather broad, shorter than the tube.

Spikes involucrate: calyx-lobes bristle-like, longer than the tube.

8. AMORPHA.  
9. PAROSELA.  
10. PETALOSTEMON.  
11. KUHNISTERA.

TRIBE VI. HEDYSAREAE.

Corolla yellow, or sometimes purple- or red-tinged.

Flowers perfect.

Calyx spathe-like, the 2 long lobes minutely toothed at the apex: standard-blade longer than wide, cuneate at the base: wings and keel-petals sessile or short-clawed, minutely auricled at the base.

Calyx not spathe-like, the short lips prominently lobed: standard-blades as wide as long or wider, cordate at the base: keel- and wing-petals slender-clawed, prominently auricled.

Flowers monoecious, at least some of them sterile, others fertile.

Corolla white, blue, violet, or purple.

12. AESCHYNOMENE.  
13. SECUA.  
14. STYLOSANTHES.  
15. MEIBOMIA.

TRIBE VII. PHASEOLEAE.

Keel of the corolla neither curved nor colled.

Style glabrous or sparingly pubescent below.

Standard not spurred at the base.

Corolla yellow.

Ovules, and seeds, 2 or 3.

Ovules, and seeds, several.

Corolla blue, purple, scarlet, or white.

Pod terete, torulose: corolla scarlet.

Pod flattened, not torulose: corolla blue, purple, or white.

Standard shorter than the wings.

Standard longer than the wings.

Standard with a spur at the base of the blade.

Style bearded along the inner side.

Keel of the corolla colled or curved.

Keel spirally twisted.

Leaflets 5 or more, wing-petals with an incurved auricle at the base of the blade.

Leaflets 3, wing-petals merely angled at the base of the blade.

Keel incurved.

Inflorescence capitate.

Pods flattened: keel-petals with an elongate narrow tip.

Pods nearly terete: keel-petals without a tip.

Inflorescence racemose or paniculate.

Upper calyx-lip shorter than the lower: keel angled: style pubescent.

Upper calyx-lip longer than the lower: keel curved: style glabrous.

16. DOLICHOLUS.  
17. CAJAN.  
18. ERYTHRENA.  
19. MUCUNA.  
20. GALACTIA.  
21. BRADBURYA.  
22. CLITORIA.  
23. GLYCINE.  
24. PHASEOLUS.  
25. STROPHOSTYLES.  
26. VIGNA.  
27. DOLICHOS.  
28. CANAVALL.

TRIBE VIII. VICIEAE.

Style terete, with a tuft of hairs at the apex.

20. VICIA.

1. **SOPHORA** L. Shrubs, trees, or herbs. Leaf-blades several-folliolate. Racemes erect. Calyx nearly equally 5-lobed or truncate. Standard markedly clawed. Wings and keel-petals auricled on one side. Pod thick. Seeds thick.

1. *S. tomentosa* L. Shrub, with copiously pubescent foliage: blades of the leaflets oblong, oblong-ovate, or oval, or rarely spatulate, 2.5–6 cm. long, finely pubescent beneath: calyx 5–8 mm. long, the limb undulate: corolla yellow, 18–25 mm. long: blades of the wings and the keel-petal narrowly oblong: pods 5–11 cm. long, torulose.—Coastal sand-dunes and shore hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **CROTALARIA** [Dill.] L. Herbs. Stipules often decurrent on the stem or branches. Leaf-blades 3-foliolate or 1-foliolate. Calyx with a prominently 2-lobed upper lip and a deeply 3-lobed lower lip. Corolla yellow or blue: standard with a pair of callosities near the base of the blade: wings with the scarcely auricled blades broadened upward: blades of the keel-petals broadly scythe-shaped. Pods globular to cylindrical.—RATTLE-BOX.

A. Leaves with 1-foliolate blades.

Leaflets with orbicular or oval blades predominating: stems decumbent or prostrate.

Stems and peduncles with relatively long, loose or spreading hairs.

Stems and peduncles with short appressed hairs.

Leaflets with linear blades predominating: stems erect or nearly so.

1. *C. rotundifolia*.

2. *C. maritima*.

3. *C. Purshii*.

B. Leaves with 3-foliolate blades.

Plants annual: lobes of the lower calyx-lip longer than the tube: pods 2.5–3.5 cm. long.

Plants perennial: lobes of the lower calyx-lip shorter than the tube: pods 1–1.5 cm. long.

4. *C. incana*.

5. *C. pumila*.

1. *C. rotundifolia* (Walt.) Poir. Stems radiating from the stout root: blades of the lower leaflets orbicular to obovate; of the upper ones oval, oval-ovate, or broadly oblong: calyx loosely pubescent: standard 11–14 mm. long.—Pinelands.

2. *C. maritima* Chapm. Similar to *C. rotundifolia* in habit: blades of the lower leaflets suborbicular to oval; of the upper ones narrower: calyx appressed-pubescent: corolla rather smaller than in *C. rotundifolia*.—Pinelands.—F. K.

3. *C. Purshii* DC. Plant 1–5 dm. tall, the branches sometimes decumbent: blades of the lower leaflets spatulate to oblanceolate; of the upper ones linear, often very narrowly so: calyx becoming 11–14 mm. long: standard 8–10 mm. long; keel 7–8 mm. long: ovary glabrous.—Pinelands.—F. K.

4. *C. incana* L. Plants erect: blades of the leaflets oval to obovate: calyx becoming 10–12 mm. long: keel 14–16 mm. long: ovary pubescent.—Pinelands and waste places. Nat. of Trop. Am.—F. K. (*Bah., Cuba, Ant.*)

5. *C. pumila* Ortega. Plants decumbent: blades of the leaflets cuneate to oblong-cuneate: calyx becoming 4–5.5 mm. long: keel 8–10 mm. long: ovary pubescent.—Hammocks and pinelands, and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

3. **INDIGOFERA** L. Herbs. Leaflets several, or rarely 3, pinnate, or rarely solitary. Flowers in spikes or racemes. Calyx-lobes nearly equal, shorter than the tube, or elongate. Corolla often pink or purple: standard broad, scarcely clawed: wings with blades dilated at the apex and auricled at the base, short-clawed: keel-petals scimitar-shaped, gibbous or spurred on the side, clawless.—INDIGO-PLANT.

Plant prostrate: calyx-lobes subulate or lanceolate-subulate, much longer than the tube: standard 7–8 mm. long: androecium 5–6 mm. long: pods straight.

1. *I. miniata*.

Plant erect: calyx-lobes deltoid to triangular-lanceolate, as long as the tube or shorter: standard 3–4.5 mm. long: androecium 2.5–3 mm. long: pods curved.

2. *I. suffruticosa*.

1. *I. miniata* Ortega. Stems prostrate: leaflets 5-9; blades linear-oblong to narrowly oblanceolate: calyx about 3 mm. long; lobes subulate or lanceolate-subulate: standard 7-8 mm. long or rarely smaller; the wings usually longer: pods oblong-linear, 15-20 mm. long.—Pinelands.—F. K. (*Cuba*.)

2. *I. suffruticosa* Mill. Stems erect: leaflets 7-15; blades oblong, oblanceolate or obovate: calyx 1.5-2 mm. long; lobes deltoid to triangular-lanceolate: standard 3-4.5 mm. long; the wing-petals often slightly longer: pods linear, 12-15 mm. long.—Pinelands and cultivated grounds. Nat. of Asia.—(*Ber., Bah., Cuba, Ant.*)

4. **CRACCA** L. Herbs or partially woody plants. Leaflets several or many, pinnate. Flowers in racemes or spike-like panicles. Calyx somewhat 2-lipped, the upper 2 lobes usually shorter than the others and partially united. Corolla pink, purple, or red, or white: standard pubescent: wings auricled on one side at the base of the blade: keel-petals usually with an angular auricle. Pods flat or flattish.—CATGUT. GOATS'-RUE.

Erect woody plants.

Calyx with short scattered appressed hairs: leaflets, and rachis glabrous.

Calyx permanently hirsute: leaflets, and rachis, hirsute.

Prostrate or decumbent herbaceous plants.

Petioles longer than the leaflets.

Petioles shorter than the leaflets.

Calyx long-hairy: upper lobes longer than the tube: basal auricle of the keel-petals obscure, obtuse.

Calyx short-hairy: upper lobes shorter than the tube: basal auricle of the keel-petals prominent, sharp.

1. *C. angustissima*.

2. *C. corallicola*.

3. *C. ambigua*.

4. *C. spicata*.

5. *C. floridana*.

1. *C. angustissima* (Shuttlew.) Kuntze. Stems glabrous: leaflets 11-17; blades of the lateral ones narrowly linear or very narrowly linear, 13-45 mm. long: calyx 4-5 mm. long; lobes of the upper lip lanceolate; lower lobe lanceolate, much longer than the lateral ones: standard 9-11 mm. long: pods about 3 mm. wide.—Pinelands.

2. *C. corallicola* Small. Stems copiously loose-pubescent, or glabrate in age: leaflets 11-15; blades linear to linear-oblong, 7-13 mm. long: calyx 4-5 mm. long; lobes of the upper lip lanceolate; lower and lateral lobes lanceolate, about equal in length: standard 7-10 mm. long: pods 2-3 mm. wide.—Pinelands.

3. *C. ambigua* (M. A. Curtis) Kuntze. Stems loosely pubescent: leaflets 7-11; blades of the lateral ones narrowly oblong to cuneate-oblong, 20-60 mm. long, or rarely more, truncate or mucronate: calyx 4.5-5 mm. long; lobes of the upper lip subulate; lower and lateral lobes subulate nearly equal: standard 16-18 mm. long.—Pinelands.

4. *C. spicata* (Walt.) Kuntze. Stems copiously loose-pubescent: leaflets 5-15; blades of the lateral ones oval, oblong, or cuneate-oblong, 10-25 mm. long, mucronulate: calyx 7-8 mm. long; lobes of the upper lip subulate; lower and lateral lobes subulate, nearly equal: standard 16-19 mm. long.—Pinelands.

5. *C. floridana* Vail. Stems finely pubescent and somewhat sticky: leaflets 9-13; blades of the lateral ones oblong to oblong-obovate, 14-30 mm. long, obtuse or truncate: calyx 6-7 mm. long; lobes of the upper lip nearly as long as the other lobes, and nearly as long as the tube: standard 16-18 mm. long.—Pinelands.

5. **GLOTTIDIUM** Desv. Herbs, but often woody-stemmed. Leaflets numerous. Racemes several-flowered. Calyx slightly 2-lipped, the 5 lobes acute. Corolla yellow, reddish, or purple: standard with a reniform blade: wings and keel-petals more or less angular at the base of the blade. Pods short, wingless.



1. *G. vesicarium* (Jacq.) Desv. Plants 1-4 m. tall: leaflets 24-52; blades oblong, 1.5-4 cm. long, mucronate: calyx-lobes shorter than the tube: corolla yellow (or black-purple in *G. vesicarium atropurpureum*): blades of the standard reniform: pods oblong, 5-8 cm. long, acuminate at both ends.—Pine-lands and cultivated grounds.

6. *DALBERGIA* L. f. Shrubs. Leaflets solitary or rarely pinnate. Racemes short. Calyx not 2-lipped, the 5 broad lobes short. Corolla white or pink: standard with a suborbicular or reniform blade and a long claw. Free portions of the filaments long. Pod lenticular.

1. *D. Ecastophyllum* (L.) Taub. Shrub with wide-spreading or trailing branches: leaflets 5-15 cm. long; blades ovate, oblong, or elliptic: calyx campanulate, becoming 3.5-4 mm. long; corolla white or pink; standard 3-9 mm. long, the blades suborbicular: pods suborbicular, 2-3 cm. in diameter.—Coastal sand-dunes and shore hammocks.—F. K. (*Bah., Cuba, Ant.*)

7. *ICHTHYOMETHIA* P. Br. Trees. Leaflets several, pinnate. Panicles thyrsoid. Calyx slightly 2-lipped: the upper lip notched: lower lip of three broad lobes about equal in length. Corolla white or partially colored: standard with a broad blade cordate at the base, and a short claw. Pods narrow, 4-winged.

1. *I. piscipula* (L.) A. Hitchc. Tree: leaflets 7-9; blades oval or obovate, or nearly ovate, 2-10 cm. long, undulate or shallowly toothed: calyx campanulate, 6-7 mm. long: petals white and partially striped with red: standard 14-16 mm. long, the blade suborbicular: pods 5-10 cm. long, the wings undulate or incised.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—JAMAICA-DOGWOOD.

8. *AMORPHA* L. Shrubs. Leaflets several or many, pinnate. Racemes spike-like. Calyx 2-lipped, sometimes obscurely so. Standard erect, the broad blade folded around the androecium and gynoecium. Wings and keel-petals wanting. Filaments united at the base. Style pubescent, straight. Pod turgid, nearly indehiscent.

1. *A. herbacea* Walt. Shrub 3-8 dm. tall: leaflets 11-37; blades elliptic, oblong, or oblong-ovate, 9-16 mm. long, obtuse: racemes clustered, 4-30 cm. long: calyx about 4 mm. long, the two upper lobes broader and shorter than the acute lower ones: standard broadly spatulate, 4-5 mm. long, varying from violet-purple to white: pods 4-5 mm. long, gland-dotted.—Hammocks and adjacent pinelands.

9. *PAROSELA* Cav. Herbs or shrubs. Leaflets numerous, few or 3. Spikes slender or stout. Calyx nearly regular, or the lower lobe elongate. Petals purple or yellow, or white. Standard with a broad, often cordate, blade. Wings and keel-petals with broad blades auricled on one side. Filaments united nearly to the top. Pod oblique, mostly included in the calyx.

1. *P. domingensis* (DC.) Heller. Plants 8-30 dm. tall, velvety-pubescent: leaflets 9-21; blades oval, oblong, or cuneate, 4-8 mm. long: calyx silky, exceeding the bract; lobes subulate: standard 5-6 mm. long; blade orbicular-ovate, longer than the claw: pods 3-3.5 mm. long, hairy.—Hammocks.—(*Cuba, Ant.*)

10. *PETALOSTEMON* Michx. Herbs. Leaflets few or numerous. Spikes dense. Calyx-lobes broad, or broad at the base. Standard with a short broad blade. Filaments united to above the middle. Pod short, oblique, included in the calyx.

1. *P. carneus* Michx. Plants 3-10 dm. tall: leaflets 5-7; blades linear, linear-elliptic, or linear-oblongate, 5-10 mm. long: calyx 3-3.5 mm. long: corolla deep-pink: standard about 4 mm. long; blade oval: blades of the other petals elliptic-oblong to narrowly oblong.—Pinelands.—F. K.—PRAIRIE-CLOVER.

11. *KUHNISTERA* Lam. Herbs. Leaflets few or several. Spikes mostly depressed, corymbose, resembling heads of *Carduaceae*. Calyx-lobes setaceous. Standard with a narrow tapering blade. Filaments united to below the middle. Pod as in *Petalostemon*.

1. *K. pinnata* (Walt.) Kuntze. Plants 3-12 dm. tall: leaflets 3-15; blades linear-filiform to linear-cuneate, 5-10 mm. long: spikes subglobose: bracts ciliate: calyx-lobes filiform-setaceous, much longer than the tube, plumose: standard 6-8 mm. long; blade lanceolate: pod about 2 mm. long.—Pinelands.

12. *AESCHYNOMENE* L. Annual erect or diffuse plants. Leaflets several or many, pinnate. Racemes several-flowered. Calyx spathe-like, the lips respectively minutely 2-lobed and 3-lobed. Corolla yellow or reddish: standard with a broad blade: wings and keel-petals with narrow curved blades which are auricled at the base. Ovary bent, sparingly muricate. Loment several-jointed, the sections oval or quadrate.

1. *A. pratense* Small. Plants 9-20 dm. tall: leaflets mostly 15-25; blades narrowly oblong, 5-6 mm. long: calyx-lips 4-4.5 mm. long: blade of the standard suborbicular, 10-13 mm. wide; blades of the keel and wing-petals slightly narrowed above the auricles: pods scalloped-edged, the sections oval, reticulate.—Everglades.—SENSITIVE JOINT-VETCH.

13. *SECULA* Small. Herbs with prostrate stems and branches. Leaflets few, pinnate. Panicles few-flowered. Calyx 2-lipped; upper lip with 2 broad lobes; lower lip with 3 lobes. Corolla yellowish or purplish: standard with a very broad blade: wings and keel-petals auricled on one side, the keel-petals with the narrower blades and abruptly bent. Loment few-jointed, the sections half-orbicular.

1. *S. viscidula* (Michx.) Small. Plants sticky-pubescent, the branches 1-12 dm. long: leaflets 5-9; blades obovate, 3-12 mm. long, reticulate: calyx-lobes obtuse: corolla yellowish or purplish; standard 5-6 mm. long: pods 1-2 cm. long, pubescent, 2-3-jointed.—Pinelands.—(*Cuba, Ant.*)

14. *STYLOSANTHES* Sw. Herbs. Leaflets 3, pinnate. Flowers of two kinds, the one complete, but sterile, the other without a perianth, but fertile. Calyx 2-lipped: upper lip with 2 broad lobes; lower lip with the middle lobe longer and narrower than the lateral ones. Corolla yellow or orange, persistent: standard with a very broad blade: blades of the wings and the keel-petals auricled, the latter incurved. Loment flat, 1- or 2-jointed, the lower joint empty, the upper one opening at the apex.

1. *S. hamata* (L.) Taub. Plants decumbent or procumbent: leaflets 7-17 mm. long; blades oblong to oblong-lanceolate: calyx 2-2.5 mm. long: standard 4-5 mm. long: pods 2-jointed, the lower joint usually abortive, the terminal one with 1-ribbed sides and a hooked beak.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

15. *MEIBOMIA* Heister. Herbs, shrubs, or vines. Leaflets 3, or rarely 1 or 5. Racemes simple or compound. Calyx 2-lipped, sometimes obscurely so, the middle lobe of the lower lip often smaller or narrower and longer than the

lateral ones. Corolla variously colored or white: standard with a broad blade: blades of the wings and the keel-petals auricled on one side, short-clawed. Ovary slender. Loment few-several-jointed, usually with hooked hairs.—**TICK-TREFOIL.**

Loments constricted into separate joints.

Loment with the constrictions deeper below than above; joints longer than wide. Stem and branches trailing: blades of the leaflets of an orbicular type.

1. *M. arenicola.*

Stem and branches erect or ascending: blades of the leaflets of an ovate, oval or elliptic type.

Loment long-stipitate: wings and keel-petals very unequal in length.

2. *M. rhombifolia.*

Loment very short-stipitate: wings and keel-petals nearly equal in length.

3. *M. obtusa.*

Loment with equally deep constrictions on both sides; joints suborbicular.

4. *M. purpurea.*

5. *M. supina.*

Loments straight on the upper side, undulate on the lower.

1. *M. arenicola* Vail. Stems prostrate: stipules subulate: leaflets 1-5; blades ovate-orbicular, 1-2.5 cm. long: lateral calyx-lobes ovate: standard mostly less than 4.5 mm. long: loment about evenly constricted beneath and above, the joints orbicular or oval, 2-2.5 mm. wide.—Pinelands.

2. *M. rhombifolia* (Ell.) Vail. Stems pubescent: stipules subulate: leaflets 5-9 cm. long; blades ovate to ovate-lanceolate, pubescent beneath: lateral calyx-lobes lanceolate, the lower lobe scarcely longer: standard 5-7 mm. long: keel-petals mostly shorter than the standard: loment-joints 3.5-4 mm. wide, the ventral side abruptly rounded.—Pinelands.

3. *M. obtusa* (Muhl.) Vail. Stems hirsute or minutely pubescent: leaflets 1-2 cm. long; blades orbicular-ovate or oval, sparingly pubescent beneath: lateral calyx-lobes deltoid, acute; the lower lobe lanceolate: standard 4-5 mm. long: stipe of the loment  $\frac{1}{2}$  as long as the joint.—Pinelands—F. K.

4. *M. purpurea* (Mill.) Vail. Stems pubescent: stipules ovate: leaflets 2-11 cm. long; blades ovate, ovate-oblong, or elliptic, pubescent, and often reticulate beneath: lateral calyx-lobes linear-lanceolate: standard 3.5-4 mm. long, cuneate at the base: keel-petals obliquely pointed: loment-joints suborbicular, over 2.5 mm. wide.—Pinelands.—(Cuba, Ant.)

5. *M. supina* (Sw.) Britton. Stems glabrous or nearly so: stipules lanceolate or ovate-lanceolate: leaflets 2-8 cm. long; blades oval or elliptic: lateral calyx-lobes lanceolate: standard 5-6 mm. long, truncate or subcordate above the short claw: keel-petals rounded at the apex: loment-joints half-orbicular, 1-1.5 mm. wide.—Hammocks.—(Bah., Cuba, Ant.)

16. **DOLICHOLUS** Medic. Herbs or vines. Leaflets 3 or 1. Flowers perfect and complete. Calyx 2-lipped, the 2 upper lobes more or less united. Corolla yellow: blade of the standard broadened upward: blades of the wings unequally auricled on both sides, the auricles angular: blades of the keel-petals much longer than wide. Pod flat, short.

Corolla much longer than the calyx.

Racemes very slender, many-flowered, exceeding the leaves: flowers and legumes reflexed.

Racemes 1-6 flowered, as long as the leaves or shorter.

1. *D. minutus.*

2. *D. parviflorus.*

Corolla about as long as the calyx or shorter.

Plants with prostrate or climbing stems.

Leaves mostly 1-folliolate: ovary and pod long-hairy: calyx-lobes long-clillate.

3. *D. Michauxii.*

Leaves 3-folliolate: ovary and pod short-hairy: calyx-lobes short-clillate.

4. *D. cinereus.*

Plants with erect stems.

Upper leaves 1-folliolate: standard-blades of a suborbicular type: style much longer than the ovary.

5. *D. simplicifolius.*

Upper leaves 3-folliolate: standard-blade of an obovate type: style about as long as the ovary

6. *D. intermedius.*

1. *D. minimus* (L.) Medic. Stems minutely pubescent: leaflets 0.8–4 cm. long; blades of the lateral ones semi-rhombic, that of the terminal one rhombic-orbicular: lower calyx-lobe subulate: standard 5–6 mm. long; blade orbicular-cuneate: auricles of the wings acute.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

2. *D. parviflorus* (DC.) Vail. Stems grayish-tomentose: leaflets 1.5–3.5 cm. long; blades elliptic to elliptic-lanceolate or sometimes broader: lower calyx-lobe linear-lanceolate: standard 7–8 mm. long; blade suborbicular: auricles of the wings obtuse.—Pinelands.—F. K. (*Cuba.*)

3. *D. Michauxii* Vail. Stems densely gray-pubescent: leaflets 2.5–5 mm. long; blades broader than long, soft-hirsute beneath: calyx 12–17 mm. long; lobes abruptly acuminate: standard 12–14 mm. long; blade cuneate: pod slightly longer than wide.—Pinelands.

4. *D. cinereus* (Nash) Vail. Stems cinereous-pubescent: leaflets 1–3 cm. long; blades obliquely orbicular to ovate-orbicular or depressed: lateral calyx-lobes lanceolate, markedly shorter than the lower one; lobes of the upper calyx-lip lanceolate: standard 6–7 mm. long; pods 14–17 mm. long.—Pinelands.—F. K.

5. *D. simplicifolius* (Walt.) Vail. Stems hirsute: leaflets 2–5 cm. long; blades depressed-orbicular or reniform, hirsute on the veins beneath: calyx 8–10 mm. long; upper lobes typically ovate, lower lobe about equalling the lateral ones: standard 6–7.5 mm. long; blade broadly obovate or suborbicular: wings about as long as the standard.—Pinelands.

6. *D. intermedius* (T. & G.) Vail. Stems tomentose: leaflets 2–5 cm. long; blades suborbicular and often somewhat rhombic, or ovate-orbicular, or those of the lateral ones ovate or oval: calyx about as large as that of *D. simplicifolius*; upper lobes typically lanceolate: standard 7–8 mm. long; blade nearly oblong or oblong-obovate: wings much shorter than the standard.—Pinelands.

17. **CAJAN** Adans. Partially woody herbs. Leaflets 3. Racemes few-several-flowered. Calyx somewhat 2-lipped, the upper lobes partially united. Corolla yellow or mainly so; blade of the standard suborbicular, sharp-auricled at the base: blades of the wings rather prominently, but unequally auricled on each side: blades of the keel-petals broad at the apex. Pod turgid, elongate.

1. *C. Cajan* (L.) Millsp. Plants 3–30 dm. tall, velvety-tomentose: leaflets mainly 4–12 cm. long; blades narrowly elliptic or oblong, acute or short-acuminate, pale and prominently veined beneath: calyx 8–14 mm. long: standard-blade 16–20 mm. long: pods narrowly oblong to linear-oblong.—Pinelands and cultivated grounds. Nat. of the Old World Tropics.—F. K. (*Bah., Cuba, Ant.*)—CONGO-PEA. PIGEON-PEA.

18. **ERYTHRINA** L. Herbs, shrubs, or trees. Leaflets 3. Racemes several-many-flowered. Calyx obliquely truncate. Corolla red, scarlet, or crimson: standard conspicuous, erect, narrowed upward: wings and keel-petals very small, nearly equal in size, the blades short-clawed. Androecium exerted: filaments united to about the middle or slightly above it. Pod torulose.

1. *E. arborea* (Chapm.) Small. Shrub, or tree 3–8 m. tall: blades of the leaflets deltoid to hastate: racemes few-flowered: calyx cylindrical: standard 35–40 mm. long; blade about 1 cm. wide; wing-petals 11–12 mm. long: pods 9–13 cm. long: seeds scarlet.—Hammocks.—F. K.—CORAL-BEAN.

19. **MUCUNA** Adans. Vines. Leaflets 3. Racemes or panicles erect, usually few-flowered. Calyx 2-lipped: upper lip entire: lower lip 3-lobed.

Corolla red, purple, green, or yellowish: standard much shorter than the other petals, the blade longer than broad: blades of the wings auricled on one side: keel-petals scythe-shaped. Pod turgid.

1. *M. Deeringiana* (Bort.) Small. Leaflets 7-16 cm. long; blades sparingly pubescent, those of the lateral ones very obliquely ovate, that of the terminal one rhombic or ovate-rhombic: lower calyx-lobes triangular or triangular-lanceolate: standard 23-26 mm. long, the blade ovate; wings broadened at the apex; keel-petals narrowed at the bent apex: pods 5-9 cm. long, coarsely pubescent. [*Stizolobium Deeringianum* Bort.]—Pinelands and hammocks. Nat. of the tropics.—VELVET-BEAN. FLORIDA-BEAN.

20. *GALACTIA* P. Br. Vines, or erect partially woody plants. Leaflets 3, or rarely 1, 5, or 7. Panicles raceme-like. Calyx 2-lipped, the lobes relatively long. Corolla violet red, or white: standard erect or spreading: wings and keel-petals with relatively short claws. Pod turgid, elongate.—MILK-PEA.

Standard not striped: upper calyx-lobe triangular to lanceolate.

Stem and branches reclining or prostrate.

Stem and branches twining.

Calyx 5-8 mm. long during anthesis.

Leaflets of the upper leaves with ovate, oval or oblong-ovate blades: standard mostly less than 11 mm. long

Leaflets of the upper leaves with linear blades: standard mostly over 11 mm. long.

Calyx 11-15 mm. long during anthesis.

Standard striped: upper calyx-lobe broadly ovate.

1. *G. floridana*.

2. *G. volubilis*.

3. *G. parvifolia*.

4. *G. pinetorum*.

5. *G. spiciformis*.

1. *G. floridana* T. & G. Stems hoary-pubescent: leaflets 1.5-4.5 cm. long; blades oval or oblong-oval: flowers scattered nearly the length of the rachis: calyx 7-8 mm. long; lateral lobes acuminate: keel-petals 10-11 mm. long: pods 4-5 cm. long.—Pinelands.—F. K.

2. *G. volubilis* (L.) Britton. Stems finely retrorse-hirsute: leaflets 2-5 cm. long; blades ovate-oblong or lanceolate-oblong: calyx 5-6 mm. long; lobes ciliate: keel-petals 9-11 mm. long: pods 3-5 mm. long.—Pinelands.

3. *G. parvifolia* A. Rich. Stems minutely pubescent: leaflets mostly 1-4 cm. long; blades various, linear, varying to broadest above or below the middle, or those of the lower leaves broader, varying from ovate or oval to obovate, all thin or thinnish, usually faintly veined: calyx 5-8 mm. long: keel-petals 6.5-8 mm. long: pods 3.5-4.5 mm. long.—Pinelands.—F. K. (*Cuba*.)

4. *G. pinetorum* Small. Stems finely pubescent: leaflets 1.5-5 cm. long; blades typically linear-lanceolate or linear, or rarely broader: calyx 13-16 mm. long: standard 15-20 mm. long: pods 4.5-6 cm. long.—Pinelands.

5. *G. spiciformis* T. & G. Stems retrorse-pubescent: leaflets 2.5-8 cm. long; blades oblong, oblong-oval, or elliptic: calyx 5-6 mm. long: standard 9-10 mm. long; blade auricled at the base: keel-petals 8-9 mm. long: pods 4-5 cm. long.—Hammocks and pinelands.—F. K. (*Bah., Cuba*.)

21. *BRADBURYA* Raf. Vines. Leaflets 3, or 5 or 7. Racemes few-flowered. Calyx 2-lipped, the upper lip shorter than the lobes of the lower lip, which are much longer than the tube. Corolla pink, blue, violet, or white: blade of the standard suborbicular or reniform: wings and keel-petals with short claws, the blades of the latter strongly curved, narrower than those of the former, and with a prominent auricle at the base. Pod elongate, long-beaked, its margins thickened.

1. *B. virginiana* (L.) Kuntze. Leaflets 3-11 cm. long; blades linear, often narrowly so and elongate, to ovate, with distinct scalloped marginal veins: upper

calyx-lobes nearly as long as the lower ones, like the lateral ones of the lower lip, setaceous-subulate: blade of the standard 21-25 mm. wide: seeds less than 3 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)—BUTTERFLY-PEA.

22. **CLITORIA** L. Vines or diffuse plants. Leaflets 3 or several. Racemes or panicles 1-several-flowered. Calyx 2-lipped, the lobes of the upper lip scarcely united, resembling the lateral lobes of the lower lip, but often shorter. Corolla blue, purple, red, or white: standard erect, the blade obovate: blades of the wings and the keel-petals long-clawed, those of the former not auricled, those of the latter curved. Style curved, pubescent. Pod narrow, somewhat flattened.—BUTTERFLY-PEA.

1. **C. Ternatea** L. Stem and branches high-twining: leaflets 5-7 cm. long; blades ovate, oval, or orbicular: calyx 16-19 mm. long; lobes of the upper lip acute: standard 40-50 mm. long; blades of the keel-petals longer than the claws: pods 8-11 cm. long.—Pinelands. Nat. of E. Indies.—(*Bah., Cuba, Ant.*)

23. **GLYCINE** L. Vines with tubers. Leaflets 3-9. Panicles many-flowered, dense. Calyx 2-lipped, the upper lip broad, often 2-lobed, the lower lip 3-lobed. Corolla red, purple, or chocolate-colored: standard reflexed, the blade often broader than long: blades of the wings and keel-petals short-clawed, the former auricled at the base, those of the latter spiral. Style spiral. Pod turgid. [*Apios* Moench.]

1. **G. Apios** L. Rootstocks bearing numerous short tubers 1-2 cm. thick: leaflets 5-7, or rarely 3; blades ovate to lanceolate, 3-10 cm. long: calyx 4-5 mm. long: standard 9-13 mm. long: pods 6-12 cm. long.—Everglades.—GROUNDNUT.

24. **PHASEOLUS** [Tourn.] L. Vines or diffuse plants. Leaflets 3 or rarely 1. Racemes or panicles simple or branched. Calyx short and very broad, 2-lipped, the upper lip entire or broadly 2-lobed, the lower lip 3-lobed. Corolla variously colored: blades of the wings much smaller than that of the standard, short-clawed: blades of the keel-petals not dilated at the base, short-clawed. Style curved. Seeds with rounded ends.

Perennial native plant: calyx with minute subtending bractlets: wings auricled at the base of the blade: ovary glabrous: free filament with a lanceolate base.

1. *P. sinuatus*.

Annual naturalized plant: calyx with large subtending bractlets: wings angled at the base of the blade: ovary pubescent: free filament with a lobed base.

2. *P. vulgaris*.

1. **P. sinuatus** Nutt. Leaflets 2-4 cm. long; blades deltoid-ovate in outline, 3-lobed: upper calyx-lobes rounded: standard 8-9 mm. long: wings 12-15 mm. long: pods 3.5-4 cm. long.—Hammocks and adjacent pinelands.—WILD-BEAN.

2. **P. vulgaris** L. Leaflets 5-12 cm. long; blades broadly ovate or that of the terminal one rhombic-ovate or orbicular-ovate, mostly acuminate: panicles cluster-like, few-flowered: middle lobe of the lower calyx-lip triangular-lanceolate: standard white to purple; blade 12-16 mm. wide: wings 14-17 mm. long: pods linear, straight or slightly curved.—Pinelands and hammocks. Nat. of Eu.—(*Ant.*)—STRING-BEAN. POLE-BEAN. KIDNEY-BEAN.

25. **STROPHOSTYLES** Ell. Vines or trailing plants. Leaflets 3. Racemes or panicles cluster-like. Calyx similar to that of *Phaseolus*, but the lower lip with a larger middle lobe. Corolla mainly pink-purple or white: blades of the keel-petals widely dilated at the base. Style spiral. Seeds with truncate ends.

1. *S. umbellatus* (Muhl.) Britton. Stems trailing: leaflets 1-4 cm. long; blades oblong-lanceolate, varying to ovate or lanceolate: corolla pink or pale-purple, often fading yellowish; blade of the standard reniform, 1-2 cm. broad: pods 2.5-5 cm. long.—Pinelands.—WILD-BEAN.

26. **VIGNA** Savi. Vines. Leaflets 3. Racemes or panicles cluster-like. Calyx slightly 2-lipped, the upper lip broad, shorter than the lower lip, the middle lobe of the lower lip slightly larger than the lateral ones. Corolla yellow or purple: blades of the wings and the keel-petals very broad, those of the latter with an angular or reflexed auricle at the base. Pod narrow.

1. *V. repens* (L.) Kuntze. Plants pubescent: leaflets 2-8 cm. long; blades ovate to lanceolate or linear: calyx 7-9 mm. long; lobes acute: corolla yellow; standard-blade 18-23 mm. wide; keel 16-19 mm. long, nearly as long as the wings: pods 4-6 cm. long.—Everglades, pinelands and hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

27. **DOLICHOS** L. Herbs resembling *Phaseolus*, and with a similar calyx. Corolla with a prominently appendaged standard, very broad wings and narrow keel-petals which are bent at right-angles, but not coiled. Pods linear to scimitar-shaped.

1. *D. Lablab* L. Leaflets 5-13 cm. long; blades broadly ovate, or that of the terminal one ovate-reniform, acute or short-acuminate: bracts ribbed: calyx 9-11 mm. long; lobes of the lower lip lanceolate or oblong-lanceolate: corolla purple, violet or white; blade of the standard 16-21 mm. wide; wings 17-21 mm. long: pods oblong, 6-8 cm. long, toothed-margined: seeds 10-13 mm. long, each with a white scar.—Hammocks and pinelands. Nat. of the E. Indies. F. K. (*Bah., Cuba, Ant.*)—HYACINTH-BEAN. BLACK-BEAN. EGYPTIAN-BEAN.

28. **CANAVALI** Adans. Vines. Leaflets 3. Racemes or panicles mostly erect. Calyx prominently 2-lipped, the upper lip very broad: longer than the lower lip, the 2 lobes broadly rounded, the lower lip with 3 small lobes. Corolla variously colored or white, often conspicuous: blades of the wings and keel-petals narrow, those of the latter with a prominent upcurved auricle at the base. Pod broad.

1. *C. lineata* (Thunb.) DC. Leaflets 4-10 cm. long; blades leathery, sub-orbicular to oval or obovate: calyx sparingly pubescent; lower lobes obtuse: corolla pink or rose-purple: pods 10-12 cm. long. [*C. obtusifolia* (Lam.) DC.]—Coastal sand-dunes and shores of Bay Biscayne.—F. K. (*Ber., Bah., Cuba, Ant.*)

29. **VICIA** [Tourn.] L. Trailing or climbing herbs. Leaflets few or many: blades entire, or toothed at the apex. Racemes few-many-flowered, usually 1-sided. Calyx more or less 2-lipped: lobes of the lower lip usually longer than those of the upper. Corolla variously colored or white: blades of the wings more prominently auricled than those of the keel-petals. Filaments united to near the tips. Style with a tuft of hairs at the apex, or pubescent on the side opposite the keel. Pods relatively flat.

1. *V. acutifolia* Ell. Leaflets 2-6, usually 4; blades linear to linear-oblong, acute or mucronate: calyx-lobes triangular, the lower one longer than the lateral ones: standard 8-9 mm. long: keel about 6 mm. long: pods 2.8-3 cm. long.—Everglades.—VETCH.

## Order GERANIALES.

Herbs, shrubs, or trees. Leaves alternate or opposite: blades simple or compound. Flowers perfect, monoecious, or dioecious, mostly regular. Calyx of distinct sepals. Corolla of distinct or nearly distinct petals, or rarely wanting. Androecium of as many stamens as there are sepals or twice as many, or rarely more. Gynoecium of 2 or several united carpels. Ovary superior. Fruit various.

Plants destitute of secreting glands or cells in the tissues.

Sepals without dorsal glands.

Leaves simple: stamens 5.

Leaves compound: stamens 10-15.

Sepals bearing 1 or 2 dorsal glands.

Plants with secreting glands, these often in the leaves, or only in the bark.

Filaments distinct, nearly or quite to the base.

Leaf-blades punctate by oil-glands.

Leaf-blades not punctate.

Gynoecium of distinct carpels.

Gynoecium of more or less united carpels.

Bitter-barked shrubs or trees with oil-sacs in the bark.

Resiniferous shrubs or trees.

Filaments united into a cup or tube, wholly or in part.

Fam. 1. LINACEAE.

Fam. 2. OXALIDACEAE.

Fam. 3. MALPHIGIACEAE.

Fam. 4. RUTACEAE.

Fam. 5. SUBRANACEAE.

Fam. 6. SIMAROUBACEAE.

Fam. 7. BURSERACEAE.

Fam. 8. MELIACEAE.

## FAMILY 1. LINACEAE. FLAX FAMILY.

Herbs or woody plants. Leaves alternate or opposite: blades simple. Flowers perfect, regular. Calyx of 4-6 deciduous or persistent sepals. Corolla of 4-6 ephemeral petals. Receptacle glandular. Androecium of 4-6 stamens, often with staminodia: filaments united at the base. Gynoecium of 2-5 partially united carpels, the styles wholly or partially distinct. Fruit capsular.

1. **CATHARTOLINUM** Reichenb. Herbs. Leaves alternate or occasionally opposite, sometimes with stipular glands. Sepals 5, the inner ones at least with gland-tipped teeth. Petals yellow, sometimes pubescent within near the base. Androecium of 5 stamens, generally without staminodia. Styles 5, distinct or united. Capsule 5-celled, or completely or incompletely 10-celled by false partitions.—FLAX. YELLOW-FLAX.

Styles distinct: corolla less than 1 cm. wide: capsules spheroidal.

Staminodia wanting: stipular glands wanting.

Staminodia present, tooth-like: stipular glands present.

Styles united: corolla over 2 cm. wide: capsule ovoid.

1. *C. Curtissii*.

2. *C. arenicola*.

3. *C. Carteri*.

1. **C. Curtissii** Small. Stems 2-6.5 dm. tall, corymbose above: leaves mainly alternate, ascending or erect; blades oblong-spatulate to oblanceolate or linear above, 0.5-1.5 cm. long: outer sepals ovate, 2-2.5 mm. long: capsules spheroidal, 2.5 mm. broad.—Everglades and low pinelands.—(Bah.)

2. **C. arenicola** Small. Stems 2-7 dm. tall, corymbose above: leaves alternate, erect or ascending; blades subulate or subulate-acicular, mostly less than 1 cm. long: outer sepals broadly oblong to oblong-ovate, 2.5-3 mm. long: capsules spheroidal, about 2 mm. broad.—Low pinelands.—F. K.

3. **C. Carteri** Small. Stems 1-3 dm. tall: leaf-blades narrowly linear to linear-subulate, mostly 1-2.5 cm. long: outer sepals lanceolate to ovate-lanceolate, 4.5-5 mm. long: capsules about 4 mm. long.—Pinelands.



FAMILY 2. **OXALIDACEAE.** WOOD-SORREL FAMILY.

Herbs or rarely shrubs, the sap sour. Leaves mostly alternate: blades 3-several-foliolate or 1-foliolate, the leaflets commonly notched at the apex. Flowers perfect, essentially regular, cymose. Calyx of 5 persistent sepals. Corolla of 5 white or colored petals. Androecium of 10-15 unequal stamens: filaments partially united. Gynoecium of 5 partially united carpels: styles distinct. Fruit a loculicidal capsule, or rarely baccate.

1. **XANTHOXALIS** Small. Herbs. Leaf-blades palmately 3-foliolate: leaflets notched at the apex. Flowers in umbel-like or dichotomous cymes. Sepals 5, not tubercle-bearing. Petals broadened upward. Filaments usually unappendaged. Capsule elongate, erect.

1. **X. corniculata** (L.) Small. Stem and branches 5-40 cm. long, with spreading hairs: leaflets deep-green; blades 5-12 mm. broad, or larger, ciliate: sepals 3-4 mm. long: petals 7-10 mm. long.—Hammocks and pinelands. F. K. (*Ber., Bah., Cuba, Ant.*)—SOOR-GRASS. YELLOW WOOD-SORREL.

FAMILY 3. **MALPIGHIACEAE.** MALPIGHIA FAMILY.

Shrubs or trees, or partially woody herbs or vines. Leaves opposite: blades simple. Flowers usually perfect, sometimes cleistogamous. Calyx of 5, often gland-bearing, sepals. Corolla of 5 usually clawed petals, or wanting. Androecium of 5-10 perfect or partially sterile stamens. Gynoecium of 2-4, usually 3, distinct or united carpels. Fruit drupaceous, capsular, or nut-like.

1. **BYESONIMA** L. C. Rich. Shrubs or trees. Flowers in terminal racemes or panicles. Petals white, reddish, or purplish, reflexed. Stigmas acute. Carpels permanently united.

1. **B. lucida** (Sw.) DC. Evergreen shrub, 3-18 dm. tall, or a small tree: leaf-blades spatulate to obovate-spatulate, 2-4 cm. long, lustrous above: racemes 2-4 cm. long: petals white, turning yellow or rose, 7 mm. long, the blades reniform: drupes 9-12 mm. in diameter or rarely smaller.—Hammocks and low pinelands.—F. K. (*Bah., Cuba, Ant.*)—LOCUSTBERRY.

FAMILY 4. **RUTACEAE.** RUE FAMILY.

Shrubs or trees, or rarely herbs, often prickly-armed, and with glandular-punctate tissues. Leaves alternate or opposite: blades simple or pinnately compound, sometimes 1-foliolate. Flowers perfect or polygamous, mostly regular. Calyx of 3-5, or rarely more, sepals, or wanting. Corolla of 3-5, or rarely more, petals. Androecium of as many stamens as there are sepals or petals or rarely twice as many. Gynoecium of 2-5 distinct or united carpels. Fruit capsular, samaroid, drupaceous, or baccate.

Fruit dry, capsular.

Fruit pulpy, drupaceous or baccate.

Stamens 8: fruit a drupe: leaf-blades (ours) 3 or 5-foliolate.

Stamens 20-60: fruit a berry: leaf-blades 1-foliolate.

1. **ZANTHOXYLUM.**

2. **AMYRIS.**

3. **CITRUS.**

1. **ZANTHOXYLUM** [Catesby] L. Shrubs or trees. Leaf-blades pinnate, sometimes 1-foliolate. Flowers polygamous, in short, axillary spikes, or terminal corymb-like panicles or cymes. Sepals present or wanting. Petals 3-5, mostly erect. Mature carpels solitary, or 2-5 together. [*Fagara* L.]

Flowers in short, axillary spikes: sepals, and petals, 4: seeds usually less than 3 mm. wide.

1. *Z. Fagara*.

Flowers in terminal corymb-like panicles or cymes: sepals, and petals, 3 or 5: seeds over 3 mm. wide.

Sepals, and petals, 3: leaf-blades equally pinnate.

2. *Z. coriaceum*.

Sepals, and petals, 5: leaf-blades unequally pinnate.

3. *Z. Clava-Herculis*.

1. *Z. Fagara* (L.) Sarg. Shrub, or tree sometimes 10 m. tall, the trunk slender, often reclining: leaves 2.5–11 cm. long, the rachis winged; blades of the lateral leaflets mostly obovate to oval, 1–2.5 cm. long, shallowly crenate: petals 1.5–2 mm. long, or larger: mature carpels subglobose, 3.5–4 mm. long: seeds 2–2.5 mm. wide.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—WILD-LIME.

2. *Z. coriaceum* A. Rich. Shrub, or tree becoming 7 m. tall: leaves 6–15 cm. long; blades of the leaflets leathery, rigid, obovate to cuneate or oblong with acuminate base, 2–6 cm. long: petals 2–3 mm. long: mature carpels 5–6 mm. long: seeds about 3.5 mm. wide.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—HERCULES'-CLUB.

3. *Z. Clava-Herculis* L. Shrub, or tree sometimes 17 m. tall, the prickles raised on corky bases: leaves 1–3 dm. long; blades of the lateral leaflets ovate, 4–5 cm. long, appressed-serrate: petals 3–3.5 mm. long: mature carpels mostly 2–5 together, 4–6 mm. long: seeds 4–5 mm. wide.—HAMMOCKS.—PRICKLY-ASH. TOOTHACHE-TREE.

2. **AMYRIS** [P. Br.] L. Shrubs or trees. Leaf-blades pinnate, often 1-foliolate, the petiole wingless. Flowers perfect or polygamous, paniculate. Sepals 4 or 5. Petals 4 or 5, very small. Ovary 1-celled. Drupe with a single seed.

Drupe globose or nearly so: ovary glabrous: inflorescence-branches glabrous or puberulent.

1. *A. elemifera*.

Drupe of an obovoid type: ovary pubescent: inflorescence-branches hispidulous.

2. *A. balsamifera*.

1. *A. elemifera* L. Shrub, or tree becoming 17 m. tall: leaflets 3 or 5; blades ovate to rhombic-ovate, 2–8 cm. long: petals 2.5–3.5 mm. long: drupes 4–8 mm. long, black beneath the bloom.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—TORCHWOOD.

2. *A. balsamifera* L. Shrub, or small tree sometimes 10 m. tall: leaflets 3–5; blades ovate, sometimes narrowly so, to rhombic-ovate, 5–13 cm. long, dull beneath: drupes obovoid-oblong to obovoid, 6–14 mm. long.—HAMMOCKS.—(*Cuba, Ant.*)

3. **CITRUS** L. Shrubs or trees. Leaf-blades 1-foliolate, the petiole often winged. Flowers perfect, axillary. Sepals united. Petals 5, or 4–8, mostly wax-like. Ovary several-celled. Berry several-seeded. The following species, apparently natives of Asia, are widely cultivated, and naturalized.

Berry of a globose or spheroidal type, not mamillate at the apex.

Wings of the petioles usually broad: pulp of the berry bitter and sour.

1. *C. vulgaris*.

Wings of the petioles usually narrow: pulp of the berry sweet or sour.

2. *C. Aurantium*.

Berry of an elongate type, commonly mamillate at the apex.

Berry relatively small, with a relatively thin rind: the pulp well developed, with abundant juice, and very acid.

Corolla 2–2.5 cm. wide: leaflets with a rounded apex.

3. *C. Lima*.

Corolla 3–5 cm. wide: leaflets with an acute apex.

4. *C. Limonum*.

Berry relatively large, with a thick rind, the pulp only slightly developed, with little juice, and not very acid.

5. *C. Medica*.

1. *C. vulgaris* Risso. Small tree with sharp thorns: leaflets ovate to oblong, 6–12 cm. long, often acuminate, the petioles usually broadly winged: flowers in small cymes: sepals often obtusish: berries dark-orange or reddish, the rind

thick, the pulp sour and bitter.—Hammocks.—(*Ber., Cuba, Ant.*)—BITTER-SWEET ORANGE.

2. *C. Aurantium* L. Small tree with short sharp thorns: leaflets oval, oblong-ovate, or ovate, 6.5–13 cm. long, often acute or rounded, the petioles usually narrowly winged: flowers in axillary clusters: sepals often acute: berries mostly yellow, the rind usually thin, the pulp sour or sweet.—Hammocks. (*Ber., Cuba, Ant.*)—SWEET-ORANGE.

3. *C. Lima* Lunan. Small tree or straggling shrub, with numerous sharp thorns: leaflets oval to oblong-elliptic, 6.5–9 cm. long, commonly rounded at the apex, crenulate: petioles narrowly winged: flowers in clusters of 3–10: petals white without and within: berries small, mostly less than 6 cm. long, the rind very thin, the pulp greenish.—Hammocks.—(*Cuba, Ant.*)—LIME.

4. *C. Limonum* (L.) Risso. Small tree or spreading shrub, less thorny than *C. Lima*; leaflets oblong-elliptic or ovate-oval, 5–11 cm. long, commonly acute or acuminate at the apex, crenate: petioles broadly winged: flowers solitary or 2 together: petals purplish without, white within: berries large, mostly over 6 cm. long, the rind relatively thin, the pulp yellowish.—Hammocks.—(*Ber., Cuba, Ant.*)—LEMON.

5. *C. Medica* L. Small tree or shrub, sometimes with stout thorns: leaflets oblong to elliptic, or slightly broadened upward, 12–20 cm. long, rounded and often emarginate at the apex, serrulate-crenate, dull-green: flowers in clusters of 3–10: petals purple-tinged without, white within: berries oblong or oval, usually very large, mostly 12–20 cm. long, often coarsely wrinkled, the rind very thick.—Hammocks.—(*Ant.*)—CITRON.

#### FAMILY 5. SURIANACEAE. BAY-CEDAR FAMILY.

Shrubs or trees of coastal sands. Leaves alternate: blades entire. Flowers perfect, solitary or few in terminal clusters. Calyx of 5 persistent sepals. Corolla of 5 clawed petals. Androecium of 10 stamens, those opposite the petals more or less reduced. Gynoecium of 5 distinct carpels opposite the petals. Ovules 2, side by side. Fruit achene-like.

1. *SURIANA* [Plum.] L. Shrubs with erect stems, or trees with wide-spreading branches, the bark flaky. Leaves numerous, fleshy. Fruits seated in the persistent calyx.

1. *S. maritima* L. Shrub, or tree 8 dm. tall, the wood very hard and heavy: leaves fleshy, appressed-pubescent, approximate; blades linear-spatulate, 1.5–4 cm. long: sepals ovate, 6–8 mm. long: petals yellow, about as long as the sepals: mature carpels 4–4.5 mm. long.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)—BAY-CEDAR.

#### FAMILY 6. SIMAROUBACEAE. QUASSIA FAMILY.

Shrubs, trees, or rarely herbs. Leaves alternate or rarely opposite: blades pinnately compound, 1–3-foliolate or rarely simple. Flowers polygamous, dioecious, or rarely perfect, solitary, spicate, racemose, or paniculate. Calyx of 3–5 sepals. Corolla 3–5 petals, or wanting. Androecium of as many stamens as there are sepals or twice as many, or rarely very many. Gynoecium of 2–5 more or less united carpels. Ovary usually lobed. Stigmas mostly introrse. Fruit a drupe or a samara, or baccate or capsular.

Fruit drupaceous: flowering panicles erect.

Carpels becoming distinct, forming simple drupes: leaf-blades equally pinnate.

Carpels permanently united, forming a berry: leaf-blades un-

equally pinnate. Fruit samaroid: flowering racemes drooping.

1. SIMAROUBA.
2. PICRAMNIA.
3. ALVARADOA.

1. **SIMAROUBA** Aubl. Trees. Leaf-blades abruptly pinnate, the leaflets thick. Flowers monoecious or dioecious, paniculate. Sepals 4 or 5, short. Petals 4 or 5, much larger than the sepals, imbricate. Stamens 8 or 10, each with a fringed appendage at the base. Ovary 4-5-celled, scarcely lobed at the apex: style very short. Fruit a cluster of 5, or fewer, drupes, with the style-base lateral.

1. **S. glauca** DC. Tree sometimes 16 dm. tall: leaflets 6-12; blades oblong or nearly so, 4-8 cm. long, entire: drupes oval, about 2 cm. long, scarlet or dark-purple.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—PARADISE-TREE. BITTER-WOOD.

2. **PICRAMNIA** Sw. Shrubs or trees. Leaf-blades unequally pinnate, the leaflets thickish. Flowers dioecious, spicate or racemose. Sepals 3-5, short. Petals 3-5, imbricate or wanting. Stamens 3-5, unappendaged. Ovary 2-3-celled, not lobed: style very short. Fruit a berry.

