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SHRUBS OF FLORIDA

A HANDBOOK OF THE
NATIVE AND NATURALIZED
SHRUBS OF FLORIDA

BY

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NEW YORK
PUBLISHED BY THE AUTHOR
1913

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LANCASTER, PA.

PREFACE.

This handbook contains descriptions of all the shrubs known to the author to grow naturally in the state of Florida. In this connection woody annuals are not considered shrubs; but trees which assume shrubby forms or which in some localities occur only as shrubs, are included, as also woody vines.

The state is very irregular in outline, but it may primarily be divided into two major districts. One consists of a rather narrow strip of territory extending east and west for a distance of nearly four hundred miles. The other, a peninsula with adjacent islands, together with the Florida Keys, projects southward into a eastern part of the Gulf of Mexico, for a distance of fully four hundred miles. In the first district shrubs characteristic of a temperate climate predominate. In the peninsula the temperate species give place to those characteristic of subtropical regions, while at the southern end of the peninsula, especially on the Everglade Keys and beyond the peninsula on the Florida Keys, shrubs of a tropical character replace other forms.

The geographic position of Florida with its temperate, subtropical, and tropical climates, and the varied topography of its surface, collectively result in the occurrence of a remarkably large shrub flora.

The state of Florida may be divided into a score of natural geographic regions, but in giving the distribution of the shrubs on the following pages, a more comprehensive subdivision of the two major districts is used. The several abbreviations employed in connection with the distribution of the shrubs are as follows:

Ala. Alabama.	n. northern.
Cont. Continental.	Nat. Native.
E. East.	pen. peninsula or peninsular.
e. eastern.	s. southern.
E. Keys Everglade Keys.	subtrop. subtropical.
Eu. Europe.	trop. tropical.
F. Keys Florida Keys.	W. West.
Fla. Florida.	w. western.
Ga. Georgia.	W. I. West Indies.
m. middle.	

These abbreviations are self-explanatory, except perhaps those given in parentheses. These indicate the extralimital distribution of the species: for example, "Ga." and "Ala." indicates that, outside of Florida, a species

grows only in the one or the other of the adjacent states, Georgia and Alabama, while "*Cont.*" indicates that a plant is more widely distributed and also occurs in other parts of the North American mainland. Likewise "*W. I.*" means that the plant is found in the West Indies.

The specimens upon which this study is based are in the collections of the New York Botanical Garden, and the exploration carried on in tropical Florida under the auspices of that institution has made possible a more complete record of tropical shrubs from Florida than has heretofore appeared.

J. K. SMALL.

THE NEW YORK BOTANICAL GARDEN,
September 4, 1913.

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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 vernalion: 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 wanting: flowers in the axils of dry or chaffy bracts (scales). Order POALES.
Perianth of 2 distinct series: flowers not in the axils of dry or chaffy bracts.
Leaf-blades pinnately or palmately lobed, or compound: ovules solitary in each carpel-cavity. Order ARCALES.
Leaf-blades narrow, entire or essentially so, simple: ovules many in each carpel-cavity. Order LILIALES.

2. DICOTYLEDONES.

Corolla wanting.

Calyx wanting, at least in the staminate flowers.

Fruit 1-seeded: seeds without tufts of hairs.

Gynoecium 1-carpellary: stigma 1: ovule laterally attached and amphitropous. Order LEITNERIALES.

Gynoecium 2-carpellary: stigmas 2: ovule erect and orthotropous or pendulous and anatropous.

Pistillate flowers without a calyx: ovule erect and orthotropous.

Order MYRICALES.

Pistillate flowers with a calyx: ovule pendulous and anatropous.

Leaf-blades simple.

Fruit a nut or an achene.

Corylaceae in Order FAGALES.

Fruit a drupe.

Oleaceae in Order OLEALES.

Leaf-blades compound: fruit a samara. Oleaceae in Order OLEALES.

Order SALICALES.

Fruit many-seeded: seeds each with a tuft of hairs.

Calyx present at least in the staminate or in the perfect flowers.

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.

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.

Ovary enclosed in or seated in a hypanthium or a calyx-tube.

Stamens borne under the gynoecium.

Pisoniaceae 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 POLYOGNALES.
 Leaves estipulate, or if stipules are present they are not sheathing.
 Trees or erect 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.
 Woody vines. Pisoniaceae in Order CHENOPODIALES.
 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.
 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. Order RHAMNALES.
- Ovary inferior.
 Flowers not in involucre 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.
Chytraculla in Order MYRTALES.
 Calyx of valvate or imbricated sepals: stamens few.
 Stamens as many as the perianth-members and alternate
 with them, or fewer. Nyssaceae in Order AMMIALES.
 Stamens as many as the perianth-members and opposite
 them, or twice as many.
 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.
 Fruit a capsule.
 Calyx regular and the sepals half as many as the cavities in the
 ovary, or irregular. Order ARISTOLOCHIALES.
 Calyx regular and the sepals as many as the cavities in the
 ovary. Order MYRTALES.
 Flowers, at least the staminate, in involucre heads.
 Ambrosiaceae in Order CARDUALES.
- 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. Order RANALES.
 Stamens on the margin of a hypanthium (the hypanthium very small in
 some Saxifragaceae). Order ROSALES.
 Plants without secreting glands in the bark.
 Plants with secreting glands in the bark. Surianaceae 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.
 Leaves glandular or pellucid-punctate.
 Rutaceae in Order GERANIALES.
 Leaves not glandular.
 Placentae parietal: gynoecium with a 1-celled ovary.
 Capparidaceae in Order PAPAVERALES.
 Placentae axile or central: gynoecium with a 2-
 several-celled ovary, (or with distinct carpels.)
 Theaceae in Order HYPERICALES.
- Sepals valvate.
 Stamens with distinct filaments.
 Ovary 1-celled: placentae parietal.
 Capparidaceae in Order PAPAVERALES.

- Ovary 2-several-celled: placentae axile or central.
 Families in Order MALVALES.
- Stamens with united filaments. Order MALVALES.
- Stamens few, not over twice as many as the petals.
 Stamens as many as the petals and opposite them.
 Euphorbiaceae in Order EUPHORBIALES.
- 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.
- Stamens with free and distinct filaments.
 Tamaricaceae in Order HYPERICALES.
- Stamens with partially united filaments and usually adnate to the corolla.
 Styracaceae in Order EBENALES.
- Ovules or seeds on parietal placentae.
 Stamens with united filaments and no staminodia.
 Families in Order MALVALES.
- Stamens with distinct filaments.
 Families in Order HYPERICALES.
- Ovary several-celled.
 Stamens with wholly or partly united filaments.
 Families in Order GERANIALES.
- 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.
 Tiliaceae in Order MALVALES.
- Stamens inserted on the margin of a disk or hypanthium (perigynous or hypogynous).
 Stamens fewer than the sepals or the petals.
 Hippocrateaceae in Order SAPINDALES.
- Stamens as many as the sepals or the petals, or more.
 Stamens as many as the petals and opposite them.
 Order RHAMNALES.
- Stamens as many as the petals and alternate with them, or more or many.
 Styles distinct.
 Upper part of the ovaries distinct, at least at maturity.
 Iteaceae in Order ROSALES.
- Upper part of the ovaries united. Order SAPINDALES.
- Styles united.
 Hypanthium flat or obsolete: disk fleshy.
 Plants without secreting glands in the bark.
 Order SAPINDALES.
- 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 distinct. Families in Order ROSALES.
- Styles united.
 Shrubs or trees, not succulents, sometimes woody vines.
 Hypanthium not produced beyond the ovary.
 Hydrangeaceae in Order ROSALES.
- Hypanthium produced beyond the ovary.
 Families in Order MYRTALES.
- Shrubs with partly succulent stems and branches and rudimentary or obsolete leaves, usually spiny.
 Order OPUNTIALES.

KEY TO THE ORDERS

- Stamens not more than twice as many as the petals.
- Styles distinct.
- Ovules several in each cavity of the ovary: fruit a capsule or a fleshy many-seeded berry. Families in Order ROSALES.
- 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.
- Ovary enclosed in or surpassed by the hypanthium or adnate to it.
- 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. Families in Order MYRTALES.
- Ovary exceeding the hypanthium, the top free. Hydrangeaceae in Order ROSALES.
- Plants with tendrils. Rhamnaceae in Order RHAMNALES.
- Petals more or less united.
- Ovary superior.
- Stamens free from the corolla. Families in Order ROSALES.
- Gynoeclum of a single carpel.
- Gynoeclum of several united carpels.
- Styles wanting or very short: stigma sessile. Aquifoliaceae in Order SAPINDALES.
- Styles elongate. Families in Order ERICALES.
- Stamens partially adnate to the corolla.
- Stamens as many as the lobes of the corolla and opposite them, or twice as many or more. Order EBENALES.
- Stamens as many as the lobes of the corolla and alternate with them, or fewer.
- Gynoeclum of 3-6 carpels. Aquifoliaceae in Order SAPINDALES.
- Gynoeclum 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. Spigeliaceae in Order GENTIANALES.
- Leaves with no traces of stipules. Order POLEMONIALES.
- 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: flowers not in involucrate heads.
- 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: calyx a pappus of scales or bristles: flowers in involucrate heads. Order CARDUALES.

SHRUBS OF FLORIDA.

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 wanting. I. GYMNOSPERMAE.
Ovules, and seeds, borne in a closed cavity (ovary): stigma present. 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 seeds mature.

Plant growing by a terminal bud: leaves circinate: blades pinnate. 1. CYCADALES.
Plant growing by terminal and lateral buds: leaves not circinate; blades not pinnate. 2. PINALES.

Order CYCADALES.

Palm-like or fern-like plants. Leaves in a crown: blades pinnate. Flowers in cones of approximate scales or on small modified leaves. Staminate cones with scales bearing 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 one or several ribs or veins. Staminate cones deciduous. Ovulate leaves or cones persistent. Seeds exposed on the edges of the ovulate leaf or enclosed in a cone.

1. *ZAMIA* L. Fern-like plants, growing in sandy soil. Leaflets jointed at the rachis, with parallel veins. Cones stalked, the scales peltate, spiral, the mature pistillate ones erect.—COONTIE. COMFORT-ROOT. COMPTIE.

Leaflets 10-16-veined: fruiting cones 12-16.5 cm. long, markedly umbonate. 1. *Z. floridana*
Leaflets 20-28-veined: fruiting cones 6.5-10.5 cm. long, scarcely umbonate. 2. *Z. pumila*.

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

Dry pinelands, the E. Keys and F. Keys, and "flat woods," s. pen. Fla. (*Endemic.*)

2. *Z. pumila* L. Leaves shorter than those of *Z. floridana*; leaflets 32-44, the blades linear-oblong to linear-oblong, 7-11 cm. long, 8-16 mm. wide:

Shrubs of Florida—1.

mature ovulate cones elliptic, tomentose with ferruginous, partially deciduous, hairs, the seed-bearing scales thin.

Moist hammocks and sand-dunes m. pen. Fla., especially on the e. coast. (W. I.)

Order PINALES.

Shrubs or trees. Leaves scale-like or narrow, or needle-like and often borne in bundles. Flowers mainly monoecious, the cones of spirally imbricate bracts, or in *Taxaceae* the ovulate flowers often solitary. Seeds borne in cones of dry or fleshy scales, or wholly or partially naked.

FAMILY 1. JUNIPERACEAE. JUNIPER FAMILY.

Mostly evergreen often slightly resiniferous shrubs or trees, with fibrous, shreddy bark, the buds naked. Leaves mainly appressed scales or sometimes subulate and spreading. Ovulate aments with bractless scales. Ovules erect. Fruit a cone of dry often peltate, scales, or baccate or drupaceous. Seed wingless, or winged; the wing a portion of the testa.

1. **SABINA** Haller. Shrubs or trees. Leaves scale-like, except on young plants, and sometimes on twigs, appressed, often imbricate, each with a gland in the back. Staminate aments terminal on branchlets. Ovulate aments with ovules opposite the scales. Cones baccate. Seeds wingless.—CEDAR. SAVIN.

1. **S. barbadensis** (L.) Small. A shrub or small tree: scale-like leaves short and rather thick, the relatively blunt apex closely appressed: staminate aments 4-5 mm. long: cones ovoid or oval-ovoid, 3-4 mm. long.—BARBADOS-CEDAR. SOUTHERN RED-CEDAR.

Low sandy places, near the coast. Absent from the F. Keys. (Cont., W. I.)—Spr.

CLASS II. ANGIOSPERMAE.

Carpel or pistil a closed cavity formed by the uniting of the margins of a rudimentary leaf, or sometimes of several leaves. Within the cavity thus formed the ovules are borne and the seeds mature.