1. **P. pentandra** Sw. Shrub or small tree: leaflets 5-7; blades elliptic to oblong-elliptic, or rarely ovate, 5-10 cm. long, lustrous above: berries oblong, 10-15 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—BITTERBUSH.

3. **ALVARADOA** Liebm. Shrubs or trees. Leaf-blades unequally pinnate, the leaflets thinnish. Flowers dioecious, borne in spreading or drooping racemes. Sepals 5, short. Petals wanting. Stamens 5, alternating with 5 staminodia. Ovary flattened or 3-angled, 2-3-celled, notched at the apex. Fruit capsular.

1. **A. amorphoides** Liebm. Shrub or small tree: leaves approximate at the ends of the branches; leaflets numerous, the blades 1-2 cm. long, those of the lateral leaflets mostly oblong or oval: flowers numerous, slender-pedicelled: sepals ovate, about 1.5 mm. long: filaments pubescent: capsules oblong or ovate-oblong, 12-14 mm. long, ciliate, notched.—Hammocks.—(*Bah., Cuba.*)

#### FAMILY 7. BURSERACEAE. TORCH-WOOD FAMILY.

Trees with a resinous sap. Leaves alternate: blades pinnate, rarely 1-3-foliolate. Flowers perfect or polygamo-dioecious, racemose or paniculate. Calyx of 3-6 sepals. Corolla of 3-6 petals. Androecium of 6-12 stamens. Gynoecium of 2-5 united carpels. Fruit drupaceous, the epicarp sometimes valvate.

1. **ELAPHRIMUM** Jacq. Trees. Leaves approximate at the ends of the branches: leaflets thick. Sepals 4-6, imbricate. Petals 4-6, mostly valvate. Stamens 8-12, erect. Ovary 3-5-celled. Drupe with a valvate epicarp. [*Bursera* Jacq.]

1. **E. Simaruba** (L.) Rose. Tree, becoming 20 m. tall: leaflets 3-7; blades oval or elliptic, varying to ovate or obovate, 3-5 cm. long, entire: racemes 5-10 cm. long: petals 2-2.5 mm. long: drupes oblong, 8-11 mm. long, or rarely smaller, the epicarp 3-valved. [*B. Simaruba* (L.) Sarg.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—WEST INDIAN BIRCH. GUMBO-LIMBO. GUM ELEMI.

## FAMILY 8. MELIACEAE. MAHOGANY FAMILY.

Shrubs or trees, or partially woody herbs. Leaves alternate: blades pinnately 1-3-compound. Flowers perfect or polygamo-dioecious, paniculate. Calyx of 3-5 sepals. Corolla of 3-5 petals. Androecium of 8-10, or rarely fewer or more, stamens, with the filaments united into a tube. Gynoecium of 3-5 united carpels. Ovary 3-5-celled. Fruit a berry, a capsule, or a drupe.

1. **SWIETENIA** Jacq. Trees, with hard wood. Leaf-blades once equally pinnate. Sepals 5. Petals 5. Staminal-tube short, the lobes entire. Stigma discoid. Capsule woody.

1. **S. Mahagoni** Jacq. Tree becoming 25 m. tall: leaflets 4-8; blades leathery, 3-8 cm. long, entire: petals usually 3-4 mm. long: capsules ovoid, 6-12 cm. long, erect.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—MAHOGANY. MADEIRA-REDWOOD.

## Order POLYGALALES.

Herbs, shrubs, or trees. Leaves alternate, opposite, or whorled, sometimes scale-like. Flowers perfect. Perianth mostly irregular, each whorl of 5, or rarely 3 or 4 parts. Androecium of 6, 8, or 10 stamens, the filaments often partially united. Anthers opening by terminal pores or cracks. Gynoecium of 2 united carpels, or rarely of more. Fruit capsular.

## FAMILY 1. POLYGALACEAE. MILKWORT FAMILY.

Leaf-blades mostly entire. Flowers solitary, spicate, or racemose, irregular. Calyx of mostly 5 sepals, the 2 inner petaloid. Corolla of 5, or often of 3, partially united petals, the lower one keel-like. Androecium of 6-8 stamens, partially coherent with the petals. Anthers 1-celled. Capsule usually 2-seeded.

1. **POLYGALA** [Tourn.] L. Herbs or woody plants. Leaf-blades mostly entire. Spikes or racemes lax or dense. Sepals 5, the 2 lateral ones (wings) larger than the others. Petals 3, or rarely 5, the middle one (keel) commonly lobed or crested at the apex. Stamens 8 or 6: filaments united into a tube or into 2 sets. Style curved. Capsule flattened. Seed usually carunculate.—MILKWORT.

Keel without beak or crest.

Wings greenish or purple-tinged: sepals over 2 mm. long.

Wings purple: sepals less than 2 mm. long.

Wings shorter than the capsule: capsules deeply notched.

Wings much longer than the capsule: capsules shallowly notched.

Keel with a papillose or tufted beak.

Sepals not decurrent on the pedicels.

Wings obtuse.

Corolla and keel greatly elongate, about twice the length of the wings.

Corolla and keel short, about as long as the wings or shorter.

Leaves scale-like or obsolete: spikes short.

Leaves conspicuous, numerous: spikes elongate.

Wings acuminate.

Sepals decurrent on the pedicel.

Racemes solitary at the ends of the stem and branches.

Wings acuminate: larger sepals over  $\frac{1}{2}$  the length of the wings: flowers green.

1. *P. grandiflora*.

2. *P. Krugii*.

3. *P. corallicola*.

4. *P. incarnata*.

5. *P. setacea*.

6. *P. flagellaris*.

7. *P. cruciata*.

8. *P. arcticola*.

- Wings abruptly pointed: larger sepal less than  $\frac{1}{2}$  the length of the wings: flowers yellow.
- Racemes corymbose at the ends of the stem and branches.  
Flowers white or greenish.  
Wings acuminate: racemes short.  
Wings cuspidate: racemes elongate.  
Flowers yellow.
9. *P. Rugelii*.  
10. *P. Baldwinii*.  
11. *P. Carteri*.  
12. *P. ramosa*.
1. *P. grandiflora* Walt. Plants 2-5 dm. tall: blades of the upper leaves elliptic, elliptic-lanceolate, or lanceolate, loosely ascending or spreading: flowers greenish or sometimes purple-tinged: sepals 2.5-3 mm. long at maturity: wings 5-6 mm. long at maturity: capsules 4-4.5 mm. long.—Everglades and low pinelands.
2. *P. Krugii* Chodat. Plants 3-4 dm. tall: blades of the lower leaves spatulate to linear-spatulate, those of the upper leaves narrowly elliptic to linear-elliptic or narrowly linear-lanceolate: flowers purple, often pale: sepals about 1.5 mm. long: wings broadly obovate, 2.5-3 mm. long at maturity: capsules about 3 mm. long.—Banks of the Miami river and coastal sand-dunes. (*Bah.*)
3. *P. corallicola* Small. Plants 2-4.5 dm. tall: blades of the upper leaves linear, typically narrowly so, or filiform-linear: flowers purple: sepals 1-1.5 mm. long at maturity: wings 3.5-4 mm. long at maturity: capsules 3-3.5 mm. long.—Pinelands and adjacent Everglades.—F. K. (*Bah., Cuba.*)
4. *P. incarnata* L. Plants 2-7 dm. tall: leaf-blades linear-subulate to subulate: flowers pink, purple, or white: sepals 2-2.5 mm. long, acute: wings lanceolate to spatulate, 3-4 mm. long: keel 6-8 mm. long, the claw longer than the body: lateral petals 5-7 mm. long: capsules ovoid, 3-4 mm. long.—Pinelands.
5. *P. setacea* Michx. Plants 1-5 dm. tall: leaf-blades mere subulate scales: flowers pinkish or whitish: sepals 1-1.5 mm. long, the upper one much broader than the lower ones: wings narrowly obovate, about 2 mm. long, usually abruptly pointed: keel about 2 mm. long: lateral petals 1.5-2 mm. long: capsules deltoid-ovoid, about 1.5 mm. long.—Pinelands.
6. *P. flagellaris* Small. Plants with decumbent branches 2-6 dm. long: blades of the lower leaves spatulate or broadly spatulate, those of the upper ones narrowly so, or linear-spatulate: flowers whitish or pale-green: sepals 2-2.5 mm. long: wings oval to obovate, 2.5-3 mm. long: keel 2.5-3 mm. long: capsules oblong, about 2.5 mm. long.—Pinelands.
7. *P. cruciata* L. Plants 0.5-4 dm. tall: blades of the lower leaves spatulate or obovate, those of the upper ones linear-spatulate to almost linear: flowers purplish-rose or greenish, or purple: sepals 1-1.5 mm. long: wings deltoid or hastate-deltoid, 4.5-6 mm. long, caudate-acuminate: capsules obovate or cuneate-obovate.—Everglades.
8. *P. arenicola* Small. Plants 0.2-0.5 dm. tall: leaf-blades oblanceolate to linear-oblanceolate: racemes green: upper sepal lanceolate: wings lanceolate, gradually long-acuminate: capsules about 2 mm. wide.—Pinelands.
9. *P. Rugelii* Shuttlw. Plants 3-7 dm. tall: leaf-blades various, those of the lower leaves spatulate, those of the upper leaves oblanceolate to lanceolate: racemes bright yellow: sepals about 2 mm. long: wings obovate to elliptic or elliptic-lanceolate, 6-7 mm. long, abruptly pointed: capsules over 1.5 mm. wide.—Everglades.
10. *P. Baldwinii* Nutt. Plants 2-6 dm. tall: leaf-blades various, those of the lower leaves spatulate to obovate, those of the upper leaves narrowly spatulate to lanceolate: racemes blunt, white: wings ovate-lanceolate to narrowly ovate, acuminate: capsules less than 1 mm. long: seeds globular, about 0.5 mm. long.—Pinelands.
12. *P. ramosa* Ell. Plants 1-5 dm. tall: leaf-blades various, those of the lower leaves spatulate, those of the upper linear-oblong to almost linear:

racemes acute, greenish: wings oblong, sometimes broadly so, abruptly pointed: capsules fully 1 mm. wide: seeds oval, about 1 mm. long.—Everglades and low pinelands.—F. K.

12. *P. ramosa* Ell. Plants 1-5 dm. tall: leaf-blades various; those of the lower leaves spatulate or obovate, those of the upper leaves oblanceolate to linear: racemes bright yellow: wings acuminate: keel about 2 mm. long: capsules about 1 mm. wide: seeds pubescent, about 0.5 mm. long.—Everglades.

### Order EUPHORBIALES.

Herbs, shrubs or trees. Leaves various, sometimes reduced to scales or almost wanting. Flowers mainly monoecious or dioecious, regular. Calyx of several sepals. Corolla of several petals, or often wanting. Androecium of more than one stamen, except when the staminate flowers are scattered over the inside of an involucre. Filaments distinct or united. Anthers opening by longitudinal or transverse valves. Gynoecium 2-several-carpellary or 1-carpellary, superior. Styles or stigmas usually distinct and cleft, or foliaceous. Ovules 1, 2 or 3 in each cavity. Fruit capsular, sometimes achene-like.

#### FAMILY 1. EUPHORBIACEAE. SPURGE FAMILY.

Plants often with a milky sap. Leaves opposite, whorled or alternate: blades entire, toothed, or lobed. Flowers solitary or variously clustered, or much reduced and borne in an involucre. Fruit usually depressed or slightly elongate.

Flowers not in an involucre: calyx of several sepals.

Ovules and seeds 2 in each cavity.

Monoecious or rarely dioecious: ovary 3-celled: fruit capsular or baccate.

Androecium and gynoecium surrounded by a disk at the base.

Anthers opening horizontally: fruits capsular.

1. PHYLLANTHUS.

Anthers opening vertically: fruits baccate.

2. CICCA.

Androecium and gynoecium not surrounded by a disk at the base.

3. BREYNIA.

Dioecious: ovary 1- or 2-celled: fruit drupaceous.

4. DRYPETES.

Ovules and seeds solitary in each cavity.

Flowers either staminate or pistillate or both in more or less elongated spikes or racemes (pistillate basal).

Corolla present in either staminate or pistillate flowers or in both (except in *Croton punctatus*).

Stamens 5-6: filaments distinct.

5. CROTON.

Stamens 10: filaments monadelphous.

6. DITAXIS.

Styles 2-cleft: petals distinct.

7. CAPERONIA.

Styles several-cleft: petals united at the base.

Corolla wanting.

Styles 2-3: ovary 2-3-celled.

Stamens numerous, 8-20, rarely few in some flowers.

8. ACALYPHA.

Stamens 1-5.

Pistillate flowers and capsules pedicelled.

Calyx manifest.

9. TRAGIA.

Calyx obsolete or rudimentary.

10. GYMNANTHES.

Pistillate flowers and capsules sessile.

11. STILLINGIA.

Styles 6-8: ovary 6-8-celled.

12. HIPPOMANE.

Flowers either staminate or pistillate, or both, in cymes or short racemes.

Leaf-blades peltate.

13. RICINUS.

Leaf-blades not peltate.

Flowers in forking cymes.

Stamens 10 or more: petals wanting.

14. CNIDOSCOLUS.

- Stamens 10 or fewer: petals present.  
 Flowers in simple or branched racemes.  
 Flowers in involucre: calyx represented by a scale.  
 Involucre regular or nearly so, nearly or quite equilateral.  
 Glands of the involucre with petal-like appendages,  
 these sometimes much reduced.  
 Leaves all opposite.  
 Leaves alternate or scattered at least below the  
 inflorescence.  
 Glands of the involucre without petal-like appendages,  
 entirely naked, sometimes with crescent-like horns.  
 Stem topped by an umbel: stipules none: involucre  
 in open cymes, each with 4 glands and entire or  
 toothed lobes.  
 Stem not topped by an umbel: stipules gland-like:  
 involucre in cluster-like cymes, each with a  
 single gland or rarely 4 glands and fimbriate lobes.  
 Involucre irregular, very oblique.

15. JATROPHA.  
 16. MANIHOT.  
 17. CHAMAESTICE.  
 18. TITHYMALOPSIS.  
 19. TITHYMALUS.  
 20. POINSETTIA.  
 21. PEDILANTHUS.

1. **PHYLLANTHUS** L. Herbs or partially woody plants. Leaf-blades entire. Flowers apetalous. Staminate flowers with 5 or 6 sepals and usually 3 stamens. Pistillate flowers with 5 or 6 sepals and a 3-celled ovary. Fruit capsular.

- Plants annual: mature pistillate calyx 2.5 mm. wide.  
 Leaf-blades cuneate to obovate: capsules about 1.5 mm. wide.  
 Leaf-blades oblong or nearly so: capsules about 2 mm. wide.  
 Plants perennial: mature pistillate calyx 3 mm. wide.  
 Leaf-blades oblong or nearly so: staminate calyx 2 mm. wide;  
 sepals ovate to orbicular-ovate.  
 Leaf-blades cuneate: staminate calyx 1.5 mm. wide; sepals  
 suborbicular.

1. *P. saxicola*.  
 2. *P. Niruri*.  
 3. *P. Garberi*.  
 4. *P. pentaphyllus*.

1. ***P. saxicola*** Small. Plants 0.5–3.5 dm. tall: leaf-blades cuneate to obovate, abruptly narrowed at the base: staminate calyx 1.5 mm. wide; sepals suborbicular: mature pistillate calyx 2.5 mm. wide; sepals ovate to oblong-ovate: capsules about 1.5 mm. wide.—Everglades and wet hammocks.—F. K. (*Bah.*)

2. ***P. Niruri*** L. Plants 1–3 dm. tall: leaf-blades thin, oblong or nearly so: staminate calyx 1.5 mm. wide; sepals orbicular-ovate: mature pistillate calyx 2.5 mm. wide; sepals oblong: capsules about 2 mm. wide.—Pinelands and waste places.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. ***P. Garberi*** Small. Plants 1–3 dm. tall: leaf-blades thickish oblong or nearly so: staminate calyx 2 mm. wide; sepals ovate to orbicular-ovate: mature pistillate calyx 3 mm. wide; sepals oblong to ovate: capsules 2.5–3 mm. wide.—Coastal sand-dunes.—F. K.

4. ***P. pentaphyllus*** Wright. Plants 0.5–3.5 dm. tall: leaf-blades thinnish, mainly short-cuneate: staminate calyx 1.5 mm. wide; sepals suborbicular: mature pistillate calyx 3 mm. wide; sepals obovate to elliptic: capsules less than 1.5 mm. wide. [*P. radicans* (Muell. Arg.) Small.]—Pinelands. F. K. (*Cuba.*)

2. **CICCA** L. Shrubs or trees. Leaf-blades entire. Flowers similar to those of *Phyllanthus*, but with vertically opening anther-sacs. Fruit baccate.

1. ***C. disticha*** L. Shrub or small tree, the branchlets spreading or drooping, glabrous: leaves various, those near the base of the branchlets with suborbicular to orbicular-ovate blades 1.5–3 cm. long, those above them with larger ovate to oblong-lanceolate blades: larger sepals suborbicular to orbicular-ovate, 1.5–2 mm. long: berries depressed, 1.5–2 cm. broad.—Pinelands and waste places. F. K. Nat. of the E. Indies, and cultivated.—(*Bah., Cuba, Ant.*)—OTAHEITE-GOOSEBERRY.

3. **BREYNIA** Forst. Shrubs or trees. Leaf-blades broad, entire. Flowers solitary in the leaf-axils, or the staminate few together. Staminate flowers



with a turbinate calyx-tube and 6 minute broad lobes surrounding the minute orifice: stamens erect, the narrow anthers opening vertically. Pistillate flowers with a short, broad calyx-tube and 6 very broad imbricate lobes. Berry depressed.

1. *B. nivosa* (W. J. Smith) Small. An irregularly and loosely branched shrub, the branches dark-red: leaves somewhat distichously spreading; blades oval, varying to ovate or obovate, green and white, variegated with red and pink: staminate calyx about 3 mm. wide, the lobes very shallow: pistillate calyx 8-10 mm. wide, the lobes reniform: capsules 9-12 mm. broad. [*Phyllanthus nivosus* W. J. Smith.]—Pinelands and waste places. Nat. of the South Sea Islands, and cultivated.—(*Cuba, Ant.*)—SNOW-BUSH.

4. *DRYPETES* Vahl. Shrubs and trees. Leaf-blades entire or sinuate. Flowers apetalous. Staminate flowers in rather dense clusters, with 4-8 sepals and 4-10 stamens. Pistillate flowers few in a cluster, with 4-8 sepals and a 1-2-celled ovary. Fruit a drupe.

1. *D. lateriflora* (Sw.) Krug & Urban. Shrub, or tree becoming 10 m. tall: leaf-blades oblong or elliptic: sepals 4: stamens 4: drupes 9-11 mm. in diameter.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

5. *CROTON* L. Herbs or shrubs. Leaf-blades entire, toothed, or lobed. Flowers monoecious or rarely dioecious, usually spicate or racemose. Staminate flowers with 4-6, usually 5, sepals, small often rudimentary petals alternating with glands, and 6 stamens. Pistillate flowers with 5-10 sepals, usually no petals, and a 3-celled ovary. Fruit a capsule.

Petals present in the staminate flowers, wanting or rudimentary in the pistillate.

Leaf-blades entire: pistillate calyx not accrescent.

Leaf-blades narrowly linear, glabrate above, yellow-pubescent beneath.

1. *C. linearis*.

Leaf-blades narrowly oblong, stellate above, white-pubescent beneath.

Leaf-blades toothed: pistillate calyx accrescent.

Seeds oblong, minutely punctate, dull: leaf-blades crenate.

2. *C. Fergusonii*.

3. *C. arenicola*.

Seeds oval or ovoid, smooth and shining: leaf-blades serrate or crenate-serrate.

4. *C. glandulosus*.

5. *C. punctatus*.

Petals wanting in both the staminate and the pistillate flowers.

1. *C. linearis* Jacq. Shrub 6-20 dm. tall: leaf-blades narrowly linear, 4-8 cm. long: staminate racemes 4-8 cm. long or longer; sepals triangular; petals spatulate, surpassing the sepals, obtuse: stamens about 15: pistillate racemes 4-5 cm. long: capsules subglobose, 5 mm. high, yellowish floccose: seeds broadly oblong, about 3 mm. long.—Pinelands and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. *C. Fergusonii* Small. Shrub 4-12 dm. tall: leaf-blades narrowly oblong to broadly linear, 3-6 cm. long: staminate racemes 3-5 cm. long; sepals deltoid, acute; petals spatulate, 2.5-3 mm. long, surpassing the sepals, ciliate; stamens about 15: pistillate racemes 2-3 cm. long: capsules subglobose, about 5 mm. long: seeds 3.5-4 mm. long.—Pinelands.

3. *C. arenicola* Small. Plant 1.5-4.5 dm. tall: leaf-blades ovate to oblong-ovate, 1-3 cm. long, blunt, coarsely toothed: staminate sepals oblong or oval, acute; petals oblong to oblanceolate: stamens 9-12: pistillate flowers solitary or 2-3 below the staminate; sepals spatulate, accrescent: capsules globose-oval, 4.5-5 mm. long: seeds 3-3.5 mm. long.—Pinelands and sand-dunes.—F. K.—F. K.

4. *C. glandulosus* L. Plant 1 m. tall or less: leaf-blades oblong, varying to oblong-ovate or oblong-lanceolate, mostly 2-6 cm. long, serrate or crenate-serrate: staminate sepals ovate to deltoid, acute; petals oblong: stamens 6-11:

pistillate flowers clustered: sepals linear or nearly so, accrescent: capsules subglobose or oblong-globose, 4-5 mm. in diameter: seeds 3.5-4 mm. long, mottled.—Hammocks and cultivated grounds.—F. K. (*Cuba, Ant.*)

5. *C. punctatus* Jacq. Plants 5-12 dm. tall: leaf-blades elliptic, oblong, or ovate, 1-5 cm. long, entire or merely undulate: pistillate sepals triangular, nearly equal; stamens normally 12, barely exerted; filaments pubescent: pistillate flowers solitary or 2 or 3 together; sepals oblong or cuneate, not accrescent: capsules subglobose, 5-8 mm. long: seeds about 6 mm. long.—Coastal sand-dunes.—F. K. (*Ber., Cuba, Ant.*)

6. *DITAXIS* Vahl. Shrubs or perennial herbs. Leaves alternate: blades entire or rarely toothed. Flowers inconspicuously bracted. Staminate flowers with 4 or 5 sepals, 4 or 5 petals, and 4 or 5 stamens or more. Pistillate flowers with a perianth similar to that of the staminate, but with smaller or rudimentary petals, and a 3-celled ovary.

1. *D. blodgettii* (Torr.) Pax. Plants 1-6 dm. tall: leaf-blades oval, elliptic, or oblong, or those of the lower leaves spatulate, 1.5-4 cm. long: staminate calyx 7-8 mm. wide; sepals lanceolate; petals broadly oblong, shorter than the sepals: mature pistillate sepals lanceolate to linear-lanceolate, 5-6 mm. long: capsules 4-5 mm. wide.—Pinelands.—F. K.

7. *CAPERONIA* St. Hil. Herbs or partly woody plants. Leaves alternate: blades toothed. Flowers monoecious or rarely dioecious, in elongate racemes. Staminate flowers approximate, with 5 unequal sepals, 5 petals, and 10 stamens. Pistillate flowers separated, with 5 sepals, 5 smaller petals than in the staminate, and a 3-celled ovary.

1. *C. castaneaefolia* (L.) St. Hil. Plants 1 m. tall or less, with spreading or decumbent branches: leaf-blades obovate, oblong, oval, oblong-lanceolate, or ovate, mostly 2-6 cm. long, rather coarsely toothed: larger staminate sepals about 2.5 mm. long: petals obovate, 3-3.5 mm. long: capsules depressed, 6-7 mm. wide: seeds globose, about 3 mm. in diameter.—Everglades.—(*Cuba, Ant.*)

8. *ACALYPHA* L. Herbs or shrubs. Leaf-blades entire or toothed. Flowers conspicuously bracted. Staminate flowers with 4 sepals and 8-16 stamens. Pistillate flowers with 3-5 sepals and a 3-celled ovary.

1. *A. chamaedrifolia* (Lam.) Muell Arg. Stems or branches mostly prostrate, 5-30 cm. long: blades of the upper leaves ovate to oblong-lanceolate, 7-20 mm. long, crenate-serrate: larger bracts 4-6 mm. long, toothed: capsules nearly 2 mm. in diameter.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)—THREE-SEEDED MERCURY.

9. *TRAGIA* [Plum.] L. Herbs or shrubs. Leaf-blades entire, toothed or lobed. Flowers on a slender rachis, racemose. Staminate flowers with 3-5 sepals and 1-3, or rarely more, stamens. Pistillate flowers with 3-8 entire or pinnatifid sepals and a 3-celled ovary.

Leaf-blades broad, closely sharp-toothed: inflorescence short.

1. *T. saxicola*.

Leaf-blades narrow, undulate or rarely with few remote teeth:

inflorescence elongate.

2. *T. linearifolia*.

1. *T. saxicola* Small. Plants 0.5-2 dm. tall: leaf-blades suborbicular to broadly ovate, 1-2.5 cm. long, crenate-dentate, finely and sharply many-toothed: staminate calyx 3-3.5 mm. wide; sepals linear to narrowly linear-lanceolate: capsules 7-8 mm. wide, hirsute.—Pinelands.—F. K.

2. *T. linearifolia* Ell. Plants 1-5 dm. tall: leaf-blades linear, 3-12 cm. long, undulate: staminate calyx 3-3.5 mm. wide: mature pistillate calyx 5 mm. wide; sepals ovate: capsules 7-8 mm. wide, strigillose.—Pinelands.

10. **GYMNANTHES** Sw. Shrubs or trees. Leaf-blades entire or toothed. Flowers on a stout rachis, spicate. Staminate flowers with a rudimentary or obsolete calyx and 2 or 3 stamens. Pistillate flowers with a rudimentary calyx and a 3-celled ovary.

1. **G. lucida** Sw. Shrub, or tree becoming 10 m. tall: leaf-blades cuneate to oblong-spatulate, or nearly oblong, 4-10 cm. long, undulate or obscurely toothed near the apex: spikes shorter than the leaves: capsules depressed, about 1 cm. wide.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—CRABWOOD.

11. **STILLINGIA** Garden. Herbs or shrubs. Leaf-blades entire or toothed. Flowers on a simple succulent rachis. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 3 sepals and a 2-3-celled ovary. Fruit a capsule.—QUEEN'S-DELIGHT. QUEEN-ROOT.

Herbs: branches spreading.

Stem-leaves with linear blades.

Stem-leaves with spatulate or oblong-spatulate blades.

Shrub: branches virgate, erect.

1. *S. angustifolia*.

2. *S. spathulata*.

3. *S. tenuis*.

1. **S. angustifolia** (Torr.) S. Wats. Stems 2.5-6 dm. tall: leaf-blades linear or essentially so, 2-5 cm. long, crenulate-serrulate: spikes 2-4.5 cm. long: capsules 5-6 mm. wide.—PINELANDS.—F. K.

2. **S. spathulata** (Muell. Arg.) Small. Stems 3-7 dm. tall: leaf-blades spatulate to oblong-spatulate, or linear-spatulate on the branches, 7-15 cm. long, crenulate: capsules 7-9 mm. wide.—PINELANDS.—F. K.

3. **S. tenuis** Small. Plants 3-12 dm. tall, with slender virgate stems or branches: blades of the upper leaves narrowly linear, crenulate: spikes mainly red: capsules about 7 mm. wide.—EVERGLADES.

12. **HIPPOMANE** L. Trees. Leaf-blades entire or toothed, pinnately veined. Flowers on a simple rachis. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 3 sepals and a 6-8-celled ovary. Fruit a drupe.

1. **H. Mancinella** L. Tree becoming 18 m. tall: leaf-blades ovate, oblong, or oval, 4-10 cm. long: spikes 4-8 cm. long: drupe spheroidal, 2.5-3.5 cm. broad.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—MANCHINEEL.

13. **RICINUS** [Tourn.] L. Herbs, shrubs, or trees. Leaf-blades peltate, palmately lobed. Flowers on a branched rachis. Staminate flowers with 3-5 sepals and numerous stamens. Pistillate flowers with caducous sepals and a 3-celled ovary. Fruit a capsule.

1. **R. communis** L. Shrub 1-5 m. tall or small tree: leaf-blades nearly orbicular, 6-11 lobed, the lobes toothed: capsules 12-16 mm. in diameter.—PINELANDS, HAMMOCKS and waste places. Nat. of the tropics, and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—CASTOR-OIL PLANT. CASTOR-BEAN. PALMA-CHRISTI.

14. **CNIDOSCOLUS** Pohl. Herbs or shrubs, often bristly-stinging. Leaf-blades entire, lobed, or divided. Flowers in forked cymes. Staminate flowers with a corolla-like 5-lobed calyx and 10-30 stamens. Pistillate flowers with a usually 3-celled ovary.

1. **C. stimulosus** (Michx.) A. Gray. Plants 1-12 dm. tall: leaf-blades 8-30 cm. broad: staminate calyx with a cylindrical tube, and lobes about equal in length: capsule 10-16 cm. long, bristly.—PINELANDS and coastal sand-dunes.—F. K.—SPURGE-NETTLE. TREAD-SOFTLY.

15. **JATROPHA** L. Herbs or partially woody plants. Leaf-blades angled or lobed. Flowers in forked cymes. Staminate flowers with 5 sepals, 5 small petals, and 10 stamens. Pistillate flowers with a 2-3-celled ovary.

1. **J. multifida** L. Perennial, 9-20 dm. tall: leaf-blades palmately 9-11-lobed, mostly 10-20 cm. wide, the lobes narrow, entire or incised: cymes corymbose: petals thrice as long as the sepals, scarlet: capsules globose-obovoid, 2.5-3 cm. long, smooth.—Pinelands. Nat. of Trop. Am., and cultivated.—(Ant.)

16. **MANIHOT** Adans. Herbs or shrubs. Leaf-blades entire or palmately lobed, or parted. Flowers in racemes. Staminate flowers with 5 sepals and 10 stamens. Pistillate flowers often smaller than the staminate, with a 3-celled ovary.

1. **M. Manihot** (L.) Karst. Plants 9-16 dm. tall or more: leaf-blades 3-7-parted: capsules with crenate-undulate wings.—Pinelands and cultivated grounds. Nat. from S. Am., and cultivated.—F. K. (Ber., Bah., Cuba, Ant.)—CASSAVA.

17. **CHAMAESYCE** S. F. Gray. Annual or perennial herbs or shrubs. Leaves opposite: blades oblique at the base. Involucres axillary or in axillary cymes, each with 4 naked or appendaged glands, one sinus being glandless. Capsules smooth, sometimes pubescent. Seeds smooth or transverse-wrinkled.—SPURGE.

Leaf-blades entire.

Plants with prostrate stems and branches.

Plants annual or biennial.

Seeds over 1.5 mm. long: capsule glabrous.

Seeds less than 1.5 mm. long: capsule pubescent.

Stem and branches finely canescent.

Stem and branches hirsute or villous-hirsute.

Larger leaves with oblong or ovate blades.

Larger leaves with deltoid or reniform blades.

Plants perennial.

Plants with erect or ascending stems and branches.

Involucre 1.5-2 mm. long: seeds fully 1 mm. long: stems succulent.

Involucre 1 mm. long: seeds less than 1 mm. long: stems wiry.

Leaf-blades toothed.

Capsule glabrous.

Stem and branches prostrate.

Stem and branches erect or ascending.

Leaf-blades linear or narrowly linear-lanceolate.

Leaf-blades broader.

Seeds red or brown: capsules with rounded lobes.

Seeds gray: capsules with sharp lobes.

Capsule pubescent.

Stem and branches erect or ascending.

Stem and branches prostrate.

Involucres axillary, sometimes approximate on lateral branches: pineland plants.

Involucre deeply split on one side.

Involucre not split on one side.

Glands of the involucre with inconspicuous appendages.

Glands of the involucre with petal-like appendages.

Involucres in peduncled clusters: hammock plants.

Plants erect or ascending: involucre glands long-stalked.

Plants prostrate: involucre glands short-stalked.

1. *C. Ingallsii*.

2. *C. Garberi*.

3. *C. brachypoda*.

4. *C. pinctorum*.

5. *C. deltoidea*.

6. *C. burifolia*.

7. *C. Porteriana*.

8. *C. Blodgettii*.

9. *C. hyssopifolia*.

10. *C. hypericifolia*.

11. *C. brasiliensis*.

12. *C. Tracyi*.

13. *C. pergamena*.

14. *C. conferta*.

15. *C. adenoptera*.

16. *C. hirta*.

17. *C. gemella*.

1. **C. Ingallsii** Small. Leaf-blades oblong to ovate-oblong, fleshy: involucre between 1 and 1.5 mm. long: capsules depressed: seeds broadly ovoid or globose-ovoid, less than 2 mm. long.—Coastal sand-dunes.

2. *C. Garberi* Small. Branches canescent: leaf-blades ovate or oval: involucre about 1.5 mm. long; appendages minute, or obsolete: capsules fully 1.5 mm. broad, pubescent: seeds about 1 mm. long, reddish-brown.—Pinelands.—F. K.
3. *C. brachypoda* Small. Branches hirsute or villous-hirsute, with many short internodes: leaf-blades oblong to ovate, hirsute: involucre fully 1 mm. long; appendages much smaller than the red glands, or minute or obsolete: capsules about 2 mm. wide, pubescent: seeds 1 mm. long, brown, obscurely angled.—Pinelands.
4. *C. pinetorum* Small. Branches villous-hirsute often ascending near the tips: leaf-blades reniform or deltoid to orbicular or ovate, conspicuously pubescent: involucre fully 1 mm. long, pubescent: glands green; appendages very narrow, even-edged: capsules fully 2 mm. broad, pubescent: seeds 1 mm. long, transversely wrinkled, yellowish.—Pinelands.
5. *C. deltoidea* (Engelm.) Small. Branches nearly glabrous, closely appressed to the ground: leaf-blades deltoid-ovate or reniform, usually minutely pubescent: involucre less than 1 mm. long, glabrous: glands yellow; appendages obsolete: capsules about 2 mm. broad, sparingly pubescent or sometimes glabrous: seeds less than 1 mm. long, even, yellowish.—Pinelands.
6. *C. buxifolia* (Lam.) Small. Branches glabrous: leaf-blades ovate to broadly oblong, or those of the lower leaves cuneate: involucre 1.5–2 mm. long, glabrous: gland-appendages whitish, mere margins or sometimes larger than the glands: capsules 2.5–3 mm. broad, glabrous: seeds 1–1.5 mm. long, obscurely angled.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)
7. *C. Porteriana* Small. Branches glabrous or pubescent: leaf-blades ovate, oval, oblong, or spatulate: involucre about 1 mm. long, glabrous: gland-appendages reddish, fully as long as the glands, or sometimes narrower: capsules about 2 mm. broad, glabrous: seeds about 1 mm. long, markedly angled.—Pinelands.
8. *C. Blodgettii* (Engelm.) Small. Branches glabrous or nearly so: leaf-blades oval, oblong, or spatulate: involucre about 1 mm. long, glabrous: gland-appendages white or pinkish, commonly slightly larger than the glands: capsules fully 1.5 mm. broad, glabrous: seeds about 1 mm. long.—Coastal sand-dunes and low hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)
9. *C. hyssopifolia* (L.) Small. Branches glabrous: leaf-blades linear or narrowly linear-lanceolate, sometimes falcate, pale-green or glaucous, shallowly toothed: involucre 1–1.5 mm. long, glabrous: gland-appendages orbicular to reniform, rather conspicuous: capsules about 2 mm. wide, glabrous: seeds red or brown, fully 1 mm. long.—Edges of hammocks.—(*Cuba.*)
10. *C. hypericifolia* (L.) Small. Branches glabrous or nearly so, the ultimate ones slender: leaf-blades mainly oblong, oblong-lanceolate, or ovate, unequally serrate, usually nearly straight: involucre 1 mm. long or more: gland-appendages obovate to reniform, rather conspicuous: capsules fully 2 mm. wide, glabrous: seeds red or brown, about 1 mm. long.—Pinelands.—F. K. (*Ber., Bah., Cuba, Ant.*)
11. *C. brasiliensis* (Lam.) Small. Branches glabrous, the ultimate ones filiform: leaf-blades resembling those of *C. hypericifolia*: involucre 1 mm. long or less: gland-appendages mostly obovate, rather inconspicuous: capsules usually less than 2 mm. wide: seeds gray, about 1 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)
12. *C. Tracyi* Small. Branches thinly canescent: leaf-blades oblong to slightly broadest above the middle: involucre fully 1 mm. long, sparingly pubescent: gland-appendages minute, unequal and uneven: capsules nearly 2 mm. broad, slightly pubescent all over: seeds less than 1 mm. long.—Coastal sand-dunes and pinelands.—F. K.

13. *C. pergemena* Small. Branches glabrous: leaf-blades oblong or ovate: involucre about 1.5 mm. long, minutely pubescent: gland-appendages white or pink, conspicuous, larger than the glands, 1 or 2 of them much larger than the others: capsules about 1.5 mm. broad, pubescent: seeds less than 1 mm. long.—Pinelands.

14. *C. conferta* Small. Branches villous: leaf-blades oblong to ovate: involucre 1.5–2 mm. long, villous: gland-appendages red or magenta, 2 of them petal-like, much larger than the others, toothed: capsules less than 1.5 mm. broad, minutely pubescent: seeds less than 1 mm. long.—Pinelands.

15. *C. adenoptera* (Bertol.) Small. Branches closely villous: leaf-blades oblong or ovate-oblong: involucre 1–1.5 mm. long, finely pubescent: gland-appendages white or pink, petaloid, 2 of them much larger than the glands: capsules about 1.5 mm. broad, densely pubescent: seeds about 1 mm. long.—Pinelands.—F. K.

16. *C. hirta* (L.) Millsp. Branches closely pubescent: leaf-blades oblong to oblong-lanceolate, or somewhat triangular, often prominently blotched: involucre mostly in axillary clusters, 1 mm. long or less, minutely pubescent: gland-appendages obsolete or nearly so: capsules fully 1 mm. broad, finely pubescent: seeds about 1 mm. long. [*C. pilulifera* (L.) Small.]—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

17. *C. gemella* (Lag.) Small. Similar to *C. hirta* but smaller, and with more closely prostrate branches: leaf-blades oblong to oblong-lanceolate, mostly evenly green: involucre mostly in terminal clusters, about 1 mm. long, finely pubescent: gland-appendages white, narrower than the glands: capsules fully 1 mm. broad, often closely pubescent: seeds less than 1 mm. long. [*C. pilulifera procumbens* (Boiss.) Small.]—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

18. **TITHYMALOPSIS** Kl. & Garcke. Perennial herbs, often topped by an umbel. Leaf-blades entire. Involucre scattered or somewhat clustered, each with appendaged glands. Capsule smooth. Seeds punctate.—SPURGE.

1. *T. polyphylla* (Engelm.) Small. Plants 0.5–2.5 dm. tall, the stems stout, often tufted, copiously leafy: leaf-blades linear or linear-spatulate, 5–15 mm. long: involucre 1.5–2 mm. long; gland-appendages white or pinkish, mostly reniform, crenate: capsules 4–5 mm. broad: seeds about 2.5 mm. long, white.—Pinelands.

19. **TITHYMALUS** Adans. Annual or perennial herbs or partially woody plants, topped by an umbel. Leaf-blades entire or finely toothed. Involucre in open or compact cymes, each with 4 naked or merely horned glands. Capsule smooth or tuberculate. Seeds pitted.—SPURGE.

1. *T. trichotomus* (H. B. K.) Kl. & Garcke. Stems 1–4 dm. tall: leaf-blades cuneate to oblong, 0.5–1.2 cm. long: bracts similar to the leaves: involucre 2 mm. long; glands obreniform: capsules about 4 mm. broad, minutely wrinkled: seeds subglobose, fully 1.5 mm. in diameter.—Coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

20. **POINSETTIA** Graham. Annual, biennial, or perennial herbs or woody plants. Leaf-blades entire, toothed, or lobed, those of the upper ones often like the bracts highly colored or discolored. Involucre solitary or cymose, each with 1, or rarely 3 or 4, unappendaged glands. Capsule smooth. Seeds tuberculate.—SPURGE.

Leaves, at least those of the main stem, and the bracts, with broad, toothed, pinnate or pinnately lobed blades, those of the branches often narrow: plants pubescent: involucre glands mostly solitary.

Broad leaves with toothed blades. 1. *P. heterophylla*.  
 Broad leaves with pandurate or pinnately lobed blades. 2. *P. cyathophora*.  
 Leaves throughout the plant with very narrowly linear entire blades: plants glabrous: involucreal glands mostly 3 or 4. 3. *P. pinetorum*.

1. *P. heterophylla* (L.) Small. Perennial, stems 3-12 dm. tall: leaf-blades obovate, oblong, or ovate, or narrower, especially on the branches; 5-15 cm. long: involucre campanulate, mostly over 3 mm. long: capsules 3.5-4 mm. long: seeds 3-3.5 mm. long, prominently tuberculate.—Hammocks. F. K. (*Ber., Bah., Cuba, Ant.*)

2. *P. cyathophora* (Murr.) Small. Annual, stems 1.5 m. tall or less, pubescent: leaf-blades oblong or oval, varying to obovate or ovate, or narrower especially on the branches, 5-18 cm. long: involucre campanulate, 3.5-4 mm. long: capsules 4-4.5 mm. long: seeds 3-3.5 mm. long, tuberculate.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)—PAINTED-LEAF.

3. *P. pinetorum* Small. Stems 3-10 dm. tall, glabrous: leaf-blades narrowly elongate-linear, 4-15 cm. long: involucre turbinate, mostly less than 3 mm. long: capsules 2.5-3 mm. long: seeds 2-2.5 mm. long, slightly tuberculate. [*P. havanensis* Small. Not *Euphorbia havanensis* Willd.]—Pinelands.—F. K. (*Cuba.*)

21. **PEDILANTHUS** Neck. Shrubs with fleshy branches. Leaves succulent. Involucre borne in dichotomous, often contracted cymes, oblique and strongly 2-lipped, the lower lip much larger than the upper. Capsule 3-lobed, the carpels often keeled or horned.

1. *P. tithymaloides* (L.) Poit. Plants 3-16 dm. tall or more, the stem and branches sometimes zigzag; leaves spreading; blades ovate to ovate-lanceolate, 4-11 cm. long: involucre 12-14 mm. long, red or reddish, the 2 terminal lobes broadly ovate, ciliolate: stamens and style exerted: capsules 6-7 mm. long: seeds 3-3.5 mm. long.—Hammocks. Nat. from the tropics, and cultivated.—(*Bah., Cuba, Ant.*)—REDBIRD-FLOWER. JEW-BUSH.

### Order SAPINDALES.

Shrubs or trees. Leaves various: blades simple and entire or toothed, or compound. Calyx of distinct sepals. Corolla of distinct petals, regular or rarely irregular, or wanting. Androecium of as many stamens as there are petals, or of twice as many, or rarely of more or fewer. Filaments distinct. Gynoecium of a single carpel, or of several united carpels. Fruit various.

Plants with resin-bearing tissues.

Fam. 1. SPONDIACEAE.

Plants not resin-bearing.

Leaf-blades simple, pinnately veined.

Each cavity of the ovary with a single ovule.

Fam. 2. AQUIFOLIACEAE.

Each cavity of the ovary with 2 or more ovules.

Disk present: corolla present.

Fam. 3. CELASTRACEAE.

Disk obsolete: corolla wanting.

Fam. 4. DODONAEACEAE.

Leaf-blades simple and palmately veined or compound.

Fam. 5. SAPINDACEAE.

### FAMILY 1. SPONDIACEAE. SUMAC FAMILY.

Shrubs, trees, or vines, with a milky, resinous, often acid or caustic sap. Leaves alternate: blades simple or pinnately compound. Flowers monoecious, dioecious, or polygamous. Calyx of 3-5 sepals. Corolla of 3-5 petals, larger than the calyx. Androecium of 3-6, or rarely more, stamens. Gynoecium of 1, or of 3-5 more or less united, carpels. Fruit a drupe or a berry.

- Leaf-blades simple: ovary on a swollen receptacle. 1. MANGIFERA.  
 Leaf-blades compound: ovary not on a swollen receptacle.  
 Drupe somewhat elongate, the coats permanently united. 2. METOPIUM.  
 Drupe depressed, the coats ultimately separating.  
 Drupe with a glabrous outer coat: stone ribbed. 3. TOXICODENDRON.  
 Drupe with a pubescent outer coat: stone smooth. 4. RHUS.

1. **MANGIFERA** L. Trees. Leaf-blades simple, relatively narrow. Flowers polygamo-dioecious, in stiff panicles, the branches not plumose. Sepals 4 or 5. Petals 4 or 5. Ovary oblique: style 1, lateral. Drupe ovoid to somewhat reniform, smooth: stone tenaciously fibrous-coated.

1. **M. indica** L. Leaf-blades leathery, oblong to linear-oblong or linear-lanceolate, mostly 1-3.5 dm. long, reticulate: panicles 1-4 dm. long: sepals ovate: petals oblong or nearly so, 3.5-4 mm. long: drupes 5-10 cm. long, aromatic.—Hammocks. Nat. of the E. Indies, and cultivated.—F. K. (*Bah., Cuba, Ant.*) MANGO.

2. **METOPIUM** P. Br. Shrubs or trees. Leaf-blades pinnately compound. Flowers dioecious, in open panicles. Sepals 5. Petals 5. Ovary equilateral: styles united: stigmas 3-lobed. Drupe not oblique.

1. **M. toxiferum** (L.) Krug & Urban. Shrub, or tree becoming 14 m. tall, with a very poisonous sap: leaflets 3-7; blades ovate, leathery, 3-9 cm. long: panicles 1-2 dm. long: sepals reniform or suborbicular: petals oblong to ovate: drupes 10-15 mm. long.—Hammocks and coastal sand-dunes, and pinelands.—F. K. (*Bah., Cuba, Ant.*)—POISONWOOD. CORAL-SUMAC. HOG-GUM. DOCTOR-GUM.

3. **TOXICODENDRON** [Tourn.] Mill. Shrubs, trees, or vines, with poisonous sap. Leaf-blades pinnately compound. Flowers polygamous or dioecious, in rather dense panicles. Sepals 4-6. Petals 4-6. Ovary glabrous: styles short. Drupe mostly glabrous, the sarcocarp wax-secreting. Seeds ribbed.

1. **T. radicans** (L.) Kuntze. Shrub with pubescent twigs: blades of the leaflets leathery, ovate to oblong-ovate, 3-5 cm. long: drupes 2.5-3 mm. in diameter.—Hammocks.—F. K. (*Ber., Bah.*)—POISON-OAK. POISON-IVY.

4. **RHUS** L. Shrubs or trees. Leaf-blades pinnately compound, several-foliolate. Flowers polygamous or dioecious, borne in terminal usually compact panicles. Sepals commonly 5. Petals commonly 5. Ovary pubescent: styles short. Drupe pubescent. Seed smooth and even.—SUMAC.

Bark of the trunk gray, dull: petals about 2.5 mm. long: anthers broadly oblong, scarcely 1 mm. long.

Bark of the trunk red, shining: petals about 3 mm. long: anthers linear-oblong, fully 1 mm. long.

1. *R. obtusifolia*.

2. *R. leucantha*.

1. **R. obtusifolia** Small. Shrub: leaflets 17-21; blades ovate to oblong, 2-5 cm. long: petals about 2.5 mm. long: stone of the drupe 3.5-4 mm. long. [*Schmaltzia obtusifolia* Small.]—Pinelands.

2. **R. leucantha** Jacq. Shrub or tree becoming 9 m. tall: leaflets 15-33; blades narrowly oblong to linear-lanceolate, 3-9 cm. long: petals about 3 mm. long: stone of the drupe about 3 mm. long.—Hammocks.—(*Cuba.*)—SOUTHERN-SUMAC.

## FAMILY 2. AQUIFOLIACEAE. HOLLY FAMILY.

Shrubs or trees. Leaves alternate: blades simple. Flowers perfect or polygamous. Calyx of 4-6 persistent sepals. Corolla of 4-6 petals which are often united at the base. Androecium of 4-6 stamens. Gynoecium of 4-8 united carpels. Fruit drupaceous.



1. **ILEX** L. Leaves mostly persistent: blades entire or toothed. Flowers sometimes nearly dioecious. Sepals persistent. Corolla deciduous. Drupe with 4-8 nutlets.—**HOLLY**.

Leaf-blades acuminate: fruits black. 1. *I. Krugiana*.  
 Leaf-blades obtuse or rounded and often emarginate: fruits red. 2. *I. Cassine*.

1. **I. Krugiana** Loes. Shrub, or tree 11 m. tall, with glabrous twigs: leaf-blades oblong, elliptic, or ovate, 4-7.5 cm. long, acuminate, mostly entire, deep-green and lustrous above, slender-petioled: staminate calyx about 3 mm. wide: staminate corolla 5-5.5 mm. wide: drupes 5.5-6.5 mm. in diameter, about as long as the stalk.—**Hammocks and pinelands.**—(*Bah., Ant.*)—**KRUG'S-HOLLY**.

2. **I. Cassine** L. Shrub, or small tree 12 m. tall, with usually pubescent twigs: leaf-blades oblanceolate or oblong or rarely obovate, 4-10 cm. long, obtuse, acute, or rarely retuse at the apex, more or less revolute, dark-green and glabrous above, pale and more or less pubescent beneath, and sometimes glabrous, rather slender-petioled: calyx 1.5-2 mm. broad: corolla 4-4.5 mm. broad, drupes globose, 6-8 mm. in diameter, red or sometimes nearly yellow.—**Hammocks.**—(*Bah., Cuba.*)—**DAHON.** **YAUPON.**

FAMILY 3. **CELASTRACEAE.** STAFF-TREE FAMILY.

Shrubs, trees, or vines. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, polygamous, or dioecious, variously borne. Calyx of 3-5 sepals. Corolla of 3-5 petals. Androecium of 3-5 stamens borne on or below the disk. Gynoecium of 2-5 united carpels. Fruit a capsule, a drupe, or a berry. Seed often arillate.

Fruit capsular, dehiscent.

Fruit drupeaceous, indehiscent.

Flowers perfect: ovary 4-celled.

Flowers dioecious: ovary 2-celled.

Leaves opposite: ovules pendulous.

Leaves alternate: ovules erect.

1. **MAYTENUS.**

2. **RHACOMA.**

3. **GYMINDA.**

4. **SCHAEFFERIA.**

1. **MAYTENUS** Molina. Shrubs or trees. Leaves alternate, persistent: blades leathery or succulent, entire or toothed. Flowers polygamous or dioecious, solitary or clustered. Sepals 5. Petals 5. Stamens 5, borne below the disk. Capsules erect.

1. **M. phyllanthoides** Benth. Shrub or small tree: leaf-blades succulent, obovate to oblong-oblanceolate, 2-4 cm. long: hypanthium broadly turbinate: corolla 2-3 mm. broad: capsules obovoid, 8-12 mm. in diameter, red.—**Coastal sand-dunes.**—**F. K. (Cuba.)**

2. **RHACOMA** L. Shrubs or small trees. Leaves alternate, opposite, or whorled, persistent: blades entire or toothed. Flowers perfect, solitary or clustered in the axils. Sepals 4 or 5. Petals 4 or 5. Stamens 4 or 5, borne between the lobes of the disk. Drupe smooth. [*Crossopetalum* P. Br.]

Leaf-blades spiny-toothed: cymes short-stalked (3-5 mm.)

1. *R. ilicifolia*.

Leaf-blades crenate or entire: cymes long-stalked (10-15 mm.).

2. *R. Crossopetalum*.

1. **R. ilicifolia** (Poir.) Trelease. Depressed shrub with pubescent twigs: drupes 3-4 mm. long. [*Crossopetalum floridanum* Gardner.]—**Pinelands.**—**F. K.**

2. **R. Crossopetalum** L. Erect shrub or small tree with glabrous twigs: drupes 5-6 mm. long. [*Crossopetalum austrinum* Gardner.]—**Coastal sand-dunes and hammocks.**—**F. K. (Ber., Bah., Cuba, Ant.)**

3. **GYMINDA** Sarg. Shrubs or trees, the twigs 4-angled. Leaves opposite, persistent: blades mostly entire. Flowers dioecious, in axillary cymes.

Sepals 4, or rarely 3. Petals 4, or rarely 3. Stamens 4, borne outside the disk. Stigma disk-like. Drupe smooth.

1. *G. latifolia* (Sw.) Urban. Shrub or small tree: leaf-blades obovate to elliptic-obovate, 2-4 cm. long, light-green, or (glaucous above in *G. latifolia glaucifolia*): petals oblong to obovate-oblong 1.5-2 mm. long; drupes oblong to ovoid, 7-8 mm. long, bluish-black.—Coastal sand-dunes and hammocks.—F. K. (*Bah., Cuba, Ant.*)—FALSE-BOXWOOD.