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

Cotyledons typically 2: stem exogenous: leaf-blades with the veins netted. Subclass 2. DICOTYLEDONES.

SUBCLASS 1. MONOCOTYLEDONES.

Stems endogenous, with no distinction into bark, wood, and pith, consisting of a ground-mass of soft tissue (parenchyma) in which strands or bundles of wood-cells are irregularly distributed. Leaves mostly alternate, sheathing at the base: blades usually parallel-nerved, entire or essentially so, rarely separating by a manifest articulation. Perianth and essential parts of the flower usually in threes or sixes. Embryo with a single cotyledon, the early leaves always alternate.

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.

FAMILY 1. **POACEAE.** GRASS FAMILY.

Annual or perennial herbs, or rarely shrubs 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.

1. **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 scale bony-indurated, woolly at the apex, enclosing a palea of similar texture and a perfect flower.

1. **L. divaricata** (L.) A. Hitchc. Shrub 2-3 m. tall, the stems and branches ascending or reclining: leaves 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. [*Panicum latifolium* L.]—SMALL-CANE.

Hammocks, coast of lower pen. Fla., E. Keys, and F. Keys. (W. I.)

Order **ARECALES.**

Shrubs or trees, typically with a single terminal bud, but the stem sometimes branching, the branches erect or diffuse. 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, and branches, with a crown of leaves. Leaf-blades plaited, long-petioled. Inflorescence at first included in a large bract (spathe), from which it ultimately protrudes.

Flowers perfect: petals valvate: carpels free only at the base: style slender, at least well developed.

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

Calyx and corolla distinct and manifestly in 2 series.

Style and stigma basal on the drupe.

Style and stigma terminating the drupe.

Anthers longer than wide: seed elongate.

Anthers didymous: seed depressed.

Flowers mostly polygamo-dioecious: petals imbricate: carpels free above: stigma sessile.

1. COCCOTHRINAX.

2. SABAL.

3. SERENOA.

4. PAUROTIS.

5. RHAPIDOPHYLLUM.

1. **COCOTHRIX** Sarg. Unarmed shrubs or trees. Leaves with flabellate blades silvery or pale-scurfy beneath, and smooth petioles. Spadix relatively short. Stamens mostly 9: filaments distinct or nearly so. Style funnel-form. Drupe black or purple-black.

1. **C. argentea** (Lodd.) Sarg. A shrub or small tree. Leaf-blades 2-4 dm. broad, the ligule 1-1.5 cm. broad: spadix 2-4 dm. long: mature pedicels 1-2 mm. long: drupe 7-10 mm. thick.—**SILVER-PALM**.

Pinelands and rarely in hammocks, E. Keys and F. Keys. (W. I.)

2. **SABAL** Adans. Unarmed shrubs, with horizontal or contorted rootstocks. Leaves upright: blades flabellate, glabrous. Spadix upright during anthesis.—**Spr.-sum.—PALMETTO**.

Anthers ovoid: filaments thrice as long as the anther: drupes less than 10 mm. in diameter. 1. *S. glabra*.

Anthers oblong: filaments twice as long as the anther: drupes over 10 mm. in diameter. 2. *S. Etonia*.

1. **S. glabra** (Mill.) Sarg. Rootstock straight or merely curved. Leaf-blades glaucous or pale-green, scarcely if at all filiferous: spadix narrowly branched, 1-2 m. long, erect or ascending at maturity: corolla-lobes about 2 mm. long: seeds 5-6 mm. broad.—**DWARF-PALMETTO. BLUE-STEM**.

Low grounds, along or near streams, n. Fla. and the upper pen. (Cont.)

2. **S. Etonia** Swingle. Rootstock S-shaped. Leaf-blades deep-green, copiously filiferous: spadix widely branched, 5-8 dm. long, prostrate at maturity: corolla-lobes 3-3.5 mm. long: seeds 10-13 mm. broad.—**SCRUB-PALMETTO**.

Pinelands and inland sand-dunes, pen. Fla. (Endemic.)

3. **SERENOA** Hook. Armed shrubs or trees. Leaves upright or spreading: blades flabellate, cordate at the base: petioles with recurved spines. Stamens unequal, those opposite the petals with the broader filaments. Drupe and seed oblong.

1. **S. serrulata** (Michx.) Hook. A shrub with sparingly branched stems, or a tree, the trunk 9 m. tall or less, or usually horizontal: leaf-blades suborbicular, green or glaucous, 3-8 dm. broad, cordate at the base; petioles with firm spines: petals 4-4.5 mm. long: drupe 15-25 mm. long.—**SAW-PALMETTO**.

Pinelands, hammocks, and low savannas, nearly throughout Fla., except on the upper F. Keys. Spr. or all year southward. (Cont.)

4. **PAUROTIS** O. F. Cook. Armed shrubs or trees. Leaves spreading: blades flabellate: petioles with mostly upcurved spines. Stamens equal or essentially so, the filaments broad. Stigmas terminal. Drupe globular. Seed depressed.

1. **P. Wrightii** (Griseb.) Britton. A shrub with many stems, or a tree, the trunks solitary or several, 12 m. tall or less. Leaf-blades half-orbicular, 5-8 dm. broad, truncate at the base, the segments slenderly attenuate; petioles with flat orange teeth: petals about 1 mm. long: drupe 8-10 mm. thick.—**SAW CABAGE-PALM**.

In low savannas and hammocks in the Everglades near the Chokoloskee river and in the vicinity of Cape Sable. (W. I.)—Spr.

5. **RHAPIDOPHYLLUM** H. Wendl. & Drude. Armed shrubs or trees. Leaves upright: blades flabellate, silvery beneath: petioles rough-edged, with sheaths of interwoven spines and fibers. Spadix upright, slightly exerted from the imbricate involucre. Stigmas introrse. Drupe of an ovoid type.

1. **R. Hystrix** (Fraser) H. Wendl. A shrub with erect or spreading stems, the rootstock proliferous. Leaf-blades 5-7 dm. in diameter, scurfy beneath: petals ovate or orbicular: filaments surpassing the petals: drupe ovoid or oval-ovoid, 18-25 mm. long, red.—NEEDLE-PALM. BLUE-PALMETTO.

Low hammocks, n. Fla. and the upper pen. (Cont.)—Spr.—early sum.

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.

FAMILY 1. 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 L.** Stems usually greatly elongate, with very hard wood, and usually armed with prickles. Leaf-blades leathery, prominently ribbed. Flowers often fragrant. Perianth green. Berries red, blue, or black. Vigorous shoots often bear very large leaves.—Spr.—sum.—GREENBRIER. HORSEBRIER.

Peduncles of pistillate plants much longer than the subtending petioles.

Leaf-blades glaucous beneath.

Blades of the leaves, or bracts subtending the peduncles, little longer than broad: berries about 8 mm. in diameter.

Blades of the leaves, or bracts subtending the peduncles, twice or thrice as long as broad: berries about 10 mm. in diameter.

Leaf-blades green on both sides.

Peduncles of pistillate plants fully twice or four times as long as the petioles during anthesis.

Peduncles of pistillate plants barely twice as long as the petioles.

Peduncles of pistillate plants shorter than the petioles or barely surpassing them.

Leaf-blades entire or merely erose.

Leaf-blades neither auricled nor dilated at the base.

Foliage glabrous.

Bracts subtending the peduncles with blades rounded or cordate at the base.

Berries black or bluish-black.

Berries red.

Bracts subtending the peduncles with blades acute, acuminate, or cuneate at the base.

Berries red: leaf-blades mostly 5-7-nerved.

Leaf-blades with lustrous upper surface: berries 4-6 mm. in diameter.

Leaf-blades with dull upper surface: berries 6-10 mm. in diameter.

Berries black: leaf-blades mostly 3-nerved.

Foliage pubescent.

Leaf-blades more or less strongly auricled at the base.

Leaf-blades spiny-toothed.

1. *S. glauca*.

2. *S. cinnamomifolia*.

3. *S. Pseudo-China*.

4. *S. Bona-Nox*.

5. *S. rotundifolia*.

6. *S. Walteri*.

7. *S. lanccolata*.

8. *S. Morongii*.

9. *S. laurifolia*.

10. *S. pumila*.

11. *S. Beyrichii*.

12. *S. havanensis*.

1. *S. glauca* Walt. Leaf-blades broadly ovate or orbicular-ovate, 3-9 cm. long, rounded or cordate at the base: staminate peduncles mostly less than 2 cm. long: pedicels 3-8 mm. long: sepals and petals 3.5-4 mm. long: anthers mostly shorter than the filaments: berries 6-8 mm. in diameter: seeds mostly 4 mm. long or less.

Sandy thickets and woods, n. Fla. and the upper pen. (Cont.)

2. *S. cinnamomifolia* Small. Leaf-blades lanceolate to ovate-lanceolate, or deltoid-ovate, 7-10 cm. long, cuneate to truncate at the base: staminate peduncles mostly over 3 cm. long: pedicels 7-12 mm. long: sepals and petals 4-5 mm. long: anthers mostly shorter than the filaments: berries 10-12 mm. in diameter: seeds mostly 5 mm. long or more.

Woods and rich thickets, w. Fla. (Cont.)

3. *S. Pseudo-China* L. Leaf-blades ovate to suborbicular, green on both sides, obtuse or cordate at the base: pistillate peduncles mostly more than twice the length of the petioles: pedicels 6-8 mm. long: sepals and petals dark-green, those of the staminate flowers about 5 mm. long: berries 4-6 mm. in diameter.—BAMBOO. CHINA-BRIER.

Dry thickets and woods, n. Fla. and the upper pen. (Cont.)

4. *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: pistillate peduncles mostly less than twice the length of the petioles: pedicels 4-8 mm. long: sepals and petals deep-green, those of the staminate flowers 4-5 mm. long: berries 4-6 mm. in diameter.—STRETCHBERRY.

Hammocks and thickets, nearly throughout n. and pen. Fla. (Cont., W. I.)

5. *S. rotundifolia* L. Leaf-blades broadly ovate to orbicular-ovate, 3-8 cm. long (those of vigorous shoots suborbicular and much larger), abruptly pointed, smooth-edged: peduncles of the pistillate umbels slightly longer than the petiole-like bases of the leaves: pistillate sepals and petals broad, less than 4 mm. long: anthers oblong: berries bluish-black, 6-7 mm. in diameter.

Thickets and woods, n. Fla. and the upper pen. (Cont.)

6. *S. Walteri* Pursh. Leaf-blades lanceolate to ovate, 5-12 cm. long, cuspidate at the apex, smooth-margined: pedicels slightly unequal, 4-6 mm. long: sepals and petals green, those of the staminate flowers linear, 6-8 mm. long: anthers lanceolate: berries coral-red, 6-8 mm. in diameter.

Swamps and pinelands, n. Fla. and the upper pen. (Cont.)

7. *S. lanceolata* L. Leaf-blades lanceolate or narrowly ovate-lanceolate, 5-8 cm. long, acute to acuminate, lustrous above, dull-green beneath, smooth-margined: pedicels very unequal, 4-14 mm. long: sepals and petals light-green, those of the staminate flowers linear-spatulate, about 4 mm. long: berries dark-red, 4-6 mm. in diameter.

Dry woods and pinelands, n. Fla. and the upper pen. (Cont.)

8. *S. Morongii* Small. Leaf-blades elliptic, 5-10 cm. long, abruptly acute or cuspidate at the apex, smooth-margined: flowers not seen: pedicels 6-8 mm. long: berries red, 6-10 mm. in diameter.

Pinelands, e. Fla. (Endemic.)

9. *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, commonly white during the first year, black when mature.

Swamps and moist thickets, nearly throughout Fla. (Cont., W. I.)

10. *S. pumila* Walt. Leaf-blades ovate-oval to oblong, 5-10 cm. long, acute or mucronate at the apex, pale-pubescent beneath, not lobed, cordate at the base:

sepals and petals of the staminate flowers 3-5 mm. long: berries ovoid, 5-8 mm. long, red, acute.

Dry pinelands, n. Fla. and the upper pen. (*Cont.*)

11. *S. Beyrichii* Kunth. Leaf-blades ovate, broadly oblong, suborbicular, or pandurate, 2-12 cm. long, cuspidate or mucronate at the apex, or retuse, 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, 4-6 mm. long.

Woods, thickets, and hammocks, nearly throughout Fla. (*Cont.*, *W. I.*)

12. *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, black.

Pinelands, E. Keys and F. Keys. (*W. I.*)

SUBCLASS 2. DICOTYLEDONES.

Stems exogenous, consisting of pith, wood, and bark (endogenous in rare cases): pith of parenchymatous cells: wood in one or several layers surrounding the pith, traversed by medullary rays: bark covering the wood. Leaves various: blades mostly pinnately or palmately veined, their bases, or the bases of the petioles articulated. Perianth and essential parts of the flower rarely in threes or sixes. Embryo with two cotyledons. The first leaves (cotyledons) are opposite.

Series 1. CHORIPETALAE.

Petals separate and distinct from each other, or wanting. The series embraces most of the families formerly included in the APETALAE and the POLYPETALAE.

Order LEITNERIALES.

Shrubs or trees, with exceedingly light wood. Leaves alternate. Flowers dioecious, in aments appearing before the leaves, the staminate flowers borne on the base of each bract: perianth wanting: androecium of 3-12 stamens: pistillate flowers each with a minute perianth: gynoecium a single carpel, the stigma introrse. Ovule solitary. Fruit a collection of drupes each subtended by a bract.

FAMILY 1. LEITNERIACEAE. CORKWOOD FAMILY.

Bark smooth, brown. Leaf-blades entire. Stipules wanting. Aments from the axils of last year's leaves. Staminate aments many-flowered: filaments short: anthers 2-celled. Pistillate aments few-many-flowered: ovary sessile: stigma elongate. Drupes elongate.

1. *LEITNERIA* Chapm. Leaves scattered: blades shining above, petioled. Staminate aments conspicuously bracted: filaments distinct. Pistillate aments inconspicuously bracted: ovary shorter than the stigma. Drupes glabrous, the flesh leathery.

1. *L. floridana* Chapm. Shrub, or tree becoming 7 m. tall: leaf-blades narrowly elliptic, oblong, or elliptic-lanceolate, or rarely oval, 10-20 cm. long,

pubescent beneath: staminate aments 3-4 cm. long, the bracts acuminate: pistillate aments with acute bracts: drupes elliptic, 15-17 mm. long.—CORKWOOD.

Salt or brackish marshes, near Apalachicola. (Cont.)—Winter-spr.

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 a gynoeceium of 2 united carpels on a bract subtended by 2 bractlets and surrounded by single carpel, the stigma introrse. Ovule solitary. Fruit a cluster of waxy.

FAMILY 1. MYRICACEAE. BAYBERRY FAMILY.

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

1. **CEROTHAMNUS** Tidestrom. Trees or shrubs. Leaf-blades entire or merely toothed. Pistillate aments not bristly. Nut globose, drupe-like, with a fleshy-waxy epicarp.—Winter-spr.—BAYBERRY.

Shrub, 2-6 dm. tall, with woody horizontal underground stems (rootstocks).

Trees or shrubs, 1-12 m. tall, without rootstocks.

Stamens 3 or 4: nuts 2-3 mm. in diameter.

Stamens 9 or 10: nuts 4-7 mm. in diameter.

Leaf-blades dull above, toothed, usually pubescent and glandular beneath.

Leaf-blades lustrous above, entire, glabrous and dull green beneath.

1. *C. pumilus*.

2. *C. ceriferus*

3. *C. carolinensis*.

4. *C. inodorus*.

1. **C. pumilus** (Michx.) Small. Shrub 2-6 dm. tall, gregarious from horizontal rootstocks: leaf-blades obovate to linear-spatulate, cuneate at the base, 1.5-3 cm. long or rarely larger, commonly toothed near the apex: staminate aments 5-8 mm. long: nuts 3.5-4 mm. in diameter.—DWARF WAX-MYRTLE. DWARF-CANDLEBERRY.

Pinelands, n. Fla. and the upper pen. (Cont.)

2. **C. ceriferus** (L.) Small. Shrub, or tree becoming 12 m. tall: leaf-blades oblanceolate to oblong-oblanceolate, 3-10 cm. long, toothed or individually entire: staminate aments 1-1.5 cm. long: nuts 2-3 mm. in diameter.—WAX-MYRTLE. CANDLEBERRY.

Swamps, wet woods, pinelands, and hammocks, nearly throughout Fla. (Cont., W. I.)

3. **C. carolinensis** (Mill.) Tidestrom. Shrub 1-3 m. tall: leaf-blades elliptic, oblong, oblanceolate or obovate, 2-10 cm. long, shallowly toothed toward the apex: staminate aments 1-1.5 cm. long: nuts 4-5 mm. in diameter.—BAYBERRY. SWAMP-CANDLEBERRY.

Moist sandy soil or swamps, n. Fla. (Cont.)

4. **C. inodorus** (Bart.) Small. Shrub, or tree 6 m. tall: leaf-blades elliptic-obovate or sometimes spatulate, 4-8 cm. long, entire: staminate aments 1-1.5 cm. long: nuts 5-7 mm. in diameter.—ODORLESS WAX-MYRTLE.

About pineland-ponds and swamps, n. Fla., from Wakulla county westward. (Cont.)

Order SALICALES.

Shrubs or trees. Leaves alternate: blades simple, entire or toothed. Flowers dioecious, in aments, the staminate consisting of an androeceium

of 2 or more stamens, the pistillate consisting of a gynoeceium 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 wide. 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.—Winter-spr.—WILLOW.

Capsules, and ovary, glabrous, stout-beaked.

Leaves with narrow blades: stamens 3-7.

Leaf-blades green beneath.

Bracts of the pistillate aments obtuse: fruiting aments usually dense: capsules 3-4.5 mm. long. 1. *S. nigra*.

Bracts of the pistillate aments acute or abruptly pointed: fruiting aments usually lax: capsules 4-5.5 mm. long. 2. *S. marginata*.

Leaf-blades glaucous beneath.

Capsules ovoid in outline, not veined, the body globose or ovoid.

Capsules conic in outline, veiny, the body oblong to oval.

Leaves with broad blades: stamens 2.

Capsules, and ovary, pubescent, subulate-beaked.

3. *S. longipes*.

4. *S. amphibia*.

5. *S. floridana*.

6. *S. tristis*.

1. ***S. nigra*** Marsh. Shrub or small tree, the twigs brown: leaf-blades narrowly lanceolate, 6-12 cm. long, acute at both ends, or acuminate at the apex, pale beneath: staminate aments with finely pubescent, blunt bracts: capsules $\frac{1}{4}$ or 5 times as long as the pedicels.—BLACK-WILLOW.

River-banks, n. Fla. (Cont.)

2. ***S. marginata*** Weimer. Spreading shrub or small tree, the twigs reddish: leaf-blades mainly oblong, lanceolate, or ovate-lanceolate, 2-5 cm. long, mostly acute or blunt at the apex, cuneate to truncate at the base: staminate aments with densely pubescent acute or acutish bracts: capsules about twice as long as the pedicels.—GULF-WILLOW.

River-swamps and low grounds, n. Fla. (Cont.)

3. ***S. longipes*** Anders. Shrub, or tree becoming 10 m. tall, the twigs gray or gray-brown: leaf-blades narrowly lanceolate, 10-15 cm. long: staminate aments 4-10 cm. long, the bracts finely ciliate: capsules ovoid in outline, 3 or 4 times as long as the pedicels.—WARD'S-WILLOW.

Low grounds, n. Fla. (Cont.)

4. ***S. amphibia*** Small. Shrub or small tree, the twigs purplish or purple: leaf-blades linear-lanceolate, 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.

Wet grounds and hammocks, s. pen. Fla. (Endemic.)

5. ***S. floridana*** Chapm. Shrub or small tree, the twigs sparingly pubescent: leaf-blades oblong to oblong-lanceolate, 5-8 cm. long, or larger on twigs, acute, sharply serrulate, dark-green above, glaucous beneath, rounded or truncate at the base: fruiting aments oblong-cylindric, 4-7 cm. long: capsules ovoid-conic, 6-8 mm. long.

River-banks, w. Fla. (Ga.)

6. ***S. tristis*** Ait. Shrub usually less than 1 m. tall, the twigs mostly grayish: leaf-blades oblanceolate to linear-oblong, 2-5 cm. long, entire or undulate,

hoary on both sides: staminate aments less than 1 cm. long: capsules 5-6 mm. long.—DWARF GRAY-WILLOW.

Woods and banks, n. Fla. (Cont.)—Not recently collected in the state.

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 eup in fruit. Calyx usually present. Corolla wanting. Fruit a nut or rarely a samara.

Staminate and pistillate flowers in aments: fruit not with a bur or a cup.

Staminate flowers solitary in the axil of each bract, without a calyx: pistillate flowers with a calyx. Fam. 1. CORYLACEAE.

Staminate flowers 2-3 together in the axil of each bract, each with a calyx: pistillate flowers without a calyx. Fam. 2. BETULACEAE.

Staminate flowers in aments: pistillate often solitary, the involucre becoming a bur or cup. Fam. 3. FAGACEAE.

FAMILY 1. CORYLACEAE. HAZEL-NUT FAMILY.

Shrubs or trees, the wood close-grained. Leaves deciduous: blades mostly doubly toothed. Staminate aments drooping, with each bract subtending one flower, the calyx wanting. Pistillate aments not drooping, each bract bearing 2 or 3 pistils, the involucre of a bract and 2 scales. Fruit consisting of one or more accrescent bracts each subtending or inclosing 1, 2 or 3 nuts.

Fruiting bracts flat, 3-lobed, the terminal lobe toothed.
Fruiting bracts bladder-like.

1. *CARPINUS*.
2. *OSTRYA*.

1. *CARPINUS* [Tourn.] L. Trees or shrubs, the bark smooth. Staminate aments solitary, the bracts acute, ciliate. Pistillate aments with 3-lobed bracts at maturity.

1. *C. caroliniana* Walt. Shrub, or tree becoming 13 m. tall, the bark blue-gray: leaf-blades oblong, varying mainly to ovate or ovate-lanceolate, 3-14 cm. long, glabrous above: staminate aments 2-5 cm. long: mature bracts of the pistillate aments hastate, 2-3 cm. long: nuts 5-6 mm. long.—HORNBEAM.

Rich woods, n. Fla. and the upper pen. (Cont.)—Spr.

2. *OSTRYA* [Mich.] Scop. Shrubs or trees, the bark scaly. Staminate aments clustered, the bracts blunt, not ciliate. Pistillate aments with lobes bracts.

1. *O. virginiana* (Mill.) Willd. Shrub, or tree becoming 18 m. tall, the bark rough: leaf-blades mainly oblong, elliptic, or oval, 3-13 cm. long, slightly pubescent or glabrate above: staminate aments 3-8 cm. long: mature bracts of the pistillate aments oblong to ovate, 1.5-2 cm. long: nuts 6-7 mm. long.—HOP-HORNBEAM.

Rich woods, n. Fla. and upper pen. (Cont.)—Spr.

FAMILY 2. BETULACEAE. BIRCH FAMILY.

Shrubs or trees, the wood close-grained. Leaves deciduous: blades with 2-several series of teeth. Staminate aments drooping, with each bract subtending 2 or 3 flowers, the calyx present. Pistillate aments seldom drooping, the bracts thickened and woody, each one bearing 2 or 3 pistils, the calyx wanting. Fruit a cone-like aggregate of the accrescent bracts each of which subtends a nut.

1. **ALNUS** [Tourn.] L. Shrubs or trees, the bark astringent. Staminate flowers with 3-6 stamens, the anther-sacs connected. Bracts of the pistillate aments not lobed, woody and spreading at maturity.—ALDER.

1. **A. rugosa** (Du Roi) Spreng. Shrub or tree, becoming 13 m. tall: leaf-blades thickish, obovate or oval, 4-10 cm. long: mature pistillate aments 1.5-2 cm. long, the bracts 3-lobed: nuts 1.5 mm. long, sharp-margined.—SMOOTH-ALDER.

Banks of streams, n. Fla. (Cont.)—Spr.

FAMILY 3. FAGACEAE. OAK FAMILY.

Shrubs or trees, the wood 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, cup-like, or saucer-like involucre enclosing or subtending 1 or more nuts.

Staminate aments erect or ascending: nuts 1-3, included in a very spiny involucre.

Staminate aments drooping: nut seated in an involucre of imbricated scales.

1. CASTANEA.

2. QUERCUS.

1. **CASTANEA** [Tourn.] Hill. Shrubs or trees, with porous wood. Leaf-blades toothed, the teeth slender-tipped. Staminate aments elongate, spreading: calyx 6-lobed: stamens 10-20, the filaments greatly elongate. Pistillate flowers several: calyx 6-lobed. Staminodia present. Ovary imperfectly 6-celled. Stigmas 6, slender. Mature involucre with rigid often branching spines, including the nuts. Nuts 2 or 3, or sometimes solitary.—Spr.—CHESTNUT.

Shrub or small tree without rootstocks.

1. *C. pumila*.

Shrub with elongate rootstocks, the branches arising from the root-stock.

2. *C. nana*.

1. **C. pumila** (L.) Mill. Shrub, or tree becoming 16 m. tall, the bark smooth: leaf-blades oblong to obovate, 7-14 mm. long, acute or rounded at the apex, white-tomentose beneath, the lateral ribs in 14-20 pairs: neck of the hypanthium shorter than the body: ripe involucre 3-4 mm. in diameter: nuts usually solitary, 1-1.5 cm. long.—CHINQUAPIN.