4. *SCHAEFFERIA* Jacq. Shrubs or trees, the twigs terete. Leaves alternate, persistent: blades entire. Flowers dioecious, in axillary clusters. Sepals 4. Petals 4. Stamens 4. Stigmas recurved. Drupe tubercled.

1. *S. frutescens* Jacq. Shrub or small tree: leaves not clustered: flowers manifestly pedicelled: drupes about 5 mm. in diameter.—Coastal sand-dunes and hammocks.—F. K. (*Bah., Cuba, Ant.*)—BOXWOOD. YELLOW-WOOD.

#### FAMILY 4. DODONAEACEAE. DODONAEA FAMILY.

Shrubs or trees. Leaves alternate: blades simple. Flowers polygamous or polygamo-dioecious, variously borne. Calyx of 3-5 sepals. Corolla wanting. Androecium of 5-8 stamens. Disk obsolete. Gynoecium of 3 or 4 united carpels. Fruit a reticulate septicidal capsule. Seeds subglobose or somewhat flattened.

1. *DODONAEA* [Plum.] L. Erect plants with usually viscid foliage. Leaf-blades broadened upward. Capsule winged.

1. *D. jamaicensis* DC. Shrub 1-4 m. tall: leaves 3-11 cm. long: blades narrowly spatulate, gradually narrowed to the base: sepals oblong, 2.5-3 mm. long, ciliate, persistent: fruits 10-16 mm. long, deeply notched at the apex.—Hammocks and pinelands.—F. K.

#### FAMILY 5. SAPINDACEAE. SOAPBERRY FAMILY.

Shrubs, trees, or vines. Leaves opposite or alternate: blades simple or pinnate, sometimes 1-foliolate. Flowers dioecious, polygamous, or polygamo-dioecious, or rarely perfect, borne in racemes, panicles, or corymbs. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals, or wanting. Disk sometimes gland bearing. Androecium mostly of 5 or more stamens. Gynoecium of 2-4 more or less united carpels. Fruit capsular or baccate.

Vines: fruits capsular.

1. *CARDIOSPERMUM*.

Shrubs or trees: fruits baccate.

Corolla longer than the calyx; petals appendaged.

Fruits lobed, the carpels nearly distinct: androecium, and gynoecium, glabrous.

2. *SAPINDUS*.

Fruits not lobed, the carpels united: androecium, and gynoecium usually pubescent.

3. *TALISIA*.

Corolla shorter than the calyx; petals unappendaged.

4. *EXOTHEA*.

1. *CARDIOSPERMUM* L. Herbaceous or woody vines. Leaves alternate: blades biternate or decomposed. Flowers polygamo-dioecious, irregular. Sepals 4. Petals 4, unequal. Disk one-sided, with 2 glands opposite the lower petals. Stamens 8. Capsules bladderly.

1. *C. Halicacabum* L. Leaflets 3; blades ovate to ovate-lanceolate, coarsely serrate, incised or parted: petals 3.5-4.5 mm. long; capsules obovoid.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)—BALLOON-VINE.

2. **SAPINDUS** [Tourn.] L. Shrubs or trees. Leaves alternate: blades pinnate. Flowers polygamous, regular. Sepals 4 or 5. Petals 4 or 5, sometimes appendaged. Stamens 8-10. Baccate fruit lobed.

1. **S. Saponaria** L. Shrub, or tree becoming 10 m. tall: leaflets 4-7; blades oblong, oval, or obovate, 3-12 cm. long: leaf-rachis winged: mature carpels globose, 14-18 mm. in diameter.—Hammocks.—F. K. (*Ber., Cuba, Ant.*)—SOAPBERRY.

3. **TALISIA** Aubl. Shrubs or trees. Leaves alternate, the rachis wingless: blades pinnate, the leaflet-blades slightly inequilateral. Flowers polygamodioecious, regular. Sepals 5. Petals 5, appendaged. Stamens 5-7, or usually 8. Baccate fruit somewhat elongate, not lobed.

1. **T. pedicellaris** Radlk. Small tree with puberulent twigs: leaflets 4-6; blades elliptic to elliptic-ovate, 5-9 cm. long, acuminate, short-petioluled: panicle small, the branches pubescent: petals ovate to ovate-lanceolate, 4-5 mm. long: fruits not seen.—Hammocks.—(*N. S. Am.*)

4. **EXOTHEA** Macfadyen. Shrubs or trees. Leaves alternate: blades equally pinnate. Flowers mostly polygamous, irregular. Sepals 5. Petals 5, unappendaged, short-clawed. Stamens mostly 8. Baccate fruit not lobed.

1. **E. paniculata** (Juss.) Radlk. Tree or shrub: leaflets 2-4, or rarely 6; blades oblong or elliptic, 5-13 cm. long, entire: buds clove-shaped: sepals 3-4 mm. long: petals white, resembling the sepals: fruits subglobose, 10-13 mm. in diameter, orange, turning purple.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—INKWOOD. IRONWOOD.

### Order RHAMNALES.

Shrubs, trees, or vines. Leaves typically alternate. Flowers regular, sometimes imperfect or incomplete. Calyx present. Corolla present or wanting. Androecium of as many stamens as there are sepals. Gynoecium of 2 or more united carpels. Ovary superior or nearly so. Fruit a capsule or a berry, or drupaceous.

Sepals manifest: petals involute: fruit capsular or drupaceous.

Sepals minute or obsolete: petals valvate: fruit baccate. Fam. 1. FRANGULACEAE. Fam. 2. VITACEAE.

#### FAMILY 1. FRANGULACEAE. BUCKTHORN FAMILY.

Shrubs, trees, or vines. Leaf-blades simple, pinnately veined. Flowers perfect or polygamous, or sometimes dioecious. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals, or wanting. Androecium of 4 or 5 stamens opposite the petals. Gynoecium of 2 or 3 united carpels. Fruit capsular or drupaceous, sometimes separating into nutlets.

Fruit pulpy, with a 1-3-celled stone.

Sepals crested.

Sepals not crested.

Fruit dry or berry-like, with 2-4 separating nutlets.

Fruit not winged, seated in the persistent calyx.

Fruit winged, crowned with the sepals.

1. KRUGIODENDRON.

2. REYNOSIA.

3. COLUBRINA.

4. GOUANIA.

1. **KRUGIODENDRON** Urban. Shrubs or trees. Leaves nearly opposite: blades entire. Flowers perfect. Sepals 5, crested within. Petals wanting. Stamens 5: filaments longer than the anthers. Drupe apiculate.

1. *K. ferreum* (Vahl) Urban. Shrub, or tree becoming 9 m. tall, the bark ridged: leaf-blades ovate or oval, 3-6 cm. long: sepals ovate: drupes subglobose or oval, 5-8 mm. long, black. [*Rhamnidium ferreum* (Vahl) Sarg.]-Hammocks.—F. K. (*Bah., Ant.*)—BLACK-IRONWOOD.

2. **REYNOSIA** Griseb. Shrubs or trees. Leaves opposite: blades entire. Flowers perfect. Sepals 5, crestless. Petals wanting. Stamens 5: filaments longer than the anthers. Drupe apiculate.

1. *R. septentrionalis* Urban. Tree becoming 9 m. tall, the bark scaly: leaf-blades oblong, varying to ovate or obovate: sepals deltoid or ovate-deltoid: drupes subglobose, oval, or obovoid, 1.5-2 cm. long, purple or nearly black. [*R. latifolia* Sarg. Not Griseb.] Coastal hammocks and sand-dunes.—F. K. (*Bah.*)—RED-IRONWOOD. DARLING-PLUM.

3. **COLUBRINA** L. C. Rich. Shrubs or trees. Leaves alternate: blades entire or toothed, sometimes 3-nerved at the base. Flowers perfect. Sepals 5, spreading, keeled within. Petals 5, folded around the stamens, clawless. Stamens 5: anthers notched. Drupe slightly 3-lobed, the carpels separating, at least at the top.

Drupe 4-6 mm. in diameter: pedicel abruptly dilated into the hypanthium: leaf-blades glabrate, not rusty-tomentose. 1. *C. reclinata*.

Drupe 8-10 mm. in diameter: pedicel gradually dilated into the hypanthium: leaf-blades rusty-tomentose beneath. 2. *C. Colubrina*.

1. *C. reclinata* (L'Her.) Brongn. Tree becoming 20 m. tall, with puberulent twigs: leaf-blades ovate-oblong or rarely oval or obovate 3-8 cm. long: sepals about 2 mm. long: petals about 1.5 mm. long: drupe slender-pedicelled, seated on the shallow hypanthium.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—NAKEDWOOD.

2. *C. Colubrina* (Jacq.) Millsp. Shrub or small tree, with rusty-tomentose twigs: leaf-blades ovate, oblong, elliptic, or rarely oblanceolate, 5-15 cm. long: sepals about 2.5 mm. long: petals somewhat longer than those of *C. reclinata*: drupe stout-pedicelled, partly immersed in the deep hypanthium.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—WILD-COFFEE.

4. **GOUANIA** Jacq. Shrubs or vines. Leaves alternate: blades broad. Flowers polygamous, the inflorescence-branches often tendril-bearing. Sepals 5, spreading. Petals 5; clawed, the blades scoop-like. Stamens 5, each surrounded by a petal. Drupe capsule-like, 3-winged, separating into 3-carpels.

1. *G. lupuloides* (L.) Urban. Climber: leaf-blades oval or elliptic, varying to ovate, 3-9 cm. long: spikes 6-15 cm. long: petals 1 mm. long, short-clawed: drupes depressed, about 10 mm. broad. [*G. domingensis* L.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

#### FAMILY 2. VITACEAE. GRAPE FAMILY.

Vines, sometimes bushy or tree-like, usually with tendrils. Leaves alternate, or the lower ones opposite: blades simple or compound. Flowers perfect, polygamous, or dioecious, in flat-topped or elongate clusters. Calyx of 4 or 5 sepals, or obsolete. Corolla of 4 or 5, often eaducous, petals, or wanting. Androecium of 4 or 5 stamens opposite the petals. Gynoecium of usually 2 united carpels. Fruit a berry.

Hypogynous disk present, either annular, cup-shaped or glandular: leaf-blades simple or ternately compound.

Petals cohering into a cap, caducous, never separating.

Bark shreddy: pith interrupted by diaphragms at the nodes: tendrils forking.

Bark not shreddy: pith continuous through the nodes: tendrils simple.

Petals distinct, spreading.

Floral envelopes mostly in 4's: disk 4-lobed: plant-tissues fleshy.

Floral envelopes mostly in 5's: disk entire or nearly so: tissues not fleshy.

Hypogynous disk wanting or obsolete: leaf-blades digitately 5-7-foliate.

1. VITIS.

2. MUSCADINIA.

3. CISSUS.

4. AMPELOPSIS.

5. PARTHENOCISSUS.

1. **VITIS** [Tourn.] L. Leaf-blades palmately lobed, angled or coarsely toothed. Flowers in elongate racemes or panicles. Calyx minute. Petals cohering. Berries juicy, mostly edible. Seeds pyriform.—GRAPE.

Leaf-blades floccose beneath, brown or rusty, acuminate, with fine teeth.

Leaf-blades felty beneath, white, acute, with coarse teeth.

1. *V. tillifolia*.

2. *V. coriacea*.

1. **V. tillifolia** H. & B. Leaf-blades ovate to ovate-orbicular, 5-14 cm. long, acuminate, sinuate, with mucronate teeth, dull green above, finely and closely reddish-floccose beneath, especially rusty on and about the veins, cordate: panicles 1-2 dm. long: berries globose, 10-12 mm. in diameter, purple. [*V. caribaea* DC.]—Hammocks. (*Cuba, Ant.*)

2. **V. coriacea** Shuttlw. Leaf-blades reniform to suborbicular in outline, 3-10 cm. broad, shallowly toothed, angularly lobed (those of shoots often deeply lobed), becoming glabrate above, felty beneath, cordate or truncate and subcordate: panicles 5-12 cm. long: berries subglobose, less than 10 mm. in diameter, pleasantly acid.—Hammocks.

2. **MUSCADINIA** Small. Vines. Leaf-blades angled or coarsely toothed. Flowers in racemes or panicles. Calyx minute. Petals cohering. Berries rather juicy, ultimately edible.

1. **M. Munsoniana** (Simpson) Small. Leaf-blades thinnish, but rather firm, suborbicular or reniform, 4-8 cm. broad, coarsely toothed, glabrous, except the axils of the vein beneath, persistent, cordate at the base: berries globose, 1-1.5 cm. in diameter, nearly black under a slight bloom or shining, the skin and pulp tender, acid: seeds 3-5 mm. long.—Hammocks.—F. K. (*Bah.*)—BUL-LACE-GRAPE.

3. **CISSUS** L. Fleshy vines. Leaf-blades simple or 3-foliate. Flowers in small cymes. Petals spreading. Berries inedible.

Leaf-blades simple, distantly serrate.

Leaf-blades 3-foliate, the leaflets coarsely toothed.

1. *C. sicyoides*.

2. *C. trifoliata*.

1. **C. sicyoides** L. Plants pubescent: leaf-blades ovate or oblong-ovate, 2-8 cm. long, acute or often acuminate: berries subglobose, about 1 cm. in diameter, black.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **C. trifoliata** L. Plants glabrous: leaf-blades 3-foliate; leaflets 1-3 cm. long, suborbicular varying to ovate or obovate, often flabellate: berries globose-ovoid or ovoid, abruptly pointed, 5-7 mm. in diameter, dark-purple [*C. acida* L.]—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)

4. **AMPELOPSIS** Michx. Woody vines. Leaf-blades simple or bipinnate. Flowers in flat cymes. Petals spreading. Berries inedible.

1. **A. arborea** (L.) Rusby. Leaf-blades bipinnate, 1-2 dm. long; leaflets several or many, the blades ovate, often broadly so or cuneate-obovate, 1-3 cm. long, coarsely toothed, incised, or lobed: berries 10-13 mm. in diameter, dark-purple.—Hammocks.—(*Cuba.*)—PEPPER-VINE.

5. **PARTHENOCISSUS** Planch. Vines, the tendrils often disk bearing. Leaf-blades digitately compound. Flowers in compound cymes. Petals spreading. Berries inedible.

1. **P. quinquefolia** (L.) Planch. Leaflets 5; blades usually thinnish, oval, elliptic, or oblong, the lateral ones inequilateral, coarsely serrate above the middle: berries 8-9 mm. in diameter, deep-blue with a scant bloom, often quite pulpy.—Hammocks.—F. K. (*Ber., Bah., Cuba.*)—VIRGINIA-CREEPER. AMERICAN-IVY.

### Order MALVALES.

Herbs, shrubs, or trees. Leaves alternate or opposite: blades simple, often lobed and toothed. Flowers mostly perfect, regular and involucrate. Calyx of distinct or partially united sepals. Corolla of distinct petals. Androecium of numerous monadelphous or grouped stamens, or few in BUETTNERIACEAE. Gynoecium of several distinct or united carpels. Fruit capsular, follicular, berry-like, or nut-like.

Stamens numerous (in our genera).

Stamens distinct or in several groups: anthers 2-celled.

Fam. 1. TILIACEAE.

Stamens monadelphous: anthers 1-celled.

Fam. 2. MALVACEAE.

Stamens as many as the sepals.

Fam. 3. BUETTNERIACEAE.

### FAMILY 1. TILIACEAE. LINDEN FAMILY.

Shrubs, trees, or rarely herbs. Leaves mostly alternate: blades simple. Flowers usually perfect. Calyx of 4 or 5 sepals. Corolla of 4 or 5 petals which sometimes bear petaloid scales at their bases. Androecium of usually numerous stamens, sometimes as many or twice as many as the sepals. Gynoecium of 2-several united carpels. Fruit capsular, nut-like, or berry-like.

Petals inserted with the stamens: capsule often siliqua-like.

1. CORCHORUS.

Petals inserted below the stamens, at the base of an elevated receptacle: capsule subglobose, bur-like.

2. TRIUMFETTA.

1. **CORCHORUS** [Tourn.] L. Herbs or small shrubs. Leaf-blades serrate. Sepals 5, or rarely 4, unappendaged at the tip. Petals 5 or rarely 4, naked at the base, larger than the sepals. Anther-sacs contiguous. Ovary elongate. Ovules numerous. Capsule many-seeded.

Petals obovate or rhombic-cuneate: capsule with 4 tooth-like beaks.

1. *C. siliquosus*.

Petals spatulate to linear-spatulate: capsule with a single beak.

2. *C. orinocensis*.

1. **C. siliquosus** L. Stems often widely branched: leaf-blades oval-ovate or oblong-lanceolate, 1-5 cm. long: capsules 5-8 cm. long, the body truncate at the apex.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **C. orinocensis** H.B.K. Stems usually sparingly branched: leaf-blades oblong to lanceolate, 2-5 cm. long: capsules 4-5 cm. long, not truncate at the apex.—Hammocks and waste places. Nat. of Trop. Am.—F. K. (*Cuba, Ant.*)

2. **TRIUMFETTA** [Plum.] L. Herbs or shrubs. Leaf-blades mostly toothed and lobed. Sepals 5, often appendaged at the tip. Petals 5, each with a pit at the base, often shorter than the sepals, or rarely wanting. Anther-sacs contiguous. Ovary globular. Ovules few. Capsules few-seeded.

1. **T. semitriloba** Jacq. Plants stellate-tomentose, 1-2 m. tall: leaf-blades ovate, rhombic, or suborbicular, serrate, angulate or 3-lobed, 3-8 cm. long: sepals linear, 5-6 mm. long, or longer: petals cuneate-spatulate or linear-

spatulate: capsule-bodies 4-5 mm. in diameter, prickle-armed.—Pinelands and hammocks. Nat. of S. Am.—F. K. (*Ber., Bah., Cuba, Ant.*)

## FAMILY 2. MALVACEAE. MALLOW FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades simple, pinnately veined. Flowers perfect. Calyx of 5, more or less united valvate sepals. Corolla of 5, convolute petals. Androecium of numerous monodelphous stamens. Gynoecium of several united carpels. Fruit capsular or sometimes baccate.

Fruit of several radially disposed carpels, which separate from each other at maturity.

Carpels as many as there are stigmas.

Carpels 2-several-seeded.

Carpels leathery or parchment-like, never bladderly.

Carpels membranous, bladder-like.

Carpels 1-seeded.

Involucel of 2-3 bractlets.

Involucel wanting.

Carpels  $\frac{1}{2}$  as many as there are stigmas.

Involucel of 5 partially united bractlets: carpels spiny all over.

Involucel of 5-15 distinct bractlets: carpels unarmed or with 1-3 spines on the back.

Fruit a loculicidal capsule, or rarely indehiscent.

Styles distinct, spreading: seeds usually reniform.

Capsules as long as broad or much longer, the cavities 2-many-seeded.

Bractlets of the involucel distinct.

Bractlets of the involucel united into a lobed cup.

Capsules much depressed, the cavities 1-seeded.

Styles united: seed not reniform: fruit indehiscent.

1. ABUTILON.

2. GAYOIDES.

3. MALVASTRUM.

4. SIDA.

5. URENA.

6. MALACHE.

7. HIBISCUS.

8. PARTIUM.

9. KOSTELETZKYA.

10. THESPEZIA.

1. **ABUTILON** [Tourn.] Mill. Herbs, shrubs, or rarely trees. Leaf-blades entire, toothed, or lobed. Involucel wanting. Sepals 5, united below. Petals 5, often yellow. Carpels 5-30, beaked at maturity.

1. **A. permolle** (Willd.) Sweet. Stems 5-16 dm. tall, velvety-tomentose: leaf-blades ovate, 2.5-10 cm. long: petals yellow, 10-15 mm. long: carpels 11-12 mm. long.—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)—INDIAN-MALLOW.

2. **GAYOIDES** Small. Herbs, sometimes vine-like. Leaf-blades commonly toothed. Involucel wanting. Sepals 5, united below. Petals 5, usually yellow. Carpels numerous, beakless at maturity.

1. **G. crispum** (L.) Small. Stem and branches 3-9 dm. long: leaf-blades ovate, 1-5 cm. long, mostly acute or rather obtuse: calyx-lobes rather abruptly pointed: mature carpels angled at the summit.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

3. **MALVASTRUM** A. Gray. Herbs or partially woody plants. Leaf-blades entire, lobed, or parted. Involucel of distinct bractlets, or wanting. Sepals 5, partially united. Petals 5, variously colored. Carpels 5 or more, 1-celled, beaked or beakless.—FALSE-MALLOW.

Mature carpels beakless, sometimes with a mere protuberance behind the apex.

1. *M. corchorifolium*.

Mature carpels with a subulate beak behind the apex.

2. *M. coromandelianum*.

1. **M. corchorifolium** (Desr.) Britton. Stems 3-9 dm. tall: leaf-blades ovate to oblong-lanceolate, 2-6 cm. long, coarsely serrate: calyx-lobes triangular-ovate, acuminate: petals orange-yellow: carpels hispidulous. [*M. Rugelii* S. Wats.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. *M. coromandelianum* (L.) Garcke. Stems 3-9 dm. tall: leaf-blades orbicular-ovate to oblong-ovate, 2-8 cm. long, sharply serrate: calyx-lobes triangular-ovate: petals light-yellow: carpels hirsute on top. [*M. americanum* (L.) Torr.]—Hammocks.—(*Ber., Bah., Cuba, Ant.*)

4. *SIDA* L. Herbs or partially woody plants. Leaf-blades usually toothed. Involucel usually wanting. Sepals 5, partially united. Petals 5, pale, often yellow. Carpels 5-many, 1-celled, commonly singly or doubly beaked.

Upper stem-leaves with ovate, lanceolate or cuneate blades: mature carpels with 1 or 2 long slender teeth.

Mature carpels with 1 tooth each: peduncles, at least those arising from the stem, much longer than the pedicels.

Mature carpels with 2 teeth each: peduncles shorter than the pedicels or only slightly longer.

Upper stem-leaves linear: mature carpels with 2 short stout teeth.

1. *S. rhombifolia*.

2. *S. carpinifolia*.

3. *S. Elliottii*.

1. *S. rhombifolia* L. Plants 5-9 dm. tall, the branches puberulent or glabrate: leaf-blades rhombic, elliptic-obovate, or oblanceolate, 1.5-8 cm. long, serrate: calyx-lobes triangular: petals pale-yellow or sometimes red-blotched at the base: mature carpels 10-12, about 5 mm. long.—Pinelands and hammocks.—F. K. (*Ber., Cuba, Ant.*)

2. *S. carpinifolia* L. f. Plants 3-9 dm. tall, the branches puberulent or glabrate: leaf-blades lanceolate, oblong-ovate, or ovate, 2-10 cm. long, irregularly serrate: calyx-lobes triangular: petals yellow to white: mature carpels, 8-10, about 4 mm. long.—Pinelands, hammocks and waste places.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *S. Elliottii* T. & G. Plants 3-5 dm. tall, or sometimes depressed: leaf-blades linear or nearly so, 2-7 cm. long, serrate: calyx-lobes triangular: petals deep-yellow: mature carpels 8-12, 4-5 mm. long, rugose-reticulated on the back.—Pinelands.—F. K.

5. *URENA* [Dill.] L. Shrubs or partially woody herbs. Leaf-blades angled or lobed. Involucel present. Sepals 5, united below, and often partially adnate to the bractlets. Petals 5, yellow, pink, or purplish. Carpels 5, or rarely more, 1-celled, indehiscent, usually bristly with barbed spines.

1. *U. lobata* L. Stems mostly 1-2 m. tall, tomentose: leaf-blades suborbicular to oval, shallowly lobed and serrulate: bractlets linear-lanceolate, 3-5 mm. long: calyx about as long as the involucel: petals pink or rose, about 2 cm. long: carpels 4-5 mm. in diameter.—Hammocks.—(*Cuba, Ant.*)

6. *MALACHE* B. Vogel. Shrubs or partially woody plants: Leaf-blades broad, remotely serrate or repand, 3-ribbed. Involucel of 6-8 bractlets or more. Sepals 5, partially united. Petals 5, pale. Carpels with a median erect at the apex and 2 lateral cusps.

1. *M. scabra* B. Vogel. Plants 1-3 m. tall, puberulent: leaf-blades ovate to oblong-ovate, 6-15 cm. long: bractlets oblong-lanceolate: calyx-lobes ovate: petals greenish-yellow or whitish, 2-2.5 cm. long: mature carpels about 10 mm. long, reticulate on the back. [*Pavonia racemosa* Sw.]—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)

7. *HIBISCUS* L. Herbs, shrubs, or trees. Leaf-blades entire, lobed, or parted. Involucel of several, rarely 3-5 bractlets. Sepals 5, more or less united. Petals 5, white or colored. Carpels forming a 5-valved capsule.—ROSE-MALLOW.



Leaf-blades merely toothed: shrub or small tree.

1. *H. Rosa-Sinensis*.

Leaf-blades parted: large herbs.

Bractlets flat: calyx-lobes bristle-margined or spiny: leaf-blades palmately parted.

2. *H. cannabinus*.

Bractlets nearly terete: calyx-lobes finely pubescent within: leaf-blades pedately parted.

3. *H. Sabdariffa*.

1. *H. Rosa-Sinensis* L. Shrub or small tree, usually sparingly pubescent: leaf-blades ovate to ovate-lanceolate, rounded or abruptly narrowed at the base, coarsely and unequally toothed: bractlets narrowly linear: calyx-lobes lanceolate, more pubescent within than without: petals rose-red, or rarely of other colors: capsules 2-2.5 cm. long.—Pinelands and waste places. Nat. of China, and cultivated.—F. K. (*Cuba, Ant.*)—CHINESE-ROSE. SHOEBLACK PLANT.

2. *H. cannabinus* L. Plants 3-22 dm. tall, sparingly pubescent: leaf-blades palmately 3-7-parted, the divisions linear to elliptic or oblong, unevenly toothed: bractlets narrowly linear, flat, bristle-margined or spiny: calyx-lobes lanceolate, long-acuminate, rather thin, bristle-margined or spiny: petals white or pink, sometimes darker-colored, and purple at the base: capsules 1.5-2 cm. long.—Pinelands and hammocks. Nat. of the Old World Tropics.—F. K. (*Cuba, Ant.*)—AMBAREE. BROWN INDIAN-HEMP.

3. *H. Sabdariffa* L. Plants 6-26 dm. tall, glabrous or nearly so: leaf-blades digitately 3-5-parted, the divisions crenate-serrate, the teeth shallow: bractlets linear to linear-lanceolate, very thick, sparingly pubescent, juicy: calyx-lobes lanceolate, like the bractlets dark-red, very thick, copiously fine-pubescent within: capsules 1.5-2 cm. long, pubescent.—Pinelands and waste places. Nat. of the Old World Tropics, and cultivated.—(*Ant.*)—JAMAICA-SORREL. ROSELLE.

8. **PARITIUM** St. Hil. Shrubs or trees, resembling *Hibiscus* in habit, but with the bractlets of the involucre united into a lobed cup.

1. *P. tiliaceum* (L.) Juss. Shrub or small tree, the young parts velvety-tomentose: leaf-blades suborbicular to ovate, 1-2 dm. long, shallowly toothed, prominently veined beneath: calyx-lobes lanceolate or triangular-lanceolate: petals yellow, 5-6 cm. long: capsule 2.5-3.5 cm. long, abruptly pointed. [*Hibiscus tiliaceus* L.]—Coastal hammocks. Nat. of the Old World Tropics.—F. K. (*Ber., Bah., Cuba, Ant.*)—MAHOE.

9. **KOSTELETZKYA** Presl. Herbs or partially woody plants. Leaf-blades angulate-lobed, hastate, or sagittate. Involucre of 7-10 bractlets, or obsolete. Sepals 5, partially united. Petals 5. Carpels forming a depressed capsule.

Calyx canescent: leaf-blades scabro-pubescent.

1. *K. virginica*.

Calyx hirsute as well as canescent: leaf-blades velvety.

2. *K. althaeifolia*.

1. *K. virginica* (L.) A. Gray. Foliage pubescent with stellate hairs but not velvety, often scabrous: leaf-blades 3-15 cm. long, ovate to ovate-hastate, serrate-dentate, the lateral lobes triangular, acute: panicles leafy: calyx-lobes lanceolate or oblong-lanceolate, acute or acuminate: petals pink or purple, 2-4 cm. long: capsules about 10 mm. broad.—Everglades.

2. *K. althaeifolia* (Chapm.) A. Gray. Foliage mainly velvety pubescent: leaf-blades ovate to ovate-lanceolate or nearly lanceolate, 5-15 cm. long, acuminate, irregularly dentate, the lower ones angularly 3-lobed, cordate, the upper ones truncate or subcordate at the base: calyx-lobes lanceolate, acuminate: petals pink, about 4 cm. long: capsules 12-15 mm. broad.—Everglades and low hammocks.—F. K. (*Ber.*)

10. **THESPESIA** Soland. Shrubs or trees, resembling species of *Hibiscus*. Leaf-blades angulate-lobed or entire. Involucre of 3-5 narrow deciduous

bractlets. Sepals 5, partially or wholly united. Petals 5, showy. Carpels united into a mostly indehiscent capsule.

1. *T. populnea* (L.) Soland. Shrub or low tree: leaf-blades ovate, 5-12 cm. long; calyx cup-like: petals 5-7 cm. long, yellow and purple: capsules depressed, 3-4.5 cm. broad.—Coastal hammocks. Nat. of the Old World Tropics.—F. K. (*Bah., Cuba, Ant.*)—SEASIDE-MAHOE.

### FAMILY 3. BUETTNERIACEAE. CHOCOLATE FAMILY.

Shrubs or trees, or herbs, often resembling *Malvaceae*. Leaves alternate: blades simple. Flowers mostly perfect. Calyx of 5, or rarely fewer, sepals. Corolla of 5, or rarely fewer, petals, or wanting. Androecium of as many stamens as there are sepals, or more. Staminodia sometimes present. Gynoecium of 5, more or less united carpels, or fewer. Fruit capsular or follicular.

Petals with flat blades: stigma brush-like.

1. WALTHERIA.

Petals with hooded blades: stigmas capitate.

2. AYENIA.

1. *WALTHERIA* L. Herbs, shrubs, or trees. Leaf-blades toothed. Involucel of 3 bractlets. Sepals 5, united below. Petals 5, loosely spreading. Stamens 5: anthers with 2 sacs: staminodia wanting. Ovary 1-celled. Capsule smooth, elongate.

1. *W. americana* L. Plants 6-12 dm. tall, tomentose: leaf-blades ovate to oblong, 1-5 cm. long: flowers in dense axillary clusters: sepals subulate: petals yellow, slightly longer than the sepals: capsules 2.5-3 mm. long.—Pinelands and hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *AYENIA* L. Herbs, often partially woody. Leaf-blades toothed. Involucel wanting. Sepals 5, slightly united. Petals 5, converging, the claws involute. Stamens 5; anthers with three parallel sacs. Staminodia present. Ovary 5-celled. Capsule muricate, depressed.

Petals 6-6.5 mm. long; blades about 1.5 mm. wide; appendages stout, over 0.5 mm. long.

1. *A. euphrasiaefolia*.

Petals 4-4.5 mm. long; blades about 1 mm. wide; appendages

slender, less than 0.5 mm. long.

2. *A. pusilla*.

1. *A. euphrasiaefolia* Griseb. Tap-root stout: stems prostrate: leaf-blades predominately suborbicular to reniform, 0.5-1 cm. long, sharply few-toothed: calyx about 3 mm. long: petals reddish: capsules 4-5 mm. in diameter: seeds bluntly tuberculate.—Pinelands.—F. K. (*Cuba.*)

2. *A. pusilla* L. Tap-root slender: stems erect or ascending: leaf-blades predominantly oblong to oblong-ovate, 1-2.5 cm. long, rather bluntly many-toothed: calyx about 2 mm. long; lobes ciliate: seeds sharply tuberculate.—Waste places. Perhaps introduced from the W. Indies.—F. K. (*Bah., Cuba, Ant.*)

### Order HYPERICALES.

Herbs, shrubs, or trees. Leaves various. Flowers perfect, complete and regular, or irregular in VIOLACEAE, sometimes involucrate. Calyx of distinct, or essentially distinct sepals. Corolla of distinct petals, rarely wanting. Androecium of usually numerous stamens, but sometimes few or 5. Gynoecium of several united carpels. Ovary superior, mostly with parietal placentae. Fruit capsular, baccate, or drupaceous.

- Styles distinct or partially united or coherent until maturity, if united to the stigmas, then grooved.  
 Stigmas not brush-like: endosperm little or none. Fam. 1. HYPERICACEAE.  
 Stigmas brush-like: endosperm copious. Fam. 2. TURNERACEAE.  
 Styles wholly and permanently united. Fam. 3. CISTACEAE.

FAMILY 1. **HYPERICACEAE.** ST. JOHN'S-WORT FAMILY.

Herbs or shrubs. Leaves opposite: blades mostly punctate, entire or nearly so, sometimes scale-like. Flowers perfect. Calyx of 4 or 5 herbaceous equal or unequal sepals. Corolla of 4 or 5, yellow or pink, petals. Androecium of few or many stamens, sometimes grouped, the groups sometimes alternating with glands. Gynoecium of 3-7 united carpels. Fruit a capsule.

- Sepals 4, those of each pair very unequal in size and shape. 1. ASCYRUM.  
 Sepals 5, equal or nearly so. 2. HYPERICUM.

1. **ASCYRUM** L. Shrubs. Sepals 4, very unequal. Stamens not in groups. Styles relatively short. Capsule included in the calyx.—ST. PETER'S-WORT. ST. ANDREW'S-CROSS.

- Inner sepals very small, petal-like or obsolete; styles 2.  
 Outer sepals ovate at maturity: capsule included. 1. *A. hypericoides*.  
 Outer sepals oblong or elliptic at maturity: capsule exerted at the tip. 2. *A. linifolium*.  
 Inner sepals slightly smaller than the outer: styles 3 or 4. 3. *A. tetrapetalum*.

1. **A. hypericoides** L. Plants diffuse: leaf-blades linear, often narrowly so, 5-15 mm. long: outer sepals ovate, at least at maturity, erect, obtuse, 7-9 mm. long, the inner petaloid: petals pale-yellow: capsules 7-8 mm. long.—Hammocks.—(*Cuba, Ant.*)

2. **A. linifolium** Spach. Plants mostly erect: leaf-blades linear-spatulate to oblanceolate, oblong, or obovate-oblong, 1-3.5 cm. long: outer sepals oblong or elliptic, 6-9 mm. long, the inner petaloid: petals bright-yellow: capsules 5-8 mm. long.—Pinelands.—(*Ber., Bah., Cuba.*)

3. **A. tetrapetalum** (Lam.) Vail. Plants 2-9 dm. tall: leaf-blades ovate to oval: outer sepals resembling the leaf-blades, the inner oblong to lanceolate: capsules about  $\frac{1}{2}$  as long as the sepals.—Pinelands and Everglades.

2. **HYPERICUM** [Tourn.] L. Herbs or shrubs. Sepals 5, essentially equal. Stamens mostly in groups. Style relatively long. Capsule not included.—ST. JOHN'S-WORT.

- Buds conic: sepals linear to oblong-linear: capsules narrowly conic, gradually pointed. 1. *H. aspalathoides*.  
 Buds ovoid: sepals orbicular, oblong-ovate or obovate: capsules ovoid, abruptly pointed. 2. *H. opacum*.

1. **H. aspalathoides** Willd. Plants 2-8 dm. tall: leaves very numerous, with clusters of small ones borne in the axils of the large ones; blades linear-subulate or linear-filiform, 5-8 mm. long, or shorter in the clusters: petals 6-7 mm. long.—Pinelands.—F. K. (*Cuba.*)

2. **H. opacum** T. & G. Plants 3-12 dm. tall: leaves few; blades oblong to oblong-lanceolate, or sometimes linear-oblong, 1-3 cm. long: petals 3-5 mm. long.—Everglades.

FAMILY 2. **TURNERACEAE.** TURNERA FAMILY.

Herbs or shrubs. Leaves alternate: blades entire, toothed, or pinnatifid, pinnately veined. Flowers mostly perfect. Calyx of 5 imbricate

sepals. Corolla of 5 convolute delicate petals. Androecium of 5 distinct stamens. Gynoecium of 3 united carpels. Ovary 1-celled, with 3 parietal placentae opposite the styles. Fruit a 3-valved capsule.

1. **PIRIQUETA** Aubl. Herbs. Sepals slightly united. Stigmas 2-cleft.

Stem, and branches, tomentose or hirsute.

Stem hirsute as well as tomentose.

Stem merely tomentose.

Stem, and branches, glabrous.

1. *P. caroliniana*.

2. *P. tomentosa*.

3. *P. glabrescens*.

1. ***P. caroliniana*** (Walt.) Urban. Plants fulvous-hirsute, 1-4 dm. tall: leaf-blades obovate, oblong, cuneate, lanceolate, or rarely oval, 1-7 cm. long, repand or crenate-serrate: corolla deep-yellow: capsules 5-7 mm. long.—Pinelands and coastal sand-dunes.

2. ***P. tomentosa*** H.B.K. Plants stellate-tomentose, 2-4 dm. tall: leaf-blades oval, oblong, or rarely narrowly oblong-lanceolate, 1-4 cm. long, crenate-serrate: corolla bright-yellow: capsules 5-6 mm. in diameter.—Pinelands.—F. K.

3. ***P. glabrescens*** Small. Plants glabrous up to the inflorescence, 4-6 dm. tall: leaf-blades narrowly linear, 1-5 cm. long, entire: corolla light-yellow: capsules about 5 mm. long.—Everglades.

### FAMILY 3. CISTACEAE. ROCK-ROSE FAMILY.

Shrubs or partially woody plants. Leaves alternate or opposite: blades simple. Flowers generally perfect. Calyx of 3-5 persistent sepals. Corolla of 3-5 often fugacious petals, or wanting. Androecium of 6 or more stamens. Gynoecium of usually 3 united carpels. Fruit a capsule.

Corolla yellow; petals 5, fugacious or wanting.

Corolla not yellow; petals 3, persistent.

1. **CROCANTHEMUM.**

2. **LECHEA.**

1. **CROCANTHEMUM** Spach. Erect plants. Flowers complete and showy, or in some species both petaliferous and apetalous. Ovules pendulous. Capsules of the petaliferous flowers larger than those of the apetalous ones.—**FROST-WEED.**

1. ***C. corymbosum*** (Michx.) Britton. Stems finely and densely canescent, 1.5-3 dm. high: leaf-blades oblong, or the lowest obovate, 2-2.5 cm. long, pale beneath, dark-green above: corolla 16-20 mm. broad: capsules of the larger flowers 4-6 mm. broad, many-seeded, those of the apetalous ones smaller and few seeded. [*Helianthemum corymbosum* Michx.]—Pinelands.

2. **LECHEA** Kalm. Erect plants with very many leafy shoots at the base in fall. Leaf-blades narrow, or those of the leaves on the shoots often broad and short. Flowers complete, minute. Ovules erect. Capsules equal.—**PIN-WEED.**

1. ***L. patula*** Leggett. Plants bushy, the stems usually divergently branched, but the branches sometimes ascending: stem-leaves 4-9 mm. long; blades linear or oblong, acute: inner sepals oblong, 1-1.4 mm. long: petals oblong-cuneate, about 1 mm. long, notched at the apex: pods globose-oblong or oblong, 1-1.5 mm. long.—Pinelands.

### Order PASSIFLORALES.

Herbs, vines, or shrubby plants, or succulent tree-like plants with milky sap. Leaves alternate: blades entire, toothed, or lobed. Flowers

perfect or dioecious. Calyx of 4 or 5 more or less united sepals. Corolla of 4 or 5 distinct or united petals, sometimes accompanied by a fringed crown, or rarely wanting. Androecium of 5 stamens, or of 10 stamens in 2 unequal rows. Gynoecium of 3-5 united carpels. Ovary superior. Fruit a berry or a capsule.

Corolla not accompanied by a crown: flowers mainly dioecious, the staminate and pistillate different. Fam. 1. PAPAYACEAE.  
Corolla accompanied by a crown: flowers perfect, all alike. Fam. 2. PASSIFLORACEAE.

FAMILY 1. **PAPAYACEAE.** PAPAWE FAMILY.

Shrubs or trees. Leaves with ample 7-9-lobed blades. Corolla salverform. Stamens 10: filaments adnate to the corolla-tube. Anthers erect. Fruit baccate, borne near the top of the stem.

1. **CARICA** L. Plants with milky juice, the stem rather tender, simple or branched, much-scarred above. Leaf-blades palmately or pinnately lobed. Staminate flowers in long-peduncled cymes: pistillate flowers in short-peduncled cymes. Berries nearly sessile, many-seeded.

1. **C. Papaya** L. Stem 3-6 m. tall, simple, leafy at the top: leaf-blades 3-6 dm. broad, on stout spreading petioles: corolla yellow or reddish, that of the pistillate flower the larger: berry oblong to subglobose, 2-18 cm. long.—Pinelands, hammocks and waste places. Nat. of Trop. Am., and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—PAPAW. CUSTARD-APPLE.

FAMILY 2. **PASSIFLORACEAE.** PASSION-FLOWER FAMILY.

Herbs, tendril-bearing vines, or shrubby plants. Leaves with entire or lobed, simple, or rarely compound blades. Corolla mostly rotate. Stamens 5: filaments usually monodelphous around the gynoecium. Fruit baccate.

1. **PASSIFLORA** L. Perennial vines. Leaf-blades entire, lobed, or parted. Crown filamentous, single, double, or triple. Anthers versatile.—PASSION-FLOWER.

Stipules minute or obsolete: leaf-blades glabrous or pubescent beneath: sepals unappendaged.

Corolla wanting: leaf-blades entire or 3-lobed, linear to suborbicular in outline: berry glabrous: seeds coarsely reticulate. 1. *P. suberosa.*

Corolla present: leaf-blades lunate, broadly 3-lobed: berry pubescent: seeds papillose-cancellate. 2. *P. sexflora.*

Stipules foliaceous: leaf-blades glaucous beneath: outer sepals with long subulate appendages. 3. *P. pallens.*

1. **P. suberosa** L. Twigs glabrous or minutely pubescent: leaf-blades entire to 3-lobed, mostly 2-10 cm. long: cymes 1-few-flowered: sepals linear to lanceolate or oblong, 4-6 mm. long: corolla wanting: crown mostly blue-tinged: berries 6-10 mm. in diameter: seeds about 3 mm. long.—Pinelands and hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **P. sexflora** Juss. Twigs tomentulose: leaf-blades 6-14 cm. broad, pubescent: cymes several-flowered: sepals lanceolate, 9-11 mm. long: corolla as long as the calyx: crown purple-tinged: berries globular 9-11 mm. in diameter, pubescent: seeds 2-2.5 mm. long.—Hammocks.—(*Cuba, Ant.*)

3. **P. pallens** Poepp. Twigs glabrous, glaucous: leaf-blades nearly equally 3-lobed, 4-8 cm. long, the lobes ovate or very broad, the terminal one usually

slightly larger than the others: stipules foliaceous, ovate to reniform: sepals oblong to oblong-lanceolate, 2-2.5 cm. long: corolla wanting: berries golden-yellow, 4-5 cm. in diameter: seeds 4.5-5 mm. long, tuberculate at the top.—Hammocks.—(Cuba.)

### Order OPUNTIALES.

Succulent, typically spine-armed, herbs, shrubs, or trees, mainly leafless or essentially so, or leafy rigid herbs, with more or less specialized hairs. Flowers perfect. Hypanthium present. Calyx of 4 or 5, or many, sepals. Corolla of 4 or 5, or many, petals. Androecium of usually many stamens, in several series or groups, sometimes partially reduced to staminodia. Gynoecium of 4, or 2-several, united carpels. Ovary inferior. Fruit baccate or capsular.

Sepals and petals 4 or 5 each, very different: leaves with entire or dissected blades: erect or climbing plants, with rigid hairs. Fam. 1. LOASACEAE.

Sepals and petals nearly alike, at least the latter numerous: leaves typically mere scales or wanting: succulent plants, usually armed with spines. Fam. 2. OPUNTIACEAE.

### FAMILY 1. LOASACEAE. LOASA FAMILY.

Rigid herbs with barbed or stinging hairs. Leaves with entire lobed, pinnatifid, or dissected blades.

1. **MENTZELIA** [Plum.] L. Brittle-stemmed, mostly diffuse or reclining herbs. Leaf-blades relatively broad, sinuate or lobed. Androecium without staminodia. Seeds angled.

1. **M. floridana** Nutt. Leaf-blades 2-9 cm. long, ovate to deltoid-ovate, toothed and 3-lobed: sepals lanceolate, often very broad at the base: petals golden-yellow, 15-18 mm. long: capsules 1-1.5 cm. long.—Hammocks.—F. K. (Bah.)

### FAMILY 2. OPUNTIACEAE. CACTUS FAMILY.

Succulent plants, typically spine-armed, and often with cushions of bristles or hairs at the base of the spines. Leaves mostly wanting, obsolete, or rudimentary.

Stems not jointed: leaves obsolete: areolae without barbed bristles: flowers nocturnal.

Plants erect or reclining, without aerial roots: fruits spiny. 1. ACANTHOCEREUS.

Plants climbing, with aerial roots: fruits scaly. 2. HYLOCEREUS.

Stems jointed: leaves scale-like, deciduous: areolae with barbed bristles: flowers diurnal. 3. OPUNTIA.

1. **ACANTHOCEREUS** Britt. & Rose. Plants with erect or reclining stems and branches, the 3-6 angles low, the areolae remote, with several spines and short wool. Hypanthium elongate, with spine-bearing areolae. Corolla large, white, the petals, like the sepals, long and narrow. Berry spiny.

1. **A. pentagonus** (L.) Britt. & Rose. Stems and branches sometimes 8 m. long, the joints various, a 3-angled one often arising from a 5-angled one, deep-green: spines 5-8, the radial bristle-like or subulate, brittle, the central one 1-2 cm. long: corolla white, 9-12 cm. broad: fruits oval, 6-9 cm. long, deep-red, spiny. [*Cereus bazaniensis* Karw.]—Hammocks.—F. K. (Cuba, Ant.)

2. **HYLOCEREUS** Britt. & Rose. Plants with climbing prominently 3-angled or 3-winged stems and branches, the areolae remote, with several short spines and short wool. Hypanthium elongate, with succulent scales. Corolla very large, white, the petals, like the sepals, long and narrow. Berry scaly.

1. **H. tricostatus** (Gosselin) Britt. & Rose. Stem and branches stout, 8-12 cm. thick, bright-green, commonly high-climbing: areolae remote; spines 3-5, rigid, dark, usually 2-4 mm. long: corolla about 2 dm. wide: berries ovoid, 8-10 cm. long, scarlet, the scales flat. [*Cereus triangularis* Chapm. Not Haw.]—Ham-mocks. Nat. of Mex.—(*Cuba, Ant.*)—NIGHTBLOOMING-CEREUS.

3. **OPUNTIA** [Tourn.] Mill. Plants conspicuously jointed, with separated usually spine-bearing areolae. Flowers arising from the cushions of barbed bristles of the areolae. Corolla yellow. Style cylindric.

1. **O. austrina** Small. Plants woody at the base, the roots tuber-bearing, the joints broadly obovate or orbicular-obovate, deep-green, 5-11 cm. long, or rarely somewhat longer, the early deciduous leaves mostly less than 10 mm. long: spines mainly above the middle of the joints and near the edge, usually 2 together but one of them very small or deciduous, whitish or pinkish, and reddish near the base and apex, twisted: flowers bright-yellow, 6-7 cm. broad: petals cuneate, truncate or refuse at the slightly eroded top, and mucronate: berries 2.5-3 cm. long.—Pinelands and coastal sand-dunes.—PRICKLY-PEAR.

### Order THYMELEALES.

Shrubs or trees, or partially herbaceous plants. Leaves opposite or alternate, the blades simple, rarely mere scales, or obsolete. Flowers perfect, polygamous, or dioecious, regular or nearly so. Calyx of 5, or fewer, sepals. Corolla wanting (in our species). Androecium of as many stamens as there are sepals, or twice as many. Anthers opening by slits or hinged valves. Gynoecium of a single carpel. Ovary superior. Ovule mostly solitary. Fruit usually baccate or drupaceous.

Leafy shrubs or trees: fruit seated on the hypanthium. Fam. 1. LAURACEAE.

Leafless, twining, parasitic vines: fruit enclosed in the accrescent hypanthium. Fam. 2. CASSYTHACEAE.

#### FAMILY 1. LAURACEAE. LAUREL FAMILY.

Aromatic shrubs or trees. Leaves alternate or opposite: the blades entire or lobed. Flowers in open or congested cymes. Perianth of 6 (rarely 4-10) sepals in 2 series. Androecium of usually more stamens than there are sepals, in 2-4 series, those of the third series usually glandular appendaged, those of the fourth series mostly mere staminodia. Gynoecium a single carpel. Ovary 1-celled. Drupe not included.

Anther-bearing stamens 9: calyx deciduous or persistent and appressed to the fruit.

Calyx persistent: fruit seated on the calyx.

Calyx deciduous: fruit seated on the hypanthium.

Fruit oblique: hypanthium not fleshy.

Fruit not oblique: hypanthium fleshy.

Anther-bearing stamens 3: calyx persistent as a lateral flange on the hypanthium.

1. TAMALA.

2. PERSEA.

3. OCOTEA.

4. MISANTECA.

1. **TAMALA** Raf. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers in axillary peduncled cymes. Sepals 6, dissimilar. Style long-columnar: stigma capitate. Drupe equilateral.

Peduncles, pedicels and petioles glabrous or appressed-pubescent: fruit over 1 cm. thick. 1. *T. Borbonia*.

Peduncles, pedicels and petioles tomentose: fruit less than 1 cm. thick. 2. *T. pubescens*.

1. **T. Borbonia** (L.) Raf. Large tree, the bark broken into flat ridges: leaf-blades elliptic or elliptic-oblong, 5-15 cm. long, finely reticulate beneath: sepals ascending, the inner ovate, 2-3 times longer than the outer: fruits obovoid or globose-obovoid, 1-1.5 cm. long, dark-blue or nearly black, lustrous. [*Persea Borbonia* (L.) Spreng.]—HAMMOCKS.—RED-BAY. SWEET-BAY. FLORIDA-MAHOGANY.

2. **T. pubescens** (Pursh) Small. Shrub or small tree, its twigs, lower leaf-surfaces and inflorescence tomentose: leaf-blades narrowly elliptic or elliptic-lanceolate, or rarely oval, 5-20 cm. long: sepals erect, the inner oblong-ovate, about twice as long as the outer: fruits oval, 8-11 mm. long, dark-blue with a thin bloom. [*Persea pubescens* (Pursh) Sarg.]—EVERGLADES and wet hammocks.—F. K. (*Bah.*)—SWAMP-BAY. SWAMP RED-BAY.

2. **PERSEA** [Plum.] Gaertn. Trees. Leaves alternate, persistent: blades entire. Flowers in terminal paniced cymes. Sepals 6, nearly equal, united at the base. Style subulate: stigma minute. Drupe inequilateral.

1. **P. Persea** (L.) Cockerell. Large tree: leaf-blades elliptic or oval or nearly so, 8-15 cm. long, short-petioled (relatively small and with long and slender petioles in *P. Persea mexicana*): inner sepal 4-5 mm. long, somewhat surpassing the outer: fruits slightly elongate, often pyriform, 8-18 cm. long, the flesh butter-like.—HAMMOCKS and pinelands. Nat. of Trop. Am., and cultivated.—(*Cuba, Ant.*)—AVOCADO. ALLIGATOR-PEAR.

3. **OCOTEA** Aubl. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers in paniced cymes. Sepals 6, nearly similar. Style cylindric. Stigma capitate. Drupe somewhat elongate.

1. **O. Catesbyana** (Michx.) Sarg. Shrub or small tree: leaf-blades narrowly elliptic or elliptic-lanceolate, 5-12 cm. long, lustrous above: calyx creamy-white, 8-9 mm. broad; sepals obtuse: drupes subglobose or oval, 10-15 mm. long, dark-blue or black, seated in the red or yellow hypanthium.—HAMMOCKS.—F. K. (*Bah.*)—LANCEWOOD.

4. **MISANTECA** Cham. & Schlecht. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers inconspicuous, in paniced cymes. Sepals 6, nearly similar, short, erect, about as long as the enlarged portion of the hypanthium. Style columnar: stigma minute, surrounded by the 3 erect stamens. Drupe slightly elongate, seated in the cup-like hypanthium which is bordered by the persistent calyx.

1. **M. triandra** (Sw.) Mez. Tree with somewhat flaky bark: leaf-blades elliptic-oblong or oval, 4.5-11 cm. long, abruptly acuminate, but often blunt, lustrous above: calyx whitish, 2-2.5 mm. broad; sepals obtuse: fruits acorn-like, the drupe ovoid or oblong-ovoid, 2-2.5 cm. long, green, the hypanthium reddish.—HAMMOCKS.—(*Cuba, Ant.*)

#### FAMILY 2. CASSYTHACEAE. CASSYTHA FAMILY.

Parasitic vines. Leaves mere scales, or wanting. Flowers perfect, in heads, spikes, or racemes. Calyx of 6 sepals in 2 unequal series, surmounting the accrescent hypanthium. Androecium of 9 stamens with 2-celled anthers, and 3 staminodia. Gynoecium of a single carpel. Drupe included.