Sandy ridges and swamp-margins, n. Fla.

2. **C. nana** Muhl. Shrub with underground stems and erect branches 2-5 dm. tall: leaf-blades oblong to oblong-obovate, 5-15 cm. long, obtuse or apiculate at the apex with tawny or dirty-white tomentum beneath, the lateral ribs in 12-14 pairs: ripe involucre 1-2 cm. in diameter: nut solitary, 1.5-2 cm. long.—CHINQUAPIN.

Sand-hills and pinelands, n. Fla.

2. **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 (cup) saucer-like or deeper, subtending the nut, or rarely enclosing it.—Spr. or winter southward.—OAK.

Fruit maturing the first year: nut glabrous within: leaf-blades not bristle-tipped.

Leaves deciduous: blades lobed or toothed.

I. ALBAE.

Leaves persistent: blades entire, except on shoots.

II. VIRGINIANAE.

Fruit maturing the second year, except sometimes in *Q. myrtifolia*: nut pubescent within: leaf-blades bristle-tipped.

III. LAURIFOLIAE.

I. ALBAE.
Leaf-blades deeply and prominently lobed.
Leaf-blades undulate or undulately lobed.

1. *Q. Margarettæ*.
2. *Q. Chapmanii*.

II. VIRGINIANAE.

Acorn-nut of an ovoid type, much less than one-half included in the cup.
Stems underground; branches erect.
Stems erect.
Leaves and twigs not succulent: nut well included in the cup.
Leaves and twigs succulent: nut very slightly included in the cup.

3. *Q. minima*.
4. *Q. geminata*.
5. *Q. succulenta*.
6. *Q. Rolfsii*.

Acorn-nut of an oblong type, one-half included in the cup.

III. LAURIFOLIA.

Stems underground; branches erect.
Stems erect.
Leaf-blades glabrous beneath.
Leaf-blades pubescent beneath.

7. *Q. pumila*.
8. *Q. myrtifolia*.
9. *Q. cinerea*.

1. *Q. Margarettæ* Ashe. Shrub, or tree sometimes 10 m. tall: leaf-blades oval or obovate in outline, 6-9 cm. long, more or less pubescent about the veins beneath, sinuate or shallowly 3-5-lobed: acorn sessile or short-stalked; cup turbinate-hemispheric, 11-14 mm. wide; nut oblong to ovoid-oblong, 12-14 mm. long.—SMALL POST-OAK.

Dry sandy woods, n. Fla. (Cont.)

2. *Q. Chapmanii* Sarg. Shrub, or tree becoming 10 m. tall: leaf-blades obovate or oblong, 5-10 cm. long, 3-lobed near the apex, or merely undulate, sparingly pubescent beneath, lustrous above: acorn sessile or nearly so; cup depressed-hemispheric, 15-20 mm. wide; nut oblong-elliptic, 1.5-2.5 mm. long.—CHAPMAN'S-OAK.

Sandy soil, especially near the coast, n. Fla. and the upper pen. (Cont.)

3. *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.—SCRUB-OAK. DWARF LIVE-OAK.

Pinelands, chiefly near the coast, nearly throughout Fla., except the F. Keys. (Endemic.)

4. *Q. geminata* Small. Shrub, or tree 10 m. tall: leaf-blades narrowly oblong, elliptic, or oblong-oblanceolate, 3-6 cm. long, entire, revolute, rugose-reticulate, finely tomentose beneath: acorns usually 2 at the end of a stalk: cup turbinate, about 10 mm. wide; nut ovoid or narrowly oval, 10-17 mm. long.—TWIN LIVE-OAK. SCRUB LIVE-OAK.

Sandy hammocks and sand-ridges, n. pen. Fla. (Cont.)

5. *Q. succulenta* Small. Shrub, mostly about 1m. tall, with soft spreading branches: leaf-blades broadly linear to cuneate, fleshy-leathery, 2-4.5 cm. long, entire or with 3-5 slightly spinescent lobe-like teeth, smooth and glabrous above, tomentulose beneath: acorns peduncled; cup saucer-shaped, 3-4 mm. high, 5-6 mm. broad; nut oblong-conic, 1-1.3 cm. long, only the very vase included in the cup.

Pinelands, s. pen. Fla. (Endemic.)

6. *Q. Rolfsii* Small. Rigid shrub, or small tree 7 m. tall: leaf-blades cuneate in outline, leathery, 2.5-6 cm. long, mostly 3-lobed at the apex, or sometimes 5-lobed, bright-green, glabrous and finely reticulate above, pale and thinly stellate-pubescent beneath: acorns usually in pairs at the ends of short peduncles: cup hemispheric above a stout base, about 1.5 cm. broad; nut

oblong, or slightly broadest below the middle, 2-2.5 cm. long, about $\frac{1}{2}$ included in the cup.

Hammocks about Ft. Lauderdale. (*Endemic.*)

7. *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, more or less 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.—RUNNING-OAK.

Open pinelands, especially near the coast, nearly throughout Fla., except the F. Keys. (*Cont.*)

8. *Q. myrtifolia* Willd. Shrub, or tree becoming 6 m. tall: leaf-blades obovate or oval, 2-5 cm. long, entire, shiny above, dull beneath: acorn sessile or nearly so; cup hemispheric, sometimes deeply so, 10-13 mm. wide; nut ovoid or oblong-ovoid, 10-14 mm. long.—SCRUB-OAK.

Hammocks and sand-ridges, especially near the coast, nearly throughout Fla., except the F. Keys. (*Cont.*)

9. *Q. cinerea* Michx. Shrub, or small tree: leaves deciduous; blades oblong, varying to lanceolate or oblanceolate, 5-12 cm. long, mainly entire, pale-green, gray-tomentose beneath: acorn nearly sessile; cup saucer-shaped, 10-15 mm. wide; nut oblong or subglobose, about 15 mm. long.—UPLAND WILLOW-OAK. BLUE-JACK.

Sand-ridges and sandy barrens, n. Fla. and the upper pen. (*Cont.*)

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. Androeium often of as many stamens as there are sepals. Gynoeium of a single carpel or of 2 united carpels. Fruit an achene, a samara, a drupe, a syncarp, or a syconium.

Fruit an achene, the achenes in the fleshy calyxes, on the outside or inside of a receptacle: anthers inflexed. Fam. 1. ARTOCARPACEAE.

Fruit a samara or a drupe, or nut-like: anthers erect. Fam. 2. ULMACEAE.

FAMILY 1. 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 envelop the achene: gynoeium of 1 or 2 united carpels; styles or stigmas 1 or 2. Fruit a syncarp or syconium.

Staminate and pistillate flowers on the outside of the receptacle. 1. MORUS.
Staminate and pistillate flowers on the inside of a closed receptacle. 2. FIGUS.

1. *MORUS* [Tourn.] L. Shrubs or trees, with scaly bark. Leaves deciduous: blades commonly serrate, sometimes lobed. Staminate flowers in cylindrical spikes, with 4 sepals and 4 stamens. Pistillate spikes cylindrical: sepals 4, the lateral ones larger than the others: stigmas 2, short. Fruit cylindrical, the achenes included in the calyx.—MULBERRY.

1. *M. nigra* L. Shrub, or tree sometimes becoming 8 m. tall, with pubescent twigs: leaf-blades ovate, 4-15 cm. long, abruptly short-pointed, becoming

glabrous, but usually rough above: staminate spikes 1-2 cm. long: fruits oval-oblong, 1-2 cm. long, black.—BLACK-MULBERRY.

Roadsides and fields, pen. Fla. Nat. of Eu. (Cont.)—Spr.

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 1-2 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.

Leaf-blades lobed, very scabrous-pubescent.

Leaf-blades entire, smooth and glabrous.

Receptacles pedunculate: leaf-blades usually broad-based.

Receptacles sessile: leaf-blades usually narrow-based.

1. *F. Carica*.

2. *F. brevifolia*.

3. *F. aurea*.

1. **F. Carica** L. Shrub, or tree 2-5 m. tall, with pubescent twigs: leaf-blades palmately 5-7-lobed: petioles pubescent: fruits obovoid, 2-8 cm. long.—COMMON-FIG.

Roadsides, waste places, and gardens, locally throughout Fla. Nat. of the Mediterranean region. (Cont., W. I.)

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.—WILD-FIG.

Hammocks and pinelands, trop. pen. Fla. and the F. Keys. (W. I.)

3. **F. aurea** Nutt. Shrub, often starting as a vine, or tree becoming 20 m. tall, with glabrous twigs: leaf-blades oblong, elliptic, or oval, 3-10 cm. long, acute or short-acuminate at the base: fruits spheroidal or obovoid, about 2 cm. in diameter.—GOLDEN-FIG.

Hammocks, subtrop. and trop. pen. Fla. and the F. Keys. (W. I.)

FAMILY 2. 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 solitary or merely clustered in the leaf-axils: drupe solitary.

Flowers in dichotomous cymes: drupes in cymes.

Stigmas entire: sepals of the staminate flowers valvate: plants unarmed.

Stigmas 2-cleft: sepals of the staminate flowers imbricate: plants armed.

1. **CELTIS**.

2. **TREMA**.

3. **MOMISIA**.

1. **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.

1. **C. georgiana** Small. Shrub, or tree becoming 8 m. tall, the twigs pubescent: leaf-blades deep-green, ovate, 2-5 cm. long, rough and sometimes sparingly pubescent above, entire or sharply serrate: drupes globose or nearly so, 5-7 mm. in diameter, red-purple or tan-colored.—GEORGIA-HACKBERRY.

Sandy or rocky river-banks, m. and w. Fla. (Cont.)—Spr.

2. **TREMA** Lour. Unarmed shrubs or trees, the bark smoothish: leaves persistent: blades toothed, more or less inequilateral. Calyx rotate, the lobes much longer than the tube. Stigmas 2, entire. Drupe ovoid or globose.

Leaf-blades cordate at the base: anthers over 1 mm. long: drupes yellow or orange.

1. *T. floridana*.

Leaf-blades obtuse or rounded at the base: anthers less than

1 mm. long: drupes pink.

2. *T. Lamarckiana*.

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.—FLORIDA-TREMA.

Hammocks, especially where burned or cleared, trop. pen. Fla. and the F. Keys. (*Endemic.*)

2. **T. Lamarckiana** (R. & S.) Blume. Small tree or shrub, with finely hirsute or velvety twigs: leaf-blades oblong, lanceolate, or narrowly ovate, mostly 1–3 cm. long, finely serrate, scabrous above, veiny-reticulate beneath, obtuse or rounded at the base: calyx whitish or pinkish: drupes ovoid or globose-ovoid, 2–2.5 mm. in diameter, pink.—WEST-INDIAN TREMA.

Hammocks, Lower F. Keys. (*W. I.*)

3. **MOMISIA** F. G. Dietr. Spine-armed shrubs or trees, the bark relatively smooth. Leaves deciduous: blades toothed, slightly inequilateral. Calyx rotate, the lobes much longer than the tube. Stigmas 2, each 2-cleft. Drupe oblong, ovoid, or globose.—Spr.—CHAPARRAL-SHRUB.

Leaf-blades nearly smooth: drupe 8–12 mm. in diameter: stone with warty faces.

1. *M. Iguanaea*.

Leaf-blades very scabrous: drupes 5–8 mm. in diameter: stone with

reticulated faces.

2. *M. pallida*.

1. **M. Iguanaea** (L.) Rose & Standley. Stem and branches spreading or climbing, 1–3 m. long, the branches with recurved spines, glabrous: leaf-blades ovate, oval or oblong-ovate, 4–12 cm. long, often coarsely toothed, nearly smooth: drupes globose-ovoid. [*M. aculeata* (Sw.) Kl.]

Hammocks, Terre Cela Island. (*Cont., W. I.*)

2. **M. pallida** (Torr.) Planch. Stem and branches spreading, 2–4 m. long, the branches puberulent, with straight spines: leaf-blades ovate to oblong, 2–3.5 cm. long, often coarsely toothed, rough: drupes subglobose.

Hammocks, Lastero Bay. (*Cont.*)

Order POLYGONALES.

Herbs, shrubs, trees, or vines. Leaves alternate, or sometimes opposite or whorled: blades mostly entire: stipules present, usually as a sheath, rarely obsolete. 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. Fruit an achene.

FAMILY 1. POLYGONACEAE. BUCKWHEAT FAMILY.

Plants various in habit. Leaves with manifest, usually sheathing stipules, and inflorescence not involucrate in the following.

1. **COCCOLOBIS** P. Br. Evergreen shrubs or trees. Leaves alternate, the ocreae cylindric or funnelliform. Flowers borne in spikes or racemes. Sepals 5, surmounting the accrescent hypanthium. Stamens 8. Stigmas 3, entire. Achene 3-angled, included.

Leaf-blades longer than wide, narrowed at the base: fruits about 1 cm. thick.

Leaf-blades wider than long, cordate at the base: fruits 1.5-2 cm. thick. 1. *C. laurifolia*.

1. *C. laurifolia* Jacq. Shrub or tree, leaf-blades ovate to 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: hypanthium-margin even between the filaments: fruit globose-ovoid.—PIGEON-PLUM.

Coast of trop. and subtrop. Fla., or near it, especially on the E. Keys and F. Keys. (W. I.) 2. *C. uvifera*.

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 during anthesis, dense: sepals 2-3 mm. long: fruits subglobose, borne in grape-like clusters.—SEA-GRAPE.

Hammocks, coastal regions of trop. and subtrop. pen. Fla. and the F. Keys. (W. I.)

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.

Fruit a utricle, an achene or a fleshy cone, not an anthocarp.

Fruit utricular.

Fam. 1. CHENOPODIACEAE.

Fruit an achene or a berry-like cone.

Fruits simple, achenes: flowers not in cone-like structures.

Fam. 2. PETIVERIACEAE.

Fruits aggregate: flowers in cone-like structures.

Fam. 3. BATIDACEAE.

Fruit an anthocarp.

Fam. 4. PISONIACEAE.

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. Androeium of as many stamens as there are sepals. Gynoeium of 2 or more united carpels. Ovary 1-celled. Fruit a utricle, sometimes achene-like.

1. *SALICORNIA* [Tourn.] L. Fleshy shrubs or herbs. Leaves opposite, mere scales. Flowers perfect or polygamous, in cavities at the rachis-nodes. Calyx fleshy. Utricle included in the spongy perianth.

1. *S. ambigua* Michx. Shrub with decumbent or trailing stems 1-7 dm. long: internodes of the inflorescence 3-4 mm. thick and about as long.—GLASSWORT. SAMPHIRE.

Sandy shores and coastal sand-dunes, nearly throughout Fla. (Cont., W. I.)

FAMILY 2. 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. Shrubs 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.—GUINEA-HEN WEED.

Hammocks, pen. Fla. and the F. Keys. (W. I.)

FAMILY 3. 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. A glabrous pale-green strong-scented shrub, with spreading or prostrate stems 0.5-1.5 m. long: leaves curved, 1-2.5 cm. long: cones 5-10 mm. long, ovoid; pistillate on peduncles 2-5 mm. long: bracts reniform or suborbicular, often apiculate: fruit oblong or obovoid, 1-2 cm. long, short-stalked, drooping.—SALTWORT.

Salt or brackish shores, nearly throughout Fla. (Cont., W. I.)

FAMILY 4. PISONIACEAE. PISONIA FAMILY.

Shrubs, trees, or vines. Leaves opposite or alternate: blades simple. Flowers perfect, dioecious or rarely monoecious, cymose. Calyx of 5 united sepals, campanulate, tubular, or funnelliform. Corolla wanting. Androecium of 5-30 stamens. Gynoecium 1-carpellary. Ovary 1-celled: style terminal. Fruit an anthocarp.

Fruits angular, with rows of glands: calyx broad.
Fruits terete, glandless: calyx narrow.

1. **PISONIA**.
2. **TORRUBIA**.

1. **PISONIA** [Plum.] L. Armed woody vines, or shrubs or trees. Leaves opposite: blades entire. Flowers in compound cymes. Calyx broadly funnelliform or rotate, with a thin undulate recurved edge. Fruits dry, with rows of glands.

Stems mostly climbing, armed: leaf-blades abruptly pointed or short-acuminate: fruits glandular from the base to the apex. 1. *P. aculeata*.
Stems erect, unarmed: leaf-blades blunt or retuse: fruits glandular above the middle. 2. *P. rotundata*.

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.—COCK-SPUR.

Hammocks, E. Keys and F. Keys. (W. I.)

Shrubs of Florida—2.

2. *P. rotundata* Griseb. Shrub or small tree, the bark pale; leaf-blades thick, broadly oblong or oval, varying to obovate, 2.5–8 cm. long, short-petioled; cymes densely flowered; calyx green or whitish, broadly funnel-form, about 3 mm. long, tomentulose along the edge; fruits broadly or narrowly obovoid, 5–6 mm. long.—PISONIA.

Hammocks, F. Keys. (W. I.)

2. *TORREUBIA* Vell. Unarmed shrubs or trees. Leaves opposite; blades entire. Flowers in cymes. Calyx narrowly funnel-form to tubular, with an erect nearly or quite even edge. Fruits juicy, without glands.—Spr.—sum.

Leaf-blades glabrous: inflorescence-branches glabrous in age.

1. *T. longifolia*.

Leaf-blades copiously pubescent: inflorescence-branches permanently pubescent.

2. *T. floridana*.

1. *T. longifolia* (Heimerl) Britton. Shrub or small tree, the bark pale; leaves 3–7 cm. long; blades spatulate to obovate, oblong-spatulate, or oval-spatulate; cymes open; calyx green or greenish, or purplish, narrowly funnel-form, 3–3.5 mm. long, the erect edge glabrous; fruit broadly or narrowly obovoid, 5–6 mm. long.—BLOLLY.

Coastal hammocks, s. pen. Fla. and those of the E. Keys and F. Keys. (W. I.)

2. *T. floridana* Britton. Low shrub; leaves 2–3.5 cm. long; blades spatulate; fruits slightly broadened upward, 6–7 mm. long.

Hammocks, Rock Key, west of Key West. (Endemic.)

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.

Carpels 1 or more, distinct, at least at maturity.

Sepals 3–15: petals about as many: plants if shrubby not with pulpy fruit: endosperm even.

Fam. 1. RANUNCULACEAE.

Sepals 5: petals 6: fruit pulpy: endosperm channeled.

Fam. 2. ANNONACEAE.

Carpels more or less coherent or united into cone-like structures, or immersed in the pulpy receptacle.

Sepals valvate.

Fam. 2. ANNONACEAE.

Sepals imbricate.

Fam. 3. MAGNOLIACEAE.

FAMILY 1. RANUNCULACEAE. CROWFOOT FAMILY.

Herbs or woody vines. Leaves alternate (opposite in Clematideae): blades simple or compound. Calyx of 3–5 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, a follicle or baccate.

1. *XANTHORRHIZA* L'Her. Weak shrubs. Leaf-blades 1–2-pinnate. Flowers paniculate. Sepals 5, brownish-purple, deciduous. Petals 5, gland-like. Stamens 5 or 10: filaments stout. Carpels few, sessile, 2-ovuled, in fruit forming a whorl of follicles.

1. *X. apiifolia* L'Her. Plants 2–6 dm. tall: leaves approximate: leaflets mostly 5, the blades ovate to oblong, 2.5–7.5 cm. long, incised-toothed or

divided: sepals ovate to ovate-lanceolate, brownish-purple: follicles oblong, 3-4 mm. long.—YELLOW-ROOT. SHRUB YELLOW-ROOT.

Woods and banks, m. Fla. (Cont.)—Spr.

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, each anther terminating in a blunt glandular appendage. Gynoecium of few or many distinct carpels. Fruit a simple or aggregate berry.

Carpels distinct, several-ovuled: anther-sacs separated.
Carpels confluent, 1-ovuled: anther-sacs contiguous.

1. **ASIMINA.**
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. Fruit simple.—Spr., or winter southward. CUSTARD-APPLE. PAPAW.

Flowers terminal, or from the axils of the leaves of the season, appearing after the leaves.

Flowers axillary (except rare cases in no. 1), long-pedicelled: leaf-blades long and narrow, linear or oblanceolate.

Mature outer petals 3.5 cm. long or longer, white or yellowish white at maturity. 1. *A. angustifolia*.

Mature outer petals 3 cm. long or shorter, deep black-purple at maturity.

Petals oblanceolate or narrowly obovate, the outer 2-3 cm. long.

Petals oblong, all nearly alike, 6-8 mm. long.

Flowers terminal, sessile or nearly so: leaf-blades short and broad, obovate or oval.

Flowers from the axils of the deciduous leaves of the preceding season, appearing before the leaves.

Leaves leathery; blades reticulate: flowers yellowish-white, 1 or 2 in an axil.

Young leaves densely tomentose on both surfaces: mature outer petals 4-5 cm. long.

Young leaves sparingly tomentose, the upper surface soon glabrous: mature outer petals 2.5-4 cm. long.

Leaves membranous: blades not reticulate: flowers purple, solitary in the axils.

A shrub mostly less than 1.5 m. tall: mature outer petals 1 cm. long or shorter: fruit 3-4 cm. long.

A shrub or tree 3-12 m. tall: mature outer petals 2 cm. long or longer: fruit 7-16 cm. long.

2. *A. pygmaea.*

3. *A. Eugelii.*

4. *A. obovata.*

5. *A. speciosa.*

6. *A. reticulata.*

7. *A. parviflora.*

8. *A. triloba.*

1. *A. angustifolia* A. Gray. Shrub 4-9 dm. tall, the stems generally erect, the twigs sparingly pubescent: leaves numerous and usually variable in size; blades linear to narrowly spatulate or oblanceolate, 5-20 cm. long, mostly acute: inner petals nearly oblong, 3-3.5 cm. long.

Pinelands, n. Fla. (Ga.)

2. *A. pygmaea* (Bartr.) A. Gray. Shrub 2-6 dm. tall, the stems arcuate, the twigs sparingly pubescent: leaves relatively few; blades oblong-oblanceolate to spatulate, 5-15 cm. long, mostly obtuse: inner petals ovate, 1-1.5 cm. long.

Pinelands, e. and pen. Fla. (Endemic.)

3. *A. Eugelii* B. L. Robinson. Shrub less than 1 m. tall, the stems flexuous, the twigs red-tomentulose: leaves rather few; blades oblong, 2.5-4 cm. long, obtuse: flowers short-pedicelled: outer petals 6-8 mm. long, slightly longer than the inner.

Pinelands, pen. Fla. (Endemic.)

4. *A. obovata* (Willd.) Nash. Shrub or small tree 8-30 dm. tall, the stems much branched, the twigs red- or brown-tomentose: leaves rather numerous; blades obovate to oval, 4-10 cm. long, often retuse: flowers sessile or nearly so: outer petals 50-60 mm. long, much larger than the inner.

Pinelands, pen. Fla. (*Endemic.*)

5. *A. speciosa* Nash. Shrub 6-12 dm. tall, the twigs densely yellow- or tawny-tomentose: leaf-blades obovate, cuneate or oblong, 7-14 cm. long: inner petals oblong to lanceolate, mostly over 15 mm. long.

Pinelands, e. Fla. (*Ga.*)

6. *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.

Pinelands, pen. Fla. (*Endemic.*)

7. *A. parviflora* (Michx.) Dunal. Shrub 3-40 dm. tall: leaf-blades obovate to oblong-obovate or cuneate, 6-17 cm. long: pedicels only a few mm. long during anthesis: inner petals less than 8 mm. long: seeds 12-15 mm. long.

Rich or low woods, n. Fla. and the upper pen. (*Cont.*)—UPLAND-PAPAW.

8. *A. triloba* (L.) Dunal. Shrub, or tree 3-12 m. tall: leaf-blades cuneate to obovate-cuneate or oblong-cuneate, or rarely obovate, 10-30 cm. long: pedicels 10-20 mm. long during anthesis: inner petals less than 20 mm. long: seeds 20-25 mm. long.

Rich woods, m. Fla. (*Cont.*)

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.—Spr.

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. Diffuse shrub or tree 14 m. tall: leaf-blades oblong, oval or ovate, 10-18 cm. long: outer petals 3-3.5 cm. long: filaments 4 mm. long: fruit 8-12 cm. long: seeds 15-20 mm. long.—POND-APPLE.

Wet coastal hammocks, trop. and subtrop. pen. Fla. and those of the E. Keys and F. Keys. (*W. I.*)

2. *A. palustris* L. Small tree or shrub: 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.—ALLIGATOR-APPLE.

Everglades about the E. Keys and adj. hammock islands. Also on the F. Keys. (*W. I.*)

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 few. Gynoecium of several or many distinct carpels. Fruit a cone of accrescent carpels which become baccate or follicular.

Carpels imbricate in several series.

Erect shrubs or trees: flowers perfect: stamens numerous, distinct: fruit a cone of imbricate follicles.

1. MAGNOLIA.

Twining vines: flowers monoecious: stamens 5, united into a disk: fruit a spike of berries.

2. SCHIZANDRA.

Carpels in a whorl.

3. ILLICIAM.

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.—Spr., or spr. and sum.