1. **CASSYTHA** [Osbeck] L. Vines with yellow or pale-green stems and branches, clinging to herbs and shrubs.

1. **C. filiformis** L. Stems matted, yellowish-green: flowers 3-6 in a spike: inner sepals triangular-ovate, 2-3 times larger than the outer: drupe globose, 5-7 mm. in diameter.—Pinelands and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

### Order MYRTALES.

Herbs, shrubs, or trees, sometimes aquatic or amphibious. Leaves alternate or opposite. Flowers regular or irregular, complete or much reduced. Hypanthium merely enclosing the ovary or adnate to it. Calyx surmounting the hypanthium, the sepals distinct or rarely permanently united. Corolla present or wanting. Androecium of few or many stamens: anthers opening by slits or pores. Gynoecium 1-several-carpellary. Fruit capsular, baccate, or achene-like.

Style present, simple or compound: stigma terminal.

Anthers opening by pores.

Anthers opening by longitudinal valves.

Hypanthium merely enclosing the ovary.

Hypanthium adnate to the ovary or mainly so.

Cotyledons spirally convolute in the embryo.

Ovary several-celled: ovules numerous, not pendulous.

Ovary 1-celled: ovules 2-5, pendulous.

Cotyledons not spirally convolute.

Sepals imbricated or united and the calyx falling away as a cap.

Sepals valvate.

Leaves stipulate: sepals leathery.

Leaves not stipulate: sepals membranous or herbaceous.

Styles wanting: stigmas sessile.

Fam. 1. MELASTOMACEAE.

Fam. 2. LYTHRACEAE.

Fam. 3. PUNICACEAE.

Fam. 4. TERMINALIACEAE.

Fam. 5. MYRTACEAE.

Fam. 6. RHIZOPHORACEAE.

Fam. 7. EPILOBIACEAE.

Fam. 8. GUNNERACEAE.

### FAMILY 1. MELASTOMACEAE. MEADOW-BEAUTY FAMILY.

Herbs, shrubs, or trees. Leaves opposite: blades with 3-several ribs. Flowers perfect. Calyx of 3-6 sepals, surmounting the hypanthium. Corolla of 3-6 oblique petals. Androecium of 6-12 stamens, those opposite the petals sometimes abortive. Gynoecium of 3-5 united carpels. Ovary enclosed in or adnate to the hypanthium. Fruit baccate or capsular.

Herb: fruit a capsule.

Shrub or tree: fruit a berry.

1. RHEXIA.

2. TETRAZYGIA.

1. **RHEXIA** L. Perennial herbs with rootstocks. Leaf-blades usually 3-5-ribbed. Hypanthium urceolate, prolonged beyond the ovary. Sepals 4. Petals 4, deciduous. Ovary 4-celled, free. Capsule included, 4-valved.—MEADOW-BEAUTY.

Leaf-blades broad, prominently 3-ribbed: anthers short, oblong, not spurred.

1. *R. serrulata*.

Leaf-blades narrow, prominently 1-ribbed: anthers elongate, linear, spurred at the base.

2. *R. cubensis*.

1. **R. serrulata** Nutt. Stems 5-30 cm. tall: leaf-blades ovate, oval, or sub-orbicular, 0.5-1 cm. long: petals purple, about 10 mm. long: capsules about 4 mm. long, spheroidal.—Everglades.—F. K.

2. **R. cubensis** Griseb. Stems 2-5 dm. tall, glandular-hirsute: leaf-blades linear, 1.5-4 cm. long: sepals lanceolate or triangular-lanceolate: petals purple,

11-17 mm. long: capsules 6-7 mm. long, ovoid. [*R. floridana* Nash.]—Everglades.—(Cuba.)

2. **TETRAZYGIA** L. C. Rich. Shrubs or trees. Leaf-blades 3-5-ribbed, mostly scurfy or tomentose beneath: sepals, and petals, 4 or 5. Ovary 4- or 5-celled. Berry included.

1. **T. bicolor** (Mill.) Cogn. Shrub or small tree, with scaly bark: leaf-blades lanceolate to oblong-lanceolate, 8-20 cm. long, silvery beneath: panicle 1-2 dm. long: calyx about 1 mm. long: petals white, 7-8 mm. long, cuneate: berries purple or black, the body 8-10 mm. long.—Pinelands and hammocks.—(*Bah., Cuba.*)

## FAMILY 2. LYTHRACEAE. LOOSESTRIFE FAMILY.

Herbs, shrubs, or tropical trees. Leaves mostly opposite: blades usually entire. Flowers perfect. Calyx of 4 or 5 sepals, commonly accompanied by accessory teeth. Corolla of 4 or 5 petals, or wanting. Androecium of few or many stamens: anthers versatile. Gynoecium of mostly 2-6 united carpels. Ovary 2-6-celled, or rarely 1-celled, free from the hypanthium. Fruit a capsule, included.

Hypanthium short, becoming hemispheric or globose.  
Hypanthium elongate, becoming tubular.

1. **AMMANNIA**.  
2. **LYTHRUM**.

1. **AMMANNIA** L. Leathery-succulent herbs. Leaf-blades narrow, often auricled at the base. Flowers in axillary, sometimes 1-flowered, cymes. Sepals 4, involute, often accompanied by small teeth. Petals 4, early deciduous, or wanting.

1. **A. latifolia** L. Plants 2-11 dm. tall: leaf-blades linear-oblong to linear-lanceolate, mostly 3-7 cm. long, slightly auricled and clasping at the base: corolla wanting: capsules 4-5 mm. in diameter.—Everglades.—F. K. (*Bah., Cuba, Ant.*)

2. **LYTHRUM** L. Herbs or shrubs. Leaf-blades entire. Flowers axillary or in terminal spikes or racemes. Sepals 4-6, not involute, alternating with spreading appendages. Petals 4-6, nearly equal.

1. **L. lineare** L. Stems 3-12 dm. tall: leaf-blades linear, 1-4 cm. long: mature hypanthium about 4 mm. long, the appendages triangular, about as long as the deltoid sepals: petals cuneate or cuneate-oblong, 4-5 mm. long: capsules barely 4 mm. long.—Coastal sand-dunes.—F. K.

## FAMILY 3. PUNICACEAE. POMEGRANATE FAMILY.

Shrubs or trees. Leaves opposite or nearly so, persistent: blades entire. Flowers perfect, solitary or in short axillary clusters. Hypanthium leathery. Calyx of 5-7 sepals. Corolla of 5-7 wrinkled petals. Androecium of numerous stamens in several series: anthers versatile. Gynoecium of several united carpels. Ovary inferior. Fruit a several-celled berry crowned with the calyx, the seeds in a watery pulp.

1. **PUNICA** [Tourn.] L. Leaf-blades entire. Flowers showy. Sepals persistent on the fruit. Petals deciduous. Berry pendulous.

1. **P. Granatum** L. Leaf-blades oval, elliptic, or oblong, varying to broadest above or below the middle, 1-8 cm. long: sepals triangular or triangular-

lanceolate: petals scarlet, 1.5-2.5 cm. long: berries subglobose or spheroidal, 5-10 cm. in diameter.—Pinelands and hammocks. F. K. Nat. of the Orient, and cultivated.—(*Ber., Ant.*)—POMEGRANATE.

FAMILY 4. **TERMINALIACEAE.** WHITE-MANGROVE FAMILY.

Shrubs or trees, or woody vines. Leaves alternate or opposite: blades simple, leathery. Flowers regular, perfect or polygamous, racemose or capitate. Calyx of 4 or 5 valvate deciduous or rarely persistent sepals. Corolla of 4 or 5 petals, or wanting. Androecium of twice, or rarely thrice, as many stamens as the sepals. Filaments distinct. Gynoecium a single carpel. Ovary 1-celled. Fruit drupaceous or berry-like, indehiscent. Often crowned with the accrescent calyx.

Petals wanting: calyx deciduous.

Flowers spicate: hypanthium terete.

Flowers in heads: hypanthium flattened.

Petals 5: calyx persistent.

1. **TERMINALIA.**

2. **CONOCARPUS.**

3. **LAGUNCULARIA.**

1. **TERMINALIA** L. Shrubs or trees. Leaves clustered near the ends of the branches. Flowers in simple or branched spikes. Hypanthium not ribbed. Stamens 10.

1. **T. Catappa** L. Shrub, or tree sometimes 17 m. tall: leaf-blades cuneate to oblanceolate: spikes 5-15 cm. long: hypanthium and calyx 8-11 mm. long: drupes elliptic or nearly so, glabrous.—Pinelands and old fields. Nat. of the E. Indies, and Oceanica, and cultivated. F. K.—(*Bah., Cuba, Ant.*)—INDIAN-ALMOND.

2. **CONOCARPUS** L. Shrubs or trees. Leaves alternate. Flowers perfect, in spicate or paniced heads. Hypanthium not ribbed. Stamens 5. Fruit capitate.

1. **C. erecta** L. Shrub, or tree, sometimes 20 m. tall: leaf-blades elliptic to oval, 2-5 cm. long, entire: heads 9-14 mm. in diameter at maturity: drupes 2-winged, 4-7 mm. long.—Hammocks and shores.—F. K. (*Ber., Bah., Cuba, Ant.*)—BUTTONWOOD.

3. **LAGUNCULARIA** Gaertn. f. Shrubs or trees. Leaves opposite. Flowers polygamous, in simple or branched spikes. Hypanthium ribbed. Petals mostly shorter than the sepals. Stamens 10. Fruit spicate or paniculate.

1. **L. racemosa** (L.) Gaertn. f. Shrub, or tree sometimes 20 m. tall: leaf-blades leathery-succulent, oblong, varying to oval or obovate, 2-5 cm. long, entire: spikes 3-6 cm. long: drupes oblong-obovoid, 2 cm. long.—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)—WHITE-BUTTONWOOD. WHITE-MANGROVE.

FAMILY 5. **MYRTACEAE.** MYRTLE FAMILY.

Shrubs or trees, or rarely herbs, with pungent and aromatic volatile oil. Leaves opposite, or rarely alternate or whorled: blades often simple, pellucid-punctate, flat to terete, often with veins parallel to the margins. Flowers perfect, regular. Calyx of 4 or 5, or many, persistent sepals or cup-like and deciduous. Corolla borne on the margin of a hypanthium, or wanting. Androecium of numerous stamens, or rarely of as many as the sepals. Gynoecium compound. Ovary inferior or partly so, 1-many-celled. Fruit usually fleshy, sometimes dehiscent, often crowned with the calyx.

Calyx of several persistent valvate sepals: petals present.

Calyx of regularly separating sepals.

Inflorescence centripetal: flowers in raceme-like umbel-like or contracted clusters.

Inflorescence centrifugal: flowers in cymes.

Calyx of irregularly separating sepals.

Calyx lid-like, deciduous: petals wanting.

1. EUGENIA.
2. ANAMOMIS.
3. PSIDIUM.
4. CALYPTRANTHES.

1. **EUGENIA** [Mich.] L. Shrubs or trees. Leaf-blades not prominently ribbed. Flower-clusters short-peduncled or sessile. Berry crowned with the persistent calyx. Seeds 1-4.—STOPPER.

Flowers in very short racemes.

Leaf-blades broadest above the middle: fruits longer than wide. 1. *E. burilifolia*.

Middle: fruits wider than long. 2. *E. axillaris*.

Flowers solitary in the axils or in umbel-like clusters.

3. *E. confusa*.

1. **E. buxifolia** (Sw.) Willd. Shrub or small tree, the bark scaly: leaf-blades cuneate to nearly oblong, 2-4 cm. long, much paler beneath than above: corolla 4-15 mm. broad; petals longer than wide: fruits oval or oblong-oval, 6-7 mm. broad, black.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—SPANISH-STOPPER.

2. **E. axillaris** (Sw.) Willd. Shrub or small tree, the bark fissured: leaf-blades elliptic-ovate to nearly elliptic, 3-5 cm. long, slightly paler beneath than above: corolla 5-6 mm. broad; petals mostly wider than long: fruits spheroidal, 10-12 mm. broad, black. [*E. monticola* Chapm. Not Sw.]—HAMMOCKS.—F. K. (*Ber., Bah., Cuba, Ant.*)—WHITE-STOPPER.

3. **E. confusa** DC. Tree, the bark scaly: leaf-blades ovate, oval-ovate, or oblong-ovate, 3-5 cm. long, markedly acuminate: corolla 4-6 mm. broad; petals about twice as long as the sepals: fruits subglobose or globose-obovoid, 5-6 mm. broad, scarlet. [*E. Garberi* Sarg.]—HAMMOCKS.—F. K. (*Bah., Ant.*)—IRONWOOD.

2. **ANAMOMIS** Griseb. Shrubs or trees. Leaf-blades not ribbed. Cymes sessile or long-peduncled, sometimes 1-flowered. Berry crowned with the persistent calyx. Seeds 1 or 2 or many.—NAKED-STOPPER. NAKEDWOOD.

Cymes markedly peduncled and several-flowered: sepals suborbicular or reniform: petals 3-4 mm. long: seeds 1 or 2, large. 1. *A. dicrana*.

Cymes usually sessile and 1-flowered: sepals oblong to ovate: petals

6-8 mm. long: seeds numerous, small, shining.

2. *A. longipes*.

1. **A. dicrana** (Berg) Britton. Shrub, or tree becoming 8 m. tall: leaf-blades oblong to cuneate or obovate-cuneate, 2-4 cm. long: terminal flowers of each cyme sessile: corolla 8-9 mm. wide; petals white, fully twice as long as the sepals: fruits 6-7 mm. in diameter: seeds dull. [*Anamomis dichotoma* Sarg.] HAMMOCKS.—F. K.—NAKED-STOPPER.

2. **A. longipes** (Berg) Britton. Shrub with prostrate-diffuse or sometimes erect stems, or rarely a small tree: leaf-blades mainly ovate or oval, 1-3.5 cm. long, finely reticulate: terminal flower of each cyme long-stalked: corolla 12-14 mm. wide; petals white or pink, much longer than the sepals: fruits 6-9 mm. in diameter. [*Eugenia longipes* Berg.] PINELANDS.—F. K. (*Bah.*)—LONG-STALKED STOPPER.

3. **PSIDIUM** L. Shrubs or trees. Leaf-blades prominently many-ribbed. Flowers solitary or few together. Fruit crowned with the persistent calyx. Seeds very numerous.

1. **P. Guajava** Raddi. Shrub, or tree sometimes 8 m. tall: leaf-blades oblong or nearly so, 4-8 cm. long, pubescent beneath: sepals 9-15 mm. long: petals 15-20 mm. long: berries globular or pyriform, 3-6 cm. in diameter.—HAMMOCKS, PINELANDS, WASTE PLACES, and cultivated grounds. Nat. of Trop. Am., and cultivated. F. K. (*Ber., Bah., Cuba, Ant.*)—GUAVA.

4. **CALYPTRANTHES** Sw. Shrubs or trees. Leaf-blades not ribbed. Flowers in terminal panicles. Calyx cap-like, deciduous. Berry crowned with the top of the hypanthium. Seeds 1 or 2. [*Chytraculia* P. Br.]—STOPPER.

Calyx-lid not mammillate: hypanthium pubescent: leaf-blades manifestly petioled.

1. *C. pallens*.

Calyx-lid mammillate: hypanthium glabrous: leaf-blades sessile or nearly so.

2. *C. Zuzygium*.

1. **C. pallens** (Poir.) Griseb. A shrub, or tree becoming 9 m. tall, the bark light-gray or nearly white, smooth or ultimately scaly, the branchlets 2-edged: leaf-blades elliptic or oval, varying to broader above or below the middle, 3-5 cm. long, or rarely larger, mostly short-acuminate, pubescent beneath, at least when young, manifestly petioled: inflorescence pubescent: hypanthium about 2 mm. wide in anthesis: calyx pubescent, less than 2 mm. in diameter: fruits subglobose or oval, 5-7 mm. in diameter, pubescent: seeds about 4 mm. long.—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—SPICEWOOD.

2. **C. Zuzygium** (L.) Sw. A shrub, or tree becoming 12 m. tall, the bark pale-gray, smooth, the branchlets terete: leaf-blades oval or elliptic, varying to ovate or obovate, 4-6 cm. long, obtuse or abruptly blunt-tipped, glabrous, sessile or nearly so: inflorescence glabrous: hypanthium about 4 mm. wide in anthesis: calyx glabrous 3.5-4 mm. wide: fruits subglobose or spheroidal, 8-10 mm. in diameter, glabrous: seeds about 5 mm. long.—HAMMOCKS.—(*Bah., Cuba, Ant.*)—MYRTLE-OF-THE-RIVER.

#### FAMILY 6. RHIZOPHORACEAE. MANGROVE FAMILY.

Shrubs or trees. Leaves usually opposite: blades entire or toothed. Flowers perfect, solitary or variously clustered. Calyx of 3 or 4 valvate sepals. Corolla of 3 or 4 thick petals. Androecium of twice or thrice as many stamens as sepals, or of 4 times as many. Gynoecium of 2-5 united carpels. Ovary inferior, at least partly so. Styles mostly united. Fruit a leathery berry crowned with or surrounded by the calyx.

1. **RHIZOPHORA** L. Evergreen trees. Leaf-blades leathery. Flowers 2-several in peduncled clusters. Sepals 4, leathery. Petals 4, leathery. Stamens 4-12. Ovary 2-celled, produced into a fleshy cone at maturity. Fruit pendulous, the seed germinating and sending out a long radicle before the fruit falls.

1. **R. Mangle** L. Shrub, or tree becoming 10 m. tall, forming impenetrable thickets on salt or brackish shores: leaf-blades elliptic to elliptic-obovate, 5-15 cm. long: sepals lanceolate, about 10 mm. long: petals pale-yellow, linear or nearly so: fruits 2-3 cm. long, the precocious radicle clavate.—SALT and BRACKISH SHORES and COASTAL HAMMOCKS.—F. K. (*Ber., Bah., Cuba, Ant.*)—MANGROVE.

#### FAMILY 7. EPILOBIACEAE. EVENING-PRIMROSE FAMILY.

Herbs or rarely shrubs. Leaves alternate or opposite: blades simple. Flowers typically perfect. Hypanthium often elongate. Calyx of 2-6, usually 4, sepals. Corolla of 2-9, usually 4, petals, or rarely wanting. Androecium of as many stamens as the sepals or twice as many. Gynoecium of several, usually 4, united carpels. Ovary 1-6-celled, usually 4-celled, inferior. Fruit capsular or nut-like.

Fruit a many-seeded capsule.

Hypanthium not prolonged beyond the ovary.

Stamens 4, in 1 row.

Leaves opposite: creeping or floating plants.

Leaves alternate: erect or ascending plants.

Stamens 8, in 2 rows.

Hypanthium prolonged beyond the ovary.

Fruit nut-like, indehiscent.

1. ISNARDIA.
2. LUDWIGIA.
3. JUSSIAEA.
4. RAIMANNIA.
5. GAURA.

1. **ISNARDIA** L. Perennial succulent herbs. Leaf-blades relatively wide. Flowers axillary. Sepals 4, broad. Petals minute, reddish to greenish, or wanting. Filaments very short. Ovary short. Style wanting or nearly so. Capsule obovoid or turbinate.

1. **I. repens** (Sw.) DC. Leaf-blades ovate, elliptic, or oval, 1-3 cm. long: hypanthium obpyramidal: sepals ovate-lanceolate: petals as long as the sepals or wanting: capsules obpyramidal. [*I. natans* (Ell.) Small.]—Lime-sinks in hammocks.—(*Ber., Bah., Cuba, Ant.*)—MARSH-PURSLANE.

2. **LUDWIGIA** L. Annual or perennial herbs. Leaf-blades entire or rarely shallowly toothed. Flowers axillary or terminal. Sepals generally persistent. Petals usually 4. Ovary usually 4-celled. Capsule cylindrical or prismatic to subglobose.

Corolla inconspicuous, obsolete or wanting: capsule opening by valves separating from the disk-like top.

Upper stem-leaves with spatulate blades: capsule less than 3 mm. high: anthers nearly 0.5 mm. long or less.

Leaf-blades entire: mature sepals orbicular-ovate.

Leaf-blades toothed at the apex: mature sepals lanceolate or triangular-lanceolate.

Leaf-blades broadly spatulate: sepals much shorter than the hypanthium.

Leaf-blades narrowly spatulate: sepals about as long as the hypanthium.

Upper stem leaves with linear-lanceolate or linear blades: anthers nearly 1 mm. long.

Corolla conspicuous: flowers pedicelled: capsule opening by a terminal pore.

1. *L. microcarpa*.
2. *L. Simpsonii*.
3. *L. Curtissii*.
4. *L. lanceolata*.
5. *L. maritima*.

1. **L. microcarpa** Michx. Plants low or depressed: leaf-blades spatulate or obovate-spatulate, 0.5-3 cm. long: sepals triangular: petals wanting: capsules broadly obpyramidal, 1.5-2 mm. long.—Hammocks and everglades. F. K. (*Bah., Ant.*)

2. **L. Simpsonii** Chapm. Plants weak, often decumbent: leaf-blades 1-2.5 cm. long: sepals triangular: petals wanting: capsules broadly turbinate, about 2 mm. long.—Hammocks.

3. **L. Curtissii** Chapm. Plants erect or ascending: leaf-blades 1-2 cm. long: sepals lanceolate or triangular-lanceolate: petals wanting: capsules turbinate, 2-2.5 mm. long.—Everglades.

4. **L. lanceolata** Ell. Plants 3-9 dm. tall, the stem angled or sometimes winged: leaf-blades linear-oblancoate to linear-lanceolate or linear, 2-10 cm. long: sepals very broad, acute: petals wanting: capsules 4-5 mm. long, the angles margined.—Everglades.

5. **L. maritima** Harper. Plants fastigiately branched, glabrous or nearly so: leaf-blades linear to lanceolate: sepals 3-4 times as long as the hypanthium, permanently reflexed: capsules very slightly winged on the angles.—Pinelands.

3. **JUSSIAEA** L. Perennial herbs or partially woody plants. Leaf-blades usually entire. Flowers axillary. Sepals 4-6, persistent. Petals 4-6, white or yellow, or rarely none. Stamens 8-12. Ovary 4-6-celled. Capsule linear, oblong or clavate.

1. **J. peruviana** L. Stems 1-4 m. tall, hirsute: leaf-blades ovate, oval, lanceolate, or oblong-lanceolate, 4-10 cm. long, or more: hypanthium hirsute: sepals

lanceolate to ovate-lanceolate, 10–15 mm. long: petals 2–3 cm. long: capsule-body oblong-obovoid, slightly longer than the base.—Everglades and banks of streams.—(*Cuba, Ant.*)

4. **RAIMANNIA** Rose. Annual, biennial, or perennial herbs. Leaf-blades sinuate or pinnatifid. Flowers axillary, sometimes aggregated in a spike, nocturnal. Petals yellow. Ovary slender. Capsule narrowly cylindrical, or rarely slightly tapering. Seeds tubercled.

1. **R. humifusa** (Nutt.) Rose. Branches silky-canescens: blades of the cauline leaves oblanceolate to lanceolate, undulate, repand or toothed: sepals about  $\frac{1}{2}$  as long as the hypanthium: petals 8–13 cm. long: capsules 3–3.5 mm. in diameter. [*Oenothera humifusa* Nutt.]—Coastal sand-dunes.—F. K. (*Ber.*)—EVENING-PRIMROSE.

5. **GAURA** L. Annual, biennial, or perennial herbs. Leaf-blades entire, toothed, or pinnatifid. Flowers spicate or racemose. Hypanthium narrow, somewhat prolonged beyond the ovary. Petals unequal, with clawed blades. Stamens 8, declined. Style declined. Stigma 4-lobed, surrounded by a cup-like border. Fruit ribbed or angled.

1. **G. simulans** Small. Stems 9–20 dm. tall, loosely pubescent below: blades of the stem-leaves oblanceolate or narrowly spatulate to lanceolate or linear-lanceolate, 2–12 cm. long, pinnatifid to sharply toothed: sepals broadly linear, rather obtuse: petals pinkish, 4.5–5 mm. long: fruits, 8–10 mm. long, glabrous.—Pinelands and coastal sand-dunes.

#### FAMILY 8. GUNNERACEAE. WATER-MILFOIL FAMILY.

Perennial, or rarely annual, aquatic or amphibious herbs. Leaves alternate to whorled: blades entire to dissected, often of 2 kinds on the same plant. Flowers perfect or monoecious. Calyx of 2–4 sepals. Corolla of 2–5 small petals, or wanting. Androecium of 1–8 relatively large stamens. Gynoecium of 1 or of 2–4, sometimes united, carpels. Ovary inferior. Stigmas 1–4.

1. **PROSERPINACA** L. Herbs with creeping stems. Leaves alternate: blades toothed or pectinate-pinnatifid, the lower ones the more finely dissected. Flowers perfect, axillary. Sepals persistent. Petals wanting. Fruits angled or winged, sessile.

1. **P. platycarpa** Small. Leaves various, those on the lower part of the stem with coarsely serrate or pectinate blades, those on the upper part of the plant merely serrate; blades oblong, elliptic, or slightly broadened upward: sepals deltoid or ovate-deltoid, barely 1 mm. long: fruits 4–5 mm. wide, constricted above the middle, the angles thus abruptly dilated.—Lime-sinks in hammocks and pinelands.—(*Bah., Cuba.*)—MERMAID-WEED.

#### Order AMMIALES.

Herbs, shrubs, trees, or vines. Leaves alternate or opposite: blades simple or compound. Flowers perfect, polygamous, or dioecious, often borne in umbels. Calyx of typically 5 small petals, surmounting the hypanthium. Corolla typically of 5 petals, or wanting. Androecium of as many stamens as the sepals. Gynoecium 2-carpellary, or rarely several-

carpellary or 1-carpellary. Ovary inferior. Fruit drupaceous or baccate, or dry and then a cremocarp.

FAMILY 1. **AMMIACEAE.** CARROT FAMILY.

Herbs with hollow stems. Leaves typically alternate: blades dissected, or sometimes merely toothed, or entire. Flowers perfect or polygamous, umbellate. Calyx of 5 tooth-like sepals, or obsolete. Corolla of 5 petals. Androecium of 5 stamens. Gynoecium of 2 united carpels, often with a stylopodium. Fruit dry, a cremocarp, the ribbed or winged carpels separating at maturity.

Fruits with obscure or obsolete oil-tubes.

Involucre wanting: fruits without secondary ribs or reticulations.

Involucre conspicuous: fruits with secondary ribs and reticulations.

Fruits with distinct oil-tubes.

Inflorescence glomerate, the flowers aggregated into dense heads.

Inflorescence manifestly umbellate.

Fruits flattened laterally, the carpels wingless.

Fruits flattened dorsally, the carpels winged.

1. **HYDROCOTYLE**

2. **CENTELLA**.

3. **ERYNGIUM**.

4. **PTILINIUM**.

5. **OXYPOLIS**.

1. **HYDROCOTYLE** [Tourn.] L. Perennial amphibious herbs. Leaves solitary at each node. Umbels simple or proliferous. Sepals manifest. Petals valvate. Carpels with distinct ribs, and oil-bearing tissues beneath the epidermis.—**MARSH-PENNYWORT.** **WATER-PENNYWORT.**

Flowers, and fruits very short-pedicelled or sessile, in remote clusters along the rachis: fruits rounded or truncate at the base and the apex. 1. *H. verticillata*, fruits notched at the base and the apex. 2. *H. umbellata*.

1. *H. verticillata* Thunb. Leaf-blades suborbicular to oval, 1-6 cm. wide, shallowly crenate: pedicels very short or wanting: fruits 3-4 mm. wide, with slender ribs.—Everglades and shore-hammocks.—(*Ber., Bah., Ant.*)

2. *H. umbellata* L. Leaf-blades suborbicular, 2-5 cm. wide, crenate or crenate-lobed: pedicels slender, 4-12 mm. long: fruits about 3 mm. wide, with corky-thickened ribs.—Everglades and low pinelands.—(*Cuba, Ant.*)

2. **CENTELLA** L. Perennial amphibious plants. Leaves clustered at the nodes. Umbels capitate. Sepals obsolete. Petals imbricate. Carpels without large oil-tubes, the prominent ribs anastomosing.

1. *C. repanda* (Pers.) Small. Leaves clustered; petioles erect, 9-30 cm. long (about 2.5 cm. long, and with larger fruit, in *C. repanda floridana*); blades thickish, ovate, 2-6 cm. long, repand, cordate or nearly truncate at the base: peduncles usually several together, mostly shorter than the petioles: umbels 2-4-flowered: fruits 4-5 mm. wide.—Everglades.—(*Ber., Bah., Cuba, Ant.*)

3. **ERYNGIUM** [Tourn.] L. Biennial or perennial herbs. Leaf-blades spiny-toothed, lobed or incised or rarely entire. Bracts of the involucre often colored, otherwise often resembling the leaves. Sepals acute or spine-like. Petals 5, each prolonged into an inflexed tip. Carpels with obsolete ribs and 5 oil-tubes.—**ERYNGO.** **BUTTON-SNAKEROOT.**

Leaf-blades not parallel-veined.

Basal leaves with entire or toothed blades.

Basal leaves with pinnatifid or pinnately parted blades.

Leaf-blades parallel-veined.

1. *E. Baldwinii*.

2. *E. aromaticum*.

3. *E. synchaetum*.



1. *E. Baldwinii* Spreng. Plants prostrate: blades of the basal leaves oblong varying to broadest above or below the middle, 2-9 cm. long: heads ovoid to cylindrical: bracts of the involucre subulate.—Everglades.

2. *E. aromaticum* Baldw. Plants ultimately diffuse, the branches 1-6 dm. long: blades of the lower leaves spatulate in outline, pinnatifid or pinnately parted, 3-4 cm. long, pale-margined: heads becoming 8-10 mm. long: sepals lanceolate, 2-2.3 mm. long, acuminate: petals fully 1.5 mm. long: fruits granular, 1.5-2 mm. long, or rarely smaller.—Pinelands.

3. *E. synchaetum* (A. Gray) Rose. Plants 3-9 dm. tall: blades of the lower leaves narrowly linear, usually pliable: sepals broadly ovate to deltoid-ovate, 1.5-1.8 mm. long: petals less than 2 mm. long: fruits 2-2.5 mm. long.—Pinelands.

4. **PTILIMNIUM** Raf. Annual herbs. Leaf-blades pinnately or ternately dissected, the segments very narrow. Umbels compound. Involucres and involucels of slender, often dissected, bracts and bractlets. Sepals obsolete. Petals white. Fruit slightly longer than wide: carpels with the dorsal and contiguous ribs prominent and the lateral ones thick and corky, between each of which is an oil-tube.

1. *P. capillaceum* (Michx.) Hollick. Plants 2-8 dm. tall: leaf-segments relatively few and lax: umbel-rays few to several, less than 2.5 cm. long at maturity: bracts lobed: petals less than 1 mm. long: stylopodium didymous in anthesis: fruits ovoid, about 2 mm. long, acute.—Hammocks and everglades.—BISHOP'S-WEED.

5. **OXYPOLIS** Raf. Perennial herbs. Leaf-blades pinnate or ternate, or rarely reduced to hollow septate phyllodia. Umbels compound. Sepals acute. Petals white. Fruit longer than broad, dorsally flattened: carpels with the dorsal and contiguous ribs thin, and winged lateral ribs, the latter nerved near the inner part of the wing: oil-tubes solitary in the intervals and 2-6 in the inner face.

1. *O. filiformis* (Walt.) Britton. Plants 5-18 dm. tall: phyllodia 3-60 cm. long: fruits oblong-oval or oval-obovate, 5-6 cm. long, broadly winged.—Everglades.—F. K.

## Series 2. GAMOPETALAE.

Petals more or less united, or occasionally distinct, or very rarely wanting.

### Order ERICALES.

Herbs, undershrubs, shrubs, or trees, sometimes humus-plants or saprophytes. Leaves alternate, often evergreen: blades simple. Flowers mainly perfect and complete. Calyx of 2-8, usually 5 partially united sepals. Corolla of 2-8, usually 5, mostly united petals. Androecium of as many or twice as many stamens as petals, sometimes partially reduced to staminodia: filaments mostly free. Gynoecium of several united carpels. Fruit capsular, baccate, or drupaceous.

Ovary superior: fruit capsular.  
Ovary inferior: fruits baccate or drupaceous.

Fam. 1. ERICACEAE.  
Fam. 2. VACCINIACEAE.

## FAMILY 1. ERICACEAE. HEATH FAMILY.

Shrubs, trees, or undershrubs. Leaves often persistent: blades commonly leathery. Flowers typically perfect. Calyx of 4-7 distinct or partially united sepals. Corolla of 4-7 distinct or partially united petals, sometimes slightly 2-lipped. Androecium of as many or twice as many stamens as there are petals: anthers opening by pores, chinks, or valves. Gynoecium of 2-7 united carpels. Fruit a capsule.

1. **XOLISMA** Raf. Evergreen or deciduous-leaved shrubs or trees. Leaf-blades entire or nearly so. Flowers in racemes, panicles, or clusters. Calyx-lobes typically 5. Corolla subglobose or urceolate. Filaments unappendaged: anthers awnless. Capsule with thick valve-margins.

1. **X. fruticosa** (Michx.) Nash. Evergreen shrub 1-3 m. tall: leaves much reduced toward the ends of the branches; blades oval, obovate, or oblanceolate, reticulate: corolla 3.5-5 mm. long, rounded at the base: capsules 4-4.5 mm. long.—Hammocks and pinelands.

## FAMILY 2. VACCINIACEAE. HUCKLEBERRY FAMILY.

Shrubs or trees. Leaves alternate: blades simple. Flowers perfect, regular, solitary or variously clustered, drooping. Calyx of 4 or 5 sepals. Corolla of 4 or 5 usually partially united petals. Androecium of twice as many stamens as there are corolla-lobes. Gynoecium of several united carpels, the ovary wholly or partly inferior. Fruit a berry or a drupe.

1. **VACCINIUM** L. Shrubs or small trees. Leaves mostly deciduous: blades entire or slightly toothed. Flowers in racemes or clusters. Sepals 5. Corolla ovoid, cylindraceous or campanulate-oblong. Stamens included: anthers tubular at the apex, unappendaged. Berry globular, blue or black.

1. **V. Myrsinites** Lam. Plant 3-6 dm. tall, bright-green: leaf-blades obovate to elliptic, 6-12 mm. long, glandular-toothed: sepals obtuse: corolla 4-6 mm. long: berries 4-5 mm. long, black.—Pinelands.—BLUEBERRY.

## Order PRIMULALES.

Herbs, shrubs, trees, or vines. Leaves alternate or opposite, sometimes all basal. Flowers perfect or polygamo-dioecious, variously disposed. Calyx of several partially united sepals. Corolla of 2-several distinct or partially united petals. Androecium of as many stamens as there are sepals, or petals, and sometimes accompanied by staminodia. Gynoecium of 4-6 united carpels, or rarely more. Fruit capsular or drupaceous, or rarely an achene or utricle.

Styles distinct: fruit an achene or utricle: ovule 1. Fam. 1. ARMERIAEAE.

Styles united: fruit capsular or drupe-like: ovules several.

Herbs: ovules or seeds not immersed: fruit capsular. Fam. 2. PRIMULACEAE.

Shrubs or trees: ovules or seeds immersed: fruit drupe-like.

Staminodia at the sinuses of the corolla-lobes: fruit containing few or many seeds.

Fam. 3. THEOPHARTACEAE.

Staminodia wanting: fruit containing a single seed.

Fam. 4. ARDISIACEAE.

FAMILY 1. **ARMERIACEAE.** PLUMBAGO FAMILY.

Perennial or rarely annual herbs, or shrubby plants, or vines. Leaves alternate, the bases dilated or clasping: blades entire. Flowers perfect, in heads, spikes, or cymes. Calyx of 4 or 5 partially united sepals, the tube ribbed. Corolla of 4 or 5 petals, the claws distinct or united. Androecium of 4 or 5 stamens opposite the petals. Gynoecium of 4 or 5 united carpels. Styles or stigmas distinct. Fruit an achene or a utricle.

1. **LIMONTUM** [Tourn.] Hill. Shrubby herbs with short leafy caudices and nearly naked flower-stems. Flowers in compound cymes. Calyx funnel-form, the limb scarious and plicate. Corolla funnel-form.

1. **L. brasiliense** (Boiss.) Small. Leaf-blades oblong, 6-12 cm. long, rounded or retuse at the apex: flower-stems 2-5 dm. tall: bracts oval, obtuse: calyx about 3-4 mm. long; lobes round-ovate: corolla white.—Coastal sand-dunes.—F. K.—SEA-LAVENDAR. MARSH-ROSEMARY.

FAMILY 2. **PRIMULACEAE.** PRIMROSE FAMILY.

Herbs, various in habit. Leaves alternate, opposite, or whorled, sometimes all basal: blades entire, toothed, or rarely dissected. Flowers perfect. Calyx of 4-9 partially united sepals, commonly persistent. Corolla of 4-9 partially united petals, or rarely wanting. Androecium of as many stamens as there are sepals and alternate with them, sometimes with staminodia. Gynoecium a single pistil, with a central placentae: style single. Fruit a 1-celled, 2-8-valved capsule.

Staminodia present: corolla-lobes longer than the tube.  
Staminodia wanting: corolla-lobes shorter than the tube.

1. **SAMOLUS.**  
2. **SAMODIA.**

1. **SAMOLUS** [Tourn.] L. Caulescent herbs. Leaves alternate: blades entire. Flowers in simple or branched, sessile or nearly sessile racemes. Calyx perigynous: lobes 5. Corolla perigynous: lobes 5, with staminodia at the sinuses. Stamens 5: filaments very short, adnate to the base of the very short corolla-tube. Ovary and capsule  $\frac{1}{2}$  inferior.

1. **S. floribundus** H.B.K. Plants glabrous, 1-6 dm. tall: leaf-blades spatulate to oval or ovate, nearly 3-15 cm. long: sepals ovate or triangular-ovate, barely 1 mm. long, acute: corolla white, 3 mm. wide; lobes oblong: capsules 2.5-3 mm. in diameter.—Everglades.—F. K. (*Bah., Cuba.*)—WATER-PIMPERNEL. BROOKWEED.

2. **SAMODIA** Baudo. Caulescent herbs, of low grounds. Leaves alternate: blades entire. Flowers in simple or branched long-peduncled racemes. Calyx perigynous: lobes 5. Corolla white or pink, perigynous, without staminodia: lobes 5. Stamens 5: filaments adnate to above the middle of the relatively long corolla-tube. Ovary and capsules  $\frac{1}{2}$  inferior.

1. **S. ebracteata** (H.B.K.) Baudo. Plant 1-3 dm. tall: leaf-blades spatulate or obovate, 3-10 cm. long, obtuse or apiculate: corolla 6-7 mm. wide; lobes more or less retuse at the apex. [*Samolus ebracteatus* H.B.K.]—Low pine-lands.—F. K. (*Bah., Cuba.*)

FAMILY 3. **THEOPHRASTACEAE.** JOEWOOD FAMILY.

Shrubs or trees. Leaves opposite, persistent: blades leathery, entire. Flowers perfect, in racemes, corymbs, or panicles. Calyx of 5 imbricate

sepals. Corolla of 5 partially united petals, campanulate or rotate-salverform. Androecium of 5 stamens partially adnate to the corolla-tube, and 5 staminodia. Gynoecium of 5 united carpels. Fruit a drupe-like berry.

1. **JACQUINIA** L. Plants with brittle twigs. Leaf-blades entire, thick and parchment-like when dry. Fruits erect.

1. **J. keyensis** Mez. Shrub, or tree becoming 5 m. tall, the bark pale, the twigs erect: leaf-blades cuneate-spatulate or oblong-obovate, 1-5 cm. long, shining: calyx-lobes 2-3 mm. long, orbicular-ovate: corolla straw-colored; lobes longer than the tube: staminodia oblong, erose: berry subglobose, 8-10 mm. in diameter.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—JOEWOOD.

#### FAMILY 4. ARDISIACEAE. MYRSINE FAMILY.

Shrubs or trees. Leaves mostly alternate, ours persistent: blades leathery, entire. Flowers perfect or polygamo-dioecious, in racemes, corymbs, or cymes, sometimes clustered on scaly spurs. Calyx of usually 4-6 sepals. Corolla of usually 4-6 partially united petals, short-salverform or rotate, often streaked or dotted. Androecium of mostly 4-6 stamens, partially adnate to the corolla-tube. Gynoecium of mostly 4-6 united carpels. Fruit a drupe-like berry.

Flowers on scattered spurs: corolla-lobes not reflexed: stigma lobed. 1. **RAPANEA**.  
Flowers in terminal panicles: corolla-lobes reflexed: stigma entire. 2. **ICACOREA**.

1. **RAPANEA** Aubl. Shrubs or small trees. Flowers inconspicuous, clustered on scaly spurs, stout-pedicelled. Corolla white or nearly so: lobes ascending or spreading. Stamens with ascending or spreading anthers. Style very short: stigma lobed.

1. **R. guyanensis** Aubl. Shrub or small tree, with grayish bark: leaves mostly near the ends of the branchlets; blades obovate-oblong or nearly oblong, 4-10 cm. long: flower-clusters scattered along the branchlets: sepals broadly ovate: corolla-lobes oblong, unequal: fruit about 4 mm. in diameter.—Hammocks and pinelands.—F. K. (*Bah., Cuba, Ant.*)—MYRSINE.

2. **ICACOREA** Aubl. Shrubs or trees. Flowers conspicuous, in panicles, cymes, or clusters, slender-pedicelled. Corolla white or pink: lobes recurved. Stamens with converging anthers. Style elongate: stigma minute, entire.

1. **I. paniculata** (Nutt.) Sudw. Shrub or small tree, with white bark: leaves scattered; blades oblanceolate to elliptic, 4-18 cm. long: panicles terminal: calyx-lobes ovate to obovate: corolla-lobes oblong: fruit 7-8 mm. in diameter.—Hammocks and pinelands.—F. K. (*Bah., Cuba.*)—MARLBERRY. CHERRY.

#### Order EBENALES.

Shrubs or trees. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, monoecious, or dioecious. Calyx of 3-12 partially united sepals. Corolla of 3-12 partially united petals. Androecium of as many stamens as there are corolla-lobes, or twice as many or more, sometimes accompanied by staminodia. Gynoecium of 3-several united carpels. Fruit capsular or baccate.

Styles or stigmas distinct: flowers mostly monoecious or dioecious.

Styles and stigmas united: flowers mostly perfect.

Fam. 1. **EBENACEAE**.  
Fam. 2. **SAPOTACEAE**.

## FAMILY 1. EBENACEAE. EBONY FAMILY.

Shrubs or trees. Leaves mostly alternate: blades entire. Flowers solitary or in cymes. Calyx of 3-7 partially united sepals, persistent, accrescent. Corolla of 3-7 partially united petals, often urecolate. Androecium of 3 or 4 times as many stamens as there are corolla-lobes. Gynoecium of 3-several united carpels. Fruit a berry, or sometimes capsular.

1. **DIOSPYROS** L. Shrubs or trees. Leaves scattered: blades entire. Calyx 3-7-lobed. Stamens with pubescent filaments and anthers opening lengthwise. Berry spheroidal or elongate.

1. **D. virginiana** L. Shrub, or tree becoming 35 m. tall, the bark very rough: leaf-blades ovate, oval, or elliptic, 8-20 cm. long, acute or acuminate: corolla 8-13 mm. long; lobes reniform: berries 3-4 cm. in diameter, astringent when green.—Everglades and coastal sand-dunes.—PERSIMMON. DATE-PLUM. SIMMON.

## FAMILY 2. SAPOTACEAE. SAPODILLA FAMILY.

Shrubs or trees, with milky sap, sometimes thorny. Leaves mostly alternate: blades entire. Flowers perfect or rarely polygamous, clustered. Calyx of 4-12, slightly united, sepals. Corolla of 4-12 partially united petals, with or without appendages at the sinuses. Androecium of usually as many stamens as there are corolla-lobes, commonly accompanied by staminodia. Gynoecium of several united carpels. Fruit a several-celled berry, or by suppression 1-celled.

Staminodia wanting.

Staminodia present.

Ovary 10-12-celled.

Ovary 2-5-celled.

Corolla-lobes entire.

Corolla-lobes with a large middle lobe and 2 smaller lateral lobes.

Ovary glabrous: endosperm copious.

Ovary pubescent: endosperm wanting or scant.

1. **CHRYSOPHYLLUM**.

2. **SAPOTA**.

3. **SIDEROXYLON**.

4. **DIPHOLIS**.

5. **BUMELIA**.

1. **CHRYSOPHYLLUM** L. Shrubs or trees. Leaf-blades commonly lustrous-pubescent beneath. Calyx-lobes mostly 5. Corolla, like the calyx, often pubescent: lobes mostly 5, entire. Anthers emarginate and apiculate. Style wanting. Stigma lobed.

1. **C. olivaeforme** L. Evergreen tree becoming 10 m. tall, the twigs closely pubescent: leaf-blades leathery, oblong, elliptic, or oval, 3-10 cm. long, lustrous-pubescent beneath: calyx-lobes suborbicular, 1.5 mm. long: corolla white, about 5 mm. wide; lobes suborbicular: berries oval, about 2 cm. long, dark-purple. [*C. monopyrenum* Sw.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—SATINLEAF.

2. **SAPOTA** Mill. Trees. Leaf-blades glabrous. Calyx-lobes 6, or rarely 5, pubescent. Corolla glabrous: lobes 6, or rarely 5, toothed. Anthers blunt. Staminodia nearly as long as the corolla-lobes. Style elongate: stigma minute. Berry spheroidal, rough.

1. **S. Achras** Mill. Tree with rusty-tomentose twigs: leaves and flowers approximately at the ends of the branchlets; blades oblong to elliptic, varying to broadest above or below the middle, 5-12 cm. long: pedicels rusty-tomentose, about as long as the petioles: calyx-lobes 8-10 mm. long: corolla 8-10 mm.

long; lobes about  $\frac{1}{2}$  as long as the tube: berries 4-8 cm. in diameter.—Hammocks and cultivated grounds. Nat. of the West Indies, and cultivated.—F. K. (*Bah., Cuba, Ant.*)—SAPODILLA.

**3. SIDEROXYLON** [Dill.] L. Shrubs or trees. Leaf-blades not lustrous-pubescent. Calyx-lobes 5-6. Corolla glabrous: lobes 5-6, entire. Anthers notched. Staminodia much shorter than the corolla-lobes. Style columnar: stigma truncate.

**1. S. foetidissimum** Jacq. Evergreen tree becoming 25 m. tall: leaf-blades thin-leathery, oblong to oval or rarely ovate, 4-15 cm. long, glabrous at maturity: calyx-lobes suborbicular, about 2 mm. long; corolla light-yellow, 6-7 mm. wide; lobes oblong to ovate-oblong: staminodia lanceolate: drupes oval, 2-2.5 cm. long, yellow. [*S. mastichodendron* Jacq.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—MASTIC. WILD-OLIVE.

**4. DIPHOLIS** A. DC. Shrubs or small trees. Leaf-blades mostly glabrous. Calyx-lobes 5, pubescent. Corolla-lobes 5, each 3-lobed, shorter than the tube. Staminodia petaloid. Endosperm copious.

**1. D. salicifolia** (L.) A. DC. Evergreen tree becoming 16 m. tall: leaf-blades elliptic to elliptic-oblancoate, 5-12 cm. long: calyx-lobes ovate to oblong, 1.5 mm. long; corolla 4 mm. wide; lobes oblong or oval: staminodia ovate to ovate-lanceolate, lacinate-toothed: berries oval or subglobose, about 8 mm. in diameter, black.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—BUSTIC. CASSADA.

**5. BUMELIA** Sw. Shrubs or trees. Leaf-blades mostly pubescent beneath. Calyx-lobes 5. Corolla-lobes 5, each 3-lobed, the middle lobe suborbicular, longer than the tube. Staminodia petaloid. Endosperm wanting or very scant.

**1. B. reclinata** Vent. Evergreen shrub, the twigs becoming glabrous: leaf-blades spatulate, oblanceolate, or rarely oblong-obovate, 1-3.5 cm. long, cobwebby-pubescent beneath: calyx-lobes suborbicular, about 1.5 mm. long; corolla about 2.5 mm. wide: staminodia 1.5 mm. long, crose: berries oblong, 8-9 mm. long.—Everglades, pinelands, and hammocks.—BUCKTHORN.

### Order OLEALES.

Shrubs, trees, undershrubs, or herbs. Leaves opposite, or rarely alternate or whorled: blades simple or pinnately compound. Flowers perfect, polygamous, or dioecious. Calyx of 4, or more, partially united sepals, or wanting. Corolla of 2-6, distinct or partially united, petals, or wanting. Androecium of 2-4 stamens partially adnate to the corolla when it is present. Gynoecium of 2 united carpels, the ovary superior. Fruit a capsule, a samara, or a berry, usually 1-celled.

#### FAMILY 1. OLEACEAE. OLIVE FAMILY.

Woody or partially woody plants with erect or climbing stems. Leaves predominately opposite: blades simple and entire or toothed, or pinnately compound.

Corolla wanting or rudimentary: fruit a drupe: leaf-blades simple. **1. FORESTIERA**  
Corolla salverform: fruit a didymous berry: leaf-blades compound. **2. JASMINUM.**

1. **FORESTIERA** Poir. Shrubs or trees. Leaves opposite: blades simple. Flowers mostly polygamo-dioecious, in lateral clusters. Calyx minute, 4-lobed, or obsolete. Corolla wanting, or rarely of 1-2 deciduous petals. Stamens 2-4. Stigma 2-lobed. Drupe oblong to globular.

Leaf-blades oblong or broadened upward: drupe with an oval stone over 6 mm. long.

1. *F. porulosa*.

Leaf-blades linear or broadened upward: drupe with an oblong stone less than 6 mm. long.

2. *F. pinetorum*.

1. *F. porulosa* (Michx.) Poir. Shrub 1-3 m. tall, or small tree, the twigs glabrous or nearly so: leaf-blades 1.5-5 cm. long, oblong-lanceolate to spatulate: bracts oval or suborbicular, about 1.5 mm. long: drupes oblong, 7-8 mm. long.—Hammocks.—FLORIDA-PRIVET.

2. *F. pinetorum* Small. Shrub with short rigid branches, 0.2-1.5 m. tall, the twigs puberulent: leaf-blades 1-2.5 cm. long, linear-spatulate: bracts obovate to orbicular-cuneate, 1.5-2 mm. long, ciliate: drupes oval, 5-6 mm. long, equilateral.—Pinelands.

2. **JASMINUM** [Tourn.] L. Shrubs or woody vines. Leaf-blades 3-7-foliolate or sometimes 1-foliolate. Flowers mostly in terminal compound cymes. Calyx with 4-9 short or elongate, often narrow, lobes. Corolla salverform, the limb 4-12-lobed. Filaments adnate to the corolla-tube. Fruit didymous.

1. *J. grandiflorum* L. Plants partially erect, or diffusely reclining: leaflets mostly 5-7; blades ovate to oval, mucronate, except the usually ovate-lanceolate or narrowly ovate acute or acuminate terminal one: calyx 4-8 mm. long; lobes subulate, often unequal: corolla white; tube 17-21 mm. long; lobes mostly oblong to oval, obtuse.—Pinelands and waste places. Nat. from the E. Indies, and cultivated.—(Ant.)—JESSAMINE.

### Order GENTIANIALES.

Herbs, shrubs, or trees, sometimes aquatic or humus plants, or vines. Leaves mainly opposite: blades simple. Flowers mostly perfect, solitary or in cymes. Calyx of 5 partially united sepals, or fewer. Corolla of 5 partially united petals, or fewer. Androecium of as many stamens as there are corolla-lobes: filaments often partially adnate to the corolla-tube. Gynoecium of 2 more or less united carpels. Fruit capsular, baccate, or drupaceous.

Ovary 2-celled: leaves stipulate or the bases connected by stipular lines.

Fam. 1. SPIGELIACEAE.

Ovary 1-celled: leaves not stipulate.

Corolla-lobes convolute or imbricate in the bud.

Fam. 2. GENTIANACEAE.

Corolla-lobes induplicate-valvate in the bud.

Fam. 3. MENYANTHACEAE.

### FAMILY 1. SPIGELIACEAE. LOGANIA FAMILY.

Herbs, vines, or woody plants. Leaves typically opposite. Flowers in open or compact clusters. Calyx of 4 or 5 partially united sepals. Corolla of 4 or 5 partially united petals. Androecium of 4 or 5 stamens. Gynoecium of 2 united carpels, or rarely more. Ovary 2-celled or rarely 4-celled. Fruit capsular and 2-valved, or baccate or drupaceous.