1. **M. virginiana** L. Shrub or tree 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: seeds 8–10 mm. long.—SWEET-BAY. SWAMP-BAY.

Swamps, wet woods, and hammocks, nearly throughout Fla., except the F. Keys. (Cont.)—Spr.

2. **ILLICIAM** L. Shrubs or trees. Leaves persistent: blades entire. Flowers perfect. Sepals 3–6. Petals many, in 3–several series, the inner the narrower. Stamens numerous: filaments nearly linear: anther-sacs contiguous. Carpels in 1 series. Seed solitary.—Spr.—ANISE-TREE. STAR-ANISE.

Corolla 2 cm. broad: petals 6–12: leaf-blades obtuse.

1. *I. parviflorum*.

Corolla 2.5–3 cm. broad: petals 20–30: leaf-blades acuminate.

2. *I. floridanum*.

1. **I. parviflorum** Michx. Shrub 1–2 m. tall: leaf-blades elliptic to oblong, 6–10 cm. long: sepals less than 10 mm. long: petals ovate or suborbicular, about as long as the sepals, yellow: fruit about 2 cm. wide.

Hammocks near the coast, e. Fla. (Ga., W. I.)

2. **I. floridanum** Ellis. Shrub 2–3 m. tall: leaf-blades elliptic, 6–15 cm. long: sepals over 10 mm. long: petals linear or nearly so, 15–20 mm. long, purple: fruit 25–30 mm. wide.

Swamps, n. Fla. (Cont.)

3. **SCHIZANDRA** Michx. Vines. Leaves deciduous: blades sometimes toothed. Flowers monoecious, drooping. Sepals 5 or 6. Petals 5 or 6, each thickened at the base. Stamens 5: filaments dilated, united into a disk: anther-sacs separated. Carpels in several series. Seeds 2.

1. **S. coccinea** Michx. Woody vine: leaf-blades oval, elliptic or ovate, 5–15 cm. long, slender-petioled: sepals oval to ovate, 3–6 mm. long: petals obovate-cuneate, mostly crimson: spike of fruit 4–7 cm. long, the berries about 1 cm. long.—BAY STAR-VINE.

Woods, m. Fla. (Cont.)—Spr.

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. Gynoecium of 2–several united carpels. Ovary superior, sessile or stipitate. Fruit capsular or baccate.

FAMILY 1. 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. Seeds conduplicate.

1. **CAPPARIS** [Tourn.] L. Shrubs, trees, or vines. Leaf-blades simple, entire. Sepals 4 or 5, often spreading or reflexed. Petals 4 or 5, sessile. Receptacle unappendaged. Stamens numerous: anthers oblong to linear. Ovary long-stipitate: style wanting. Capsules sometimes baccate, often torulose. — Spr. — CAPER-TREE.

Leaves glabrous; blades reticulate: sepals imbricate: capsule glabrous.
 Leaves scaly; blades not reticulate: sepals valvate: capsule scaly.

1. *C. cynophallophora*.

2. *C. jamaicensis*.

1. **C. cynophallophora** L. Shrub or 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.—BAY-LEAVED CAPER-TREE.

Coastal hammocks, lower pen. Fla., E. Keys, and F. Keys. (W. I.)

2. **C. jamaicensis** Jacq. 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.—JAMAICA CAPER-TREE.

Coastal hammocks, trop. and subtrop. pen. Fla. and the F. Keys. (W. I.)

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.

Seeds with usually copious endosperm.

Leaves opposite.

Leaves alternate.

Capsule thin-walled, almost free from the hypanthium.

Stamens 5: hypanthium flattish, not accrescent: leaves without stipules.

Stamens numerous: hypanthium hemispheric, swollen in age: leaves with stipules.

Capsule woody or thick-walled, manifestly adnate to the hypanthium.

Seeds without endosperm.

Carpels several or numerous: fruit neither a drupe nor a legume.

Carpels distinct: fruit achenes, follicles or drupelets.

Sepals and petals, 5 or fewer: leaves alternate.

Sepals, and petals, numerous: leaves opposite.

Carpels united, enclosed by the hypanthium, and adnate to it: fruit a pome.

Carpels solitary: fruit a drupe or a legume. Leaf-blades simple: fruit a drupe: ovary 2-ovuled.

Leaf-blades 2-3-pinnate: fruit a legume: ovary several-ovuled.

Petals valvate in the bud.

Petals imbricate in the bud.

Flowers irregular.

Upper petal enclosed by the lateral ones in the bud: corolla not papilionaceous.

Upper petal enclosing the lateral ones in the bud: corolla papilionaceous.

Fam. 1. HYDRANGEACEAE.

Fam. 2. ITEACEAE.

Fam. 4. ROSACEAE.

Fam. 3. HAMAMELIDACEAE.

Fam. 4. ROSACEAE.

Fam. 5. CALYCANTHACEAE.

Fam. 6. MALACEAE.

Fam. 7. AMYGDALACEAE.

Fam. 8. MIMOSACEAE.

Fam. 9. CASSIACEAE.

Fam. 9. CASSIACEAE.

Fam. 10. FABACEAE.

FAMILY 1. **HYDRANGEACEAE.** HYDRANGAEA FAMILY.

Shrubs or trees, or vines. Leaves mostly opposite: blades often toothed. Flowers borne in raceme-like, corymb-like, or paniced cymes. Calyx of usually 4-10 sepals, surmounting the often ribbed hypanthium. Corolla of mostly 4-10 petals. Androecium of 8-many stamens. Gynoecium of 2-5, or rarely of 10, united carpels. Ovary wholly or partially inferior. Fruit capsular.

Sepals, and petals, 5 or fewer: styles and stigmas mostly distinct: stigmas when united elongate.

Stamens 8-10: corolla relatively small; petals valvate.

1. HYDRANGAEA.

Stamens 12-20, or more: corolla large; petals convolute.

2. PHILADELPHUS.

Sepals, and petals, 7 or more: styles united: stigma depressed.

3. DECUMARIA.

1. **HYDRANGAEA** [Gronov.] L. Shrubs. Leaf-blades toothed or lobed.

Sepals 4 or 5, minute, or petal-like in the marginal flowers. Petals valvate, small. Stamens 8-10. Styles wanting. Capsule opening between the stigmas.—Spr.—sum.—HYDRANGAEA.

Leaf-blades merely toothed: inflorescence corymbose.

1. *H. arborescens*.

Leaf-blades deeply lobed: inflorescence thyrsoid.

2. *H. quercifolia*.

1. **H. arborescens** L. Shrub with sparingly pubescent branches and twigs: leaf-blades thin, ovate, oval or elliptic: petals 1-1.5 mm. long: capsule-body 2-2.5 mm. long, broader than high.

Banks of streams, w. Fla. (Cont.)

2. **H. quercifolia** Bartr. Shrub with densely reddish-tomentose twigs which are usually also arachnoid: hypanthium 3-3.5 mm. wide at maturity: ray-flowers numerous, becoming purple: petals 1.5-2 mm. long: capsule-body about 3 mm. high.—GRAY-BEARD. OLD-MAN'S BEARD.

Rocky or sandy woods, n. Fla. (Cont.)

2. **PHILADELPHUS** L. Shrubs. Leaves deciduous: blades entire or toothed. Sepals 4 or 5, prominent. Petals convolute, relatively large. Stamens numerous, or very rarely 15. Styles present. Capsule loculicidal.

1. **P. grandiflorus** Willd. Shrub 2-3 m. tall: leaf-blades ovate-lanceolate or elliptic, acuminate, 4-12 cm. long, glabrate or with short appressed pubescence: sepals acuminate: corolla 4-5 cm. wide: capsule attenuate to the pedicel.—MOCK-ORANGE.

Banks of streams and rocky slopes, w. Fla. (Cont.)—Spr.

3. **DECUMARIA** L. Vines. Leaves persistent: blades entire or sparingly toothed. Flowers numerous in corymbose panicles, small. Sepals 7-10, minute. Petals narrow, valvate. Stamens 20-30. Styles united. Capsules opening between the ribs.

1. **D. barbara** L. Stems with aerial rootlets: leaf-blades leathery, ovate, oval or suborbicular or rarely obovate, 5-10 cm. long, toothed: hypanthium with a prominent border: petals oblong to linear-oblong, 3-4 mm. long: capsule-body 4-5 mm. long, with a conic beak.

River-banks and low woods, n. Fla. (Cont.)—Spr.

FAMILY 2. **ITEACEAE.** VIRGINIA-WILLOW FAMILY.

Shrubs or trees. Leaves alternate: blades toothed. Flowers perfect, borne in racemes or panicles. Calyx of 5 sepals. Corolla of 5 narrow petals. Androecium of 5 stamens. Gynoecium of 2 united carpels. Capsule elongate, 2-grooved, septicidal. Seeds flattened.

1. **ITEA** [Gronov.] L. Shrubs with exstipulate leaves. Racemes narrow. Hypanthium flattish, not accrescent.

1. **I. virginica** L. Shrub 1-3 m. tall, twigs and racemes pubescent: leaf-blades elliptic to oval or obovate, 5-14 cm. long, bristly serrate: sepals lanceolate, 1-1.5 mm. long: petals linear to linear-lanceolate, 4 mm. long: filaments pubescent: capsules 6-8 mm. long.—**VIRGINIA-WILLOW**.

Swamps or low grounds, n. Fla. and the upper pen. (Cont.)—Spr.

FAMILY 3. **HAMAMELIDACEAE**. WITCH-HAZEL FAMILY.

Shrubs or trees. Leaves alternate: blades mostly toothed. Flowers perfect, monoecious, or polygamous, variously clustered or spicate. Calyx of 4 or 5 sepals. Corolla of 4 or 5 narrow petals, or wanting. Androecium of 4-many stamens. Gynoecium 2- or 3-carpellary. Ovary 2- or 3-celled: styles distinct. Fruit a leathery or woody capsule, often elastically dehiscent.

Petals 4, ribbon-shaped: stamens 4: staminodia 4: filaments short. 1. **HAMAMELIS**.
Petals wanting: stamens about 24: filaments club-shaped, elongate. 2. **FOTHERGILLA**.

1. **HAMAMELIS** L. Shrubs or trees with perfect or polygamous flowers, which are borne 3 together on short lateral peduncles. Sepals spreading or reflexed. Stamens 4; filaments short-subulate. Capsule abruptly beaked.

1. **H. virginiana** L. Small tree or shrub: leaf-blades suborbicular, oval-elliptic or obovate, 4-15 cm. long, coarsely crenate: petals yellow, 1-2 cm. long: capsules ovoid to subglobose, 12-15 mm. long, elastically dehiscent.—**WITCH-HAZEL**.

Rich or low woods, n. Fla. (Cont.)—Fall.

2. **FOTHERGILLA** Murr. Shrubs with monoecious flowers, which are borne in dense terminal spikes. Sepals erect. Stamens numerous, long-clavate. Capsule gradually beaked.

1. **F. parvifolia** Kearney. Gregarious shrub 3-6 dm. tall, with underground stems: leaf-blades suborbicular to oval, or broadly ovate, 2-6 cm. long, coarsely toothed mostly from below the middle to the apex: capsules 6-8 mm. long.—**DWARF-ALDER**.

Pinelands or oak-woods, n. Fla. (Cont.)—Spr.

FAMILY 4. **ROSACEAE**. ROSE FAMILY.

Herbs, shrubs, trees, or rarely vines. Leaves mostly alternate: blades simple or compound, often stipulate. Flowers perfect or rarely dioecious. Calyx of 5, or rarely 4-9, sepals borne on the edge of the hypanthium, sometimes accompanied by as many bractlets. Corolla of as many distinct petals as there are sepals, or wanting. Androecium of 1 or more series of stamens. Gynoecium of 1-many carpels. Ovary 1-celled or imperfectly 2-celled. Fruit mostly follicles or drupelets, or achenes which are borne in the hypanthium or on the accrescent receptacle.

Fruit not enclosed in a hollow hypanthium.

Carpels 1-5, maturing into follicles.

Carpels several or numerous, maturing into drupelets.

Fruit consisting of several achenes enclosed in the accrescent hypanthium.

1. **OPULASTER**.

2. **RUBUS**.

3. **ROSA**.

1. **OPULASTER** Medic. Shrubs. Leaf-blades palmately lobed. Flowers corymbose. Stamens numerous, without staminodia. Carpels 1-5, short-stipitate: styles filiform. Stigmas depressed-capitate. Follicles inflated.

1. *O. stellatus* Rydb. Low shrub, with decidedly pubescent foliage: leaf-blades 1-4 cm. long: sepals narrowly ovate, 2-2.5 mm. long: follicles mostly 4, about 5 mm. long.—NINEBARK.

Woods and banks of streams, n. Fla. (Ga.)—Spr.

2. *RUBUS* [Tourn.] L. Perennial erect or trailing herbs or shrubs. Leaf-blades simple or 3-7-foliolate. Flowers solitary or variously disposed. Carpels borne on a convex or conic receptacle. Fruit hemispheric or elongate, composed of drupelets.—Spr.—RASPBERRY. BLACKBERRY.

Shoots of the season erect: stems erect, arching, or recurved.

Leaves white-tomentose beneath.

Leaves not white-tomentose beneath.

Leaves permanently pubescent beneath, at least on the veins.

Leaves glabrous beneath, at least at maturity.

Shoots of the season, and stems, prostrate, the floral branches erect.

Inflorescence not prickly: leaves not persistent.

Inflorescence with flattened prickles: leaves persistent.

Stem decidedly prickly, not bristly: inflorescence usually several-flowered.

Stem bristly as well as prickly: flowers mostly solitary.

1. *R. cuneifolius*.

2. *R. floridus*.

3. *R. betulifolius*.

4. *R. rhodophyllus*.

5. *R. lucidus*.

6. *R. trivialis*.

1. *R. cuneifolius* Pursh. Stems biennial, erect, 0.5-1.5 m. high, more or less tomentose, armed with straight or somewhat recurved prickles: leaves of the young shoots pedately 3-5-foliolate: blades of the leaflets obovate or cuneate-obovate, thick, dark-green and sparingly pilose or glabrate above, white-tomentose beneath, finely serrate except towards the acute or cuneate base: floral branches 1-3 dm. long: leaves 1-3-foliolate; blades of the leaflets 2-4 cm. long, more cuneate or cuneate-oblongate: inflorescence corymbiform, 3-7-flowered, tomentose and prickly: sepals white-tomentose on both sides: petals white, obovate to elliptic, 8-12 mm. long: fruit black, rather dry, but fine-flavored, short-oblong, 10-12 mm. long.—LATE-BLACKBERRY.

Sandy woods, thickets, and fields, n. and pen. Fla. (Cont.)

2. *R. floridus* Tratt. Stems biennial, erect, 2-5 m. high, or the branches decumbent, more or less angled, armed with stout, flat, strongly curved prickles: leaves of the new stems 3-5-foliolate: petioles and petiolules pilose and sparingly prickly: blades of the leaflets oblong-lanceolate or ovate-lanceolate, 5-10 cm. long, sparingly pubescent above, pale and more densely puberulent beneath, but in age nearly glabrous except the veins, sharply double-serrate: floral branches short: leaves 3-foliolate or the upper unifoliolate; blades of the leaflets smaller, more glabrate, elliptic to rhombic-oval: flowers in rather few-flowered more or less leafy corymbs; peduncles and pedicels densely pubescent, sometimes with few scattered glands, but not armed: petals white or pinkish, elliptic-obovate, 12-15 mm. long.

Pinelands and fields, n. Fla. (Cont.)

3. *R. betulifolius* Small. Stems biennial, glabrous, angled, armed with recurved and strongly flattened prickles, erect or recurved-spreading: leaves of the new stems 5-foliolate; blades of the leaflets oblong-lanceolate, evenly serrate, thin, glabrous on both sides, petioles, petiolules and midveins with very flat recurved prickles, glabrous or nearly so: flowering branches 1-2 dm. long, armed with recurved prickles: leaves 3-foliolate; blades of the leaflets oval or elliptic, thin, glabrous, evenly serrate, shining above: inflorescence corymbose, somewhat leafy-bracted below, sparingly pubescent and armed with recurved prickles: petals white or pale purplish, elliptic-obovate, 12-15 mm. long: fruit rounded or slightly elongate, black.

Swamps and wet sandy woods, w. Fla. (Cont.)

4. *R. rhodophyllus* Rydb. Stems biennial, decumbent, terete, pubescent or in age glabrate, armed with recurved prickles, which are flattened only at the

base; leaves of the new stems not seen: flowering branches 1 dm. long or less, villous: leaves 3-foliolate; blades of the leaflets broadly obovate or ovate, finely and simply serrate with broad triangular teeth, closely villous-tomentose beneath, sparingly hairy or glabrate above: inflorescence corymbose, few-flowered: sepals ovate, mucronate, villous or tomentose without, tomentulose within: petals white, obovate, 10-12 mm. long.

Dry woods and fields, e. Fla. (Cont.)

5. *R. lucidus* Rydb. Stems biennial or perennial (?), trailing, 1-2 m. long, terete, rather slender, armed with recurved, flattened prickles: leaves of the new stems mostly 5-foliolate, persistent, somewhat leathery in age; blades of the leaflets lanceolate, acute, glabrous on both sides, regularly serrate, dark-green and shining above, paler beneath: floral branches 1-2 dm., rarely 3 dm. long, erect, sparingly pubescent or glabrate: leaves 3-foliolate; blades of the leaflets oblanceolate: flowers in terminal 2-6-flowered corymbs: peduncles and pedicels sparingly pubescent and decidedly prickly: petals obovate, white, 12-15 cm. long: fruit elongate, rather dry.

Open woods, n. Fla. and the upper pen. (Cont.)

6. *R. trivialis* Michx. Stems biennial, prostrate and trailing, 5-20 dm. long, slender, terete, more or less hispid and with small, slightly flattened prickles: leaves of the new stems 3-5-foliolate, persistent; blades of the leaflets glabrous, subcoriaceous, ovate or oblanceolate, sharply serrate, dark-green and shining above, paler and duller beneath: leaves of the erect flowering branches 3-foliolate; blades of the leaflets smaller, more elliptic or oval, rounded or obtuse at the apex: flowers terminal, mostly solitary: peduncles 2-5 cm. long, more or less tomentulose and prickly: petals white, obovate, 10-15 mm. long: fruit usually oblong, black.

Thickets, open woods, and fields, n. and pen. Fla. (Cont.)

3. **ROSA** [Tourn.] L. Prickly shrubs, sometimes vine-like. Leaf-blades unequally pinnate. Flowers solitary or in corymbs, often showy. Hypanthium urceolate. Sepals more or less foliaceous. Petals 5, broad. Stamens many. Fruits enclosed in the pulpy hypanthium.—Spr.—sum.—Rose.

Styles much exerted, united, about equalling the stamens: stipules adnate; sepals reflexed, deciduous.

Styles not exerted, or only slightly so, distinct: stigmas forming a head closing the mouth of the hypanthium.

Stipules almost free from the petiole: introduced climbers or trallers.

Stipules small, entire: leaflets 3-5: plants with glabrous branches.

Stipules pectinate: leaflets 7-9: plants with pubescent branches.

Stipules adnate to the petiole: native erect or diffuse plants. Infrastipular prickles decidedly curved.

Leaflets mostly 7: flowers usually corymbose on erect branches: fruits about 12 mm. thick.

Leaflets mostly 5: flowers usually solitary or 2 together on spreading branches: fruits 8-9 mm. thick.

Infrastipular prickles straight or nearly so.

Leaflets 5-7, subcoriaceous: fruits 8-10 mm. thick.

Leaflets mostly 5, membranous: fruits 10-15 mm. thick.

Leaflets with non-glandular teeth.

Leaflets with glandular teeth.

1. *R. setigera*.

2. *R. laevigata*.

3. *R. bracteata*.

4. *R. palustris*.

5. *R. floridana*.

6. *R. lancifolia*.

7. *R. carolina*.

8. *R. serrulata*.

1. *R. setigera* Michx. Stems 2-5 m. high, climbing, glabrous, armed with scattered, curved, flattened prickles: leaflets 3, or on the new shoots sometimes 5, the median long-petioliolate, the lateral ones nearly sessile; blades lanceolate, or rarely ovate, 4-9 cm. long, dark-green, glabrous and shining above, pale and glabrous beneath: flowers corymbose: pedicels glandular-hispid: hypanthium globose or rounded-ellipsoid, more or less glandular-hispid,

in fruit about 1 cm. broad: sepals glandular-hispid on the back: petals 2-3 cm. long, rose-colored.—CLIMBING-ROSE. PRAIRIE-ROSE.

Thickets, low grounds, and woods, n. and w. Fla. (Cont.)

2. *R. laevigata* Michx. Stems high-climbing, 2-5 m. high, armed with stout recurved, more or less flattened prickles, rarely with some intermixed bristles: leaflets 3 or rarely 5; blades lanceolate or elliptic, finely but sharply serrate, evergreen, subcoriaceous, glabrous, dark-green and shining above, paler and reticulate beneath, petioluled: flowers solitary: peduncle and hypanthium strongly hispid: sepals often more or less glandular-bristly: petals cuneate-obcordate, 3-4 cm. long, white or rarely rose-colored: hypanthium in fruit pyriform, bristly, 3.5-4 cm. long, 2 cm. broad.—CHEROKEE-ROSE.

Woods, roadsides, and thickets, n. Fla. and the upper pen. Nat. of China. (Cont., W. I.)

3. *R. bracteata* Wendl. Stems usually decumbent or sarmentose, armed with usually paired stout recurved prickles: leaflets 5-9, persistent; blades coriaceous, glabrous or lightly pubescent on the midvein beneath, dark-green and shining above, paler beneath, obovate, finely serrulate, short-petioluled: flowers solitary or a few together, short-pedicelled: sepals tomentose on both sides: petals white, about 3 cm. long, deeply obcordate: hypanthium in fruit pyriform, 1.5-2 cm. long, and nearly as broad, densely tomentose.—MACARTNY-ROSE.

Pine woods and thickets, n. Fla. and the upper pen. Nat. of China. (Cont., W. I.)

4. *R. palustris* Marsh. Stems usually tall, 0.3-2 m. high, erect, armed with strong but rather short, more or less curved prickles, which are usually paired: leaflets 7, rarely 9; blades dull and dark-green, glabrous or nearly so above, paler and more or less finely appressed-pubescent beneath, short-petiolate, lance-elliptic or oblanceolate on vigorous shoots, finely and closely serrulate, with simple non-glandular teeth: flowers usually corymbose, sometimes solitary, leafy-bracted: hypanthium subglobose or somewhat depressed, glandular-hispid, usually acute at the base, in fruit 10-12 mm. broad: sepals tomentose within and on the margins, reflexed or spreading after anthesis, soon deciduous: petals obcordate, rose-colored, 1.5-2 cm. long. [*R. carolina* L. 1762. Not *R. carolina* L. 1753.]—SWAMP-ROSE.

Swamps and low grounds, n. Fla. (Cont.)

5. *R. floridana* Rydb. Stems low, 1 m. high or less with spreading flexuous branches, armed with short curved prickles: leaflets 5; blades dull and dark-green and glabrous above, somewhat paler and usually wholly glabrous beneath, finely and closely serrulate, with simple, non-glandular teeth: flowers usually solitary, rarely in pairs: hypanthium globose or somewhat depressed, glandular-hispid, in fruit 8-9 mm. thick: sepals tomentose on the margins: petals obcordate, 1.5-2 cm. long, rose-colored.

Open woods, e. Fla. (Cont.)

6. *R. lancifolia* Small. Stems branching, 1-2 m. high, armed with stout, straight prickles: leaflets 3-7; blades lanceolate or oblong-lanceolate, subcoriaceous, finely crenate-serrulate, glabrous, somewhat shining above, sessile: flowers corymbose: hypanthium somewhat glandular-hispid, globose, in fruit 8-10 mm. thick: sepals often with a few subulate lateral lobes: petals not seen.

Margins of cypress swamps, pen. Fla. (Endemic.)

7. *R. carolina* L. Stems low, slender, 3-10 dm. high, terete, glabrous, usually very bristly when young and armed with slender, straight, paired, terete, infrastipular prickles 5-8 (rarely 10) mm. long; branches usually not bristly, either with infrastipular prickles or sometimes unarmed: leaflets usually 5, rarely 7; blades elliptic or lance-elliptic, rarely oval or oblanceolate, glabrous but not very shining above, usually somewhat paler and pubescent on the veins or glabrate beneath, sharply and regularly serrate with ascending teeth, usually

acute at both ends or obtuse at the apex, short-petiolulate; flowers usually solitary: hypanthium globose or a little depressed, glandular-hispid, in fruit about 10 mm. broad: sepals tomentose within, all, or at least the outer ones, with linear or subulate lobes: petals rose-colored, 2-2.5 cm. long.—LOW-ROSE.

Dry woods and hillsides, n. Fla. (Cont.)

8. *R. serrulata* Raf. Stems slender, terete, glabrous, 3-10 dm. high, bristly, especially the young shoots, armed with slender straight infrastipular prickles: leaflets usually 5, rarely 3 or 7; blades lance-elliptic or rarely oval, light-green, glabrous or nearly so and somewhat shining above, often paler, glabrous or slightly pubescent on the veins and sometimes glandular beneath, sharply serrate with gland-tipped teeth: flowers solitary: hypanthium globose or slightly depressed, glandular-hispid, in fruit 10-15 mm. broad: sepals tomentose within, some of them usually with lanceolate or subulate appendages: petals rose-colored, 1.5-2.5 cm. long.