Corolla urceolate: capsule prominently 2-lobed.

1. *CYNOCOTNUM*.

Corolla campanulate: capsule ovoid-globose.

2. *POLYPREMUM*.

1. **CYNOCTONUM** J. F. Gmel. Annual (ours) erect herbs. Flowers in terminal cymes, secund. Calyx usually 5-lobed. Corolla white or pale, urceolate, somewhat longer than the calyx. Filaments almost completely adnate to the corolla-tube. Styles united by their tips in anthesis, ultimately distinct. Capsules miter-shaped, the 2 horns curved.—MITERWORT.

Leaf-blades narrowed into petiole-like bases: inflorescence lax. 1. *C. Mitreola*.  
Leaf-blades sessile: inflorescence dense. 2. *C. sessilifolium*.

1. *C. Mitreola* (L.) Britton. Stem 1-7 dm. tall: leaf-blades thin, oblong, elliptic, lanceolate, or ovate, or sometimes narrower, 1.5-8 cm. long, acute or acuminate: corolla-lobes ovate to oblong-lanceolate: capsules 2-2.5 mm. long.—Everglades and low pinelands.—F. K. (*Bah., Cuba, Ant.*)

2. *C. sessilifolium* (Walt.) J. F. Gmel. Stem 1-5 dm. tall: leaf-blades thick, ovate to orbicular, 1-5 cm. long, obtuse or apiculate: corolla-lobes ovate, mainly shorter than the tube: capsules about 4 mm. long.—Pinelands.—F. K.

2. **POLYPREMUM** L. Annual diffuse herbs. Flowers solitary in the forks of the branches and in the leaf-axils. Calyx-lobes 4 or 5, narrow. Corolla white, campanulate, shorter than the calyx. Filaments adnate to the corolla-tube for about  $\frac{1}{2}$  their length. Styles very short, permanently united. Capsules obovoid or subglobose.

1. *P. procumbens* L. Stem and branches 1-3 dm. long: leaf-blades narrowly linear to subulate, scabrous-margined: calyx-lobes narrowly lanceolate, about 3 mm. long: corolla-lobes suborbicular, slightly shorter than the tube: capsules about 2 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

## FAMILY 2. GENTIANACEAE. GENTIAN FAMILY.

Annual or perennial caulescent herbs, or rarely shrubs. Leaves typically opposite: blades entire, sometimes connate. Flowers perfect, solitary or variously clustered. Calyx of 2, 4 or 5, or more, partially united sepals, persistent. Corolla of 4 or 5 or more, partially united petals, varying from rotate to tubular. Androecium of as many stamens as there are corolla-lobes, the filaments partially adnate to the corolla-tube. Gynoecium of two united carpels. Fruit a capsule.

Corolla-lobes convolute in the bud: leafy plants, not saprophytic: stigmas distinct. Corolla campanulate-funnelform: stigmas broad, capsule oblong to oval.

Corolla rotate: stigmas narrow: capsule globose to ovoid. 1. EUSTOMA.  
Corolla-lobes imbricate in the bud: nearly leafless plants, saprophytic: stigmas united. 2. SABBATIA.  
3. LEIPHALMOS.

1. **EUSTOMA** Salisb. Annual relatively large herbs. Flowers solitary or in open panicles. Calyx-lobes 5 or 6, narrow. Corolla white, blue, or purple, campanulate-funnelform: lobes 5 or 6, usually erose-denticulate, longer than the tube.

1. *E. exaltatum* (L.) Griseb. Stem 1-9 dm. tall: blades of the upper leaves oblong to oblong-lanceolate, 1.5-7 cm. long: calyx-lobes 10-12 mm. long: corolla mainly blue; lobes oblong or oval, 17-20 mm. long: capsules 2-2.5 cm. long.—Pinelands and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. **SABBATIA** L. Annual or biennial relatively slender herbs. Flowers solitary or in cymes. Calyx-lobes 4-12, narrow. Corolla white, or of the pale tints, often with a distinct eye, rotate: lobes entire, longer than the tube.—MARSH-PINK.



Calyx-lobes about as long as the corolla-lobes: corolla mainly less than 3 cm. wide.

Calyx-lobes much shorter than the corolla-lobes: corolla mainly over 3.5 cm. wide.

1. *S. campanulata*.

2. *S. grandiflora*.

1. *S. campanulata* (L.) Torr. Stem 1-4 dm. tall: blades of the upper leaves narrow, but typically broader than the diameter of the stem or branches: calyx with filiform or nearly filiform lobes, typically about as long as the corolla: corolla deep-rose or magenta, with a yellow eye; lobes oblong to spatulate-oblong: capsules 6-8 mm. long.—Everglades.—(*Bah., Cuba.*)

2. *S. grandiflora* (A. Gray) Small. Stem 8-12 dm. tall: blades of the upper leaves typically stout-filiform or nearly so, mainly narrower than the diameter of the stem and the branches, 3-10 cm. long: calyx with filiform or very narrow lobes much shorter than the corolla: corolla deep-rose or magenta, the eye yellow; lobes oval or elliptic-oval to rhombic-obovate: capsules 8-10 mm. long.—Everglades and low pinelands.

3. **LEIPHAIMOS** Schlecht. & Cham. Annual or perennial humus plants. Leaves mere scales. Flowers solitary or in cymes. Calyx-lobes 4 or 5, narrow, commonly about as long as the tube. Corolla white or variously colored, salverform: lobes 4 or 5, much shorter than the tube.

1. *L. parasitica* Schlecht. & Cham. Plant pale, 1-4 dm. tall: leaves (scales) opposite, 3-5 mm. long: calyx-lobes lanceolate, acute: corolla white or pink, 6-8 mm. long, about twice as long as the calyx; lobes triangular to lanceolate: capsules 5-6 mm. long. [*Voyria mexicana* Griseb.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

### FAMILY 3. MENYANTHACEAE. BUCKBEAN FAMILY.

Perennial aquatic or bog herbs. Leaves alternate: blades simple or 3-foliolate. Flowers perfect, solitary or in clusters or racemes. Calyx of 5, partly united sepals. Corolla white or colored, rotate or funnelliform. Androecium of 5 stamens with the filaments partly adnate to the corolla-tube. Gynoecium of 2 united carpels. Style very short. Fruit a capsule, sometimes indehiscent.

1. **NYMPHOIDES** [Tourn.] Hill. Aquatic herbs. Leaves with elongate petioles and broad blades with a deep basal sinus. Flower-clusters sometimes tuber-bearing, borne on a petiole-like stalk. Calyx-lobes narrow. Corolla rotate. Filaments adnate to near the middle of the corolla-tube or above it. Capsule oblong to ovoid. [*Limnanthemum* J. F. Gmel.]

1. *N. aquaticum* (Walt.) Kuntze. Leaf-blades suborbicular to reniform, 5-15 cm. in diameter: flower-clusters usually without tubers: filaments adnate to below the middle of the corolla-tube, the free portion shorter than the anther: capsules about 6 mm. long.—Everglades.—FLOATING-HEART.

### Order ASCLEPIADALES.

Herbs, shrubs, or trees, commonly with a milky juice. Leaves alternate or opposite: blades entire. Inflorescence cymose, sometimes umbellate. Calyx of usually 5, partially united, sepals. Corolla of 5, partially united, petals. Androecium of mostly 5 distinct or monadelphous stamens, partially adnate to the corolla in *Asclepiadaceae* and accompanied by a 5-lobed crown. Pollen granular or in waxy masses. Gynoecium of usually

2 carpels, sometimes united only at the apex. Stigma terminal. Fruit a pair of follicles, or drupaceous.

Styles united: stamens distinct: pollen loosely granular. Fam. 1. APOCYNACEAE.  
 Styles distinct: stamens usually monadelphous: pollen united into waxy masses or the grains in groups of 4. Fam. 2. ASCLEPIADACEAE.

### FAMILY 1. APOCYNACEAE. DOGBANE FAMILY.

Perennial herbaceous or woody plants, with mostly dichotomous, cymose inflorescence. Androecium of mostly 5 stamens, with the anthers converging around the stigma or slightly adhering to it, not accompanied by a crown. Gynoecium of 2 carpels, the styles and stigmas at least united; two carpels usually maturing.

Anthers unappendaged at the base, not connected with the stigma: corolla-lobes sinistrorsely convolute.

Fruit drupaceous: shrubs or trees. 1. CERBERA.

Fruit a pair of follicles: herbs sometimes partially shrubby. 2. AMMOCALLIS.  
 Anthers appendaged at the base, converging around the stigma and partially adherent to it: corolla mostly dextrorsely convolute.

Shrub or trees. 3. NERIUM.

Herbs or vines.

Corolla funnelform, the throat widened upward.

Calyx-lobes relatively long and narrow: scale-like glands borne at the base of the calyx within. 4. URECHITES.

Calyx-lobes relatively broad and short: scale-like glands wanting. 5. RHABDADENIA.

Corolla salverform, the throat narrowed upward. 6. ECHITES.

1. **CERBERA** L. Shrubs or trees. Leaves alternate: blades relatively narrow. Calyx-lobes long. Corolla funnelform, the throat not constricted at the mouth. Drupe broad. Seeds angular.

1. **C. Thevetia** L. Shrub: leaves approximate; blades narrowly linear, 8-16 cm. long: calyx-lobes lanceolate, 5-7 mm. long: corolla saffron-colored: tube 2-2.5 cm. long; lobes very broad, 3-4 cm. long: drupe depressed, 3-4 cm. broad.—Pinelands and waste places. Nat. of Trop. Am., and cultivated.—F. K. (*Bah., Cuba, Ant.*)—TRUMPET-FLOWER.

2. **AMMOCALLIS** Small. Erect herbs. Leaves opposite. Corolla-tube with a contracted mouth. Follicles narrow.

1. **A. rosea** (L.) Small. Stems 2-7 dm. tall: leaf-blades oblong to oblong-cuneate, 4-8 cm. long: calyx-lobes linear-subulate, 3-4 mm. long: corolla white, pink, or blue, with an eye; tube 27-34 mm. long: lobes abruptly pointed: follicles 2-3 cm. long.—Pinelands and hammocks. Nat. of the tropics, and cultivated.—F. K. (*Ber., Bah., Cuba, Ant.*)—PERIWINKLE.

3. **NERIUM** [Tourn.] L. Shrubs or trees. Leaves opposite: blades relatively narrow. Corolla salverform, the throat campanulate, with toothed scales at the mouth, the lobes spreading, broad.

1. **N. Oleander** L. Shrub, or tree becoming 10 m. tall: leaf-blades narrowly elliptic to linear-elliptic, 6-15 cm. long, many-veined: calyx-lobes lanceolate, 4.5-6 mm. long: corolla white to rose-purple; limb 3-4.5 cm. wide, the lobes obliquely apiculate: follicles 1-2 dm. long.—Hammocks and low pinelands. Nat. of the Levant, and cultivated.—(*Ber., Cuba, Ant.*)—OLEANDER.

4. **URECHITES** Muell. Arg. Vines. Leaves opposite. Calyx-lobes relatively long and narrow. Corolla-tube abruptly dilated into the campanulate throat.

1. *U. lutea* (L.) Britton. Stems 3-30 dm. long, reclining or twining: leaf-blades oval, ovate, or suborbicular, 2.5-5 cm. long: calyx-lobes lanceolate, 8-11 mm. long: corolla yellow, the campanulate throat over 2 cm. long: anthers with linear-filiform appendages at the apex: follicles 12-15 cm. long. [*U. Andrewsii* (Chapm.) Small.]—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

5. **RHABDADENIA** Muell. Arg. Vines, sometimes nearly erect. Leaves opposite. Calyx-lobes relatively broad and short. Corolla-tube gradually dilated into the funnelform throat.

Corolla yellow; limb 2.5-3 cm. wide: erect herb, the branches pubescent.

Corolla white; limb 4.5-5 cm. wide: twining vine, the branches glabrous.

1. *R. corallicola*.

2. *R. biflora*.

1. *R. corallicola* Small. Stems 3-11 dm. long: leaf-blades oblong or nearly so, 1-3 cm. long, more or less revolute: calyx-lobes deltoid-ovate, 2-2.5 mm. long: corolla 2.5-3 cm. long; lobes 1-1.5 cm. wide: follicles 8-11 cm. long.—Pinelands.—F. K.

2. *R. biflora* (Jacq.) Muell. Arg. Stems greatly elongate: leaf-blades oblong or oblong-lanceolate, 4-9 cm. long, apiculate: calyx-lobes oblong or nearly so, 4-5 mm. long: corolla 5-6 cm. long; lobes 2.5-3 cm. wide: follicles 12-15 cm. long.—Coastal hammocks.—(*Bah., Cuba, Ant.*)

6. **ECHITES** P. Br. Vines. Leaves opposite. Flowers relatively large. Calyx with glands within. Corolla salverform, the throat narrowed to the mouth.

1. *E. Echites* (L.) Britton. Stems widely twining: leaf-blades ovate to oval, 4-9 cm. long: calyx-lobes triangular, 2.5-3.5 mm. long: corolla white or greenish-white; tube 5-6 cm. long; lobes 1.5-2.5 cm. long: follicles 15-20 cm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

## FAMILY 2. ASCLEPIADACEAE. MILKWEED FAMILY.

Perennial herbaceous or woody plants, with usually umbel-like cymes. Androecium of usually 5 stamens, with the anthers more adherent to the stigma than in *Apocynaceae*, the filament-appendages forming a crown. Gynoecium of 2 carpels with the stigmas united; only one carpel usually maturing.

Crown double, the outer a shallow ring, the inner with 5 fleshy hood-like scales.

1. PHILIBERTELLA.

Crown single.

Erect, ascending or spreading herbs.

Corolla-lobes reflexed during anthesis: hoods of the crown crestless or each with a horn-like process.

Crown-hoods without horns, or horn wholly adnate to the hood as a midrib.

Crown-hoods with projecting horns.

Corolla-lobes erect-spreading during anthesis: hoods of the crown pendulous or saccate at the base, curved upward, obtuse, crested within, at least in the upper part.

2. ACERATES.

3. ASCLEPIAS.

4. ASCLEPIADORA.

Twining vines.

Petals slightly united at the base: column short.

Corolla-lobes glabrous within: crown-lobes broad.

Stigma flat: crown-lobes not notched.

Stigma conic: crown-lobes notched at the apex.

Corolla-lobes pubescent within: crown-lobes narrow.

Petals united to about the middle: column elongate.

5. AMPHISTELMA.

6. LYONIA.

7. METASTELMA.

8. EPICION.

1. **PHILIBERTELLA** Vail. Vines with narrow or broad leaf-blades. Calyx 5-lobed. Corolla rotate: lobes broad, glabrous within. Anthers coherent.

1. *P. clausa* (Jacq.) Vail. Leaf-blades 3-8 cm. long, ovate-oblong to oblong-lanceolate, rounded or subcordate at the base: peduncles twice as long as the leaves or more: calyx-lobes oblong-lanceolate: corolla white; lobes oblong to ovate, 4-5 mm. long: follicles 5-7 cm. long: seeds about 3 mm. long.—Coastal hammocks. F. K. (*Bah., Cuba, Ant.*)

2. **ACERATES** Ell. Erect or spreading herbs, with narrow or relatively narrow leaf-blades. Calyx-lobes 5. Corolla rotate: lobes reflexed. Crown-hoods approximate to the anthers, the column very short or stout.

1. *A. floridana* (Lam.) A. Hitchc. Plants 3-8 dm. tall or more, green: leaf-blades linear to elongate linear-lanceolate, 7-16 cm. long: corolla-lobes 3-3.5 mm. long: hoods about 2 mm. long: anther-wings 1.5-2 mm. long: pollinia-bodies nearly 1 mm. long: seed-coma 3-4 cm. long.—Everglades.—GREEN-MILKWEED.

3. **ASCLEPIAS** [Tourn.] L. Erect or spreading herbs, with narrow or broad leaf-blades. Calyx-lobes 5. Corolla rotate: lobes reflexed. Crown-hoods approximate to the anthers, or nearly so, not adnate to the anther-column, the horn mainly adnate only at the base of the hood. Anther-wings salient at the base. Pollinia longer than the caudicles.—MILKWEED.

Follicles erect on deflexed pedicels: horn not longer than the hood: flowers orange-yellow.

Hoods 6-7 mm. long: leaf-blades truncate or cordate at the base.

Hoods 3-4 mm. long: leaf-blades tapering at the base.  
Follicles erect on erect pedicels: horn long-exserted: flowers greenish-white.

1. *A. Rolfsii*.

2. *A. lanceolata*.

3. *A. verticillata*.

1. *A. Rolfsii* Britton. Stems erect or ascending, 1-3 dm. tall, hirsute: leaf-blades mainly oblong, sometimes narrowly so, when broad sometimes fiddle-shaped, 3-7 cm. long, truncate or cordate at the base: corolla-lobes oblong, 6-7 mm. long: horn arising below the hood-auricles.—Pinelands.

2. *A. lanceolata* Walt. Stems 4-11 dm. tall, glabrous or nearly so: leaves few, distant; blades elongate-linear, linear-lanceolate, or narrowly lanceolate, mostly 1-2 dm. long, narrow at the base: corolla-lobes oblong, 8-9 mm. long: horn arising from the base of the hood.—Everglades.

3. *A. verticillata* L. Stems 3-8 dm. tall, commonly pubescent in lines: leaves numerous, close; blades narrowly linear to linear-filiform, 2-6 cm. long: corolla-lobes greenish-white, 3-4 mm. long: hoods about 1 mm. long, about equalling the androecium or shorter, with erect auricles within; horn slender, much exceeding the hood: column about 1 mm. long.—Pinelands.

4. **ASCLEPIADORA** A. Gray. Spreading herbs with alternate leaves. Calyx-lobes 5, spreading. Corolla rotate: lobes spreading. Crown-hoods involute and hooded at the apex, with an internal ridge above the middle. Anthers equalling the gynostegium: wings rounded at the base. Pollinia with caudicles nearly as long as the narrow bodies.

1. *A. viridis* (Walt.) A. Gray. Stem 2-6 dm. long, stout: leaf-blades oblong to lanceolate, 6-10 cm. long, rather thin: calyx-lobes about 4 mm. long, ciliate: corolla-lobes greenish, 10-11 mm. long: hoods about 4.5 mm. long, purplish or violet: anther-wings 2.5 mm. long: follicles 6-11 cm. long.—Pinelands.—F. K.

5. **AMPHISTELMA** Griseb. Slender vines with narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes

glabrous within. Crown adnate to the corolla: lobes very broad, surpassed by the anthers. Stigma flat.

1. *A. scoparia* (Nutt.) Small. Diffuse vine: leaf-blades narrowly linear, 2-5 cm. long: calyx-lobes about 1 mm. long, deltoid: corolla-lobes greenish, 1.5-2 mm. long: crown-lobes about 0.5 mm. long: follicles 3.5-4.5 mm. long. [*Metastelma scoparium* (Nutt.) Vail.]—Hammocks.—F. K.

6. *LYONIA* Ell. Slender vines with very narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes spreading at the tip, glabrous within. Crown adnate to the short column: lobes naked at the apex, longer than the gynostegium. Stigma conic.

1. *L. palustris* (Pursh) Small. Leaf-blades linear, 2-7 cm. long, acute, pendant: calyx-lobes lanceolate, about 2.5 mm. long: corolla-lobes purplish or greenish-white, 3-4 mm. long: crown-lobes 1.5-2 mm. long, retuse or emarginate at the apex: anther-wings about 1 mm. long: follicles 4.5-5.5 cm. long.—Hammocks.—F. K. (*Bah., Cuba.*)

7. *METASTELMA* R. Br. Slender vines with narrow leaf-blades. Calyx-lobes longer than the corolla-tube. Corolla rotate-campanulate: lobes pubescent within. Crown adnate to the very short column: lobes slender, curved over the anthers. Stigma flat.

1. *M. Blodgettii* A. Gray. Leaf-blades linear or linear-lanceolate, 8-27 mm. long: corolla whitish; lobes penicillate-bearded near the apex within: crown adnate to the base of the column: follicles 4-5 cm. long.—Hammocks.—F. K.

8. *EPICION* Small. Slender vines with relatively broad leaf-blades. Calyx-lobes shorter than the corolla-tube. Corolla campanulate: lobes pubescent within. Crown adnate to the elongate column: lobes narrow, not longer than the anthers. Stigma flat or depressed.

1. *E. bahamense* (Griseb.) Small. Leaf-blades oblong to oval, 1.5-2.5 cm. long, slender-petioled: calyx-lobes 1-1.5 mm. long: corolla white, 4-4.5 mm. long; lobes obtuse: crown-lobes 1-5 mm. long: follicles 5-6.5 cm. long.—Hammocks.—F. K. (*Bah.*)

### Order POLEMONIALES.

Herbs, or sometimes shrubs or trees, the plants of some groups parasitic. Leaves with dilated blades or scale-like. Flowers mainly perfect. Calyx of partly united sepals. Corolla of partly united petals, regular or irregular. Androecium of as many stamens as there are corolla-lobes, or fewer, sometimes partially represented by staminodia, or partially obsolete. Gynoecium of 2 distinct or several united carpels. Ovary superior. Fruit a capsule, a berry, or a dupe, or a group of nutlets or utricle-like.

Stamens 5.

Gynoecium of 2 distinct carpels.

Fam. 1. DICHONDRACEAE.

Gynoecium of 2 or more partially or wholly united carpels.

Fruit capsular or baccate: ovary not 4-lobed

Styles or stigmas distinct.

Ovary 1-2-celled, or rarely 4- or 5-celled:

stigmas 2.

Ovules, and seeds, few.

Fam. 2. CONVULVULACEAE.

Ovules, and seeds, numerous.

Fam. 3. HYDROLEACEAE.

- Ovary 3-celled: stigmas 3.  
 Calyx-lobes imbricated: corolla mostly  
 plaited in the bud. Fam. 2. CONVOLVULACEAE.  
 Calyx-lobes valvate: corolla merely  
 convolute in the bud. Fam. 4. POLEMONIACEAE.  
 Styles or stigmas wholly united.  
 Median axis of the gynoeceum in the same  
 axis as the stem: seeds mostly pitted. Fam. 5. SOLANACEAE.  
 Median axis of the gynoeceum not in  
 the axis of the stem: seeds mostly  
 tuberculate. Fam. 11. RHINANTHACEAE.  
 Fruit drupaceous, or of 2 or 4 nutlets.  
 Style or stigmas not furnished with a gland-  
 ular ring. Fam. 6. EHRETIACEAE.  
 Style or stigmas furnished with a glandular  
 ring. Fam. 7. HELIOTROPIACEAE.  
 Stamens 4 and didynamous, or 1 or 2.  
 Carpels ripening into a group of 4 nutlets, an  
 achene or a drupe.  
 Style apical on the lobeless ovary.  
 Ovules erect, or laterally attached: gynoe-  
 ceum ripening into a dry or fleshy fruit  
 with 2-8 nutlets, the seeds with a testa. Fam. 8. VERBENACEAE.  
 Ovules pendulous from the top of a central  
 columella: gynoeceum ripening into a fleshy-  
 capsular fruit with a solitary seed which  
 is destitute of a testa. Fam. 9. AVICENNIACEAE.  
 Style arising between the 4 lobes of the ovary. Fam. 10. LAMIACEAE.  
 Carpels ripening into a capsule.  
 Placentae of the ovary axile.  
 Ovary 2-celled, or rarely 3-5-celled.  
 Corolla-lobes imbricated: capsules not  
 elastically dehiscent. Fam. 11. RHINANTHACEAE.  
 Corolla-lobes convolute: capsules elastic-  
 ally dehiscent. Fam. 12. ACANTHACEAE.  
 Ovary 1-celled. Fam. 13. PINGUICULACEAE.  
 Placentae of the ovary parietal. Fam. 14. BIGNONIACEAE.

#### FAMILY 1. DICHONDRAEAE. DICHONDRA FAMILY.

Annual or perennial creeping herbs. Leaves alternate: blades broad, entire, long-petioled. Flowers axillary, solitary. Calyx of 5 slightly united sepals. Corolla rotate to campanulate, 5-lobed. Androeceum of 5 stamens shorter than the corolla. Gynoeceum of 2 distinct carpels. Styles basal. Capsules utricle-like, 2 together.

1. *DICHONDRA* Forst. Stems much-branched, often densely matted. Flowers erect.

1. *D. carolinensis* Michx. Plant inconspicuously pubescent: leaf-blades reniform to suborbicular 5-20 mm. wide, deeply cordate: calyx-lobes 2-3 mm. long: corolla-lobes obtuse.—Pinelands.—F. K. (*Ber., Bah.*)

#### FAMILY 2. CONVOLVULACEAE. MORNING-GLORY FAMILY.

Annual or perennial herbs, or vines, or rarely shrubs or trees. Leaves alternate, without stipules: blades various. Flowers perfect, regular, solitary or cymose. Calyx of 5, more or less united sepals, in one or two series. Corolla convolute in aestivation, its limb lobed or entire. Androeceum of 5 stamens, partially adnate to the corolla-tube, alternate with the lobes. Gynoeceum of 2 united carpels. Ovary 2-4-celled (rarely 5-celled, or 1-celled by the breaking down of the septum). Seeds 1 or 2 in each cavity, often pubescent.

Styles distinct or partly so.

Styles partially united, entire: stigmas 2.

1. *STYLISMA*.

Styles distinct, each 2-cleft: stigmas 4.  
 Styles united up to the stigma.

Fruit capsular, dehiscent.

Stigmas ovoid or subglobose.

Calyx urceolate: stamens spirally twisted.

Calyx campanulate: stamens straight.

Stamens and style included: corolla funnelform.

Calyx herbaceous; lobes elongate, usually pilose: ovary usually 3-celled.

Calyx leathery or membranous; lobes short: ovary 2- or 4-celled.

Stamens and style exerted: corolla usually salverform.

Corolla large, showy, 10-20 cm. long, white.

Corolla smaller, 5-6 cm. long or less, rarely white.

Seeds glabrous: herbaceous vines.

Seeds pubescent: partially woody vines.

Stigmas flattened.

Fruit baccate, indehiscent.

2. EVOLVULUS.

3. OPERCULINA.

4. PHARBITIS.

5. IPOMOEA.

6. CALONYCTION.

7. QUAMOCLIT.

8. EXOGONIUM.

9. JACQUEMONTIA.

10. ARGYREIA.

1. **STYLISMA** Raf. Herbaceous vines, often prostrate. Leaf-blades narrow or broad, not cordate. Flowers 1-3 on axillary peduncles. Sepals equal or nearly so, pointed. Corolla white or colored, rotate or subfunnelform. Capsule thin-walled.

1. **S. aquatica** (Walt.) Chapm. Stems trailing, softly pubescent: leaf-blades 2.5-3 cm. long, obtuse: peduncles longer than the leaves, 1-3-flowered: sepals oblong-lanceolate, acute, 4-6 cm. long: corolla rose-purple, 10-15 mm. long: capsules 6-8 mm. in diameter.—Pinelands.

2. **EVOLVULUS** L. Erect or diffuse herbs or partially woody plants. Leaf-blades entire. Flowers solitary and axillary or in terminal racemes or panicles. Calyx small: lobes nearly equal. Corolla white, pink, or blue, rotate or rotate-funnelform: limb 5-angled or 5-lobed. Capsule subglobose, 2-4-valved.

1. **E. sericeus** Sw. Plants silky, the branches ascending or decumbent, 1-3 dm. long: leaf-blades linear to oblong, 1-2.5 cm. long, acute at both ends: calyx-lobes 4-6 mm. long, acute or acuminate: corolla white or blue, 8-10 mm. wide.—Everglades.—(*Bah., Cuba, Ant.*)

3. **OPERCULINA** S. Manso. Twining vines. Leaf-blades entire, palmately lobed, or divided. Calyx large, pear-shaped, constricted above in flower: lobes closely imbricate, membranaceous or chartaceous. Corolla campanulate. Capsule globose, large, often operculate or irregularly dehiscent, sometimes valvate.

Corolla yellow: sepals becoming 4-5 cm. long.

Corolla white, except the purple throat: sepals becoming 1.5-2 cm. long.

1. *O. tuberosa*.

2. *O. dissecta*.

1. **O. tuberosa** (L.) Meisn. Leaf-blades 5-7-lobed; lobes elliptic-lanceolate, acuminate, 4-6 cm. long: corolla 3.5-4 cm. long; limb 5-6 cm. wide: capsules 3-4 cm. in diameter: seeds 20 x 15 mm., black-velvety.—Pinelands, hammocks and waste places. Nat. of the Tropics, and cultivated.—(*Cuba, Ant.*)—YELLOW MORNING-GLORY.

2. **O. dissecta** (Jacq.) House. Leaf-blades 5-7-parted; segments oval to oblong or lanceolate, 3-10 cm. long, coarsely toothed: corolla 2-3 cm. long; limb 3-5 cm. broad: capsules about 1.5 cm. in diameter: seeds glabrous. [*Ipomoea dissecta* Jacq.]—Pinelands.—(*Ber., Bah., Cuba, Ant.*)

4. **PHARBITIS** Choisy. Climbing or trailing vines. Leaf-blades entire, lobed, or angled. Calyx-lobes equal or unequal, herbaceous, each with a pubes-

cent base and a narrow tip. Corolla white, blue, or purple, funnellform. Seeds glabrous.—MORNING-GLORY.

Calyx minutely or obscurely pubescent; lobes 2 cm. long or less. 1. *P. cathartica*.  
Calyx bristly-pubescent; lobes 2.5 cm. long or more. 2. *P. Nil*.

1. *P. cathartica* (Poir.) Choisy. Perennial, minutely strigillose or glabrate: leaf-blades broadly ovate, 5-9 cm. long, entire or 3-lobed: sepals ovate-lanceolate, 1-2 cm. long, acuminate: corolla-limb pink-purple to white, 6-8 cm. wide.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *P. Nil* (L.) Choisy. Annual, hispid or hirsute: leaf-blades broadly ovate to suborbicular in outline, 6-16 cm. long, 3-angled or 3-lobed, the lobes acute: sepals 2.5-4 cm. long: corolla-limb deep-blue, 4-6 cm. wide.—Hammocks. Nat. of Africa, and cultivated.—(*Ant.*)

5. **IPOMOEA** L. Climbing or trailing vines or rarely upright plants. Leaf-blades entire, angled, or divided. Flowers solitary on axillary peduncles, or in cymes. Calyx-lobes coriaceous or membranous, or rarely fleshy. Corolla funnellform, the limb usually spreading. Capsule mostly septifragally 2- or 4-valved. Seeds often pubescent.—MORNING-GLORY.

Stem and branches creeping.

Corolla-limb white: leaf-blades several-lobed. 1. *I. stolonifera*.

Corolla-limb purple: leaf-blades not lobed, notched at the apex. 2. *I. Pes-Caprae*.  
Stem and branches twining or trailing.

Leaf-blades sagittate or hastate: inner sepals less than 1 cm. long.

Sepals equal, about 6 mm. long: corolla-limb less than 3 cm. wide. 3. *I. tenuissima*.

Sepals unequal, 7-9 mm. long: corolla-limb over 5 cm. wide. 4. *I. sagittata*.

Leaf-blades ovate, entire or angulately lobed. 5. *I. Batatas*.

1. *I. stolonifera* (Cyrill.) Poir. Leaf-blades 2-5 cm. long, the early ones ovate to oblong, the later ones pandurate or more deeply lobed, mostly truncate or cordate at the base: sepals oblong to oval, 1-1.5 cm. long, mucronate or acuminate: capsules subglobose, 1.5 cm. long.—Coastal sand-dunes.—(*Bah., Cuba, Ant.*)

2. *I. Pes-Caprae* (L.) Sweet. Leaf-blades 6-10 cm. long and as broad, rounded or cordate at the base: sepals oval or suborbicular, obtuse: corolla 4-5 cm. long: capsules globose-ovoid, 1.5 cm. long.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *I. tenuissima* Choisy. Stems twining: leaf-blades lanceolate or linear-lanceolate, 2-5 cm. long, obtuse and mucronulate: sepals ovate-lanceolate, obtuse, ciliate: corolla purple, 3-4 cm. long: capsules globose.—Pinelands.—F. K. (*Cuba.*)

4. *I. sagittata* Cav. Stems twining: leaf-blades 3-10 cm. long, sagittate or hastate-sagittate, the segments linear or lanceolate, the basal ones about half as long as the terminal one: sepals 6-9 mm. long: corolla 5-6 cm. long.—Everglades.—F. K. (*Ber., Bah., Cuba.*)

5. *I. Batatas* (L.) Lam. Stems from tuberous edible roots, the branches trailing: leaf-blades ovate, 5-11 cm. long, entire or angulately lobed, cordate: sepals unequal, ovate-lanceolate or lanceolate, acuminate: corolla 3-5 cm. long, white varying to shades of pink or purple.—Pinelands, hammocks and waste places. Nat. of the E. Indies, and cultivated.—(*Ber., Bah., Cuba, Ant.*)—SWEET-POTATO.

6. **CALONYCTION** Choisy. High-twining vines. Leaf-blades broad. Flowers showy. Calyx-lobes herbaceous, becoming leathery, the outer ones sometimes horned at the apex. Corolla white, expanding in the evening, salver-



form; tube elongate, not dilated at the throat. Capsules large, longer than broad.—MOON-FLOWER.

Outer sepals horned: leaf-blades thin-textured.  
Outer sepals obtuse: leaf-blades thick-textured.

1. *C. aculeatum*.
2. *C. tuba*.

1. **C. aculeatum** (L.) House. Leaf-blades ovate, 5–15 cm. long, entire or hastately 3–5-lobed: calyx-lobes about 1 cm. long: corolla-tube slender, 10–12 cm. long; limb 10–13 cm. broad.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **C. tuba** (Schlecht.) Colla. Leaf-blades ovate, acute, entire, cordate, 10–15 cm. long: calyx-lobes unequal, greenish, 2–2.5 cm. long: corolla-tube 10–14 cm. long; limb 8–10 cm. broad.—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)

7. **QUAMOCLIT** Moench. Twining vines. Leaf-blades entire, lobed, or divided. Flowers in axillary cymes or solitary. Calyx-lobes equal or nearly so. Corolla scarlet, orange, or white, salverform: tube narrowly funnellform: limb spreading, shorter than the tube. Capsules small.

Leaf-blades parted into narrow segments: sepals obtuse or mucronate.

Leaf-blades entire or merely lobed: sepals aristately awned.

1. *Q. Quamoclit*.
2. *Q. coccinea*.

1. **Q. Quamoclit** (L.) Britton. Leaf-blades 2–10 cm. long; segments narrowly linear: corolla-tube club-shaped, 2.5–3 cm. long; lobes ovate or triangular.—Pinelands and waste places. Nat. of Trop. Am., and cultivated.—(*Bah., Cuba, Ant.*)—CYPRESS-VINE.

2. **Q. coccinea** (L.) Moench. Leaf-blades ovate, 3–10 cm. long, acuminate, angled or entire: corolla-tube 2–4 cm. long; limb cup-like, 1.5–2 cm. broad.—Pinelands and cultivated grounds. Nat. of Trop. Am., and cultivated. (*Bah., Cuba, Ant.*)—RED MORNING-GLORY.

8. **EXOgonium** Choisy. Creeping, trailing or twining vines. Leaf-blades entire, lobed, or divided, rarely cordate. Flowers in axillary cymes or solitary. Calyx-lobes leathery, unequal, obtuse. Corolla salverform, scarlet or white. Capsule thick-walled, 4-seeded.

1. **E. microdactylum** Choisy. Leaf-blades oblong, acute, thickish, obtuse at base, entire or lobed, 3–8 cm. long: corolla crimson or scarlet; tube 4–5 cm. long; limb 4–5 cm. broad, slightly 5-lobed: capsules longer than the calyx.—Pinelands.—(*Bah., Cuba.*)

9. **JACQUEMONTIA** Choisy. Trailing or twining vines or upright shrubs or herbs. Leaf-blades entire or rarely toothed or lobed. Flowers in loose cymes without conspicuous bracts, or solitary. Calyx-lobes equal or unequal. Corolla white, blue, or violet, funnellform or rotate-funnelform: limb plaited. Capsule subglobose, 4-valved or sub-8-valved.

Leaves herbaceous: calyx becoming 4–5 mm. long: pedicels commonly longer than the peduncles: corolla-lobes rounded.

Leaves fleshy: calyx becoming 2–3 mm. long: pedicels commonly shorter than the peduncles: corolla-lobes obtuse.

1. *J. Curtissii*.
2. *J. reclinata*.

1. **J. Curtissii** Peter. Stems prostrate or spreading, glabrous or slightly cobwebby-pubescent, 2–9 dm. long: leaf-blades oblong or oblong-spatulate, 1–2 cm. long, obtuse or abruptly pointed, slightly revolute: calyx-lobes orbicular-ovate or oval: corolla whitish or violet, 2.5–3 cm. broad: capsules 5–6 mm. long.—Pinelands.

2. **J. reclinata** House. Stems tomentulose or glabrate, prostrate, reclining, or ascending, woody below, often 1–2.5 m. long; leaf-blades oblong to ovate-

orbicular, 1-3 cm. long, obtuse or retuse: peduncles usually shorter than the leaves: calyx-lobes ovate: corolla white, 2.5-3 cm. broad: capsules 4-5 mm. long.—Coastal sand-dunes.—(*Bah.*)

10. **ARGYREIA** Lour. Twining vines, the pubescence commonly sericeous. Leaf-blades broad, cordate, usually entire. Flowers in axillary peduncled cymes. Calyx often colored within: lobes leathery. Corolla showy, campanulate-funnelform. Ovary 2-celled. Stigma slightly 2-lobed. Fruit baccate, indehiscent.

1. **A. speciosa** (L.) Sweet. Stem and branches tomentose: leaf-blades broadly ovate, 12-20 cm. long, glabrate above, silvery-pubescent beneath, the veins conspicuous: bracts ovate-elliptic, unequal, glabrous within: sepals 4-5 mm. long: corolla-tube inflated-cylindric, about 5 cm. long; limb purple.—Everglades. Nat. of Trop. Asia, and cultivated.—(*Ant.*)

### FAMILY 3. HYDROLEACEAE. WATER-LEAF FAMILY.

Annual or perennial herbs, or shrubby plants. Leaves alternate or opposite: blades toothed, lobed, or dissected, or rarely entire. Flowers perfect, in scorpioid racemes, or in cymes. Calyx of 5 partially united sepals. Corolla regular, of 5 partially united petals, the tube often appendaged within. Androecium of 5 stamens, the filaments partially adnate to the corolla. Gynoecium 2-carpellary. Fruit a capsule.

1. **NAMA** L. Perennial herbs, or shrubby plants, sometimes spiny. Leaf-blades entire. Flowers in axillary or terminal cymes. Calyx slightly accrescent: lobes broad. Corolla blue or rarely white, rotate to campanulate. Filaments widely dilated at the base. Styles distinct.

1. **N. corymbosum** (Ell.) Kuntze. Plants 2-7 dm. tall, unarmed or nearly so, corymbose above: leaf-blades oblong to oblong-lanceolate, acute: calyx-lobes glandular-ciliate: corolla mainly azure-blue, 11-15 mm. long: capsules 4-6 mm. long.—Everglades and stream-banks.

### FAMILY 4. POLEMONIACEAE. PHLOX FAMILY.

Annual or perennial herbs, or woody plants. Leaves opposite or alternate: blades various. Flowers perfect, in variously disposed cymes. Calyx of 5 partially united sepals. Corolla of 5 partially united petals, mostly rotate, funnelform, or salverform. Androecium of 5 stamens, partially adnate to the corolla. Gynoecium 3-carpellary. Fruit a capsule, mostly included in the calyx.

1. **PHLOX** L. Herbaceous or woody erect, diffuse, or creeping plants. Leaves mainly opposite: blades entire. Corolla salverform. Filaments unequally adnate to the corolla-tube.

1. **P. Drummondii** Hook. Stems 1-3 dm. tall: leaf-blades narrowly oblong to lanceolate, or those at the base of the stem spatulate-oblongate, 1.5-4 cm. long, acute, sessile: calyx 8-9 mm. long; lobes subulate: corolla lavender; limb 1.5-2 cm. wide, the lobes obovate, abruptly pointed: capsules about 4 mm. long.—Pinelands and waste places.—Nat. of Texas, and cultivated.—**PHLOX.**

### FAMILY 5. SOLANACEAE. POTATO FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades entire, toothed, or lobed. Calyx of 5 (4-6), more or less united sepals. Corolla

of 5 (4-6), more or less united petals. Androecium of 5 (4-6), stamens, the filaments partially adnate to the corolla-tube. Gynoecium 2-carpellary, or 3-5-carpellary. Fruit a berry or a capsule.

Corolla plicate: lobes usually induplicate.

Berry enclosed in the accrescent calyx: anthers not connected.

Berry seated in the little changed calyx: anthers connate or converging.

Anther-sacs opening by terminal pores or short-slits.

Anther-sacs opening lengthwise and introrsely.

Corolla little, if at all plicate: lobes imbricate or valvate.

Stamens adnate to the base of the corolla-tube: corolla rotate

Stamens adnate high up on the corolla-tube: corolla salverform or funnelliform.

1. *PHYSALIS*.

2. *SOLANUM*.

3. *LYCOPERSICON*.

4. *CAPSICUM*.

5. *LYCIUM*.

1. *PHYSALIS* L. Herbs. Leaf-blades entire or sinuate. Flowers axillary, nodding, mostly solitary. Calyx bladder-like at maturity, with the lobes converging. Corolla mainly white or yellow and often dark in the center.—

—GROUND-CHERRY. JERUSALEM-CHERRY.

Plants annual, with much branched roots.

Plants viscid-pubescent: calyx hirsute: mature calyx conic.

Plants glabrous: calyx glabrous: mature calyx ovoid.

Plants perennial, with horizontal rootstocks.

Plants densely pale-pubescent: calyx stellate-pubescent.

Plants glabrous or nearly so: calyx glabrous, except the margin.

Leaf-blades oblong, oblanceolate or spatulate, the lateral veins distinct.

Leaf-blades linear or linear-oblanceolate, the lateral vein obsolete.

1. *P. barbadensis*.

2. *P. angulata*.

3. *P. viscosa*.

4. *P. Elliottii*.

5. *P. angustifolia*.

1. *P. barbadensis* Jacq. Stems generally pubescent and viscid, stout, acutely 3-4-angled: leaf-blades 3-6 cm. long, heart-shaped, acute or generally abruptly acuminate, sharply repand-dentate, pubescent with short hairs: peduncles 3-4 mm. long, at maturity sometimes 2 cm. long: calyx generally densely viscid-hirsute; lobes lanceolate, acuminate, but not subulate-tipped: corolla 5-10 mm. in diameter: anthers generally purplish: fruiting calyx 2.5-3 cm. long, attenuate, almost conic and reticulate, retuse at the base.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

2. *P. angulata* L. Stems angular, 0.5-1 m. tall, glabrous: leaf-blades ovate, with a more or less cuneate base, sharply sinuate, with long-acuminate teeth, thin, 4-7 cm. long; nerves not prominent; petioles slender, 2-4 cm. long: peduncles slender, 2-3 cm. long, erect, often reflexed at maturity, but seldom exceeding the fruiting calyx in length: calyx glabrous; lobes triangular to lanceolate, generally shorter than the tube: corolla 5-10 cm. in diameter: anthers more or less purplish-tinged: fruiting calyx about 3 cm. long, ovoid, not prominently 5-10-angled, sometimes purple-nerved and at length nearly filled with the yellow berry.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

3. *P. viscosa* L. Stems from slender horizontal rootstocks, slender, creeping, cinereous with dense stellate pubescence or in age rarely glabrate: leaf-blades elliptic, oval, or ovate, obtuse, thinnish, entire or undulate, sometimes cordate at the base (spatulate or oblong, with a tapering base, in *P. viscosa maritima*): peduncles 1-2 cm. long: calyx stellate-pubescent; lobes triangular, generally shorter than the tube: corolla greenish-yellow with a darker center, 1.5-2 cm. in diameter: fruiting calyx 2-3 cm. long, rounded ovoid, scarcely sunken at the base: berry orange or yellow.—Pinelands and coastal sand-dunes.—F. K.

4. *P. Elliottii* Kunze. Stems from slender horizontal rootstocks, with the foliage glabrous to the flowers, or sparingly stellate-pubescent when young, ascending, branched, slightly stellate or glabrate, 3-5 dm. tall: leaf-blades very thin and veiny, oblong, spatulate, broadly oblanceolate, or in luxuriant speci-

mens broadly oval, entire or wavy-margined, decurrent into a winged petiole: peduncles 2-3 cm. long, slender, erect, but reflexed and often 5 cm. long at maturity: calyx generally glabrous except the margin which is stellate-ciliate; lobes triangular: corolla 1.5-2 cm. in diameter, yellow with dark center: fruiting calyx generally a little shorter than in the next following species.—Pinelands.

5. *P. angustifolia* Nutt. Stems from slender elongate and creeping rootstocks, with the foliage often glabrous except the margins of the calyx-lobes or rarely sparsely stellate all over when young, diffusely branched, angled: leaf-blades linear or linear-oblongate, tapering into the petiole, entire, thickish; nerves except the midrib, generally obsolete: peduncles 2-3 cm. long, filiform, generally erect, 4-5 cm. long and reflexed at maturity: calyx glabrous, except the stellate-ciliate margins of the rounded triangular lobes: corolla about 2 cm. broad, yellow and with purple center: anthers yellow: fruiting calyx 1.5-2 cm. long, ovoid, obscurely angled and scarcely sunken at the base.—Pinelands.—F. K.

2. **SOLANUM** [Tourn.] L. Herbs, shrubs, trees, or vines. Leaf-blades entire, toothed, or lobed. Flowers variously clustered. Calyx sometimes accrescent. Corolla rotate, of various colors: lobes longer than the tube. Anthers narrow, converging or united, much longer than the filaments.

Herbs.

Corolla mostly less than 8 mm. wide: calyx-lobes spreading at maturity: foliage glabrous or nearly so. 1. *S. nigrum*.

Corolla mostly over 8 mm. wide: calyx-lobes appressed to the berry: foliage puberulent or pubescent. 2. *S. gracile*.

Shrubs or trees.

Leaf-blades velvety-tomentose beneath, unarmed.

Corolla-lobes ovate to oval-ovate: ovary pubescent: berries yellow. 3. *S. verbascifolium*.

Corolla-lobes linear to linear-lanceolate or lanceolate: ovary glabrous: berries red. 4. *S. Blodgettii*.

Leaf-blades finely and rather harshly pubescent beneath, often spiny. 5. *S. bahamense*.

1. *S. nigrum* L. Herbaceous annual, 1-12 dm. tall: leaf-blades ovate to oblong-ovate, 2-8 cm. long, undulate or deeply repand: calyx-lobes fully 1 mm. long: corolla white: lobes lanceolate to oblong-lanceolate: berries subglobose, 4-6 mm. in diameter.—Hammocks and cultivated grounds.—F. K. (*Bah., Cuba, Ant.*)—COMMON-NIGHTSHADE.

2. *S. gracile* Link. Herbaceous annual, 1-14 dm. tall: leaf-blades ovate to oblong-ovate, 2-8 cm. long, undulate or deeply repand: calyx-lobes fully 1 mm. long: corolla white; lobes lanceolate to oblong-lanceolate: berries subglobose, 4-6 mm. in diameter.—Pinelands and coastal sand-dunes.—(*Bah., Cuba, Ant.*)

3. *S. verbascifolium* L. Shrub or small tree: leaf-blades oblong to oblong-ovate or ovate, 10-30 cm. long, velvety-tomentose, entire: calyx-lobes ovate, ciliate, obtuse: corolla white, 15-18 mm. wide; lobes ovate to oval-ovate, acutish, ciliate: anthers oblong: ovary pubescent: berries globular, 10-20 mm. in diameter, yellow.—Hammocks and waste places.—F. K. (*Bah., Cuba, Ant.*)—POTATO-TREE.

4. *S. Blodgettii* Chapm. Shrub with simple or sparingly branched stems, 3-18 dm. tall: leaf-blades oblong, often narrowly so, 5-15 cm. long, hoary-scurfy and tomentulose, undulate: calyx-lobes oblong: corolla white or bluish, 14-17 mm. wide; lobes linear to linear-lanceolate or lanceolate, obtuse: anthers linear: ovary glabrous: berries red, 4-6 mm. in diameter.—Everglades and low pinelands.—F. K. (*Bah.*)

5. *S. bahamense* L. Shrub with much-branched stem, 5-20 dm. tall: leaf-blades oblong to oblong-lanceolate, 4-12 cm. long, thinly rough-pubescent,

undulate: calyx-lobes ovate to oblong-ovate, as long as the tube or shorter: corolla violet-blue, sometimes pale, 10-12 mm. wide; lobes linear or nearly so, acute or acutish: anthers linear: ovary glabrous: berries red, 6-8 mm. in diameter.—Coastal hammocks.—F. K. (*Bah., Cuba, Ant.*)

3. **LYCOPERSICON** Mill. Heavy-scented herbs. Leaf-blades 1-2-pinately divided. Flowers in cymes. Calyx not accrescent. Corolla rotate, yellow: lobes longer than the tube. Stamens as in *Solanum*.

1. **L. Lycopersicon** (L.) Karst. Plants clammy-pubescent, 3-12 dm. tall: leaf-blades 1-4 dm. long, the divisions ovate to oblong or lanceolate, coarsely toothed or incised: calyx-lobes narrow, acute: corolla mainly 1.5-2 cm. wide: berries mostly 5-15 cm. wide, red.—Pinelands and cultivated grounds. Nat. of Trop. Am., and cultivated. F. K. (*Ber., Bah., Cuba, Ant.*)—TOMATO.

4. **CAPSICUM** [Tourn.] L. Herbs or shrubs, unarmed. Leaf-blades flat, entire, or repand. Flowers axillary or cymose. Calyx truncate or minutely lobed. Corolla usually white, nearly rotate: lobes nearly as long as the tube. Anthers longer than the glabrous filaments. Stigma minute.—PEPPER.

Calyx-lobes manifest: corolla-lobes broadly acute.

1. *C. baccatum*.

Calyx-lobes obsolete: corolla-lobes rather abruptly pointed.

2. *C. frutescens*.

1. **C. baccatum** L. Stems 1-3 m. tall: leaf-blades ovate, oblong-ovate to ovate-lanceolate, 2-5 cm. long: calyx mainly 2.5-3 mm. long: corolla about 5 mm. long: berries 5-10 mm. long, red.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **C. frutescens** L. Stems 0.5-2 m. tall: leaf-blades ovate to ovate-lanceolate, 1-3 cm. long: calyx mainly 1.5-2 mm. long: corolla about 4 mm. long: berries 8-12 mm. long, red.—Hammocks.—F. K. (*Cuba, Ant.*)

5. **LYCIUM** L. Shrubs or woody vines, commonly spiny. Leaf-blades thick, sometimes terete, entire. Flowers axillary, sometimes clustered. Calyx markedly lobed. Corolla white or colored, funnelform, salverform, or nearly campanulate: lobes longer than the usually short tube, or shorter. Anthers shorter than the pubescent filaments. Stigma dilated.

1. **L. carolinianum** Walt. Plants 3-15 dm. tall, with recurving branches: leaves succulent, 0.5-2 cm. long: calyx-lobes deltoid or triangular-ovate, acute: corolla blue or lilac, or nearly white; lobes 3-6 mm. long: berries red, 8-12 mm. long.—Coastal sand-dunes and hammocks.—F. K. (*Cuba.*)

#### FAMILY 6. EHRETIACEAE. EHRETIA FAMILY.

Shrubs, trees, or sometimes herbs. Leaves mainly alternate: blades mostly entire. Flowers perfect, cymose. Calyx of 5 (4-6), partly united sepals. Corolla of 5 (4-6), partially united petals. Androecium of 5 (4-6), stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary: styles 2 and distinct, or partially united, or united by pairs. Fruit drupaceous or of 4 nutlets.

Styles, and stigmas, 4, unequally united by pairs: drupe with a 4-celled stone: cotyledons plaited or corrugated.

Styles, and stigmas, 2: drupe with 2 or 4 stones: cotyledons flat.

1. SEBESTEN.

2. BOURRERIA.

1. **SEBESTEN** Adans. Shrubs or trees. Flowers in open clusters. Sepals usually united to above the middle. Corolla bright-colored, shallowly or deeply lobed. Filaments adnate to above or below the middle of the corolla-tube. Fruits included, adnate to the accrescent calyx.

1. **S. Sebestena** (L.) Britton. Shrub or small tree, the twigs strigose: leaf-blades ovate or oblong-ovate, 8-12 cm. long, undulate or repand: calyx 14-19 mm. long; tube cylindrical: corolla-lobes much shorter than the tube: fruits oval or ovoid, 2-3 cm. long.—Coastal hammocks and sand-dunes.—F. K. (*Bah., Cuba, Ant.*)—GEIGER-TREE.

2. **BOURRERIA** P. Br. Shrubs or trees. Flowers in corymbose cymes. Sepals united to above the middle. Corolla white or colored, prominently lobed. Filaments adnate to above or below the middle of the corolla-tube.

Drupes 9-11 mm. wide: corolla-tube much exceeding the calyx. 1. *B. revoluta*.

Drupes 7-8 mm. wide: corolla-tube about equalling the calyx or slightly longer.

2. *B. cassinifolia*.

1. **B. revoluta** H.B.K. Shrub or small tree: leaf-blades oblong to obovate, mostly 2-7 cm. long, abruptly pointed, rounded, or notched, smooth or rough-pubescent and ciliate, at least at maturity slightly veiny in age: cymes several-flowered: calyx 6-7 mm. long; lobes ovate, mostly less than  $\frac{1}{2}$  as long as the tube: corolla white; tube much exceeding the calyx; larger lobes 5-6 mm. wide: anthers about 2.5 mm. long: drupes orange, slightly depressed, 9-11 mm. wide.—Pinelands.—F. K. (*Cuba, Ant.*)—ROUGH-STRONGBACK.

2. **B. cassinifolia** (A. Rich.) Griseb. Shrub or small tree: leaf-blades oval, elliptic, obovate, or cuneate, 1-2.5 cm. long, mostly obtuse or retuse, smooth, glabrous, and ciliate, at least at maturity slightly veiny in age: cymes few-flowered: calyx 5-6 mm. long; lobes triangular to ovate-triangular,  $\frac{1}{2}$  as long as the tube: corolla white; tube about as long as the calyx or slightly exceeding it; larger lobes about 4 mm. wide: anthers about 2 mm. long: drupes much depressed, 7-8 mm. wide.—Pinelands.—(*Cuba*). SMOOTH-STRONGBACK.

#### FAMILY 7. HELIOTROPIACEAE. HELIOTROPE FAMILY.

Herbs, shrubs, or woody vines. Leaves alternate: blades entire, or rarely toothed. Flowers perfect, mostly in scorpioid spikes or racemes. Calyx of 5 more or less united sepals. Corolla various, of 5 partially united petals. Androecium of 5 stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary. Stigma annular, surmounted by an appendage. Fruit drupaceous, or dry and of 2-4 nutlets.

Shrubs, trees or woody twiners: fruit drupaceous.

1. **TOURNEFORTIA**.

Herbs or shrubby herbs: fruit dry, separating into nutlets.

2. **HELIOTROPIUM**.

1. **TOURNEFORTIA** L. Plants erect or climbing. Sepals well united (ours). Corolla white or pale. Stamens adnate to near the top of the corolla-tube. Fruit drupaceous.

1. **T. gnaphalodes** (Jacq.) R. Br. Fleshy shrub, 3-18 dm. tall, the pubescence white or whitish: leaf-blades linear-spatulate, 4-10 cm. long: calyx-lobes shorter than the tube: corolla-lobes 2-3 mm. long: fruit ovoid, about 5 mm. long.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **HELIOTROPIUM** [Tourn.] L. Plants erect, diffuse or prostrate. Sepals nearly distinct. Stamens adnate to the lower part of the corolla-tube. Style very short. Fruit 4-lobed, an aggregate of 4 nutlets.—HELIOTROPE.

Inflorescence bractless: corolla yellow: plants annual.

1. *H. parviflorum*.

Inflorescence bracted: corolla yellow: plants perennial.

Plants with erect branches: corolla-lobes ovate, obtuse: flowers inodorous.

2. *H. Leavenworthii*.

Plants with radially prostrate branches: corolla-lobes deltoid, acute: flowers fragrant.

3. *H. horizontale*.

1. *H. parviflorum* L. Plants 2-12 dm. tall; leaf-blades elliptic to oblong-lanceolate, 2-7 cm. long, veiny; calyx-lobes lanceolate to linear, 1-1.5 mm. long; corolla white; tube 1-1.5 mm. long; fruits about 2 mm. wide.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. *H. Leavenworthii* Torr. Plants 2-11 dm. tall; leaf-blades linear to linear-elliptic, 1-2 cm. long; calyx-lobes lanceolate, 3-4 mm. long; corolla pale-yellow.—Everglades.—F. K.

3. *H. horizontale* Small. Plants with radially prostrate branches, 1-5 cm. long, often matted; leaf-blades linear or nearly so, 0.8-1.6 cm. long; calyx-lobes lanceolate, 4-5 mm. long; corolla golden-yellow.—Pinelands.

FAMILY 8. VERBENACEAE. VERVAIN FAMILY.

Herbs, shrubs, or trees. Stems commonly angled. Leaves alternate, opposite, or whorled; blades simple or rarely compound. Calyx of 4 or 5 partially or wholly united sepals. Corolla of 4 or 5 partially united petals, sometimes 2-lipped. Androecium of 2 or 4 stamens, the filaments more or less adnate to the corolla-tube. Gynoecium 2-4-carpellary, the style terminal. Fruit baccate or drupaceous, or an aggregate of 2 or 4 nutlets.

Inflorescence centripetal; ovules erect.

Flowers in heads, spikes or spike-like racemes.

Fruit of 2 or 4 nutlets, dry.

Stamens 4; fruit not imbedded in the rachis.

Fruit of 4 nutlets.

Fruit of 2 nutlets.

Herbs with procumbent or creeping stems.

Shrubs or shrubby plants with upright stems.

Stamens 2; fruit imbedded in excavations of the thick rachis.

Fruit drupaceous.

Flowers in open racemes.

Inflorescence centrifugal, cymose; ovules laterally attached.

Corolla regular; stamens equal.

Corolla irregular; stamens paired.

1. VERBENA.

2. PHYLA.

3. GONIOSTACHYUM.

4. VALERIANOIDES.

5. LANTANA.

6. CITHAREXYLUM.

7. CALLICARPA.

8. CLERODENDRON.

1. **VERBENA** [Tourn.] L. Herbs. Leaf-blades coarsely toothed or dissected. Flowers in depressed capitate spikes, which elongate somewhat in age, the bracts narrow. Calyx tubular, 5-lobed. Corolla white or colored, salverform. Anthers of the larger stamens with an appendaged connective.

1. *V. maritima* Small. Perennial, the diffuse or widely creeping branches 2-20 dm. long; leaf-blades cuneate to orbicular-obovate, 1-4 cm. long, incised, few-toothed or lobed; calyx 9-11 mm. long, the larger lobes subulate-lanceolate; corolla purplish; nutlets 4 mm. long.—Hammocks, pinelands and coastal sand-dunes.—VERBENA.

2. **PHYLA** Lour. Herbs. Leaf-blades toothed or lobed. Flowers in congested axillary spikes, the bracts cuneate to flabellate. Calyx flattened, 2-lobed. Corolla 2-lipped; tube scarcely exceeding the calyx. FROG-FRUIT.

Leaf-blades not rugose, shallowly toothed above the middle; corolla less than 2.5 mm. long.

Leaf-blades rugose, saliently toothed throughout; corolla over 2.5 mm. long.

1. *P. nodiflora*.

2. *P. stoehadifolia*.

1. *P. nodiflora* (L.) Greene. Plants soft-strigillose with creeping branches 2-13 dm. long; leaf-blades spatulate, 1-3 cm. long; spikes 10-30 mm. long; calyx about 2 mm. long; corolla about 2 mm. long; fruits about 1 mm. long.—Everglades.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *P. stoechadifolia* (L.) Small. Plants rough-strigillose, diffuse or with vine-like branches: leaf-blades thick, narrowly oblong to lanceolate, 2-12 cm. long, acute, serrate, rugose, the veins impressed above, prominent beneath: heads globose or depressed, becoming cylindric, sometimes elongate: calyx 2-2.5 mm. long: corolla purplish or pinkish, about 3 mm. long: fruits 1.5-2 mm. long.—Everglades.—(Bah., Cuba, Ant.)

3. **GONIOSTACHYUM** Small. Shrubs or shrubby plants. Leaf-blades mostly toothed. Flowers in congested axillary spikes, the bracts 4-ranked, of an ovate type, keeled. Calyx flattened, 2-lobed. Corolla 2-lipped: tube glabrous within, much longer than the calyx.

1. *G. citrosum* Small. Stems pale-gray or whitish: leaf-blades lanceolate to elliptic-lanceolate, 2.5-6 cm. long, shallowly serrate, pubescent: spikes depressed, short peduncled, 4-6 mm. long: bracts ovate: calyx about 1 mm. long: corolla white, about 4.5 mm. long; limb about 3 mm. broad: nutlets 1.5 mm. wide.—Hammocks.—(Cuba.)

4. **VALERIANOIDES** Boerh. Herbs, or shrubby plants. Leaf-blades toothed. Flowers sessile on a stout rachis or in excavations. Calyx often unequally 5-lobed, scarcely accrescent. Corolla white or colored, salverform, slightly 2-lipped. Stamens 2. Staminodia 2.

1. *V. jamaicensis* (L.) Kuntze. Plants with spreading branches, 6-15 dm. long: leaf-blades oblong, ovate, or oval, 2-8 cm. long: spikes virgate, quill-like: corolla blue, 8-11 mm. long; limb 7-8.5 mm. wide.—Pinelands and coastal sand-dunes.—F. K. (Ber., Bah., Cuba, Ant.)

5. **LANTANA** L. Shrubs or rarely herbs, sometimes prickly-armed. Leaf-blades toothed. Flowers in congested, flat-topped spikes. Calyx shallowly 2-5-lobed, or truncate. Corolla white or colored: tube slightly curved: limb irregular. Stamens 4.

Flower-heads involucrate: corolla mainly white.

Outer bracts of the involucre ovate.

Outer bracts of the involucre lanceolate or oblong-lanceolate.

Flower-heads bracted, but not involucrate: corolla yellow, orange or reddish.

Plants with prostrate stems and branches: drupes 2.5-3.5 mm. long.

Plants with erect stems and branches: drupes 4-5 mm. long.

1. *L. involucrata*.

2. *L. odorata*.

3. *L. depressa*.

4. *L. ovatifolia*.

1. *L. involucrata* L. Shrub 4-17 dm. tall, with puberulent or tomentulose foliage: leaf-blades oval, obovate, or suborbicular, 1-3 cm. long, usually cuneate at the base: outer bracts of the involucre 4-7 mm. long, ciliolate: calyx becoming 1.5 mm. long: corolla white or pale-purple; tube 2-4 mm. long; limb 2-4 mm. high.—Hammocks.—F. K. (Bah., Cuba, Ant.)

2. *L. odorata* L. Similar to *L. involucrata* in habit: leaves similar but commonly larger: bracts of the involucre narrower, the outer lanceolate or oblong-lanceolate: flowers often smaller.—Hammocks.—F. K. (Ber., Bah., Cuba, Ant.)

3. *L. depressa* Small. Shrub with unarmed prostrate branches, 2-11 dm. long: leaf-blades ovate to elliptic, 1-3.5 cm. long: spikes less than 2.5 cm. wide: corolla-tube 5-6 mm. long: stone of the drupe globose, 2-3 mm. long, scarcely beaked.—Pinelands.

4. *L. ovatifolia* Britton. Branches 2 m. tall or less: leaf-blades ovate, 3-7 cm. long, crenate-serrate: spikes over 2.5 cm. wide: corolla-tube 9-10 mm. long: stone of the drupe ovoid, about 5 mm. long, beaked.—Hammocks. (Bah.)



6. **CITHAREXYLUM** L. Shrubs or trees, sometimes spiny. Leaf-blades mainly entire. Flowers in clusters or long spikes. Calyx obscurely 5-lobed. Corolla mainly white: tube straight or nearly so: limb slightly oblique, nearly equally 5-lobed. Staminodia present. Drupe rather dry.

1. **C. fruticosum** L. Shrub or small tree, with softly pubescent twigs: leaves 5-15 cm. long; blades elliptic, oblong, or oblong-obovate, veiny: flowers in spikes or racemes: fruit 9-10 mm. long. [*C. villosum* Chapm. Not Jacq.]—HAMMOCKS.—F. K. (*Bah., Cuba, Ant.*)—FIDDLEWOOD.

7. **CALLICARPA** L. Shrubs or trees. Leaf-blades simple. Flowers in axillary cymes. Calyx shallowly 4-lobed, or nearly truncate. Corolla white or colored, rotate-funnelform, typically 4-lobed: tube straight. Filaments adnate to the lower part of the corolla-tube, glabrous. Stigmas stout. Drupe very juicy.

1. **C. americana** L. Shrub 1-2 m. tall, stellate-pubescent: leaf-blades ovate, elliptic, or oval, serrate: calyx 1-1.5 mm. long: corolla bluish or pink; limb about 5 mm. wide, the rounded lobes apiculate: fruit violet or magenta, 4-5 mm. in diameter.—PINELANDS and HAMMOCKS.—(*Ber., Cuba.*)—FRENCH-MULBERRY.

8. **CLERODENDRON** [Burm.] L. Trees, shrubs or half-shrubs. Leaf-blades simple, toothed. Flowers in dense terminal cymes. Calyx prominently 5-lobed. Corolla white or colored, funnelform or salverform, 5-lobed, the tube slightly curved. Filaments adnate to above the middle of the corolla-tube. Stigmas slender. Drupe lobed or ribbed.

1. **C. fragrans** Vent. Plants 0.5-1.5 m. tall, the twigs pubescent: leaf-blades ovate to deltoid, 6-14 cm. long, irregularly toothed, finely pubescent beneath, long-petioled: calyx 14-16 mm. long; lobes lanceolate, acuminate, ciliate: corolla 22-28 mm. long (flowers often double); lobes nearly as long as the tube.—PINELANDS and cultivated grounds. Nat. of China and Japan, and cultivated.—(*Ber., Bah., Cuba, Ant.*)

#### FAMILY 9. AVICENNIACEAE. BLACK-MANGROVE FAMILY.

Shrubs or trees of maritime regions, the branches terete, nodose. Leaves opposite, persistent: blades entire. Flowers in axillary small cymes. Calyx of 5 nearly distinct sepals. Corolla of 4 partially united petals, campanulate-rotate. Androecium of 4 stamens, the filaments adnate to the lower part of the corolla-tube. Gynoecium of 2 united carpels. Fruit a compressed oblique capsule.

1. **AVICENNIA** L. Leaf-blades thick. Cymes peduncled. Calyx subtended by small bracts. Corolla inconspicuous, the tube and spreading lobes about equal in length. Stamens erect. Stigmas 2. Capsule thick-walled.

1. **A. nitida** Jacq. Shrub, or tree sometimes 25 m. tall: leaf-blades leathery, oblong or nearly so, 3-8 cm. long, dark-green above, pale beneath: calyx 3-4 mm. long: corolla white; lobes longer than the tube: fruits oblong or elliptic, 3-5 cm. long, acutish.—COASTAL HAMMOCKS.—F. K. (*Ber., Bah., Cuba, Ant.*)—BLACK-MANGROVE.

## FAMILY 10. LAMIACEAE. MINT FAMILY.

Herbs or woody plants, often aromatic. Stems 4-sided. Leaves opposite or whorled: blades simple, entire, toothed, or lobed. Flowers perfect, in open or compact cymes. Calyx of 5 partially united sepals, regular or 2-lipped. Corolla of 5 partially united sepals, 2-lipped or nearly regular. Androecium of 2-4 stamens, the pairs often irregular. Gynoecium 2-carpellary. Ovary 4-celled. Fruit of 4 nutlets included in the calyx.

Gynoecium with 2 united 2-lobed carpels: ovary 4-lobed: style not basal: nutlets laterally attached.

Corolla very irregular, the upper lip very short or obsolete.

Corolla nearly regular, the upper lip prominent.

Gynoecium with 4 distinct, or nearly distinct, lobes: style basal: nutlets basally attached.

Calyx with a transverse crest on the upper side of the upper lip; lip entire.

Calyx crestless: lip lobed.

Corolla conspicuously 2-lipped; lips different, the upper one concave.

Anther-bearing stamens 4.

Anther-bearing stamens 2.

Corolla nearly regular, or if 2-lipped, the upper lip flat, not concave.

Stamens 2 or 4; filaments straight and spreading or converging under the upper corolla-lip.

Stamens 4, didynamous, the lower pair the longer, lying on the lower corolla-lip.

Calyx with nearly equal lobes: corolla with a saccate drooping lower lip.

Calyx with a broad decurrent upper lobe: corolla-lobes nearly equal.

1. *TEUCRIUM*.

2. *TRICHOSTEMA*.

3. *SCUTELLARIA*.

4. *DRACOCEPHALUM*.

5. *SALVIA*.

6. *PTCYNOTHYMUS*.

7. *HYPTIS*.

8. *OCIMUM*.

1. **TEUCRIUM** [Tourn.] L. Herbs. Leaf-blades toothed. Flowers in raceme-like panicles. Calyx 2-lipped. Corolla mainly pink, very irregular: upper lip split: lower lip 3-lobed, projecting beyond the upper lip: tube relatively long. Stamens lying against the upper lip.

1. *T. Nashii* Kearney. Stems 3-14 dm. tall: leaf-blades narrowly oblong to lanceolate, 4-14 cm. long, whitish-pubescent beneath: calyx becoming 6-7 mm. long; lower lobes blunt: corolla pink, 15-20 mm. long.—Everglades—GERMANDER.

2. **TRICHOSTEMA** L. Herbs or shrubby plants. Leaf-blades entire or repand. Flowers in axillary cymes. Calyx very irregular, 2-lipped. Corolla somewhat 2-lipped, the upper lip longer and narrower than the lower lip. Stamens lying against the lower corolla-lip.

1. *T. dichotomum* L. Plants 1-20 dm. tall: leaf-blades oblong to oblong-lanceolate, 2-7 cm. long: calyx becoming 8 mm. long; larger lip sharply 3-lobed: corolla nearly 1 cm. long: nutlets 2 mm. long.—HAMMOCKS.—BLUE-CURLS.

3. **SCUTELLARIA** L. Herbs or shrubby plants. Leaf-blades entire or toothed. Flowers axillary or in racemes. Calyx 2-lipped, the upper lip crested. Corolla with a long curved tube, 2-lipped, the upper lip arching.

1. *S. cubense* A. Rich. Plants 1-3 dm. tall, hoary-pubescent: leaf-blades orbicular-ovate to ovate, 3-6 mm. long, those of the lower ones sometimes shallowly toothed: calyx becoming 3 mm. long: corolla 14-16 mm. long; lower lip 7-8 mm. wide: nutlets fully 1 mm. long. [*S. longiflora* Small.]—Pinelands.—(*Bah., Cuba.*)—SKULLCAP.

4. **DRACOCEPHALUM** [Tourn.] L. Herbs. Leaf-blades typically narrow, usually toothed, at least near the apex. Flowers in spike-like racemes. Calyx essentially regular: lobes 5, shorter than the tube. Corolla 3-lipped: upper lip arched, entire; lower lip 3-lobed. Stamens 4: filaments elongate, one pair, at least, glabrous.

1. **D. leptophyllum** Small. Stems 6–10 dm. long: leaf-blades thin, oblong or nearly so, mostly 3–7 cm. long, repand: calyx-lobes lanceolate to triangular-lanceolate: corolla 20–23 mm. long: nutlets 3–3.5 mm. long. [*Physostegia leptophylla* Small.]—Everglades.—LION'S-HEART.

5. **SALVIA** [Tourn.] L. Herbs or woody plants. Leaf-blades entire, toothed, or lobed. Flowers in interrupted or continuous panicles. Calyx 2-lipped. Corolla 2-lipped: lower lip 3-lobed, the middle lobe much larger than the lateral ones. Stamens 4, but only 2 anther-bearing, or only 2: each filament surmounted by a transverse connective, one end of which bears a long anther.

1. **S. serotina** L. Stems 1–7 dm. tall, finely pubescent: leaf-blades ovate to orbicular-ovate, 1–4 cm. long, crenate-serrate: calyx 6–8 mm. long: corolla 6–10 mm. long: nutlets fully 2 mm. long.—Pinelands.—F. K. (*Ber., Bah., Cuba, Ant.*)—SAGE.

6. **PYCNOTHYMUS** Small. Shrubs. Leaf-blades narrow, entire. Flowers in dense raceme-like panicles. Calyx slightly irregular, the upper lip with 3 narrow lobes, the lower lip with 2 longer lobes. Corolla 2-lipped: lower lip 3-lobed, the middle lobe slightly larger than the lateral ones.

1. **P. rigidus** (Bart.) Small. Plants 1–7 dm. tall, hirsute: leaf-blades lanceolate, 5–12 mm. long: calyx 2.5–3 mm. long; lobes lanceolate to oblong-lanceolate: corolla light-purple, 7–8 mm. long; lobes rounded.—Pinelands.

7. **HYPTIS** Jacq. Herbs or woody plants. Leaf-blades commonly toothed. Flowers in often dense axillary cymes. Calyx nearly regular, sometimes oblique, accrescent and ribbed or veiny at maturity. Corolla 2-lipped: lower lip 3-lobed, the middle lobe saccate. [*Mesosphaerum* P. Br.]

1. **H. radiata** Willd. Stems 5–12 dm. tall: leaf-blades ovate to lanceolate or linear-lanceolate, 2–8 cm. long, remotely serrate: calyx 3–5 mm. long, becoming about 8 mm. long; tube strongly cross-ribbed at maturity: corolla 8–10 mm. long: nutlets about 1.5 mm. long.—Everglades and low pinelands.

8. **OCIMUM** [Tourn.] L. Herbs or woody plants. Leaf-blades often toothed. Flowers in raceme-like panicles. Calyx strongly 2-toothed: upper lip a broad lobe: lower lip of 2 broad lobes and 2 narrow lobes. Corolla slightly 2-lipped: lower lip of 3 nearly equal lobes.

1. **O. micranthum** Willd. Stems 2–5 dm. tall, branched: leaf-blades ovate to oblong-ovate, 1–4 cm. long, serrate: panicles continuous or nearly so: calyx 2 mm. long, becoming 6–7 mm. long, the lower lip with subulate-tipped lobes: corolla white, pink, or purplish, 4 mm. long; upper lip minutely bearded, lower lip with a notched middle lobe: nutlets about 1 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

## FAMILY 11. RHINANTHACEAE. FIGWORT FAMILY.

Herbs, shrubs, or trees. Stems commonly terete. Leaves opposite or whorled, or alternate: blades entire, toothed, or divided. Flowers perfect, axillary, or spicate or racemose. Calyx regular or rarely 2-lipped, of 4 or 5 more or less united sepals. Corolla mostly irregular, of 4 or 5 partially united petals. Androecium of 4, usually didynamous stamens, the fifth one often represented by a staminodium, or of 2 stamens and 2 staminodia. Gynoecium 2-carpellary. Ovary 1-celled. Fruit capsular or rarely baccate.

Upper lip, or lobes, of the corolla external in the bud, or wanting.

Corolla with a spur or sac on the lower side.

Corolla-throat open: capsule 2-valved.

Corolla-throat closed by a palate: capsule opening by a pore.

Corolla without either spur or sac.

Filaments 5, 4 anther-bearing, 1 sterile and different from the others.

Filaments 2 or 4.

Shrub: corolla elongate.

Herbs: corolla short.

Anther-bearing filaments 4.

Corolla nearly regular, about equally 5-lobed.

Corolla irregular, manifestly 2-lipped.

Flowers peduncled: hypogynous disk present: leaf-blades palmately veined.

Flowers pedicelled: hypogynous disk wanting: leaf-blades pinnately veined.

Anther-bearing filaments 2.

Anther-sacs transverse, separated on a dilated connective.

Anther-sacs vertical, contiguous.

Lower lip, or lobes, of the corolla external in the bud.

Sepals distinct or nearly so.

Corolla campanulate; lobes 5: leaves alternate.

Corolla rotate; lobes 4: leaves opposite.

Sepals partially united into a tube.

Corolla campanulate, funnelliform or tubular: capsule not included in the calyx.

Stamens equal.

Stamens unequal, didynamous.

Corolla salverform: capsule included in the calyx.

1. ANGELONIA.

2. ANTIRRHINUM.

3. PENTSTEMON.

4. RUSSELIA.

5. BRAMIA.

6. HYDROTRIDA.

7. MECARDONIA.

8. GRATIOLA.

9. SOPHRONANTHE.

10. CAPRARIA.

11. SCOPARIA.

12. AFZELIA.

13. AGALINIS.

14. BUCHNERA.

1. **ANGELONIA** H. & B. Herbs or woody plants. Leaf-blades narrow, shallowly toothed. Flowers in terminal racemes. Calyx-lobes 5, almost equal. Corolla 2-lipped, the tube very short, saccate back of the lower lip, the throat wide open. Stamens 4, included.

1. **A. angustifolia** Benth. Plants 1-14 dm. tall, the stem or branches pubescent: leaf-blades linear-spatulate to linear or nearly so, 3-11 cm. long, shallowly toothed: flowers slender-pedicelled: calyx-lobes ovate, ciliate: corolla about 2 cm. wide, spotted within.—Pinelands and cultivated grounds. Nat. of Mex., and cultivated.—(*Cuba, Ant.*)

2. **ANTIRRHINUM** [Tourn.] L. Erect herbs or vines. Leaf-blades broad, entire. Flowers axillary, or in racemes or panicles. Calyx-lobes much longer than the tube. Corolla 2-lipped, saccate at the base, the throat closed by a palate. Capsules opening by subapical pores.

1. **A. antirrhiniflorum** (Poir.) A. Hitchc. Vine: leaf-blades hastate, 1-4 cm. long; petioles, and pedicels, often tendril-like: calyx-lobes linear to linear-lanceolate, 10-15 mm. long: corolla purple or white, 15-25 mm. long: capsules 5-8 mm. in diameter.—Pinelands. Nat. of Texas, and cultivated.—(*Ber., Bah., Ant.*)

3. **PENTSTEMON** [Mitchell] L. Herbs. Leaf-blades entire, toothed, or dissected. Flowers borne in racemose or paniculate cymes. Calyx-lobes 5, longer than the tube. Corolla 2-lipped, the lips more or less spreading. Capsule valvate.

1. **P. multiflorus** Chapm. Stem 4-14 dm. tall: blades of the upper leaves narrowly oblong to oblong-lanceolate, 3-9 cm. long, entire or undulate-toothed: calyx-lobes ovate, 3-4 mm. long: corolla white or purple-tinged, 15-20 mm. long: capsules 8-10 mm. long.—Pinelands.—BEARD-TONGUE.

4. **RUSSELIA** Jacq. Shrubs commonly with rush-like stems. Leaves mostly scale-like or sometimes with small blades. Cymes diffuse. Sepals broad, nearly distinct. Corolla tubular or tubular-funnelform: lobes very short. Capsule globular to ovoid.

1. **R. equisetiformis** Schlecht. & Cham. Stems tufted, spreading or arching, the branches striate: leaves various, those on twigs with spatulate or obovate blades 1-1.5 cm. long, those on the stem and branches reduced to short scales: flowers numerous: calyx 3-4 mm. long; lobes ovate: corolla bright-red, 20-26 mm. long; lobes ovate. [*R. juncea* Zucc.]—Pinelands. Nat. of Mex., and cultivated.—(*Ber., Bah., Ant.*)—FOUNTAIN-PLANT. CORAL-FLOWER.

5. **BEAMIA** Lam. Succulent, odorless, creeping herbs. Leaf-blades broadest above the middle, entire or nearly so, sessile. Flowers axillary. Calyx with the upper lobe broadest. Corolla nearly regular. Style elongate.

1. **B. Monniera** (L.) Drake. Stem and branches glabrous, 1-6 dm. long: leaf-blades 1-2 cm. long, sometimes inconspicuously toothed: outer calyx-lobes becoming 5-6 mm. long, usually acute: corolla white or pale-blue; upper lobes retuse: capsules 5-8 mm. long.—Coastal hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

6. **HYDROTRIDA** Willd. Aromatic, succulent, creeping or floating herbs, the stems terete. Leaf-blades narrowest above the middle, partly clasping. Flowers axillary. Calyx with the outer lobes cordate. Corolla 2-lipped. Style elongate.

Upper leaf-blades oblong or ovate-oblong, entire or undulate. 1. *H. caroliniana*. Upper leaf-blades orbicular or ovate-orbicular, shallowly toothed. 2. *H. crenulata*.

1. **H. caroliniana** (Walt.) Small. Stem and branches 2-6 dm. long: leaf-blades oblong or ovate-oblong, 1-2 cm. long: outer calyx-lobes becoming 6-7 mm. long: corolla blue; tube 6-7 mm. long: capsule about 4 mm. long.—Everglades.

2. **H. crenulata** Small. Similar to *H. caroliniana* in habit, but larger: leaf-blades orbicular to ovate-orbicular, 1.5-2.5 cm. long: outer calyx-lobes becoming 10-11 mm. long: corolla blue; tube 7-8 mm. long: capsules about 5 mm. long.—Everglades.

7. **MECARDONIA** R. & P. Erect or diffuse, wiry herbs, the stems angled. Leaf-blades toothed, narrowed at the base. Flowers axillary. Calyx-lobes 5, unequal. Corolla mainly white or pink, 2-lipped. Stamens 4. Style short.

Leaf-blades mostly spatulate: upper sepal linear or oblong at maturity: corolla 8-10 mm. long. 1. *M. acuminata*.

Leaf-blades mostly ovate or oval: upper sepal ovate or oval at maturity: corolla 5-7 mm. long. 2. *M. procumbens*.

1. **M. acuminata** (Walt.) Small. Stem and branches 1-6 dm. tall: leaf-blades spatulate to oblong or elliptic, 2-5 cm. long, bluntly serrate: calyx-lobes becom-

ing 8-10 mm. long: corolla about 10 mm. long: capsules 5-6 mm. long.—Everglades.

2. *M. procumbens* (Mill.) Small. Stem and branches 0.5-2 dm. long, pro-cumbent: leaf-blades oval to elliptic or ovate, 1-1.5 cm. long, sharply serrate: calyx-lobes becoming 6-8 mm. long: corolla 8-10 mm. long: capsules 4-5 mm. long.—Hammocks.

8. *GRATIOLA* L. Rather succulent herbs. Leaf-blades entire or shallowly toothed. Flowers axillary. Calyx-lobes 5, often unequal, sometimes toothed, glabrous or minutely pubescent. Corolla 2-lipped. Stamens 2. Staminodia mostly scale-like or wanting. Capsule globular or broadly ovoid.

1. *G. ramosa* Walt. Stems viscid-puberulent, 1-3 dm. tall: leaf-blades lanceolate to linear-lanceolate, 1-1.5 cm. long, sharply few-toothed: calyx-lobes linear-subulate to narrowly linear-lanceolate, 4-6 mm. long: corolla whitish, 10-12 mm. long: capsules depressed, 1.5-2 mm. long.—Everglades.—HEDGE-HYSSOP.

9. *SOPHRONANTHE* Benth. Rigid herbs. Leaf-blades narrow, entire. Flowers axillary. Calyx-lobes 5, unequal, bristly-pubescent. Corolla 2-lipped, salverform. Stamens 2. Capsule conic to narrowly ovoid.

1. *S. hispida* Benth. Stems 0.5-2 dm. tall, hispidulous: leaf-blades firm, linear, 1-1.5 cm. long, revolute: calyx-lobes linear-lanceolate to almost linear, 5-6 mm. long: corolla 10-12 mm. long: capsules about 5 mm. long.—Pinelands.

10. *CAPRARIA* L. Herbs or woody plants. Leaves cauline: blades toothed. Flowers axillary. Calyx-lobes 5, narrow. Corolla campanulate: lobes 5, nearly equal, about as long as the tube. Stamens 4 or 5.

1. *C. biflora* L. Stems 3-15 dm. tall, sometimes pubescent: leaf-blades oblanceolate, cuneate or oblong, 1-6 cm. long, sharply serrate, at least above: calyx-lobes linear-lanceolate to linear-subulate, 4.5-7 mm. long: corolla white or pink, about 10 mm. long: capsules oval or oval-ovoid, about as long as the calyx.—Pinelands, hammocks and waste places.—F. K. (*Ber.*, *Bah.*, *Cuba*, *Ant.*)

11. *SCOPARIA* L. Herbs or woody plants. Leaf-blades mostly toothed. Flowers axillary. Calyx-lobes 4 or 5, nearly equal. Corolla rotate: lobes very broad, longer than the tube. Stamens mostly 4, about equal, the filaments adnate to the base of the corolla-tube.

1. *S. dulcis* L. Stems 2-10 dm. tall, glabrous: leaf-blades ovate, elliptic-oblong, or oblong-lanceolate, 1-3 cm. long: calyx-lobes oblong to oblong-ovate, about 1.5 mm. long, strongly 3-ribbed: corolla-lobes mainly ovate: anthers about as long as the filaments: capsules about 2 mm. long.—Pinelands and cultivated grounds.—(*Bah.*, *Cuba*, *Ant.*)

12. *AFZELIA* J. F. Gmel. Herbs. Leaf-blades 1-2-pinnately parted or dissected. Flowers axillary. Calyx-lobes 5, as long as the tube or somewhat longer. Corolla mainly yellow, rotate-campanulate: lobes nearly equal, about as long as the tube. Stamens 4, exserted: filaments adnate to about the middle of the corolla-tube: anthers longer than the filaments. Capsules ovoid.

1. *A. pectinata* (Pursh) Kuntze. Stems 2-5 dm. tall, viscid-pubescent: leaf-blades pinnately parted or pinnatifid at least below: calyx-lobes linear, 2-3 mm. long, obtuse: corolla-lobes oval to suborbicular, much shorter than the tube: capsules 5-6 mm. long.—Pinelands.

13. **AGALINIS** Raf.<sup>1</sup> Slender herbs. Leaf-blades linear or filiform, entire. Flowers axillary. Calyx-lobes 5, often minute. Corolla tubular-campanulate, pink or rose-purple: lobes all spreading, shorter than the tube. Style filiform. Capsule globular.

Plants perennial, with horizontal rootstocks: pedicels erect: corolla pink, no yellow lines within throat.

Plants annual, with fibrous roots: pedicels spreading: corolla rose-purple, 2 yellow lines within throat.

Pedicels short: stem-leaves opposite.

Stem smooth or sparingly scabrelous: axillary fascicles inconspicuous.

Corolla 2.5-3.5 cm. long: flowers evidently pedicelled. 2. *A. purpurea*.

Corolla 1.5-1.7 cm. long: flowers nearly sessile. 3. *A. Harperi*.

Stem scabrous: axillary fascicles conspicuous. 4. *A. fasciculata*.

Pedicels long: stem-leaves alternate. 5. *A. filifolia*.

1. *A. linifolia* (Nutt.) Britton. Glabrous throughout: stems 5-9 dm. tall, virgately branched: leaf-blades linear: pedicels 10-15 mm. long: calyx-lobes minute: corolla 3-4 cm. long: capsule 6-8 mm. long. [*Gerardia linifolia* Nutt.]—Everglades and low pinelands.

2. *A. purpurea* (L.) Pennell. Stems sparingly scabrelous, 3-9 dm. tall, wide-branched: axillary fascicles shorter than leaves: leaf-blades linear, often narrowly so, scabrous above: calyx-lobes triangular-lanceolate, 1-2.5 mm. long: capsule 4-6 mm. long. [*Gerardia purpurea* L.] Everglades, hammocks, and pinelands.—F. K.

3. *A. Harperi* Pennell. Stems smooth, 4-8 dm. tall, sparingly branched: leaf-blades narrowly linear, scabrous above: calyx-lobes triangular-lanceolate to triangular-subulate, less than 1 mm. long: corolla pale rose-purple: capsules 4-5 mm. long.—Everglades.

4. *A. fasciculata* (Ell.) Raf. Stems 4-9 dm. tall, much-branched: leaf-blades linear; axillary fascicles equalling leaves: pedicels 2-5 mm. long: calyx-lobes triangular-lanceolate: corolla 2.5-3.5 cm. long: capsule 4-7 mm. long. [*Gerardia fasciculata* Ell.]—Everglades, pinelands, and coastal sand-dunes.

5. *A. filifolia* (Nutt.) Raf. Stems 4-6 dm. tall, smooth, much-branched: leaves filiform; axillary fascicles conspicuous, equalling the leaves: pedicels 10-35 mm. long: calyx-lobes linear-subulate, less than 1 mm. long: corolla 2.5-3 cm. long: capsule 4-5 mm. long. [*Gerardia filifolia* Nutt.]—Everglades and pinelands.

14. **BUCHNERA** L. Erect herbs. Leaf-blades usually toothed. Flowers spicate. Calyx-lobes 5, broad, much shorter than the tube. Corolla blue or white, salverform: limb oblique. Style short. Capsule ovoid.

1. *B. elongata* Sw. Stems 2-6 dm. tall, scabrous or hispidulous: blades of the stem-leaves oblong to linear, 1.5-8 cm. long, entire or sparingly toothed: calyx-lobes acute, the upper ones deltoid: corolla slightly hairy.—Everglades and low pinelands.—F. K. (*Bah., Cuba, Ant.*)—BLUE-HEARTS.

#### FAMILY 12. ACANTHACEAE. ACANTHUS FAMILY.

Herbs or shrubs. Leaves alternate, opposite, or whorled: blades simple. Flowers perfect, irregular. Calyx of usually 5 partially united sepals. Corolla of 5 partially united petals, 2-lipped or sometimes essentially regular. Androecium of 4 didynamous or of 2 equal stamens, one pair being abortive or obsolete. Gynoecium of 2 united carpels. Ovary 2-celled. Ovules commonly 2 in each cavity. Fruit a capsule, often with a stipe-like base, the valves opening elastically.

<sup>1</sup> Contributed by Mr. F. W. Pennell.

Stems, and branches, clothed with sheathing scales.  
Stems, and branches, not clothed with scales.

Corolla convolute in the bud.

Calyx-lobes bristle-like: anther-sacs armed or pointed at the base.

Calyx-lobes linear to lanceolate: anther-sacs pointless.

Corolla imbricate in the bud.

Stamens 4: anthers 1-celled.

Stamens 2: anthers 2-celled.

1. TUBIFLORA.

2. DYSCHORISTE.

3. RUELLIA.

4. GERARDIA.

5. DIANTHERA.

1. **TUBIFLORA** J. F. Gmel. Rigid herbs. Flowers in terminal spikes. Calyx-lobes 4 or 5, the lateral ones the narrower. Corolla white or blue, slightly 2-lipped.

1. **T. angustifolia** (Fernald) Small. Stems 2-6 dm. tall: basal leaves 4-31 cm. long; blades linear, elongate linear-spatulate or narrowly oblanceolate: bracts acuminate: corolla-lobes much shorter than the tube: capsules about 5 mm. long.—Everglades and low pinelands.

2. **DYSCHORISTE** Nees. Herbs or woody plants: leaf-blades entire. Flowers solitary or clustered in the axils. Calyx-lobes 5, very slender. Corolla blue, purple, or rarely white, slightly 2-lipped. Capsules 2-4-seeded. [*Calophanes* D. Don.]

1. **D. angusta** (A. Gray) Small. Stems 1-2 dm. tall: leaves numerous; blades 1-2.5 cm. long, spatulate below to linear-oblong or linear above: calyx-lobes linear-subulate, 9-11 mm. long: corolla-limb about 10 mm. wide: capsules 7-8 mm. long. [*C. angusta* A. Gray.]—Pinelands.—F. K.

3. **RUELLIA** [Plum.] L. Caulescent herbs. Leaf-blades entire or toothed. Flowers axillary or sometimes in terminal clusters. Calyx 5-lobed, the lobes narrow. Corolla nearly regular. Capsules 6-20 seeded.

Plants diffuse, with decumbent stems and branches: calyx-lobes bristly pubescent and ciliate.

1. *R. hybrida*.

Plants erect, with erect virgate branches: calyx-lobes glabrous or with remote cilia.

2. *R. succulenta*.

1. **R. hybrida** Pursh. Stems 2-6 dm. long, often diffusely spreading, pubescent, but green: leaf-blades oblong to oblong-lanceolate, 3-10 cm. long: calyx hirsute; lobes linear-filiform, 15-20 mm. long: corolla light-blue, 4-5 cm. long.—Pinelands.—F. K.

2. **R. succulenta** Small. Stems 1.5-5 dm. tall, inconspicuously puberulent: leaf-blades narrowly oblong to spatulate, 2.5-4.5 cm. long: calyx sparingly ciliate or glabrous; lobes linear-filiform, 13-16 mm. long: corolla deep purplish-blue, about 4 cm. long.—Everglades.

4. **GERARDIA** L. Mostly scapose herbs. Leaves mainly basal. Flowers in terminal spikes. Calyx-lobes 5, nearly equal. Corolla with slightly unequal broad spreading lobes. [*Stenandrium* Nees.]

1. **G. floridana** (A. Gray) Small. Plants 2-6 cm. tall: leaf-blades ovate to oblong or oval, 2-3 cm. long: calyx-lobes linear-subulate, becoming 9-11 mm. long: corolla rose-purple, 16-20 mm. long: capsules 9-12 mm. long. [*S. floridanum* (A. Gray) Small.]—Pinelands.

5. **DIANTHERA** [Gronov.] L. Caulescent herbs. Leaf-blades entire or rarely toothed. Flowers on axillary peduncles. Calyx-lobes 4 or 5, narrow or slender. Corolla strongly 2-lipped: upper lip entire or 2-lobed; lower lip 3-lobed.

1. **D. crassifolia** Chapm. Stems 2-4 dm. tall: leaf-blades linear, usually narrowly so, or spatulate near the base of the stem, 3-15 cm. long, fleshy: calyx-



lobes linear, 11–15 mm. long, acuminate: corolla bright-purple, 2–2.5 cm. long: capsules 2–2.5 cm. long.—Everglades and low pinelands.

FAMILY 13. **PINGUICULACEAE**.<sup>1</sup> BLADDERWORT FAMILY.

Herbs growing in water or wet places. Leaves submersed and dissected, sometimes resembling rootlets and often bladder-bearing; or aerial, basal, entire; or rarely, wanting. Scapes naked or minutely scaly. Flowers irregular, perfect. Calyx of 2–5 herbaceous sepals. Corolla 2-lipped: tube spurred or saccate. Androecium of 2 stamens, adnate to the corolla-tube on its upper side. Filaments flattened, twisted. Anthers confluent 1-celled. Gynoecium a single 1-celled pistil, with a free-central usually globose placentia. Style thick. Stigma often unequally 2-lipped. Fruit a capsule, 2-valved or irregularly dehiscent.

- |   |                          |
|---|--------------------------|
| Calyx of 5 sepals: palate included in the corolla-tube.   | 1. <b>PINGUICULA</b> .   |
| Calyx of 2 sepals: palate at base of lower lip of corolla.  |                          |
| Calyx without bractlets: sepals entire.   |                          |
| Pediceles each with a solitary bract at base.   |                          |
| Stems elongate, more or less free-swimming.   |                          |
| Corolla violet-purple.  | 2. <b>VESICULINA</b> .   |
| Corolla yellow.   | 3. <b>UTRICULARIA</b> .  |
| Stems radiating from the base of the scape, terrestrial or in shallow water.                                |                          |
| Corolla violet-purple: bract 1, tubular.  | 4. <b>LECTICULA</b> .    |
| Corolla yellow: bracts peltate.   | 5. <b>SETISCAPELLA</b> . |
| Pediceles each with a bract and 2 bractlets at base.  | 6. <b>STOMIOSIA</b> .    |
| Calyx with a pair of bractlets resembling exterior sepals: scales, bracts, bractlets, and sepals fimbriate. | 7. <b>ARANELLA</b> .     |

1. **PINGUICULA** [Tourn.] L. Terrestrial scapose herbs. Leaves in a basal rosette: blades flat. Scapes usually several, 1-flowered, without scales or bracts. Sepals 5, more or less united. Corolla spurred at the base, the palate subulate, included in the tube.

1. **P. pumila** Michx. Leaves clammy-pubescent: scapes very slender, 5–20 cm. tall: corolla 1–2 cm. broad; spur subulate, about 3 mm. long, longer than the sac-like base of the corolla.—Everglades and low pinelands.—F. K. (*Bah.*)—**BUTTERWORT**.

2. **VESICULINA** Raf. Aquatic herbs. Stems submersed, the branches whorled, decomposed. Leaves none. Bladders terminal, the mouth naked. Scapes 1–4-flowered: scales below the lowest pedicel none: bractlets none. Sepals 2, slightly united. Corolla 2-lipped: lower lip 3-lobed, the lateral lobes saccate, forming together a prominent divergently 2-lobed palate, the middle lobe short.

1. **V. purpurea** (Walt.) Raf. Stems elongate, the branches numerous, whorled, verticillately decomposed: bladders solitary, terminating many of the ultimate branchlets, the orifices without projecting processes: scapes erect, slender, spongy-thickened below, 0.5–1.5 dm. tall: pedicels erect or ascending: calyx becoming 2.5–3 mm. long: corolla violet-purple, 12 mm. broad; spur conic, somewhat flattened, about  $\frac{1}{2}$  as long as the middle lobe of the lower lip.—Everglades.—(*Cuba.*)

3. **UTRICULARIA** L. Aquatic herbs. Stems submersed, the branches alternate or from the base of the scapes. Leaves alternate, dissected. Bladders borne on the leaf-segments, the mouth with a pair of bristles. Scapes 1–many-flowered: scales below the lowest pedicel several: bractlets none.

<sup>1</sup> Contributed by Dr. John Hendley Barnhart.

Sepals 2, slightly united. Corolla 2-lipped: lower lip flat, spreading, with a prominent 2-lobed palate.—BLADDERWORT.

Scapes each with a whorl of conspicuous inflated floats.

1. *U. radiata*.

Scapes without conspicuous inflated floats.

2. *U. foliosa*.

1. *U. radiata* Small. Stems elongate: leaves dichotomously dissected, copiously bladder-bearing: scapes erect, 6–12 cm. tall, bearing near the middle a single whorl of 4–7 conspicuous inflated floats, which are more or less confluent at the base and pinnately dissected near the tip: racemes 1–3-flowered: pedicels 8–20 mm. long, spreading or recurved in fruit: calyx becoming 2–3 mm. long: corolla yellow, about 1.5 cm. broad, the upper lip concave, nearly entire, the lower lip 3-lobed, about twice as long as the appressed conic emarginate spur.—Everglades.

2. *U. foliosa* L. Stems 9–30 dm. long: leaves 3–10 cm. long; blades forked, each fork pinnately 4–5-dissected into very fine or capillary segments, the segments fewer when the bladders are more numerous: bladders 2 mm. long or less: scapes erect, 1–3 dm. tall: racemes 10–20-flowered: pedicels 1–2 cm. long, recurving at maturity: calyx becoming 4–5 mm. long: corolla yellow, 15–20 mm. broad, the upper lip erect, nearly entire, the lower lip spreading, slightly 3-lobed; spur not appressed, slenderly conic, slightly curved, shorter than the lower lip: capsules few-seeded.—Everglades.—(*Bah., Cuba, Ant.*)

4. **LECTICULA** Barnh. Herbs. Stems radiating from the base of the scape, usually submerged. Leaves alternate, usually 3-parted, the segments linear. Scapes 1-flowered, the pedicel continuous with the scape: bract tubular, the free margin truncate, notched: bractlets none. Sepals 2, nearly distinct. Corolla transverse at the summit of the scape, 2-lipped, the palate a mere convexity.

1. *L. resupinata* (B. D. Greene) Barnh. Stems short, root-like: leaves scattered; blades simple or forked near the base, the segments slender, capillary, often bladder-bearing: scapes erect, 2–10 cm. tall: calyx 1.5–2 mm. long: corolla violet-purple, 8–12 mm. long; spur conic, obtuse, distant from the lower lip.—Everglades.

5. **SETISCAPELLA** Barnh. Terrestrial herbs, with short root-like branches from the base of the scape. Leaves delicate, evanescent and rarely seen: blades linear. Bladders minute, 2-horned. Scapes 1-many-flowered: scales below the lowest pedicel scarious, peltate: bracts scarious, peltate: bractlets none. Sepals 2, nearly distinct, scarious, ribbed. Corolla 2-lipped, the lower lip divergently 3-lobed, with a 2-lobed palate.

1. *S. subulata* (L.) Barnh. Scapes rooting in mud, filiform, bronze-colored. 3–20 cm. tall: racemes 1–12-flowered: rachis becoming zigzag when well-developed: pedicels ascending, 2–10 mm. long, surpassing the bracts: calyx becoming 2 mm. long: corolla yellow, 6–12 mm. long, 4–6 mm. broad, the lower lip much larger than the upper one, equally 3-lobed; spur oblong, appressed, nearly as long as the lower lip.—Everglades and low pinelands.—(*Bah., Cuba, Ant.*)

6. **STOMOISIA** Raf. Terrestrial herbs. Stems delicate, root-like. Leaves delicate, rarely seen: blades linear. Bladders minute, beaked but without bristles. Scapes 1-many-flowered: scales below the lowest pedicel several, basally inserted: bracts each accompanied by a pair of bractlets. Sepals 2, slightly united. Corolla 2-lipped, the upper lip clawed, the lower consisting chiefly of the helmet-shaped, laterally compressed palate.

Corolla less than 1 cm. broad; spur about 6 mm. long.

1. *S. juncea*.

Corolla more than 1.5 cm. broad; spur about 12 mm. long.

2. *S. cornuta*.

1. *S. juncea* (Vahl.) Barnh. Scapes rooting in mud, erect, 1-4 dm. tall: racemes spike-like, 3-12-flowered: corolla yellow, less than 1 cm. broad; lower lip larger than the upper, rather pointed; spur horn-like, acute, slightly curved, pendant, about 6 mm. long.—Everglades.—(*Bah.*, *Cuba*, *Ant.*)

2. *S. cornuta* (Michx.) Raf. Scapes rooting in the mud, 1-3 dm. tall: racemes spike-like, 2-5-flowered, the flowers approximate: corolla yellow, 1.6-2 cm. broad: lower lip much larger than the upper, abruptly pointed; spur horn-like, acute, slightly curved, pendant, about 12 mm. long.—Everglades.—(*Bah.*)

7. *ARANELLA* Barnh. Terrestrial herbs. Leaves in a basal rosette, often fugacious: blades linear. Scapes 1-several-flowered: scales below the lowest pedicel numerous, peltate, fimbriate: bracts fimbriate: bractlets above the base of the very short pedicels, mimicking exterior sepals, fimbriate. Sepals 2, slightly united, fimbriate. Corolla 2-lipped. [*Cosmiza* Small, not Raf.]

1. *A. fimbriata* (H.B.K.) Barnh. Leaf-blades linear, 5-6 mm. long: scapes 5-15 cm. high: racemes 1-7-flowered, spike-like: corolla yellow, 6-8 mm. broad; spur subconic, about as long as the lower lip. [*Utricularia fimbriata* H.B.K.]—Low pinelands, especially along the everglades.—(*Cuba.*)

#### FAMILY 14. BIGNONIACEAE. TRUMPET-CREEPER FAMILY.

Shrubs, trees, woody vines, or rarely herbs. Leaves opposite, or rarely alternate or whorled, often tendril-bearing: blades simple or pinnately compound. Flowers perfect, usually showy. Calyx of usually 2 more or less united sepals. Corolla 5-lobed, irregular, or 2-lipped. Androecium of 5 stamens, with 1 or 3 of them reduced to staminodia, or of 4 didynamous stamens. Anthers with mostly divaricate sacs. Gynoecium of 2 united carpels. Ovary 1-celled or 2-celled by the meeting of the placentae. Fruit a capsule. Seeds winged or appendaged.

Leaf-blades compound, the leaflets with toothed blades: capsules long and slender, dehiscent. 1. *TECOMA*.  
Leaf-blades simple, entire: capsules short and stout, indehiscent. 2. *ENALLAGMA*.

1. *TECOMA* Juss. Shrubs or erect partially herbaceous plants. Leaf-blades unequally pinnate. Flowers clustered. Calyx tubular-campanulate, nearly equally 5-lobed. Corolla with the tube gradually enlarged into the funnelform throat. Seeds membranous-winged.

1. *T. stans* (L.) Juss. Plants 1-8 m. tall: leaves 1-2.5 dm. long; leaflets 7-13, the blades lanceolate to elliptic, or narrower, 4-10 cm. long, coarsely serrate: calyx 3-5 mm. long; lobes often triangular: corolla yellow, 3.5-4.5 cm. long: capsules 10-20 cm. long.—Hammocks.—F. K. (*Bah.*, *Cuba*, *Ant.*)  
—YELLOW TRUMPET-FLOWER.

2. *ENALLAGMA* Baill. Trees with scaly bark. Leaves alternate: blades mainly leathery, relatively wide. Flowers solitary or clustered. Calyx oblique. Corolla mainly white, the tube and throat folded on the lower side. Capsule oblong to subglobose. Seeds wingless.

1. *E. latifolia* (Mill.) Small. Tree becoming 8 m. tall: leaf-blades 7-15 cm. long, abruptly pointed: calyx-lobes obtuse: corolla dull purple or creamy on the lower side, 5-6 cm. long: capsules oblong to oval, 6-10 cm. long. [*Crescentia latifolia* Mill. Sometimes confused with *C. ovata* Burm. f.]—Hammocks.—F. K. (*Cuba*, *Ant.*)—BLACK-CALLABASH.

## Order PLANTAGINALES.

Annual or perennial herbs. Leaves wholly or mainly basal, or crowded on a simple or branched caudex: blades typically 1-several-ribbed. Flowers perfect, monoecious, or dioecious, spicate. Calyx of 4 (3-5), partially united or distinct sepals. Corolla of 4 (3-5), partially united scarious and veinless petals. Androecium of 4-2 stamens (or 1 stamen). Gynoecium typically 2-carpellary. Ovary superior. Fruit capsular, usually a pyxis.

## FAMILY 1. PLANTAGINACEAE. PLANTAIN FAMILY.

Annual or perennial herbs, Leaf-blades typically 1-several-ribbed. Corolla-lobes spreading. Style and stigma elongate.

1. **PLANTAGO** [Tourn.] L. Leaf-blades broad or narrow. Spikes usually elongate. Filaments partially adnate to the corolla-tube.—PLANTAIN.

Leaf-blades broad: bracts obtuse, inconspicuous: spikes long and narrow.

1. *P. major*.

Leaf-blades narrow: bracts acuminate, conspicuous: spikes short and thick.

2. *P. lanceolata*.

1. **P. major** L. Leaves 5-35 cm. long; petioles usually green at the base; blades ovate or oval, or rarely oblong, entire or coarsely toothed: scapes 8-40 cm. tall: spikes 4-20 cm. long: bracts short: calyx-lobes ovate or obovate, obtuse: corolla-tube about as long as the calyx: capsules about 3 mm. long.—Hammocks and waste places. Nat. of Eu.—(*Ber., Bah., Cuba, Ant.*)

2. **P. lanceolata** L. Leaves 4-30 cm. long; blades linear-elliptic to broadly elliptic, acute at the apex, or acuminate at both ends: scapes 1-7 dm. tall, ridged: spikes cylindrical, dense, 1-8 cm. long: bracts rhombic, 4-5 mm. long: calyx-lobes broadly oblong to oval, 2-3 mm. long, obtuse, the 2 lower ones with closely subparallel midribs: corolla-lobes broadly lanceolate, 2-2.5 mm. long: capsules oblong, 3 mm. long.—Pinelands and roadsides.—F. K. Nat. of Eu.—(*Ber., Bah., Cuba, Ant.*)—RIBWORT. RIB-GRASS.

## Order SANTALALES.

Herbs, shrubs, or trees, mostly root- or tree-parasites. Leaves with expanded blades, or scale-like. Flowers inconspicuous, perfect or imperfect. Calyx present, but often a mere border. Corolla present or wanting. Androecium of as many stamens as there are sepals, or petals, or twice as many. Gynoecium of several united carpels: ovary more or less inferior. Fruit a drupe, a nut, or a berry.

## FAMILY 1. OLACACEAE. XIMENIA FAMILY.

Shrubs, trees, or vines. Leaves usually alternate: blades entire or rarely toothed. Flowers perfect or polygamous, regular, in dichotomous or raceme-like cymes. Calyx of 4-6 small sepals, surmounting the hypanthium. Corolla of 4-6 distinct or united petals. Androecium of 4-12 stamens. Gynoecium 3-4-carpellary. Fruit a drupe.

Petals united to above the middle: stamens as many as the corolla-lobes and opposite them: drupe nearly enclosed in the disk. 1. *SCHOEPFIA*.  
 Petals nearly distinct: stamens twice as many as the petals: drupe naked. 2. *XIMENIA*.

1. *SCHOEPFIA* Schreb. Unarmed shrubs or trees. Leaf-blades thick. Hypanthium filled with an elevated disk. Sepals broad. Corolla campanulate. Anthers oval or ovoid. Ovary about  $\frac{1}{2}$  inferior.

1. *S. chrysophylloides* (A. Rich.) Planch. Shrub or small tree, with pale branches: leaf-blades ovate to oblong-ovate, 2-6 cm. long: corolla red or greenish, about 4 mm. long; lobes ovate, glabrous: drupes ovoid or oval-ovoid, 10-12 mm. long. [*S. Schreberi* Small. Not J. F. Gmel.]—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—WHITEWOOD.

2. *XIMENIA* [Plum.] L. Thorny shrubs or trees. Leaf-blades thick. Hypanthium without an elevated disk. Sepals minute. Corolla rotate. Anthers linear. Ovary nearly superior.

1. *X. americana* L. Shrub or small tree, with dark branches: leaf-blades oblong to elliptic or nearly so, 3-7 cm. long: corolla about 10 mm. long; lobes linear, densely pubescent within: drupes subglobose or broadly oval, 14-17 mm. long.—Pinelands, hammocks and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)—TALLOW-WOOD.

### Order RUBIALES.

Herbs, shrubs, or trees. Leaves opposite, sometimes whorled. Flowers perfect or polygamous, axillary or cymose. Hypanthium present. Calyx of 2 or more, often small, sepals. Corolla of 3 or more partially united petals. Androecium of as many stamens as there are corolla-lobes or twice as many. Gynoecium 2-several-carpellary. Ovary wholly or partially inferior. Fruit a capsule, a berry, or a drupe.

Leaves with stipules adnate to the stems between the leaf-bases.

Fam. 1. RUBIACEAE.

Leaves without stipules, or if present these adnate to the petiole.

Fam. 2. CAPRIFOLIACEAE.

### FAMILY 1. RUBIACEAE. Madder Family.

Herbs, shrubs, trees, or vines. Leaves opposite or whorled with interpetiolar stipules. Flowers perfect or polygamous, regular or nearly so. Calyx of 2-6, or more, sepals surmounting the hypanthium, or obsolete. Corolla of 3-6, or more, partially united petals. Androecium of as many stamens as there are calyx-lobes and alternate with them. Gynoecium 2-several-carpellary.

Seeds wingless: anthers and filaments short: ovary and hypanthium short.

1. *HOUSTONIA*.

Seeds winged: anthers and filaments long: ovary and hypanthium long.

Cavities of the ovary with several or many ovules: seeds several or many.

Fruit dry.

2. *EXOSTEMA*.

Fruit pulpy.

Fruit 2-celled.

Flowers in cymes.

Flowers solitary.

Fruit 5-celled.

3. *CASASIA*.

4. *RANDIA*.

5. *HAMELIA*.

Cavities of the ovary with a single ovule each: seed solitary.

- Flowers in dense heads, the hypanthia not coalescent. Flowers solitary or in an open inflorescence, or if clustered, the hypanthia coalescent.
- Ovule pendulous.
- Filaments wholly or partly adnate to the corolla-tube.
- Filaments not adnate to the corolla-tube.
- Inflorescence terminal.
- Inflorescence axillary.
- Ovule not pendulous.
- Ovule or seed with a basal attachment.
- Ovule or seed with a lateral attachment.
- Shrubs or trees.
- Flowers in terminal clusters, the hypanthia coalescent: sepals minute or obsolete.
- Flowers axillary and solitary: sepals slender.
- Herbs.
- Stipules relatively small or inconspicuous, more or less cleft.
- Ovary 3- or 4-celled.
- Ovary 2-celled.
- Mature carpels merely separating from each other.
- Styles partially united: stigmas slender: corolla salverform.
- Styles united to the top: stigma capitate or 2-lobed: corolla funnelform.
- Mature carpels dehiscent.
- Fruit septicidal, and both carpels ventrally dehiscent.
- Fruit separating into carpels, one of which opens through the ventral face, the other remaining closed.
- Stipules foliaceous, usually resembling the leaves.
6. CEPHALANTHUS.
7. GUETTARDA.
8. ERITHALIS.
9. CHIOCOCCA.
10. PSYCHOTRIA.
11. MOBINDA.
12. ERNODEA.
13. RICHARDIA.
14. DIODIA.
15. DIODELLA.
16. BOBERERIA.
17. SPERMACOCE.
18. GALIUM.

1. **HOUSTONIA** L. Erect or creeping herbs. Leaf-blades narrow or broad. Flowers in open or compact cymes. Sepals 4, commonly narrow. Corolla funnelform or salverform: tube long: lobes mostly shorter than the tube. Stamens 4: filaments adnate to above the middle of the corolla-tube. Style slender. Capsule seated on or in the hypanthium, flattened.

1. *H. filifolia* (A. Gray) Small. Plants loosely or diffusely branched, 0.5-2 dm. tall: blades of the stem-leaves narrowly linear to subulate, 0.5-3 cm. long: sepals lanceolate, becoming deltoid, scarcely 1 mm. long: corolla white or purplish; tube about 3 mm. long, sparingly pubescent within: capsules globose-obovoid, about 1.5 mm. long.—Pinelands.—F. K.

2. **EXOSTEMA** L. C. Rich. Shrubs or trees. Leaf-blades leathery. Flowers axillary or in paniculate cymes. Sepals 5, short. Corolla with a slender tube and 5 narrow lobes. Stamens 5: filaments adnate to the base of the corolla-tube, pubescent below: anthers narrowly linear, exerted. Capsule elongate. Seeds winged.

1. *E. caribaeum* (Jacq.) R. & S. Shrub or small tree, the foliage glabrous: leaf-blades oblong to elliptic, 2-6 cm. long: sepals 1-2 mm. long: corolla white or rose-tinged; the tube 3.5-4 cm. long; lobes narrowly linear: capsules elliptic, 10-12 mm. long.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)—PRINCEWOOD.

3. **CASASIA** A. Rich. Unarmed shrubs or trees. Leaf-blades leathery. Flowers in axillary cymes. Sepals 5, broad or narrow. Corolla with a stout

tube and 5 relatively broad lobes. Stamens 5: filaments adnate to the lower part of the corolla-tube: anthers elongate, linear-sagittate, included. Berry thick.

1. *C. clusiifolia* (Jacq.) Urban. Shrub or small tree, the bark pale: leaves clustered at the branch-tips; blades cuneate to obovate, 5-15 cm. long: hypanthium turbinate: sepals subulate: corolla white; tube 16-20 mm. long; lobes acuminate, shorter than the tube: berries mainly obovoid, 5-7 cm. long. [*Genipa clusiifolia* (Jacq.) Griseb.]—Coastal hammocks and sand-dunes.—F. K. (Ber., Bah., Cuba.)—SEVEN-YEAR APPLE.

4. *RANDIA* [Houst.] L. Armed shrubs or trees. Leaves relatively few: blades leathery. Flowers axillary. Sepals 4-5, short. Corolla with a short tube and 4 or 5 very broad lobes. Stamens 4 or 5: filaments adnate to near the top of the corolla-tube: anthers oblong or nearly so, included. Berry globular or elongate.

1. *R. aculeata* L. Shrub 0.3-3 m. tall: leaves 1.5-5 cm. long; blades spatulate to oval, elliptic, or suborbicular: sepals triangular to ovate, about 1 mm. long: corolla white; tube 5-7 mm. long; lobes oblong to ovate: berries oval to subglobose, 8-10 mm. long, greenish-white.—Pinelands and hammocks.—F. K. (Ber., Bah., Cuba, Ant.)

5. *HAMELIA* Jacq. Unarmed shrubs or trees. Leaf-blades membranous. Flowers in dichotomous cymes. Sepals 5, minute. Corolla with a narrow fluted tube and 5 very short lobes. Stamens 5: filaments adnate to the base of the corolla-tube: anthers linear, included. Berry thick.

1. *H. erecta* Jacq. Shrub 2-3 m. tall: leaf-blades elliptic, oblong, or elliptic-ovate, 8-15 cm. long: hypanthium turbinate: corolla crimson, 1.5-2.3 cm. long; lobes 2-3 mm. long: berries oval or ovoid, 5-7 mm. long, black. [*H. patens* Jacq.]—Hammocks.—F. K. (Bah., Cuba, Ant.)

6. *CEPHALANTHUS* L. Shrubs or trees. Leaf-blades thinnish. Flowers in capitate cymes. Sepals usually 4, rounded. Corolla with a long tube and usually 4 short lobes. Stamens usually 4: filaments adnate up to the throat of the corolla-tube: anthers oblong or nearly so. Nut-like fruit obpyramidal.

1. *C. occidentalis* L. Shrub or small tree: leaf-blades oblong, lanceolate, or ovate-lanceolate, 5-20 cm. long, short-petioled: flower-heads globose, 2.5-3.5 cm. thick: sepals about 3.5 mm. long: corolla white, about 10 mm. long; lobes ovate to oblong-ovate: nutlets 7-8 mm. long.—Everglades.—BUTTONBUSH.

7. *GUETTARDA* L. Shrubs or trees. Leaf-blades thin or thickish. Flowers in axillary peduncled cymes. Sepals 2-4 or more, short, or obsolete. Corolla with a long tube and 4 or more, shorter lobes. Stamens 4-9: filaments adnate to the top of the corolla-tube: anthers narrow, but short. Drupe globular.

Corolla 6-8 mm. long: leaf-blades strigillose or glabrate, not rugose. 1. *G. elliptica*.  
Corolla 20-25 mm. long: leaf-blades scabro-pubescent, rugose. 2. *G. scabra*.

1. *G. elliptica* Sw. Shrub or small tree: leaf-blades thin, mainly oblong, oval, or obovate, 2-4 cm. long: corolla-lobes mostly 4: style glabrous: drupes 8-15 mm. in diameter.—Hammocks and pinelands.—F. K. (Bah., Cuba, Ant.)—VELVET-SEED.

2. *G. scabra* Vent. Shrub or small tree: leaf-blades thick, mainly oblong, oval, or oblong-ovate, 4.5-8 cm. long, or rarely smaller: corolla-lobes mostly

6 or 7: style pubescent; drupes about 6 mm. in diameter.—Hammocks and pinelands.—F. K. (*Bah., Cuba, Ant.*)—ROUGH VELVET-SEED.

8. **ERITHALIS** P. Br. Shrubs. Leaf-blades leathery. Flowers in terminal cymes. Sepals 5-10, short, obsolete. Corolla with a short tube and 5-10 narrow lobes. Stamens 5-10: filaments adnate to the base of the corolla-tube: anthers oblong to linear. Drupe berry-like.

1. **E. fruticosa** L. Shrub with glabrous foliage: leaf-blades oval to oblong-ovate, 2.5-5 cm. long, lustrous: sepals minute: corolla white; lobes oblong, 3-5 mm. long: berries subglobose, 3-4 mm. thick, dark-purple.—Coastal hammocks and sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

9. **CHIOCOCCA** P. Br. Shrubs or vines. Leaf-blades leathery. Flowers in axillary raceme-like cymes. Sepals 5, short. Corolla with a relatively short tube and 5 shorter lobes. Stamens 5: filaments long, essentially free from the corolla-tube and united around the base of the style: anthers linear. Drupe globular. SNOWBERRY.

Corolla-lobes about 3 mm. long: anthers about 3 mm. long: seeds 4-5 mm. long.

Corolla-lobes about 2 mm. long: anthers about 2 mm. long: seeds 2-2.5 mm. long. 1. *C. alba*.  
2. *C. pinetorum*.

1. **C. alba** (L.) A. Hitchc. Large, mostly diffuse or reclining, plants: leaf-blades elliptic, oval, or ovate, 3-7 cm. long: corolla white, often becoming yellow; tube 7-8 mm. long: drupes white, 5.5-6.5 mm. in diameter.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **C. pinetorum** Britton. Small, trailing plants: leaf-blades elliptic to oblong or sometimes oval, broadest below the middle, 1-3 cm. long: corolla permanently white; tube 3.5-4 mm. long: drupes white, 4-4.5 mm. in diameter.—Pinelands.—F. K. (*Bah., Cuba.*)

10. **PSYCHOTRIA** L. Shrubs or trees. Leaf-blades thinnish. Flowers in terminal or axillary cymes. Sepals 4-6, short and broad. Corolla with a relatively short tube and 4-6 usually somewhat shorter lobes. Stamens 4-6: filaments adnate to near the top of the corolla-tube: anthers oblong to oval. Drupe thick, often berry-like.—WILD-COFFEE.

Corolla-lobes as long as the tube: leaf-blades glabrous. 1. *P. undata*.  
Corolla-lobes shorter than the tube: leaf-blades pubescent beneath. 2. *P. Sulzneri*.

1. **P. undata** Jacq. Shrub or small tree, the branches glabrous: leaf-blades oval, elliptic, or elliptic-lanceolate, 6-15 cm. long: corolla white; tube 2.5-3 mm. long: anthers oval: drupes 5-7 mm. long, red.—Hammocks.—F. K. (*Bah., Cuba, Ant.*)

2. **P. Sulzneri** Small. Shrub, the branches pubescent: leaf-blades narrowly oblong, elliptic, or elliptic-lanceolate, 8-15 cm. long: corolla white; tube 2-2.5 mm. long: anthers oblong: drupes 3-4 mm. long. [*P. tenuifolia* Griseb. Not Sw.]—Hammocks.

11. **MORINDA** [Vail.] L. Shrubs or trees. Leaf-blades rather thin. Flowers in capitate cymes, the hypanthia coalescent. Sepals usually 5, minute or obsolete. Corolla with a relatively short tube and usually 5 somewhat shorter lobes. Stamens usually 5: filaments adnate to near the top of the corolla-tube: anthers linear. Drupes united into a fleshy syncarp.



1. *M. Roio* L. Shrub or vine: leaf-blades oblong to cuneate, 5-10 cm. long: corolla white or reddish; lobes oblong or oblong-lanceolate, 2.5-3.5 mm. long: syncarp 2-3.5 cm. long, yellow.—Pinelands and hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

12. *ERNODEA* Sw. Diffuse or vine-like shrubs. Leaf-blades leathery. Flowers axillary. Sepals 4-6, narrow. Corolla with a long tube and 4-6 relatively long lobes. Stamens 4-6: filaments adnate to the top of the corolla-tube: anthers narrow. Drupe thin-fleshy.

Sepals about  $\frac{1}{3}$  as long as the corolla-tube: anthers narrowly linear. 1. *E. littoralis*. Sepals about  $\frac{1}{2}$  as long as the corolla-tube: anthers narrowly oblong. 2. *E. angusta*.

1. *E. littoralis* Sw. Stem and branches prostrate: leaves fleshy; blades mainly elliptic, sometimes narrowly so, 2-3.5 cm. long: corolla white; tube mostly over 10 mm. long: anthers over 2 mm. long: drupes mainly globular.—Coastal sand-dunes and rocky shores.—F. K. (*Bah., Cuba, Ant.*)

2. *E. angusta* Small. Stem and branches more slender than those of *E. littoralis*: leaves firm; blades linear, 2-4 cm. long: corolla usually reddish; tube mostly less than 10 mm. long: anthers over 1.5 mm. long: drupes mainly oval.—Pinelands.—F. K. (*Bah.*)

13. *RICHARDIA* L. Annual or perennial diffuse herbs. Leaf-blades herbaceous. Flowers in contracted involucre cymes. Sepals 4-8, rather broad. Corolla with a relatively short tube and 4-8 shorter lobes. Stamens 4-8: filaments adnate to the top of the corolla-tube: anthers oblong to oval. Mature carpels separating from each other.

1. *R. brasiliensis* (Moq.) Gomez. Perennial, the branches diffuse: leaf-blades elliptic to oblong, 1.5-4 cm. long: sepals ovate to oblong-ovate, becoming about 1 mm. long: corolla-lobes fully  $\frac{1}{3}$  as long as the tube: anthers oval: mature carpels obovoid.—Waste places. Nat. of S. Am.

14. *DIODIA* [Gronov.] L. Perennial creeping herbs. Leaf-blades soft-herbaceous. Flowers axillary. Sepals 2. Corolla white or pink, salverform, with a long slender tube and 4 narrow lobes. Stamens 4: filaments adnate to the top of the corolla-tube, the free portion elongate: anthers linear. Stigmas filiform. Drupe thin-fleshy, ribbed.

1. *D. virginiana* L. Stems branching, 1-15 dm. long, sparingly pubescent on the angles; leaf-blades thinnish, spatulate to linear-oblong or linear-elliptic, 3-8 cm. long, acute or acuminate: sepals linear to linear-lanceolate, 4-6 mm. long: corolla-tube 6-8 mm. long: fruits 7-9 mm. long.—Everglades.—BUTTONWEED.

15. *DIODELLA* Small. Annual diffuse herbs. Leaf-blades firm-herbaceous. Flowers axillary. Sepals 4. Corolla funnelform, with a relatively short thick tube and 4 broad lobes. Stamens 4: filaments adnate up to the top of the corolla-tube, the free portion very short: anthers oval or ovoid. Stigma capitate or 2-lobed. Capsular fruit crustaceous, lobed.

1. *D. rigida* (Cham. & Schlecht.) Small. Branches procumbent or prostrate, finely pubescent: leaf-blades thick, linear to linear-lanceolate, mostly 1-3.5 cm. long, acute, minutely rough-pubescent; stipules long-setose: sepals ovate to ovate-lanceolate, 1.5-2 mm. long: corolla white or pinkish, 10-15 mm. long; lobes ovate to ovate-lanceolate: capsules obovoid, 2.5-3 mm. long. [*D. rigida* Cham. & Schlecht.]—Pinelands.—(*Cuba, Ant.*)—BUTTONWEED.

16. **BOBBERIA** Meyer. Herbs or woody plants. Leaf-blades herbaceous. Flowers in compact axillary cymes. Sepals usually 2, sometimes 4, unequal. Corolla with a short tube and 4 broad lobes. Stamens 4: filaments adnate to the top of the corolla-tube: anthers globular to oval. Capsule with each carpel open along the inner face.

Calyx-lobes triangular or lanceolate: corolla much longer than the calyx: filaments longer than the anthers.

Calyx-lobes subulate, corolla about as long as the calyx: filaments very short.

1. *B. podoccephala*.

2. *B. parviflora*.

1. *B. podoccephala* DC. Perennial, 0.5–3 dm. tall: leaf-blades linear-spatulate to linear, often narrowly so, 1–3 cm. long, veinless: corolla-lobes over 1 mm. long.—Pinelands.—F. K. (*Cuba, Ant.*)

2. *B. parviflora* Meyer. Annual, 1–9 dm. tall: leaf-blades oblong to elliptic, linear-oblong, or linear, 1–2.5 cm. long, veiny: corolla-lobes over 1 mm. long.—Pinelands.—F. K. (*Cuba, Ant.*)

17. **SPERMACOCE** [Dill.] L. Herbs or woody plants. Leaf-blades herbaceous. Flowers in dense, axillary cymes. Sepals usually 4. Corolla with a short tube and 4 broad lobes. Stamens 4: filaments adnate at least to the lower part of the corolla-tube: anthers oval or globular. Capsule with 1 dehiscent and 1 indehiscent carpel.

1. *S. tenuior* (L.) Lam. Stems 1–5 dm. tall, often pubescent: leaf-blades oblong, elliptic, or oblong-lanceolate, 2–5 cm. long: corolla-lobes ovate, shorter than the tube: fruits over 2 mm. long, coarsely hispidulous.—Hammocks.—F. K. (*Ber., Bah., Cuba, Ant.*)

18. **GALIUM** L. Weak or wide-spreading herbs. Leaves with blades and stipules about equal in size. Flowers in simple or rarely branched cymes, the ultimate flower-stalks bracted. Sepals usually obsolete. Corolla rotate, mostly 4-lobed. Stamens usually 4. Fruit didymous, the carpels leathery or succulent.

1. *G. bermudense* L. Plants diffuse, the stems 1–6 dm. long: blades of the leaves, and stipules, oval-oblong, 5–25 mm. long, cuspidate, pellucid-punctate and pubescent beneath: flowers 3–5 together: corolla greenish-white; lobes narrowly ovate, about 2 mm. long: fruits about 5 mm. thick, baccate. [*Galium hispidulum* Michx.]—Hammocks.—F. K. (*Ber., Bah.*)—BEDSTRAW.

## FAMILY 2. CAPRIFOLIACEAE. HONEYSUCKLE FAMILY.

Shrubs, trees, vines, or perennial herbs. Leaves opposite: blades entire, toothed, or pinnate. Flowers mostly perfect, in terminal or axillary cymes, or axillary. Calyx of mostly 4 or 5 minute or foliaceous sepals. Corolla of 4 or 5 partially united petals, often irregular. Androeium of 4 or 5 stamens: filaments partially adnate to the corolla-tube. Gynoeceium 2–5-carpellary. Ovary inferior.

1. **SAMBUCUS** [Tourn.] L. Shrubs or trees, with pithy stems. Leaf-blades pinnate. Flowers in thyrsoid or flat-topped cymes. Sepals minute. Anthers oblong or oval. Ovary 3–5-celled. Drupes juicy.

1. *S. intermedia* Carr. Shrub or small tree: leaflets 5–11, the blades oblong to ovate or oval, 3–14 cm. long, serrate, with incurved teeth: cymes convex: corolla 5–6 mm. wide: drupe 4–6 mm. in diameter.—Hammocks.—(*Cuba, Ant.*)—ELDER.

## Order ARISTOLOCHIALES.

Herbs, shrubs, or vines. Leaves alternate: blades mostly cordate or hastate. Flowers perfect, often conspicuous. Hypanthium mostly adnate to the ovary. Calyx regular or very irregular. Corolla wanting or rudimentary. Androecium of as many stamens as there are calyx lobes or more. Gynoecium of usually 6 united carpels. Fruit a capsule.

## FAMILY 1. ASARACEAE. BIRTHWORT FAMILY.

Perennial herbs, shrubs, or vines. Leaves alternate: blades sometimes lobed, generally cordate. Flowers perfect, regular or very irregular. Calyx usually colored, the tube often bent or inflated. Androecium of 6—many stamens. Gynoecium of 4–6 united carpels. Ovary mostly inferior. Fruit capsular.

1. **ARISTOLOCHIA** [Tourn.] L. Caulescent herbs, shrubs, or vines. Leaves with narrow or broad blades. Flowers irregular, often S-shaped, or resembling a dutch-pipe, the calyx often coralloid. Hypanthium often ribbed. Ovary inferior. Styles united into an angled column. Capsules pendulous.

1. **A. pentandra** Jacq. Stems reclining and twining: leaf-blades ovate, 4–10 cm. long: hypanthium minutely pubescent: calyx nearly straight, the limb narrow, nearly erect: capsules globular, 15–20 mm. long, wing-angled.—Coastal hammocks.—F. K. (*Bah., Cuba.*)

## Order CAMPANULALES.

Herbs, or rarely shrubs or trees. Leaves mainly alternate: blades simple, entire, or divided. Flowers perfect, monoecious, or dioecious, sometimes irregular. Hypanthium well-developed. Calyx of several distinct or partially united sepals. Corolla of several distinct or partially united petals. Androecium of 1–5 stamens. Anthers distinct or connate. Gynoecium of 1—several united carpels, the ovary wholly or partially inferior. Fruit capsular, baccate, or drupaceous.

Endosperm wanting: flowers monoecious or dioecious: plants mainly vines.

Fam. 1. CUCURBITACEAE.

Endosperm present: flowers perfect or mainly so.

Fam. 2. CAMPANULACEAE.

Corolla regular.

Corolla split on one side and otherwise more or less irregular.

Stigma not indusiate: stamens united by either the anthers or filaments or both.

Fam. 3. LOBELIACEAE.

Stigma indusiate: stamens distinct or rarely united by the anthers.

Fam. 4. BRUNONIACEAE.

## FAMILY 1. CUCURBITACEAE. GOURD FAMILY.

Vines, usually tendril bearing. Leaves alternate: blades palmately or pedately veined, and commonly lobed. Flowers monoecious or dioecious. Calyx of 4 or 5, or rarely 6, distinct or partially united sepals. Corolla of 4 or 5, or rarely 6, distinct or partially united petals, sometimes adherent to the calyx. Androecium of 3 stamens (2 anthers 2-celled and 1 anther 1-celled), or rarely of 1, 2, 4 or 5 stamens. Filaments sometimes united. Anthers straight or bent. Gynoecium 1—several-carpellary. Styles united. Fruit a fleshy or partially dry berry.

Anthers straight or nearly so, distinct; sacs separated.

Anthers contorted, cohering; sacs contiguous.

Berry smooth, beakless; ovules, and seeds, 1-4 in each cavity.

Berry warty, beaked; ovules, and seeds, many in each cavity.

1. MELOTHRIA.

2. CAYAPONIA.

3. MOMORDICA.

1. **MELOTHRIA** L. Vines. Leaves with toothed or lobed blades. Flowers mainly monoecious. Hypanthium of the pistillate flowers relatively short. Berry juicy, the rind tender. Seeds flat.

1. **M. crassifolia** Small. Stems nearly glabrous or hispidulous: leaf-blades suborbicular, reniform, or ovate in outline, 3-8 cm. wide, with 3-5 shallow or obtuse undulate lobes or angular shallow-toothed lobes: hypanthium glabrous or pubescent: corolla yellow, 6-8 mm. wide: berries oblong or oval, 10-25 mm. long.—Hammocks.—F. K.—CREEPING-CUCUMBER.

2. **CAYAPONIA** Manso. Vines. Leaves with toothed or lobed blades. Flowers monoecious or dioecious. Corolla rotate or broadly campanulate, relatively small. Pistillate flowers with staminodia. Ovary 3-celled, smooth. Stigmas dilated. Berry juicy, with a tender rind.

1. **C. racemosa** (Sw.) Cogn. Stems glabrous or nearly so: leaf-blades thick, 6-13 cm. long, 3-lobed, closely hispidulous beneath; petioles glabrous or nearly so: staminate corolla 8-10 mm. wide: berries oblong to oval, 15-20 mm. long.—Hammocks.—(Bah., Cuba, Ant.)

3. **MOMORDICA** L. Annual or perennial vines. Leaves with entire, lobed or pedately dissected blades. Flowers monoecious or dioecious. Staminodia of the pistillate flowers gland-like, or wanting. Style slender. Stigmas 3. Berry warty.

1. **M. charantia** L. Stems creeping or climbing, often greatly elongate: leaf-blades 4-12 cm. wide, 5-7-lobed, the lobes with acute or obtuse teeth; villous or glabrate: sepals oval or oval-ovate, 3-4.5 mm. long: petals yellow, 1-2 cm. long: berries 4-12 cm. long, golden-yellow: seeds oblong, 12-16 cm. long.—Waste places and cultivated grounds. Nat. of the Tropics.—F. K. (Bah., Cuba, Ant.)—BALSAM-APPLE.

## FAMILY 2. CAMPANULACEAE. BELLFLOWER FAMILY.

Herbs or woody plants. Leaves alternate: blades entire, toothed, or lobed. Flowers perfect, regular, sometimes dimorphous. Calyx of 5 sepals, or fewer in cleistogamous flowers. Corolla of 5 partially united petals. Androecium of 5 distinct stamens. Gynoecium 2-5-carpellary, the ovary more or less inferior. Fruit capsular.

1. **CAMPANULA** [Tourn.] L. Perennial or sometimes annual herbs. Leaf-blades entire to lobed. Flowers perfect, all alike and complete. Hypanthium relatively short in age. Corolla mostly campanulate. Stamens included. Capsule opening by lateral perforations or valves.

1. **C. floridana** S. Wats. Stems 2-4 dm. long, smooth: leaf-blades 1-4 cm. long, those of the upper leaves narrowly lanceolate to linear-lanceolate: sepals linear-lanceolate, 6-9 mm. long: corolla blue or pale-purple, 6-8 mm. long: capsules obovoid, 4 mm. long: seeds about 0.5 mm. long, rugose.—Everglades.

## FAMILY 3. LOBELIACEAE. LOBELIA FAMILY.

Herbs, or rarely trees, the sap often milky. Leaves alternate: blades entire, toothed, or parted. Flowers perfect, or rarely dioecious, irregular.

Calyx of 5 sepals. Corolla more or less 2-lipped, the tube open on one side to the base. Androecium of 5 stamens, the filaments sometimes cohering. Gynoecium mostly 2-carpellary, the ovary more or less inferior. Fruit capsular or baccate.

1. **LOBELIA** L. Annual or perennial herbs. Leaf-blades entire, sinuate or toothed. Flowers in spikes, racemes or panicles. Hypanthium mostly ribbed. Sepals entire or often glandular-toothed. Corolla variously colored or white: upper lip 2-lobed: lower lip 3-lobed. Anthers in a ring around the style, 2 often smaller than the others. Ovary 2-celled. Capsule 2-valved.

Leaves mostly cauline: corolla over 2 cm. long: androecium about 1.5 cm. long.

Leaves mostly basal: corolla less than 1.5 cm. long: androecium about 1 cm. long.

1. *L. glandulosa*.

2. *L. paludosa*.

1. *L. glandulosa* Walt. Stems 3-12 dm. tall: leaf-blades linear-oblong to linear, 2-15 cm. long, repand or shallowly toothed: hypanthium pubescent: sepals linear-lanceolate, 6-9 mm. long, glandular-denticulate: corolla deep-blue; lobes of the lower lip broadly ovate.—Everglades.

2. *L. paludosa* Nutt. Stems 2-7 dm. tall: leaf-blades linear-spatulate, or rarely oblong-obovate to linear, 3-25 cm. long, entire or sinuate-crenate: hypanthium glabrous: sepals lanceolate to linear-lanceolate, 3-5 mm. long, shallowly toothed or often entire: corolla light-blue; lobes of the lower lip narrowly ovate.—Everglades and low pinelands.

#### FAMILY 4. BRUNONIACEAE. GOODENIA FAMILY.

Herbaceous or woody plants. Leaves alternate or sometimes opposite: blades entire, toothed, or pinnatifid. Flowers perfect. Calyx of 5 partially united sepals, or rarely obsolete. Corolla of 5 equally or unequally united petals. Androecium of 5 distinct stamens. Gynoecium mostly of 2 united carpels, the ovary mostly inferior. Stigma surrounded with an indusium. Fruit drupaceous, baccate, or capsular.

1. **SCAEVOLA** L. Succulent herbs or shrubs. Leaf-blades mostly entire. Flowers irregular, in cymes. Calyx 5-lobed, or obsolete. Corolla-tube open to the base on one side, the lobes winged. Stigma with a ciliate indusium. Berry with a fleshy exocarp.

1. *S. Plumieri* Vahl. Plants 3-18 dm. tall: leaf-blades obovate to spatulate, 4-6 cm. long: calyx-lobes rounded: corolla white or pinkish, 22-28 mm. long, woolly within; lobes linear to lanceolate: berries oval to globular, 10-14 mm. long, black.—Coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

#### Order CARDUALES.

Herbs, shrubs, or rarely trees. Leaves mainly alternate: blades entire, toothed, or divided. Flowers perfect, monoecious, or dioecious, few or many aggregated on a receptacle and surrounded with an involucre, or the involucre rarely obsolete. Calyx one or two rows of bristles, scales, a mere border or crown, or obsolete, or wanting. Corolla of several more or less united petals, or wanting. Androecium of usually 5 stamens, the anthers converging, or united. Gynoecium mostly of 2 united carpels. Ovary inferior. Styles or stigmas mostly 2. Fruit an achene.

Flowers with tubular corollas, or those of the outer ones prolonged into ligules.  
Stamens distinct, the anthers merely converging about the stigma.

Stamens united by the anthers, thus forming a tube  
around the stigma, except in *Kuhnia*.

Flowers with each corolla prolonged into a ligule.

Fam. 1. AMBROSIACEAE.

Fam. 2. CARDUACEAE.

Fam. 3. CICHORIACEAE.

### FAMILY 1. AMBROSIACEAE. RAGWEED FAMILY.

Annual or perennial, woody herbs, the plants often coarse. Leaf-blades entire, toothed, lobed, or divided. Flowers in inconspicuous heads, the bracts of the pistillate heads distinct or sometimes united and accrescent into a bur. Fruit-producing flowers apetalous or with much reduced corollas. Achenes subtended by or enclosed in an involucre. Pappus wanting or obsolete.

Staminate and pistillate flowers in different heads: achenes spiny or tubercled.

Staminate and pistillate flowers in the same heads: achenes smooth.

1. AMBROSIA.

2. IVA.

1. **AMBROSIA** [Tourn.] L. Leaf-blades toothed, lobed, or divided. Mature pistillate involucre tuberculate or spiny near the top.—RAGWEED.

Leaf-segments few: stems erect: staminate corollas less than 2 mm. long.

1. *A. elatior*.

Leaf-segments numerous: stem decumbent or prostrate: staminate corollas 2 mm. long or more.

2. *A. hispida*.

1. *A. elatior* L. Annual, mostly 3-6 dm. tall or diffuse, the stem and branches sparingly pubescent: leaf-blades sparingly pubescent, the ultimate segments lanceolate to linear-lanceolate, acute or acuminate: peduncles slender, mostly shorter than the involucre: staminate involucre sparingly fine-pubescent: achenes 2-2.5 mm. long, the tubercles at or near the top. [*A. artimesifolia*, L.]—Pinelands and coastal sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. *A. hispida* Pursh. Perennial, the stem and branches decumbent or prostrate, the younger parts hirsute: leaf-blades short-hirsute, the ultimate segments small, short and rounded: peduncles stout, minutely hirsute: staminate involucre finely hirsute: achenes 4-4.5 mm. long.—Coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

2. **IVA** L. Leaf-blades entire or toothed. Mature pistillate involucre not bur-like.—MARSH-ELDER.

Involucres peduncled: bracts suborbicular or reniform: staminate corollas 2.5-4.5 mm. long: achenes 2-3.5 mm. long.

Leaf-blades entire or nearly so: involucre of 6-9 bracts.

1. *I. imbricata*.

Leaf-blades coarsely serrate: involucre of 4 or 5 bracts.

2. *I. frutescens*.

Involucres sessile: bracts obovate: staminate corollas 1.5-2 mm. long: achenes about 1.5 mm. long.

3. *I. microcephala*.

1. *I. imbricata* Walt. Stems 3-7 dm. long, smooth and glabrous: leaf-blades linear-subulate to linear, 2-5 cm. long, glabrous: involucre 3-4 mm. high: achenes about 3-3.5 mm. long.—Coastal sand-dunes and rocky shores.—F. K. (*Bah., Cuba.*)

2. *I. frutescens* L. Stems 8-35 dm. tall, pubescent or puberulent: leaf-blades elliptic, oblong-lanceolate, or oblong-linear, 5-10 cm. long, coarsely serrate: involucre 3.5-4 mm. high; bracts 2-3 mm. long: achenes 2-2.5 mm. long.—Salt marshes.

3. *I. microcephala* Nutt. Stems 3-9 dm. tall, glabrous or nearly so: leaf-blades narrowly linear, 2-5 cm. long, entire or slightly toothed: involucre campanulate, 2 mm. high, each with 3 fructiferous flowers: corolla nearly 2 mm. long: achenes about 1.5 mm. long.—Everglades.

FAMILY 2. **CARDUACEAE.** THISTLE FAMILY.

Herbs or rarely shrubs or trees. Flowers borne in heads, the marginal ones commonly differing from the central ones in having a 1-sided, more or less elongate corolla limb. Pappus usually present and often conspicuous.

- Perfect flowers with regular corollas, or the tube rarely partly open on one side.
- Stigmatic lines at the base of the stigma or below the middle.
    - Stigmas filiform or subulate, hispidulous. TRIBE I. VERNONIEAE.
    - Stigma more or less clavate, papillose-puberulent. TRIBE II. EUPATORIEAE.
  - Stigmatic lines extending to the tip of the stigma or to the appendages.
    - Anthers without elongated appendages at the top.
      - Anther-sacs tailed at the base. TRIBE IV. INULEAE.
      - Anther-sacs not tailed at the base.
        - Receptacle naked.
          - Bracts of the involucre well imbricated.
            - Stigmas of the perfect flowers with terminal appendages. TRIBE III. ASTEREAEE.
            - Stigmas of the perfect flowers with truncate or hairy or papillose tips. TRIBE VI. HELENIEAE.
          - Bracts of the involucre little if at all imbricated, except when the broad outer ones overlap the inner. TRIBE VII. SENECTIONEAE.
        - Receptacle chaffy. TRIBE V. HELIANTHEAE.
      - Anthers with elongated, cartilaginous, mostly connate appendages at the top. TRIBE VIII. CYNAREAE.
  - Perfect flowers, or all, with bilabiate corollas (corollas nearly regular in *Gochnatia*). TRIBE IX. MUTISIEAE.

TRIBE I. VERNONIEAE.

- Pappus of 2 series: corollas regular: heads neither glomerate nor involucrate. 1. VERNONIA.
- Pappus of 1 series: corollas irregular, split on the inner side: heads glomerate and involucrate. 2. ELEPHANTOPUS.

TRIBE II. EUPATORIEAE.

- Achenes 3-5-angled, ribless.
  - Involucre of more than 4 bracts, 5-many-flowered.
    - Receptacle flat. 3. EUPATORIUM.
    - Receptacle conic. 4. CONOCLINIUM.
  - Involucre of 4 bracts, or rarely of more, 4-flowered. 5. MIKANIA.
- Achenes 8-10-ribbed or 8-10-striate.
  - Bracts of the involucre herbaceous, neither striate nor nerved.
    - Receptacle naked: heads spicate or racemose. 6. LACINIARIA.
    - Receptacle chaffy: heads corymbose. 7. CARPHEPHORUS.
  - Bracts of the involucre not herbaceous, striate-nerved. 8. KUHNIA.

TRIBE III. ASTEREAEE.

- Ray-flowers present, or rarely wanting: plants not dioecious.
  - Ray-flowers with yellow corollas.
    - Pappus, at least that of the disk flowers, of different series, the inner of capillary bristles, the outer of scales or of shorter bristles.
      - Pappus of the ray obsolete or a mere crown: achenes of the ray turgid. 9. HETEROOTHECA.
      - Pappus of the ray copious: achenes of the ray flattened. 10. CHRYSOPSIS.
    - Pappus wholly of capillary bristles.
      - Receptacle pubescent, fimbriate: ray-flowers more numerous than those of the disk. 11. EUTHAMIA.
      - Receptacle alveolate: ray-flowers fewer than those of the disk. 12. SOLIDAGO.

Ray-flowers with white or colored (not yellow) corollas.

Bracts of the involucre in 3-many series.

Ray-flowers few; ligules relatively short and broad; bracts of the involucre leathery.

Ray-flowers numerous; ligules relatively long and narrow; bracts of the involucre mainly herbaceous.

Bracts of the involucre in 1 or 2 series.

Ray-flowers with ligules longer than the diameter of the disk.

Ray-flowers with ligules shorter than the diameter of the disk.

Ray-flowers wanting: plants dioecious.

#### TRIBE IV. INULEAE.

Heads clustered: bracts of the involucre scarious, herbaceous.

Bracts of the involucre broad, mainly persistent.

Bracts of the involucre narrow, mainly deciduous.

Heads scattered: bracts of the involucre rigid.

#### TRIBE V. HELIANTHEAE.

Disk-flowers perfect, but not fruit-producing.

Achenes short and thick, not flattened.

Achenes markedly flattened.

Ray-flowers with relatively large conspicuous ligules.

Ray-flowers with inconspicuous ligules, the heads apparently discoid.

Disk-flowers fruit-producing.

Pappus a mere crown or cap, or of few teeth, awns or bristles.

Achenes, at least those of the disk, not compressed (except in *Phaethusa*): bractlets mostly concave and clasping.

Bractlets of the receptacle mere chaffy awns or bristles.

Bractlets of the receptacle concave or clasping.

Ray-flowers wanting: bracts of the involucre dry.

Ray-flowers present: bracts of the involucre herbaceous.

Achenes of the disk neither sharp-edged, margined nor winged.

Ray-flowers fruit-producing.

Achenes turgid, those of the disk obtusely, if at all angled: stems herbaceous.

Achenes acutely 4-angled, or 3-angled in the ray: stems woody.

Ray-flowers not fruit-producing.

Achenes of the disk thin-edged, margined or winged.

Achenes markedly flattened parallel to the involucre bracts.

Pappus of 2 simbriolate awns, scales or teeth, or a mere border or wanting.

Pappus of 2-6 awns or teeth, upwardly or downwardly barbed or hispid.

Pappus of numerous scales.

Receptacle honeycombed by the concretion of the bractlets.

Receptacle with distinct bractlets.

#### TRIBE VI. HELENIEAE.

Plant-tissues without oil-glands.

Bracts of the involucre petal-like, the margins and tips scarious.

Bracts of the involucre narrow, herbaceous.

Bracts of the involucre appressed.

Achenes 4-angled: disk-corollas with a long throat and a short tube; lobes long.

Achenes 8-10-ribbed: disk-corollas with a short

13. SERICOCARPUS.

14. ASTER.

15. ERIGERON.

16. LEPTILON.

17. BACCHARIS.

18. PLUCHEA.

19. PTEROCAULON.

20. SACHSIA.

21. ACANTHOSPERMUM.

22. BERLANDIERA.

23. PARTHENIUM.

24. VERBESINA.

25. MELANTHERA.

26. WEDELIA.

27. BORRICHIA.

28. HELIANTHUS.

29. PHAETHUSA.

30. COREOPSIS.

31. BIDENS.

32. ACTINOSPERMUM.

33. TRIDAX.

34. POLYPTERIS.

35. PALAFOXIA.



throat and a longer tube; lobes short.  
 Bracts of the involucre spreading or reflexed.  
 Plant-tissues, especially the leaves and bracts of the involucre with oil-glands.

36. FLAVERIA.  
 37. HELENIUM.  
 38. PECTIS.

TRIBE VII. SENECTIONEAE.

Disk-flowers perfect: marginal flowers pistillate.  
 Disk-flowers and marginal flowers perfect.  
 Disk cream-colored or greenish: corolla-throat much shorter than the tube.  
 Disk golden, orange or purple: corolla-throat about as long as the tube.

39. ERECHTITES.  
 40. MESADENIA.  
 41. EMILIA.

TRIBE VIII. CYNAREAE.

Plants with spine-margined leaves.

42. CIRSIUM.

TRIBE IX. MUTISIEAE.

Heads with radlate marginal flowers.

43. CHAPTALIA.

1. **VERNONIA** L. Caulescent herbs. Leaves alternate: blades mostly toothed. Heads not involucre. Corolla-lobes lanceolate. Anther-appendages lanceolate to oblong. Pappus double, the outer series of scales or stout bristles, the inner of numerous capillary bristles.

1. **V. Blodgettii** Small. Stems 2-8 dm. tall: leaf-blades oblong to linear, 2-4.5 cm. long, entire: involucre 6-7 mm. high; inner bracts oblong or ovate-oblong, acute: corolla purple.—Everglades and pinelands.—F. K.—IRONWEED.

2. **ELEPHANTOPUS** [Vaill.] L. Perennial scapose or caulescent herbs. Leaves alternate: blades shallowly toothed. Heads involucre. Corolla-lobes linear-lanceolate. Anther-appendages deltoid to ovate. Pappus single or double, of several rigid bristles terminating scale-like bases.

1. **E. tomentosus** L. Stems 2-7 dm. tall, mostly hirsute above: blades of the basal leaves oblong, oval, or oblong-oblancoate, crenate-serrate: inner bracts of the involucre acuminate: bases of the pappus-bristles as long as the breadth of the achene.—Pinelands.—ELEPHANT'S-FOOT.

3. **EUPATORIUM** [Tourn.] L. Caulescent herbs or shrubs. Leaves alternate or opposite: blades entire, toothed, or dissected. Heads borne in corymbs. Involucre campanulate to cylindric. Corolla-lobes ovate or triangular. Anther-appendages ovate. Achene angled. Pappus of capillary bristles.—THOROUGHWORT.

Leaf-blades dissected into filiform or narrow segments.

Leaf-segments filiform or nearly so.

Inflorescence-branches secund-recurved: inner involucral scarious-margined, gradually long-aristate.

Inflorescence-branches fastigate: inner involucral bracts obscurely scarious, abruptly short-aristate.

Leaf-segments flat, mostly linear.

Leaf-blades merely toothed or incised.

Shrub.

Herbs.

Involucral bracts acute: heads 5-flowered.

Involucral bracts obtuse: heads more than 5-flowered.

Involucral bracts very unequal: corollas 3 mm. long or less: achenes 2 mm. long or less.

Leaf-blades sessile or nearly so: pappus thrice as long as the achene.

Leaf-blades long-petioled: pappus less than twice as long as the achene.

Involucral bracts nearly equal: corollas 4 mm. long: achenes 2.5 mm. long.

bracts prominently

1. *E. leptophyllum*.

2. *E. capillifolium*.

3. *E. Eugenet*.

4. *E. villosum*.

5. *E. mikanioides*.

6. *E. recurvans*.

7. *E. serotinum*.

8. *E. jucundum*.

1. *E. leptophyllum* DC. Stems 4-13 dm. tall, glabrous, with recurved secund branches above: leaf-blades with filiform or linear-filiform segments: bracts of the involucre long-tipped, the inner 3-4 mm. long: corollas about 2 mm. long: achenes about 1.5 mm. long.—Everglades.—(*Bah., Cuba.*)

2. *E. capillifolium* (Lam.) Small. Stems 9-30 dm. tall, pubescent, fastigate above: leaf-blades with linear-filiform or filiform segments: bracts of the involucre short-tipped, the inner 3 mm. long: corollas about 2.5 mm. long: achenes about 1 mm. long.—Hammocks.—(*Ber., Bah., Cuba.*)

3. *E. Eugenei* Small. Stems 6-14 dm. tall, pubescent: leaf-blades with linear, entire, or toothed segments: bracts of the involucre mucronate, the inner 3-3.5 mm. long: corollas 2.5-3 mm. long: achenes fully 1 mm. long.—Pinelands.

4. *E. villosum* Sw. Stems 5-20 dm. tall, tomentulose: leaf-blades ovate to deltoid-ovate, 1.5-7 cm. long, obtuse, entire or repand: bracts of the involucre obtuse, the inner 4 mm. long: corollas 3 mm. long: achenes 1.5-2 mm. long.—Hammocks.—(*Bah., Cuba, Ant.*)

5. *E. mikanioides* Chapm. Stems 5-11 dm. tall, tomentulose, at least when young: leaf-blades mostly vertical, fleshy, deltoid-ovate to hastate-ovate, or sometimes oblong, 3-6 cm. long, obtuse or acutish, repand or crenate-dentate: bracts of the involucre abruptly pointed, the inner 5-6 mm. long: corollas 3 mm. long: achenes fully 1 mm. long.—Everglades.

6. *E. recurvans* Small. Stems 4-9 dm. tall, finely pubescent: leaves more or less drooping; blades narrowly oblong to lanceolate, 1.5-4 cm. long, coarsely toothed: bracts of the involucre obtuse, the inner 3-3.5 mm. long: corollas 3 mm. long: achenes about 2 mm. long.—Pinelands.

7. *E. serotinum* Michx. Stems 8-20 dm. tall, puberulent, corymbose above: leaf-blades thinnish, lanceolate to ovate-lanceolate, 5-25 cm. long, acute or acuminate, coarsely serrate: bracts of the involucre broadened upward, rounded at the apex, the inner about 4 mm. long: corollas 3 mm. long: achenes 2 mm. long.—Everglades.

8. *E. jucundum* Greene. Stems 3-11 dm. tall, glabrous: leaves spreading; blades ovate or rhombic-ovate, 2-6.5 cm. long, coarsely serrate or somewhat incised: bracts of the involucre obtuse, the inner 3-4 mm. long: corollas 4-4.5 mm. long: achenes about 3.5 mm. long.—Pinelands.

4. **CONOCLINIUM** DC. Erect herbs. Leaves opposite: blades toothed or parted. Heads in open or compact corymbs. Involucre campanulate or hemispheric. Corollas narrowly funnelform: lobes deltoid to ovate. Androecium included: anther-appendages ovate, obtuse. Achene angled. Pappus of few capillary bristles.

1. *C. dichotomum* Chapm. Stems 3-9 dm. tall, pubescent above: leaf-blades ovate, 1-4 cm. long, shallowly crenate: inner bracts of the involucre narrowly linear, 3.5-4 mm. long: corollas about 3 mm. long: achenes fully 1 mm. long.—Everglades.—MIST-FLOWER.

5. **MIKANIA** Willd. Vines. Leaves opposite, herbaceous: blades of a hastate or deltoid type, mostly toothed. Heads borne in corymbs. Involucre cylindric. Corollas with a campanulate throat: lobes lanceolate to triangular-ovate. Androecium exerted: anther-appendages ovate. Achene angled. Pappus of many capillary bristles. [*Willughbaeya* Neck.]—CLIMBING HEMP-WEED.

Bracts of the involucre acute: corollas about 3 mm. long; lobes ovate.

Bracts of the involucre obtuse: corollas about 6 mm. long;  
lobes linear-lanceolate.

1. *M. batatifolia*.

2. *M. cordifolia*.

1. *M. batatifolia* DC. Plants glabrous: leaf-blades deltoid to hastate-ovate, 1-3 cm. long, entire or repand; heads in small irregular clusters: bracts of the involucre 3-4 mm. long: corollas about 3 mm. long. [*Willugbaeya heterophylla* Small.]—Everglades.—F. K. (*Bah., Cuba, Ant.*)

2. *M. cordifolia* (L.) Willd. Plants densely pubescent: leaf-blades ovate to hastate, 6-15 cm. long, coarsely toothed or lobed: bracts of the involucre 7-8 mm. long: corollas about 6 mm. long.—Hammocks.—F. K. (*Cuba, Ant.*)

6. **LACINIARIA** Hill. Typically simple-stemmed herbs with thick root-stocks. Leaves alternate, often numerous: blades narrow, entire. Heads borne in spikes, racemes, panicles, or rarely in cymes. Involucre ovoid to cylindric or turbinate. Corolla-throat narrow-funnelform, much longer than the slightly narrower tube: lobes lanceolate. Anther-appendages entire or notched. Achene short, ribbed. Pappus of many barbelate or plumose bristles.—**BUTTON-SNAKEROOT. BLAZING-STAR.**

Bracts of the involucre obtuse: heads peduncled.

Involucres narrowed at the base, turbinate.

1. *L. gracilis.*

Involucres rounded at the base, campanulate.

2. *L. laxa.*

Bracts of the involucre acute or acuminate: heads sessile.

Bracts of the involucre abruptly pointed: corollas less than

1 cm. long: anthers reaching the corolla-lobes.

3. *L. laevigata.*

Bracts of the involucre acuminate: corollas over 1 cm. long:

anthers far down in the tube.

4. *L. Chapmanii.*

1. *L. gracilis* (Pursh) Kuntze. Stems 2-10 dm. tall, cinerous-pubescent: blades of the lower leaves linear: inner bracts of the involucre linear, 5-6 mm. long, obtuse.—Pinelands.

2. *L. laxa* Small. Stems 4-6 dm. tall, thinly tomentulose: blades of the lower leaves linear: inner bracts of the involucre narrowed at the tip, 4-5 mm. long: achenes mostly over 3 mm. long.—Coastal sand-dunes.

3. *L. laevigata* (Nutt.) Small. Stems 6-14 dm. tall, glabrous or nearly so: blades of the lower leaves narrowly linear: inner bracts of the involucre 8-9 mm. long: corollas 8-9 mm. long: filaments pubescent, fully  $\frac{1}{2}$  as long as the anthers.—Pinelands.—F. K.

4. *L. Chapmanii* (T. & G.) Kuntze. Stems 2-6 dm. tall, tomentose: blades of the lower leaves narrowly linear, mostly less than 10 cm. long: inner bracts of the involucre 11-13 mm. long, acuminate: achenes 5.5-6 mm. long.—Pinelands.

7. **CARPHEPHORUS** Cass. Simple-stemmed herbs. Leaves alternate: blades narrow, flat, or acerose, entire. Heads in a terminal corymbose cyme. Involucre hemispheric to campanulate. Corolla-throat narrowly funnelform, longer than the slightly narrower tube: lobes lanceolate. Androecium included: anther-appendages mostly notched. Stigmas filiform. Achene ribbed. Pappus of many capillary bristles.

1. *C. corymbosus* (Nutt.) T. & G. Stems 3-9 dm. tall, pubescent: leaf-blades spatulate or oblong-spatulate below to cuneate, oblong, or ovate above: inner bracts of the involucre 5-7 mm. long, erose: corollas about 8 mm. long.—Pinelands.

8. **KUHNIA** L. Perennial herbs. Leaves alternate: blades narrow, resinous-dotted. Heads borne in open or compact clusters. Involucre narrow-cylindric. Corollas narrowly funnelform, the tube and throat scarcely distinguishable: lobes triangular to lanceolate. Anther-appendages ovate, obtuse. Achenes columnar, striate. Pappus of many capillary bristles.

1. **K. paniculata** Cass. Stems 3-8 dm. tall; leaf-blades 1.5-3 cm. long; inner bracts of the involucre slightly broadened upward, acuminate; achenes 3.5-4 mm. long.—Pinelands.

9. **HETEROTHECA** Cass. Annual or biennial pubescent herbs. Leaves alternate: blades entire or toothed. Heads rather large. Involucre hemispheric or campanulate, the inner bracts ciliate. Ray-flowers with conspicuous ligules. Disk-corollas with a funnelform throat about as long as the tube. Anther-appendages lanceolate. Stigmas lanceolate or triangular. Achenes of the ray thickish, those of the disk flat. Pappus of the disk of many bristles, those of the outer series shorter and stouter than those of the inner.

1. **H. subaxillaris** (Lam.) Britt. & Rusby. Stems 3-12 dm. tall, hirsute or hispid: blades of the stem-leaves oblong to oblong-lanceolate, 1-7 cm. long, serrate; involucre 7-8 mm. high; outer bracts glandular-pubescent; achenes about 2 mm. long.—Pinelands and waste places.

10. **CHRYSOPSIS** Nutt. Silky or woolly herbs. Leaves alternate; blades narrow or broad, mostly entire. Heads solitary, or in a terminal corymb. Involucres ovoid to turbinate, the bracts narrow. Ray-flowers with conspicuous ligules. Disk-corollas with a narrow-funnelform throat. Anther-appendages lanceolate. Stigmas subulate. Achenes flattened. Pappus of numerous bristles.

1. **C. Tracyi** Small. Stems 3-5 dm. tall; blades of the cauline leaves narrowly linear, the lower ones greatly elongate; inner bracts of the involucre 7-9 mm. long, long-ciliate; ligules 9-11 mm. long.—Pinelands—F. K.—GOLDEN-ASTER.

11. **EUTHAMIA** Nutt. Glabrous or nearly glabrous herbs. Leaves alternate: blades elongate, herbaceous, not pitted. Heads many, in corymbs. Involucres narrow, few-several-flowered: bracts various, the outer ones linear or nearly so. Ray-flowers few: corolla with a slender tube and a very small ligule. Disk-corollas with a funnelform throat and tube of about equal length: lobes lanceolate. Anthers as long as the filaments or longer. Stigmas lanceolate. Pappus of capillary bristles.

1. **E. minor** (Michx.) Greene. Plants 2-8 dm. tall; leaf-blades narrowly linear or linear-filiform, mostly less than 3 mm. wide; involucres cylindric to turbinate-cylindric, the inner bracts 4.5-5.5 mm. long.—Everglades.

12. **SOLIDAGO** L. Glabrous or pubescent herbs. Leaves alternate: blades various, mostly toothed. Heads relatively small, paniculate. Involucres turbinate or cylindric, few-several-flowered: bracts in several series, the inner successively longer. Ray-flowers few: corollas with a slender tube and a yellow, or rarely white, ligule. Disk-corollas with a funnelform or campanulate throat and a tube nearly or quite as long: lobes lanceolate. Anthers nearly or quite as long as the filaments. Stigmas mostly lanceolate. Pappus of 1 or 2 series of rough capillary bristles.—GOLDENROD.

Upper stem-leaves narrowed at the base and merely sessile.

Inner bract of the involucre over 4 mm. long.

Inner bracts of the involucre less than 4 mm. long.

Upper stem-leaves gradually smaller than the lower.

Upper stem-leaves abruptly much smaller than the lower.

Upper stem-leaves rounded at the base, sessile or partly clasping.

Leaves pubescent; blades narrow: inner bracts of the involucre narrowly linear.

Leaves glabrous; blades broad: inner bracts of the involucre narrowly oblong.

1. *S. sempervirens*.

2. *S. angustifolia*.

3. *S. Chrysoptata*.

4. *S. tortifolia*.

5. *S. Chapmanii*.

1. *S. sempervirens* L. Stems 6-25 dm. tall, glabrous: blades of the cauline leaves broadly linear, elliptic-linear, or oblong-lanceolate and entire below, smaller and narrower above: inner bracts of the involucre oblong or elliptic-oblong, over 4 mm. long or more, acutish.—Coastal sand-dunes.—(Ber.)

2. *S. angustifolia* Ell. Stems 3-21 dm. tall, glabrous: blades of the cauline leaves linear to linear-lanceolate below, oblong to linear or linear-subulate above, all entire: inner bracts of the involucre linear to linear-spatulate, 3-3.5 mm. long: achenes pubescent.—Everglades.

3. *S. Chrysopsis* Small. Stems about 3 dm. tall, glabrous: blades of the cauline leaves linear and entire below, narrowly linear above, all glabrous: inner bracts of the involucre linear-lanceolate, 2.5-3.5 mm. long, acute.—Everglades and low pinelands.—F. K.

4. *S. tortifolia* Ell. Stems 6-11 dm. tall, rough-pubescent: blades of the cauline leaves twisted and often reflexed, linear to linear-spatulate below, linear-oblong to linear-lanceolate above, often entire: inner bracts of the involucre narrowly linear, 3-3.5 mm. long: disk-corollas 3-3.5 mm. long.—Pinelands.

5. *S. Chapmanii* T. & G. Stems 2-14 dm. tall, fine-pubescent: blades of the cauline leaves spatulate to oblong below, lanceolate to oblong-ovate above: inner bracts of the involucre narrowly linear to linear-spatulate, ciliate, 3.5-4 mm. long.—Pinelands.

13. **SERICOCARPUS** Nees. Perennial herbs. Leaves alternate: blades entire or toothed. Heads borne in corymbs. Involucres campanulate to cylindric, several-flowered: bracts broad, or the inner ones sometimes rather narrow. Ray-flowers several: corollas with a long tube and a narrow, white or pink ligule. Disk-corollas with a narrowly funnelliform throat and a long tube: lobes lanceolate. Achenes slightly longer than the filaments or shorter: appendages lanceolate. Pappus of numerous scabrous bristles.

1. *S. bifoliatus* (Walt.) Porter. Stems 3-7 dm. tall: blades of the upper leaves spatulate to obovate, 1-3 cm. long: involucre about 6 mm. high; inner bracts linear-oblong: disk-corollas over 6.5 mm. long: anthers longer than the filaments.—Pinelands.—WHITE-TOPPED ASTER.

14. **ASTER** [Tourn.] L. Perennial herbs, various in habit, or rarely annual, occasionally shrubby or spinescent. Leaves alternate: blades broad or narrow, often enlarged and cordate at the base, entire or toothed. Rootstock usually horizontal and bearing for several years a subterminal tuft of leaves. Lower, middle and upper cauline leaves often gradually transitional to each other in form, often of dissimilar types. Heads with both tubular and radiate flowers, either corymbed, racemed, or paniced and borne on erect, spreading or secund ultimate branchlets. Involucre hemispheric, campanulate, cylindric, or turbinate: bracts imbricate in several series: the outer usually smaller or shorter than the inner, and somewhat herbaceous or otherwise much modified at or toward the apex. Receptacle flat or convex, alveolate and often delicately fimbriate. Ray-flowers pistillate, with white, pink, purple, blue, or violet ligules. Disk-flowers perfect, consisting of a tubular base (the tube), swollen above into a throat and 5 short lobes: disks typically yellow, usually changing to red, brown, or purple. Achenes more or less flattened and nerved or ribbed. Pappus-bristles usually numerous, slender, in one series or rarely in two series, the tips of the inner ones sometimes thickened.—ASTER.

Blades of the cauline leaves with auriculate-cordate clasping bases.

Blades of the cauline leaves merely sessile, or nearly so.  
Leaves neither succulent nor fleshy.

Leaves silky or canescent.

Leaves glabrous or pubescent, neither silky nor canescent.

Ligules of the ray violet: leaves adnate.

Ligules of the ray white or pale.

Leaves of the flowering branches very short, scale-like: heads few-flowered.

Leaves of the flowering branches relatively long, narrow: heads many-flowered.

Involucral bracts with broad green tips: disk-corollas 4-5 mm. long.

Involucral bracts with narrow green tips: disk-corollas 6-7 mm. long.

Leaves with succulent or fleshy blades.

Inner bracts of the involucre 5-6 mm. long, acuminate.

Inner bracts of the involucre 3-4 mm. long, acute.

1. *A. carolinianus*.

2. *A. concolor*.

3. *A. adnatus*.

4. *A. coridifolius*.

5. *A. Simmondsii*.

6. *A. Sulznerae*.

7. *A. exilis*.

8. *A. Bracei*.

1. *A. carolinianus* Walt. Stem and branches reclining or climbing, 1-5 m. long, tomentulose: upper leaves spreading; blades oblong, elliptic, or oval, varying to ovate or obovate, finely pubescent, dilated and clasping at the base: heads loosely corymbose: involucre hemispheric; bracts with dilated recurved tips: ligules purple or pinkish, 1.5-2 cm. long: disk-corollas 7-9 mm. long: achenes glabrous.—Everglades and wet hammocks.

2. *A. concolor* L. Stem and branches stiff, 2-11 dm. tall, silky or canescent: upper leaves erect or appressed; blades lanceolate to ovate, silky or canescent, sessile: heads in virgate racemes: involucre turbinate; bracts with narrow erect tips: ligules lilac or rose-purple, 6-8 mm. long: disk-corollas about 5 mm. long: achenes pubescent.—Pinelands.

3. *A. adnatus* Nutt. Stem and branches erect or ascending, 2-8 dm. tall, hispidulous: upper leaves scale-like, appressed; blades oblong, lanceolate, or ovate, scabrous, sessile and partially adnate to the adjacent internodes: heads scattered: involucre campanulate; bracts scabrous, the inner ones linear: ligules violet, 7-10 mm. long.—Pinelands.—F. K. (*Bah.*)

4. *A. coridifolius* Michx. Stem and branches erect or ascending, 1 m. tall or less, glabrous: upper leaves lax or spreading; blades linear to oblong, glabrous, sessile: heads scattered: involucre campanulate; bracts smooth, the inner ones slightly dilated near the apex: ligules white, pink, or pale-violet, 3-6 mm. long.—Everglades and low pinelands.

5. *A. Simmondsii* Small. Stem and branches 1-4 dm. tall, minutely pubescent: upper leaves erect or ascending; blades linear or nearly so, glabrous, sessile: heads solitary or few: involucre campanulate-hemispheric; bracts stout, the inner 5-6 mm. long, acute: ligules pink, 5-7 mm. long.—Everglades.

6. *A. Sulznerae* Small. Stem and branches 1 m. tall or less, finely pubescent: upper leaves lax; blades narrowly linear, glabrous, sessile: heads corymbose: involucre campanulate-turbinate; bracts slender, the inner acuminate: ligules deep-pink, 8-11 mm. long.—Shores of the Miami river.

7. *A. exilis* Ell. Plants annual, 3-12 dm. tall: upper leaves erect or ascending; blades narrowly linear to linear-subulate: heads paniced: involucre turbinate; bracts slender, the inner ones equalling or exceeding the top of the disk.—Hammocks.—(*Bah., Cuba.*)

8. *A. Bracei* Britton. Plants perennial, 2-9 dm. tall: upper leaves more or less spreading; blades narrowly linear to linear-subulate: heads corymbose: involucre campanulate-turbinate; bracts stout, the inner ones not reaching to the top of the disk.—Everglades.—F. K. (*Bah., Cuba.*)

15. **ERIGERON** L. Herbs. Leaves alternate, sometimes mostly basal: blades entire or toothed. Heads solitary or numerous, conspicuously radiate.

Involucres broad, many-flowered: bracts narrow, the inner broader than the outer ones. Ray-flowers numerous: corollas with a slender tube and a narrow pink, violet, purple, or white ligule. Disk-corollas with a funnellform throat and a usually shorter tube: lobes deltoid. Anthers as long as the filaments or longer. Stigmas short. Pappus of numerous capillary bristles.—FLEABANE.

Plants annual: ligules over 6 mm. long: bracts of the involucre about twice as long as the disk-corollas. 1. *E. annuus*.

Plants perennial: ligules less than 5.5 mm. long: inner bracts of the involucre slightly longer than the disk-corollas. 2. *E. quercifolius*.

1. *E. annuus* (L.) Pers. Stems 3–12 dm. tall, hirsute or glabrate: blades of the basal leaves oval, oblong, or ovate, coarsely toothed or incised: bracts of the involucre with few long hairs: ligules of the ray pink, purplish, or rarely white.—Pinelands.—(Ber.)

2. *E. quercifolius* Lam. Stems 1–7 dm. tall, pubescent: blades of the basal leaves spatulate, oblanceolate, or oblong, pinnatifid or sinuate-pinnatifid: involucres manifestly pubescent; inner bracts prolonged into slender tips: ray-flowers numerous: disk-corollas 3.5–4 mm. long.—Everglades and pine-lands.—(Bah.)

16. **LEPTILON** Raf. Herbs. Leaves alternate: blades narrow, entire or sparingly toothed. Heads several or numerous, inconspicuously radiate or discoid. Involucre usually campanulate, few-flowered: bracts very narrow, the inner much longer than the outer ones. Ray-flowers few: corollas with a very slender tube and a minute ligule. Disk-corollas with a campanulate or a cylindraceous throat and a long tube: lobes deltoid. Pappus of many brittle capillary bristles, in 1 series.

1. *L. canadense* (L.) Britton. Stems 3–20 dm. tall, paniculate above, glabrate or sparsely hirsute: leaf-blades spatulate to linear or nearly so, ciliate near the base: larger bracts of the involucre 3–3.5 mm. long: disk-corollas 2.5–3 mm. long.—Pinelands, hammocks, coastal sand-dunes and waste places.—F. K. (Ber., Bah., Cuba, Ant.)—HORSE-WEED. BUTTER-WEED.

17. **BACCHARIS** L. Shrubs. Leaves alternate: blades leathery, entire or toothed. Heads dioecious, often clustered, discoid. Involucres ovoid to campanulate, many-flowered: bracts of the staminate involucre smaller than those of the pistillate. Corollas various, those of the staminate with a funnel-form throat and a long tube, the lobes lanceolate: those of the pistillate flowers filiform. Pappus of the staminate flowers shorter than that of the pistillate.—GROUNDSEL-TREE.

Leaf-blades broadest above the middle.

Leaf-blades entire.

Leaf-blades toothed.

Inner bracts of the pistillate involucres acute.

Inner bracts of the pistillate involucres obtuse.

Leaf-blades linear.

1. *B. dioica*.

2. *B. halimifolia*.

3. *B. glomeruliflora*.

4. *B. angustifolia*.

1. *B. dioica* Vahl. Shrub 8–25 dm. tall: leaf-blades spatulate, often broadly so, to obovate-spatulate, 1–3 cm. long: pistillate involucres with ovate-obtuse outer bracts and linear-lanceolate acuminate inner bracts.—Coastal hammocks below Miami.—(Bah., Cuba, Ant.)

2. *B. halimifolia* L. Plants 9–40 dm. tall, resinous: leaf-blades suborbicular to oblong or linear-elliptic, some of them, at least, coarsely toothed: pistillate involucres about 6 mm. long; inner bracts linear.—Coastal hammocks and sand-dunes.—F. K. (Bah.)

3. *B. glomeruliflora* Pers. Plants 8-30 dm. tall, barely resinous: leaf-blades spatulate to cuneate-obovate, 2-5 cm. long, often sharply toothed: pistillate involucre 5-6 mm. long; inner bracts oblong-spatulate.—Hammocks.—(Ber.)

4. *B. angustifolia* Michx. Plants 5-25 dm. tall, resinous: leaf-blades narrowly linear, 1-8 cm. long, entire or nearly so: pistillate involucre 4-5 mm. long; inner bracts oblong.—Hammocks and sand-dunes.—F. K. (Bah.)

18. **PLUCHEA** Cass. Herbs or shrubs. Leaves alternate: blades usually toothed, often prominently veined. Heads borne in corymb-like or glomerate cymes. Involucre turbinate, campanulate, or hemispheric, rather many-flowered: bracts unequal, the inner much longer and much narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas with a funnellform or campanulate throat: lobes triangular to lanceolate. Pappus a single series of capillary bristles.—MARSH-FLEABANE.

Plants perennial: leaf-blades sessile and partly clasping: inner bracts of the involucre narrowly linear. 1. *P. foetida*.

Plants annual: leaf-blades narrowed at the base and more or less petioled: inner bracts of the involucre lanceolate. 2. *P. purpurascens*.  
Involucre 4-5 mm. high; inner bracts abruptly acuminate. 3. *P. camphorata*.  
Involucre 6-8 mm. high; inner bracts long-acuminate.

1. *P. foetida* (L.) B.S.P. Plants 3-10 dm. tall: leaf-blades oblong to ovate-oblong, 3-8 cm. long: inner bracts of the involucre 4-5 mm. long: staminate corollas 3.5-4 mm. long.—Everglades and hammocks. F. K. (Bah., Cuba.)

2. *P. purpurascens* (Sw.) DC. Plants 3-14 dm. tall: leaf-blades ovate-lanceolate to elliptic or oblong, 4-10 cm. long: outer bracts of the involucre ovate, acute; intermediate bracts abruptly pointed.—Everglades and hammocks.—F. K. (Ber., Bah., Cuba, Ant.)

3. *P. camphorata* (L.) DC. Plants 3-15 dm. tall: leaf-blades elliptic, lanceolate, or oblong, 3-15 cm. long: outer bracts of the involucre oblong, acute: intermediate bracts acuminate.—Coastal sand-dunes.

19. **PTEROCAULON** Ell. Tomentose or woolly stout herbs. Leaves alternate: blades entire or shallowly toothed, decurrent. Heads borne in contiguous or separated glomerate cymes. Involucre rather narrow, densely flowered: bracts unequal, the inner slightly narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas with a funnellform throat and a long tube; lobes linear or lanceolate. Anthers shorter than the filaments. Pappus a single series of capillary bristles.

1. *P. undulatum* (Walt.) Ell. Plants 2-7 dm. tall: leaf-blades oblong to lanceolate, 4-12 cm. long, undulate: involucre 3.5-4 mm. high: lobes of the staminate corollas linear.—Pinelands.—F. K.—BLACK-ROOT.

20. **SACHSIA** Griseb. Inconspicuously pubescent, slender herbs. Leaves alternate, mostly basal: blades toothed. Heads scattered in open corymbs. Involucre campanulate: bracts very unequal, the inner much longer and somewhat narrower than the outer. Pistillate flowers marginal: corollas filiform. Perfect flowers central: corollas narrowly tubular-funnelform; lobes ovate. Pappus a single series of very slender bristles.

1. *S. bahamensis* Urban. Plants 1-6 dm. tall: blades of the basal leaves firm, spatulate, 3-7 cm. long, those of the stem-leaves much smaller: involucre peduncled; bracts various, the outer membranous, the inner chaffy, 5-6 mm. long, very narrowly linear: achenes 2.5 mm. long.—Pinelands.—F. K. (Bah.)



21. **ACANTHOSPERMUM** Schrank. Annual coarse herbs. Leaves opposite: blades broad, toothed. Heads inconspicuously radiate. Involucre double: bracts of the inner series becoming bur-like, each one surrounding an achene. Ligules of the ray-corollas concave or hooded, yellowish, inconspicuous. Disk-corollas with the stamens borne high up on the tube. Pappus wanting.

1. *A. australe* (L.) Kuntze. Stems branched at the base, the branches prostrate or creeping: leaf-blades ovate, oval, or rhombic, 1-2.5 cm. long: disk-corollas about 2 mm. long: mature involucre starfish-like.—Pinelands and waste grounds. Nat. of Trop. Am.

22. **BERLANDIERA** DC. Herbs with woody tap-roots. Leaves alternate, sometimes all basal: blades toothed or pinnatifid. Heads radiate, solitary or corymbose. Involucre hemispheric or depressed, many-flowered: bracts broad, in about 3 series, the inner thinner and more reticulate than the outer. Ray-flowers 5-12, with yellow ligules. Disk-corollas with a cylindric throat and a shorter tube; lobes triangular or deltoid. Anthers longer than the filaments. Achenes flat, broadened upward, wingless, 1-ribbed, adnate to the adjacent bracts of the involucre. Pappus obsolete or of 2 caducous awns.

1. *B. subacaulis* Nutt. Stems 1-5 dm. tall, hispidulous: leaf-blades oblong to oblanceolate, 4-12 cm. long, deeply sinuate-pinnatifid or lyrate-pinnatifid, the lobes obtuse: bracts of the involucre oblong to oblong-spatulate, obovate or cuneate, obtuse: ligules of the ray 1-1.5 cm. long: disk-corollas 3-3.5 mm. long: achenes obovate, 4-6 mm. long.—Pinelands.

23. **PARTHENIUM** L. Coarse herbs, or shrubs. Leaves alternate: blades toothed, pinnatifid, or dissected. Heads inconspicuously radiate. Involucre depressed to globular: bracts appressed, broad. Ray-flowers usually 5: ligules minute, white or whitish. Lobes of the disk-corollas ovate, ciliate. Anthers longer than the filaments. Achenes flattened. Pappus of 2 or 3 scales or awns.

1. *P. Hysterophorus* L. Plants annual, 3-7 dm. tall: leaf-blades oblong to ovate in outline: involucre saucer-like, 4-5 mm. broad: disk-corollas 1-1.5 mm. long: achenes 1-1.5 mm. long.—Pinelands and waste places. Nat. of Trop. Am.—F. K. (*Ber., Bah., Cuba, Ant.*)

24. **VERBESINA** L. Annual herbs. Leaves opposite: blades narrow, entire or sparingly toothed. Heads small, inconspicuously radiate. Involucre hemispheric or campanulate: bracts broad, those of the outer series scarcely larger than those of the inner. Ray-flowers several: ligules white, inconspicuous. Disk-flowers several: corollas with a short tube and a longer funnel-form throat: lobes deltoid. Anthers oblong, longer than the filaments, the appendages ovate. Stigmas broad. Achenes 3-4-angled, or somewhat flattened in the disk.

1. *V. alba* L. Stem and branches 2-9 dm. long, fleshy, finely pubescent: leaf-blades elliptic, oblong or lanceolate, or narrower, 3-10 cm. long, sessile: involucre broadly campanulate, the larger bracts about 4.5 mm. long: achenes about 2.5 mm. long.—Everglades.—(*Ber., Bah., Cuba, Ant.*)

25. **MELANTHERA** Rohr. Perennial herbs. Leaves opposite: blades entire, toothed, or hastate-lobed. Heads discoid. Involucre hemispheric or

depressed: bracts often broad, in 2 or 3 series. Throat of the corolla much longer than the tube. Filaments generally as long as the black-tipped anthers or nearly so. Stigmas stout or flattened.

Leaf-blades linear, oblanceolate, or spatulate.

1. *M. lanceolata*.

Leaf-blades of an ovate or hastate type.

Plants with tall erect stems: leaf-blades manifestly petioled.

Bractlets of the receptacle long-acuminate, like the bracts of the involucre, coarsely pubescent.

2. *M. parvifolia*.

Bractlets of the receptacle acute or short-acuminate, like the bracts of the involucre, finely puberulent.

3. *M. brevifolia*.

Plants with many short prostrate or decumbent stems radiating from a woody root: leaf-blades sessile or nearly so.

4. *M. radiata*.

1. *M. lanceolata* Benth. Stems 2-8 dm. tall, strigillose: leaf-blades linear to linear-oblanceolate, 4-8 cm. long: larger bracts of the involucre rhombic-ovate, acute: corollas about 4 mm. long.—Everglades and low pinelands.

2. *M. parvifolia* Small. Stems 3-8 dm. tall, very rough-hispidulous, slender, sparingly branched: leaf-blades prominently hastate, 2-5 cm. long, or longer, the lateral lobes prominent, coarsely toothed or entire, the middle lobe elongate, contracted between the lateral lobes and the dilated apex, usually coarsely toothed above, the petioles rather short: heads few, usually very long-peduncled: larger bracts of the involucre 5-7 mm. long.—Pinelands and coastal sand-dunes.—F. K.

3. *M. brevifolia* O. E. Schulz. Stems 8-24 dm. tall, somewhat rough-pubescent, often stout, considerably branched: leaf-blades ovate to deltoid or ovate-hastate or deltoid-hastate, 8-15 cm. long, obtuse or acute; usually crenate, the petioles rather long: heads several or numerous, mostly rather short-peduncled: larger bracts of the involucre 3.5-5 cm. long.—Hammocks and coastal sand-dunes.—F. K. (*Bah., Cuba*.)

4. *M. radiata* Small. Stems radially spreading from a woody root, 1-4 dm. long: leaf-blades ovate, 1-4 cm. long, hastately lobed and irregularly toothed: larger bracts of the involucre ovate, 5.5-6.5 mm. long, obtuse: corollas mostly about 6 mm. long.—Pinelands.

26. **WEDELIA** Jacq. Erect, diffuse, or creeping herbs, or partially woody plants. Leaves opposite: blades entire or toothed or somewhat lobed. Heads erect, solitary or clustered, radiate. Involucre broadly campanulate: bracts in 2 or 3 unequal series. Ray-flowers few: corollas with a long tube, and mainly yellow ligule. Disk-corollas with a cylindric-campanulate throat longer than the tube: lobes ciliate. Free portions of the filaments about as long as the corolla-tube. Pappus crown-like. [*Stemmodontia* Cass.]

1. *W. trilobata* (L.) A. Hitchc. Stem and branches creeping: leaf-blades elliptic to cuneate, fleshy, 3-10 cm. long, coarsely few-toothed or slightly 3-5-lobed: involucre about 1 cm. high: ligules of the ray 8-12 mm. long: disk-corollas 6-7 mm. long.—Shores of Bay Biscayne.—(*Bah., Cuba, Ant.*)

27. **BORRICHIA** Adans. Fleshy maritime herbs or shrubs. Leaves opposite: blades thick, entire, or toothed. Heads erect, on stiff peduncles. Involucre hemispheric or flattish: bracts fleshy or leathery. Ray-flowers few. Disk-corollas with a cylindric-funneliform throat and a very short tube: lobes eciliate. Free portions of the filaments much longer than the corolla-tube. Pappus crown-like.—SEA OX-EYE.

Outer bracts of the involucre spreading or reflexed at maturity: bractlets of the receptacle spine-tipped.

1. *B. frutescens*.

Outer bracts of the involucre appressed at maturity: bractlets of the receptacle obtuse or barely mucronate.

2. *B. arborescens*.

1. *B. frutescens* (L.) DC. Plants 2-7 dm. tall: leaf-blades linear-spatulate to obovate, 2-6 cm. long: outer bracts of the involucre acute, the inner ones subulate-tipped.—Shores of Bay Biscayne and sand-dunes.—F. K. (*Ber.*)

2. *B. arborescens* (L.) DC. Plants 2-12 dm. tall: leaf-blades oblanceolate or spatulate-oblanceolate, 3-6 cm. long: outer bracts of the involucre acute, the inner ones rounded at the apex.—Shores of Bay Biscayne and sand-dunes.—F. K. (*Ber., Bah., Cuba, Ant.*)

28. *HELIANTHUS* L. Erect or creeping herbs. Leaves alternate or opposite: blades entire or toothed. Heads solitary or clustered. Involucre campanulate, cylindric, or depressed: bracts various, often narrow, sometimes elongate. Ray-flowers few or many, or rarely wanting. Disk-corollas with a cylindric throat and a very short tube: lobes ciliate. Free portions of the filaments much longer than the corolla-tube. Pappus of 2 awns or scales which are sometimes accompanied by smaller ones.

1. *H. debilis* Nutt. Stems 3-9 dm. long, scabrous: leaf-blades deltoid or somewhat hastate to ovate-lanceolate, 4-8 cm. long, repand or shallowly toothed: bracts of the involucre lanceolate or linear-lanceolate, 8-10 mm. long: ligules of the ray 10-15 mm. long: disk 15-20 mm. wide.—Pinelands and sand-dunes.—F. K.—SUNFLOWER.

29. *PHAETHUSA* Gaertn. Herbs or shrubby plants. Leaves alternate or opposite: blades entire or toothed, more or less decurrent. Heads solitary or numerous and clustered. Involucre narrow or broad: bracts not slender-tipped. Ray-flowers few, with a very short or obsolete corolla-tube, the ligules white or yellow, or wanting. Disk-corollas with a funnelform throat, contracted into a shorter tube: lobes lanceolate to triangular-lanceolate. Filaments slightly shorter than the anthers. Pappus of 1-3 awns, or obsolete.

1. *P. laciniata* (Poir.) Small. Stems 7-16 dm. tall, tomentulose: leaf-blades ovate to oblong-ovate in outline, 5-22 cm. long, the segments sometimes repand: larger bracts of the involucre about 6 mm. long: disk-corollas about 5 mm. long: achenes obovate, 5-6 mm. long.—Pinelands.—CROWNBARD.

30. *COREOPSIS* L. Erect or diffuse herbs. Leaves various. Heads conspicuously radiate. Involucre campanulate to hemispheric: bracts distinct or nearly so, the outer ones narrow. Ray-flowers several: corollas with yellow, particolored, or pink ligules. Disk-corollas with a funnelform throat and a stout tube. Achenes with entire or pinnate wings, or wingless.—TICKSEED.

Achenes with entire scarious wings.

1. *C. Leavenworthii*.

Achenes with fimbriate or dissected winged margins.

Lower leaves shorter or a little longer than the stem-internodes.

2. *C. angustifolia*.

Lower leaves much longer than the stem-internodes.

3. *C. longifolia*.

Blades of the basal leaves linear-oblong to linear.

4. *C. gladiata*.

Blades of the basal leaves oblong, elliptic or oblanceolate.

1. *C. Leavenworthii* T. & G. Plants 5-15 cm. tall, glabrous: blades of the lower leaves mostly with 2 or more narrow lobes (or broad in *C. Leavenworthii Garberi*), those of the upper leaves mostly entire and narrow: outer involucre bracts subulate-lanceolate, 1-2 mm. long: achenes roundish oval, 2.5-3 mm. long, the wing as broad as the body.—Everglades and low pinelands.—F. K.

2. *C. angustifolia* Ait. Plants 5-7 dm. tall: blades of the lower leaves spatulate or oblanceolate, entire: outer involucre bracts ovate, 2-3 mm. long: achenes oval, 2.5-3 mm. long.—Everglades.

3. *C. longifolia* Small. Plants 7-10 dm. tall: blades of the lower leaves linear-oblong, linear-lanceolate, or linear, entire: outer involucre bracts lanceolate, 2-4 mm. long: achenes obovate or spatulate in outline, about 4 mm. long.—Everglades.

4. *C. gladiata* Walt. Plants 6-12 dm. tall: blades of the lower leaves elliptic, oblong, or oblanceolate, entire: outer involucre bracts broadly triangular, 3-4 mm. long: achenes elliptic-oblong, about 3.5 mm. long.—Everglades.

31. **BIDENS** L. Erect herbs. Leaves opposite, or the upper sometimes alternate: blades entire, toothed, or divided. Heads erect or nodding. Involucre double, the outer bracts foliaceous, the inner appressed. Ray-flowers few and with white or yellow ligules, or wanting. Disk-corollas with a short tube and a longer throat: lobes mostly deltoid. Achenes flat, terete or 4-angled. Pappus of 2-4 rigid, barbed awns.—BEGGAR-TICKS. BUR-MARIGOLD.

Leaf-blades merely toothed: achenes flat, dilated at the top. 1. *B. Nashii*.  
Leaf-blades divided: achenes slender, tetragonal, contracted at the top. 2. *B. leucantha*.

1. *B. Nashii* Small. Plants 5-12 dm. tall, succulent: leaf-blades oblanceolate, obovate, or oblong-lanceolate, finely serrate or entire: heads erect or nodding at maturity, large: involucre 9-12 mm. long: ray-flowers few; ligules oblong to oblong-obovate, yellow, 1.5-3 cm. long: achenes cuneate.—Everglades.

2. *B. leucantha* (L.) Willd. Plants 4-10 dm. tall, not succulent: leaf-segments thick, ovate to ovate-lanceolate, mostly crenate-serrate: heads erect, small: involucre 5-7 mm. long: ray-flowers few; ligules cuneate to suborbicular, white, 1-2 cm. long: achenes slender-fusiform.—Pinelands, hammocks and waste places. Nat. from Trop. Am.—F. K. (*Ber., Bah., Cuba, Ant.*)

32. **ACTINOSPERMUM** Ell. Erect herbs. Leaves alternate, often numerous: blades very narrow, entire. Involucre hemispheric or depressed: bracts lax. Ray-flowers several: corollas with rather broad yellow ligules. Disk-corollas with a cylindrical-campanulate throat and a very short or obsolete tube: lobes lanceolate. Filaments shorter than the anthers. Pappus of 7-12 obovate-orbicular scales.

1. *A. angustifolium* (Pursh) T. & G. Plants 2-5 dm. tall: leaf-blades narrowly linear or slightly broadened upward: heads showy: involucre bracts acuminate: ray-flowers 8-10; ligules cuneate, bright-yellow, less than 2 mm. long: disk-corollas 4-5 mm. long; lobes lanceolate: achenes turbinate, about 2 mm. long.—Pinelands.

33. **TRIDAX** L. Decumbent herbs. Leaves opposite: blades incised-toothed or pinnately dissected. Heads radiate. Involucre ovoid to campanulate: bracts various, the inner broader than the outer. Ray-flowers few: corollas with a slender glabrous tube and a broad yellow or pale ligule. Disk-corollas with a narrowly funnel-form throat and a short tube. Anthers linear. Achenes much shorter than the corollas. Pappus of numerous plumose-ciliate scales.

1. *T. procumbens* L. Plants branched at the base, the branches hirsute: leaf-blades ovate to ovate-lanceolate, 2-5 cm. long, incised or incised-lobed: involucre 6-7 mm. high; bracts hispidulous, the outer lanceolate, the inner broad and abruptly pointed: ligules as broad as long: achenes of the disk about 2 mm. long.—Pinelands and cultivated grounds. Nat. of Trop. Am.—F. K. (*Bah., Cuba, Ant.*)

34. **POLYPTERIS** Nutt. Perennial tall branching herbs. Leaves alternate, or opposite on the lower part of the stem: blades entire, thick. Heads corymbose, scattered, discoid. Involucre turbinate: bracts rather numerous and broad, scarious above the base, mainly in 2 series. Receptacle naked. Ray-flowers wanting. Disk-corollas white or pink, with a campanulate throat and a longer slender tube. Anthers longer than the filaments. Achenes 4-angled, narrow, pubescent. Pappus of several slender pubescent scales.

1. *P. integrifolia* Nutt. Plants 1.5 m. tall or less, corymbose above: leaf-blades lanceolate or linear-lanceolate to linear, 3-7 cm. long, obtuse or acutish: involucre corolloid; bracts oblong or spatulate, 10-14 mm. long, obtuse: corollas 9-14 mm. long; lobes linear-lanceolate: achenes narrowly obpyramidal, 4-5 mm. long.—Pinelands.

35. **PALAFOXIA** Lag. Annual or perennial, sometimes partially woody plants. Leaves alternate or opposite: blades narrow, entire. Heads corymbose. Involucre campanulate to oblong: bracts narrow, herbaceous. Disk-corollas with a cylindrical throat much longer than the tube. Anther-appendages lanceolate. Pappus of 4-8 scales.

1. *P. Feayi* A. Gray. Stems 6-15 dm. tall, minutely pubescent: leaf-blades oblong to oblong-lanceolate, 2-7 cm. long: involucre 7-8 mm. long; bracts obtuse: corollas 7-8 mm. long: achenes 5-6 mm. long.—Pinelands.

36. **FLAVERIA** Juss. Low branched or diffuse herbs or partially woody plants. Leaves opposite: blades entire or toothed. Heads small, radiate or discoid, usually clustered. Involucres narrow, 1-several-flowered: bracts few, often 2-5, equal or nearly so. Receptacle naked. Ray-flowers usually solitary, pistillate, fruit-producing, the ligules yellow, or wanting. Disk-flowers 1-15, perfect, fruit-producing: corollas yellow or yellowish, with a short throat and a longer tube: lobes deltoid or triangular. Filaments mostly shorter than the anthers. Achenes narrow, 8-10-ribbed. Pappus wanting.

1. *F. linearis* Lag. Stem 2-9 dm. long, the branches often decumbent, corymbose above: leaf-blades narrowly linear to narrowly linear-lanceolate, 3-10 cm. long, entire: heads numerous: involucre about 4 mm. high; bracts mostly 5, oblong to lanceolate: ligules 2-3.5 mm. long: achenes about 1.5 mm. long.—Everglades, pinelands and coastal sand-dunes.—F. K. (*Bah., Cuba, Ant.*)

37. **HELENIUM** L. Stout or stoutish, bitter herbs. Leaves alternate: blades entire, toothed, or pinnatifid, often decurrent. Heads scattered, but often numerous. Involucre flattish: bracts spreading or reflexed. Receptacle conic, oblong or subglobose. Ray-flowers several, the corollas with cuneate ligules. Disk-corollas with broadly ovate lobes. Achenes ribbed. Pappus of 5-8 acuminate or awn-tipped scales.—SNEEZEWEED.

Stem winged: leaves mostly cauline: disk-corollas 2-3 mm. long: pappus about 1 mm. long. 1. *H. nudiflorum*.  
Stems wingless: leaves mostly basal: disk-corollas 4-5 mm. long: pappus about 2 mm. long. 2. *H. Helenium*.

1. *H. nudiflorum* Nutt. Plants 2-10 dm. tall, corymbosely branched above: leaf-blades oblanceolate to oblong or linear, 2.5-12 cm. long, those of the lower leaves often toothed: involucral bracts narrowly linear to linear-subulate, 5-7 mm. long: ligules 10-15 mm. long.—Pinelands.

2. *H. Helenium* (Nutt.) Small. Plants 3-7 dm. tall, simple: leaf-blades linear or nearly so, 5-15 cm. long, undulate or coarsely few-toothed: invo-

lucral bracts linear or linear-lanceolate, 5-9 mm. long: ligules 9-17 mm. long.—Everglades.

38. **PECTIS** L. Slender or wiry glandular-dotted herbs. Leaves opposite: blades narrow, usually ciliate near the base. Heads cymose. Involucre narrow, few-several-flowered: bracts distinct, gland-bearing. Ray-flowers few: corollas with yellow ligules. Styles pubescent. Stigmas of the disk-flowers very short.

1. **P. leptcephala** (Cass.) Urban. Stems or branches 8-40 cm. long, nearly glabrous: leaf-blades narrowly linear, 1-3 cm. long: involucre 1-1.5 mm. thick: ligules linear to linear-oblong: disk-corollas 2 mm. long.—Pinelands.—F. K. (*Bah., Cuba, Ant.*)

39. **ERECHTITES** Raf. Annual herbs. Leaves alternate: blades toothed or pinnatifid. Heads corymbose or paniculate. Involucres narrow or somewhat swollen at the base: bracts narrow, flat. Disk-corollas with triangular-lanceolate or deltoid lobes shorter than the narrow throat. Filaments longer than the anthers. Achenes ribbed. Pappus of many white bristles.

1. **E. hieracifolia** (L.) Raf. Plants 2-20 dm. tall, watery: leaf-blades spatulate-oblong to lanceolate, 5-20 cm. long, coarsely toothed, incised, or pinnatifid: involucres 12-15 mm. long: bracts narrowly linear: corollas 8-9 mm. long: achenes about 1.5 mm. long.—Everglades.—F. K. (*Bah., Cuba, Ant.*)—FIRE-WEED.

40. **MESADENIA** Raf. Perennial herbs. Leaves alternate: blades undulate, toothed, or somewhat lobed. Heads corymbose. Involucres cylindrical to cylindrical-ovoid: bracts sometimes winged or keeled. Disk-corollas with linear or linear-lanceolate lobes, longer than the campanulate throat. Filaments filiform. Achenes ribbed, glabrous.

1. **M. lanceolata** (Nutt.) Raf. Stems 8-15 dm. tall: blades of the cauline leaves linear, narrowly lanceolate, or linear-oblong, entire or repand-denticulate: involucre bracts 8-10 mm. long: achenes about 5 mm. long.—Everglades.—INDIAN-PLANTAIN.

41. **EMILIA** Cass. Annual or perennial herbs. Leaves alternate, but often mostly basal: blades entire, toothed, or lyrate-pinnatifid. Heads solitary or in lax corymbs. Involucres swollen at the base: bracts in one series and without accessory ones at the base. Ray-flowers wanting. Disk-corolla golden, purple, or red, with a cylindric throat and a slender tube, the lobes lanceolate. Filaments slender. Achenes 5-ribbed.

1. **E. sonchifolia** (L.) DC. Plants mostly 1-8 dm. tall: leaf-blades rather succulent, those of the lower leaves spatulate, those of the upper leaves lanceolate to linear, auricled at the base, all sinuate-dentate: heads long-peduncled: involucre bracts linear, 10-12 mm. long: corollas 9-11 mm. long: achenes 4 mm. long.—Pinelands and waste grounds. Nat. of the tropics.—F. K. (*Ber., Bah., Cuba, Ant.*)

42. **CIRSIIUM** [Tourn.] Hill. Caulescent large herbs. Leaves alternate: blades toothed, lobed, or pinnatifid, usually spiny. Heads solitary or clustered. Involucre with the outer bract at least spine-tipped or spiny-margined. Filaments mostly pubescent. Pappus of elongate capillary bristles in several series.—THISTLE.

Spiny pinnatifid outer bracts of the involucre shorter than the inner.

Basal leaves with narrow spine-margined blades: anthers twice as long as the filaments. 1. *C. vittatum*.

Basal leaves with broad pinnatifid blades: anthers about as long as the filaments. 2. *C. pinetorum*.

Spiny pinnatifid outer bracts of the involucre longer than the inner. 3. *C. horridulum*.

1. *C. vittatum* Small. Stems 2-7 dm. tall, thinly pubescent: leaf-margins undulate or sinuate, with mostly ascending spines: inner bracts of the involucre 30-35 mm. long: corollas about 30 mm. long: anthers much longer than the filaments.—Everglades and low pinelands.

2. *C. pinetorum* Small. Stems 4-9 dm. tall, thinly pubescent: leaf-segments with the terminal spines directed forward: inner bracts of the involucre 28-33 mm. long: corollas about 30 mm. long: anthers about as long as the filaments.—Pinelands.—F. K. (*Bah.*)

3. *C. horridulum* Michx. Stems 3-11 dm. tall, woolly: leaf-segments with spreading spines: inner bracts of the involucre 40-45 mm. long: corollas 40-43 mm. long, yellow (or purple in *C. horridulum Elliottii*): anthers mostly shorter than the filaments.—Coastal sand-dunes.

43. **CHAPTALIA** Vent. Scapose small herbs, woolly throughout. Leaves alternate: blades undulate to lyrate-pinnatifid. Heads nodding, at least when young, solitary. Involucre mostly narrow: bracts herbaceous, ultimately reflexed. Marginal corollas ligulate. Anthers not tailed at the base: appendages lanceolate. Achenes mostly beaked or narrowed at the apex.

1. *C. dentata* (L.) Cass. Plants 1-3 dm. tall: leaves spreading; blades spatulate to oblanceolate, 3-11 cm. long or more, undulate or denticulate, floccose above or glabrous in age, lanate-tomentulose beneath: scapes slender, floccose: involucre lanate, the inner bracts becoming 17-21 mm. long, narrowly linear: inner corollas 7-8 mm. long: achenes slender, the body 3.5-4.5 mm. long, the beak nearly or quite as long as the body.—Pinelands.—(*Bah., Cuba, Ant.*)

### FAMILY 3. CICHORIACEAE. CHICORY FAMILY.

Annual, biennial, or perennial herbs, or partially woody plants. Leaves alternate: blades entire, toothed, or parted. Flowers perfect, all alike, borne in heads. Corolla ligulate, the 1-sided limb often 5-lobed at the apex. Stigmas unappendaged. Achenes flat or terete.

Achenes flattened: pappus of soft flaccid hairs.

1. **SONCHUS**.

Achenes cylindrical or prismatic: pappus of rigid fragile bristles.

2. **HIERACIUM**.

1. **SONCHUS** [Tourn.] L. Caulescent herbs. Leaf-blades entire, toothed, or pinnatifid, sometimes spiny-margined. Heads erect. Involucre ovoid, or swollen at the base. Achenes flattened. Pappus deciduous.—**SOW-THISTLE**.

1. *S. oleraceus* L. Stems 1-18 dm. tall: leaf-blades lyrate-pinnatifid or runcinate, with soft-tipped teeth: achenes 2.5-3 mm. long, scarcely margined, striate and transverse-wrinkled.—Pinelands and waste grounds. Nat. of Eu.—F. K. (*Ber., Bah., Cuba, Ant.*)

2. **HIERACIUM** [Tourn.] L. Caulescent or scapose herbs. Leaf-blades entire or toothed. Heads erect. Involucres usually cylindrical or campanulate, the main bracts equal in length. Achenes oblong, fusiform or columnar.

1. *H. megacephalon* Nash. Plants 2-7 dm. tall, the stem and branches long-hirsute: leaves mainly basal; blades oblong to spatulate, 6-17 cm. long, sparingly long-hirsute and ciliate: inflorescence-branches glandular-pubescent: inner bracts of the involucre 9-11 mm. long, narrowly linear: inner corollas 8-11 mm. long: achenes fusiform, 4-4.5 mm. long.—Pinelands.—**HAWKWEED**.

## LIST OF GENERA AND SPECIES PUBLISHED IN THIS FLORA.

- SPATHIGER Small. (Latin, *spathe-bearer*, referring to the numerous spathe-like leaves or bracts.)  
*Spathiger rigidus* (Jacq.) Small. *Epidendrum rigidum* Jacq.  
*Auliza nocturna* (L.) Small. *Epidendrum nocturnum* L.  
*Auliza difformis* (Jacq.) Small. *Epidendrum difforme* Jacq.  
ENCYCLIA Small. *Epidendrum*, subgenus *Encyclia* Lindl.  
*Encyclia tampensis* (Lindl.) Small. *Epidendrum tampense* Lindl.  
*Epicladium Boothianum* (Lindl.) Small. *Epidendrum Boothianum* Lindl.  
*Cerothamnus ceriferus* (L.) Small. *Myrica cerifera* L.  
*Salix amphibia* Small. Type, Long Key, Everglades, Florida, *Small & Carter, 2898*, in herb. N. Y. B. G.  
DELOPYRUM Small. (Greek, *visible-wheat*, referring to the partly exposed achene.)  
*Delopyrum gracile* (Nutt.) Small. *Polygonella gracilis* Nutt.  
*Delopyrum ciliatum* (Meisn.) Small. *Polygonella ciliata* Michx.  
GEOBALANUS Small. (Greek, *ground-fruit*, referring to the diminutive shrubs.)  
*Geobalanus oblongifolius* (Michx.) Small. *Chrysobalanus oblongifolius* Michx.  
*Geobalanus pallidus* Small. Type, between Cocoonut Grove and Cutler, Florida, *Small & Carter, 711* in herb. N. Y. B. G.  
SECUA Small. (Latin, *sickle*, referring to the shape of the keel-petals.)  
*Secula viscidula* (Michx.) Small. *Aeschynomene viscidula* Michx.  
*Galactia pinetorum* Small. Type, between Cocoonut Grove and Cutler, Florida, *Small & Wilson, 1592*, in herb. N. Y. B. G.  
*Chamaesyce gemella* (Lag.) Small. *Euphorbia gemella* Lag.  
*Poinsettia pinetorum* Small. *Poinsettia havanensis* Small. Not *Euphorbia havanensis* Willd.  
*Malvastrum corchorifolium* (Desr.) Britton. *Malva corchorifolium* Desr.  
*Ananomis longipes* (Berg) Britton. *Eugenia longipes* Berg.  
*Festiera pinetorum* Small. *Adelia pinetorum* Small.  
*Echites Echites* (L.) Britton. *Tabernaemontana Echites* L.  
*Amphistelma scoparia* (Nutt.) Small. *Cynanchum scoparium* Nutt.  
*Lyonia palustris* (Pursh) Small. *Ceropegia palustris* Pursh.  
*Epicion bahamense* (Griseb.) Small. *Metastelma bahamense* Griseb.  
*Sebesten Sebestena* (L.) Britton. *Cordia Sebestena* L.  
*Dracocephalum leptophyllum* Small. *Physostegia leptophylla* Small.  
*Hydrotrida crenulata* Small. *Septilia crenulata* Small.  
*Agalinis Harperi* Pennell. Type, St. Marks, Wakulla County, Florida, *F. W. Pennell, 4707*.  
*Agalinis filifolia* (Nutt.) Pennell. *Gerardia filifolia* Nutt.  
*Dyschoriste angusta* (A. Gray) Small. *Calophanes oblongifolia angusta* A. Gray.  
*Gerardia floridana* (A. Gray) Small. *Stenandrium dulce floridanum* A. Gray.  
ARANELLA Barnhart. (Latin, *small spider*, referring to the aspect of the fimbriate scales and bracts.)  
*Aranella fimbriata* (H.B.K.) Barnhart. *Utricularia fimbriata* H.B.K.  
*Enallagma latifolia* (Mill.) Small. *Crescentia latifolia* Mill.  
DIODELLA Small. (Diminutive of *Diodia*.)  
*Diodella rigida* (Cham. & Schlecht.) Small. *Diodia rigida* Cham. & Schlecht.  
*Aster Simmondsii* Small. Type, Everglades north of Long Key, Florida, *Small & Carter, 2892*, in herb. N. Y. B. G.  
*Aster Sulznerae* Small. Type, Banks of the Miami River, *Britton, 436*, in herb. N. Y. B. G.  
*Aster Braeci* Britton. Type, New Providence, Bahamas, *Britton & Brace, 394*, in herb. N. Y. B. G.  
*Phaethusa laciniata* (Poir.) Small. *Siegesbeckia laciniata* Poir.  
*Cirsium vitatum* Small. *Carduus vitatus* Small.  
*Cirsium pinetorum* Small. *Carduus pinetorum* Small.



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