Thickets, n. Fla. (Cont.)

FAMILY 5. CALYCANTHACEAE. STRAWBERRY-SHRUB FAMILY.

Shrubs or trees, with an aromatic bark. Leaves opposite: blades usually entire: stipules wanting. Flowers perfect, terminal. Calyx and corolla of several sepals and petals each, borne on the edge of the hypanthium. Androecium of many stamens, those of the inner series reduced to staminodia. Gynoecium of numerous distinct carpels borne on the inside of the hypanthium. Fruit consisting of several achenes enclosed in the capsule-like hypanthium.

1. *CALYCANTHUS* Dubam. Shrubs with opposite branches. Flowers often strawberry scented, the perianth, wholly or mainly, dull purple. Mature hypanthium nodding.—CAROLINA-ALLSPICE.

1. *C. floridus* (L.) Kearney. Shrub 0.5-3 m. tall: leaf-blades 4-14 cm. long, entire: sepals and petals mostly linear or nearly so, 1.5-2 cm. long: mature hypanthium finely tomentose.—SHRUB. STRAWBERRY-SHRUB. SWEET-SHRUB.

Hillsides and along streams, n. Fla. (Cont.)—Spr.

FAMILY 6. MALACEAE. APPLE FAMILY.

Trees or shrubs. Leaves alternate: blades simple and pinnately veined, or pinnately compound. Flowers perfect, regular. Hypanthium adnate to the ovary. Calyx of mostly 5 sepals. Corolla of mostly 5 petals. Androecium of numerous, or rarely few, stamens. Gynoecium of 2-5 wholly or partially united carpels, or rarely of 1 carpel. Fruit a more or less fleshy pome, being the thickened hypanthium enclosing the carpels.

Carpels papery or leathery at maturity.

Cavities of the ovary (carpels) as many as the styles.

Cavities of the ovary becoming twice as many as the styles.
Carpels bony at maturity.

1. ARONIA.

2. AMELANCHIER.

3. CRATAEGUS.

1. *ARONIA* Pers. Leaf-blades simple, shallowly toothed. Cymes compound. Pomes berry-like, globular to pyriform.—Spr.—CHOKEBERRY.

Cymes and lower surfaces of the leaf-blades woolly: fruit red or purple-black.

Fruit broadly pyriform, bright-red.

Fruit oval or globose, purple-black.

Cymes and surfaces of the leaf-blades glabrous: fruit black or purplish.

1. *A. arbutifolia*.

2. *A. atropurpurea*.

3. *A. melanocarpa*.

1. *A. arbutifolia* (L.) Ell. Shrub sometimes reaching a height of 3.5 m.: leaf-blades oval, oblong or obovate, obtuse or abruptly short-pointed at the

apex, narrowed or somewhat cuneate at the base, 2.5-7.5 cm. long, serrulate-crenulate: cymes terminal, but at length overtopped by the young sterile shoots: corolla white or purplish-tinged, 8-12 mm. broad: pomes 4-6 mm. in diameter, long-persistent.

Swamps and low pinelands, n. Fla. and the upper pen. (Cont.)

2. *A. atropurpurea* Britton. Shrub reaching a height of 4 m.: leaf-blades and flowers quite similar to those of the preceding species: pomes oval to globose, 6-10 mm. long, purple-black.

Low grounds, n. Fla. (Cont.)

3. *A. melanocarpa* (Michx.) Ell. Shrub resembling the preceding species, but larger: leaf-blades obovate or oval, obtuse, acute, or abruptly acuminate at the apex, narrowed or cuneate at the base, crenulate: flowers similar to those of the preceding species: hypanthium and pedicels nearly glabrous: pomes globose or oval, 6-8 mm. in diameter. [*A. nigra* (Willd.) Britton.]

Swamps and low woods, n. Fla. (Cont.)

2. **AMELANCHIER**¹ Medic. Leaf-blades simple, toothed or rarely entire. Cymes simple. Pomes berry-like, globular.—Winter-spr.—SERVICE-BERRY. MAY CHERRY.

Leaf-blades rounded or cordate at the base, glabrous, at least at maturity.

Leaf-blades narrowed at the base, permanently pubescent. 1. *A. canadensis*.
2. *A. oblongifolia*.

1. *A. canadensis* (L.) Medic. Tree becoming 17 m. tall: leaf-blades rounded or cordate at the base, sharply and finely serrate, sometimes sparingly pubescent when young, but early glabrous, 2.5-7.5 cm. long: pedicels slender: petals linear, linear-spatulate or linear-oblong, 12-18 mm. long, 3-4 times the length of the nearly or quite glabrous calyx and hypanthium: pomes globose, red or purple, sweet, about 6 mm. in diameter.

Dry woods, m. and w. Fla. (Cont.)

2. *A. oblongifolia* (T. & G.) Roemer. Shrub or small tree, the foliage and inflorescence densely white-woolly when young, often nearly or quite glabrous when old: leaf-blades rounded, or sometimes narrowed or subcordate at the base, finely and sharply serrate nearly all around: pedicels short, seldom over 2.5 cm. long: petals spatulate or linear-spatulate, 6-14 mm. long, twice or thrice as long as the calyx and hypanthium: pomes 6-8 mm. in diameter.—SHAD-BUSH.

Sandy woods, n. Fla. (Cont.)

3. **CRATAEGUS** L.² Small trees or shrubs, usually armed with thorns or spines. Leaves alternate: blades simple, petioled. Flowers terminal, cymose or corymbose. Hypanthium cup-shaped or campanulate, adnate to the carpels. Sepals 5, reflexed after anthesis. Corolla white or pink. Petals 5, spreading, rounded, inserted on the margin of the disk in the throat of the hypanthium. Stamens 5-25, inserted in 1-3 rows on the edge of the hypanthium: filaments slender, incurved: anthers oblong or suborbicular, white, yellow, pink or purple. Ovary inferior, or its summit free, composed of 1-5 carpels: styles 1-5, not united, persistent: stigmas terminal. Pome globose, pyriform or oval, yellow, orange-red, blue or black, containing 1-5 bony carpels, each

¹The following species of *Amelanchier* have been reported from Florida. Imperfect specimens of *Amelanchier* were collected in northern Florida many years ago. The genus has not been observed in the state in recent years.

²Descriptions and keys taken from the monograph of *Crataegus* by Mr. C. D. Beadle, published in my *Flora of the Southeastern United States* (1903) and in the second edition of the same work (1913).

usually 1-seeded. Seed erect, the testa membranous.—HAW.—The plants bloom in the spring.—All the species of *Crataegus* known to occur in Florida are described below.

Hypostyle short and broad, upwardly and dorsally extended over the apex of the nutlets.

Hypostyle confined to the ventral or lateral surface of the nutlets, abruptly terminated at the apex.

a. Corymbs simple, 2-5-flowered, glabrous, expanding in February and early March; fruit globose, red or orange-red, ripening from May to July.

b. Corymbs compound, many-flowered, usually glabrous (pilose in nos. 13 and 16), stamens normally 20: fruit red or yellow, less than 1 cm. in diameter.

c. Corymbs 4-10-flowered, glabrous or very nearly so: stamens 20: fruit glabrous, 15 mm. in diameter or less, at maturity yellow, orange, green or red, the flesh firm: leaf-blades glabrous when grown, ovate, lanceolate, elliptic or sometimes obovate, serrate and shallowly incised (deeply incised in no. 40).

d. Corymbs similar to those of the next preceding section: fruit small, oval, subpyriform or globose: leaf-blades deeply and acutely incised or with numerous serrate rounded lobe-like incisions.

e. Corymbs 1-, 2- or 3-flowered, or frequently 5-7-flowered, the pedicels and hypanthium either glabrous, pubescent or tomentose: fruit glabrous, yellow, green, orange or red, the flesh usually soft, and pleasant to the taste: leaf-blades various in outline, serrate, crenate, dentate or entire, pubescent or glabrous: branches often pendulous.

Flowers produced in few-flowered, mostly 5-7-flowered corymbs: pedicels and hypanthium pubescent or glabrous (densely white-tomentose in no. 78): leaf-blades serrate, dentate or crenate, pubescent or glabrous: branches spreading or ascending or occasionally drooping as in the VISENDÆ.

Leaf-blades serrate or coarsely and irregularly dentate.

Leaf-blades finely dentate or glandular-dentate, usually with several tooth-like lobes.

Flowers produced in few-flowered, mostly 3-5-flowered corymbs: pedicels and hypanthium tomentose or pubescent: leaf-blades dentate, crenate or entire, either tomentose, pubescent or glabrous: branches mostly drooping.

Mature fruit globose, subglobose or oval.

Fruit averaging 1 cm. in diameter or more.

Leaf-blades entire or nearly so.

Leaf-blades toothed, often lobed.

Fruit averaging less than 1 cm. in diameter.

Mature fruit pyriform.

Fruits 1.5-2 cm. long, over 1 cm. thick.

Fruits smaller.

Flowers solitary, 2 or 3 together (usually more in no. 132): pedicels and hypanthium glabrous or pubescent: leaves small; blades cuneate or spatulate, or sometimes with abruptly contracted bases: spines usually numerous: sepals narrow.

f. Corymbs with a single flower each, or 2 or 3 flowers, or occasionally more: sepals long and usually conspicuously incised: fruit globose or pyriform, at maturity red, yellow or greenish, the flesh firm: leaves relatively small; blades spatulate, elliptic or ovate: spines usually numerous, long and slender.

g. Corymbs several-many-flowered, glabrous: stamens 7-20: fruit red, green and red or yellow, the flesh firm or succulent: leaf-blades mostly shining, obovate, spatulate, oval or elliptic, glabrous or nearly so when fully grown: branches frequently armed with numerous large spines, or occasionally unarmed.

I. CORDATÆ.

II. AESTIVALES.

III. VIRIDES.

IV. SARGENTIANÆ.

V. PULCHERRIMÆ.

VI. SORORIANÆ.

VII. VISENDÆ.

VIII. INTEGRÆ.

IX. DENTATÆ.

X. ANISOPHYLLÆ.

XI. COLONICÆ.

XII. RECURVÆ.

XIII. LEPIDÆ.

XIV. UNIFLORÆ.

XV. CRUS-CALLI.

I. CORDATAE.

Leaf-blades broadly ovate, cordate, truncate or abruptly contracted at the base.

1. *C. apitifolia*.

Leaf-blades spatulate or oblanceolate, narrowed or cuneate at the base.

2. *C. spathulata*.

II. AESTIVALES.

Shoots, petioles, and lower surfaces of the leaf-blades rufous-tomentose.

3. *C. aestivalis*.

Shoots, petioles, and leaves glabrous or nearly so.

4. *C. maleoides*.

Leaf-blades with abruptly contracted bases.

5. *C. luculenta*.

Leaf-blades with cuneate or narrowed bases.

III. VIRIDES.

Leaf-blades coarsely and irregularly serrate, often with blunt or acute shallow lobes.

6. *C. viridis*.

Leaf-blades ample, 2-4 cm. wide.

Leaf-blades (exclusive of those on the shoots) 1-2 cm.

7. *C. paludosa*.

wide: twigs very spiny.

8. *C. subviridis*.

Leaf-blades all sharply serrate and incisely lobed.

IV. SARGENTIANAE.

Mature fruit yellow, orange-yellow, or green sometimes checked with red: anthers dark-purple: leaf-blades not conspicuously elongate.

9. *C. contrita*.

V. PULCHERRIMAE.

Fruit oval at maturity, the flesh attenuate with the pedicels.

Fruit 6-8 mm. long.

10. *C. pulcherrima*.

Fruit 10-12 mm. long.

11. *C. abstrusa*.

Fruit globose or nearly so, the flesh not attenuate with the pedicel.

Leaves more than 2 cm. wide.

Leaf-borders with round, usually sharp-pointed, lobes.

12. *C. assimilis*.

Leaf-borders with acute lobes.

13. *C. robur*.

Leaves (exclusive of those on the shoots) mostly less than 2 cm. wide.

14. *C. concinna*.

VI. SORORIAE.

Anthers yellow, white, or cream-color.

Fruit yellow and red, or orange-red with ruddy cheeks.

Fruit deep- or bright-red.

Pedicels short, pubescent, at least in anthesis.

15. *C. galbana*.

Pedicels 1 cm. or more long, white-tomentose.

16. *C. abdita*.

Anthers purple or purplish.

17. *C. consanguinea*.

VII. VISENDAE.

Fruit pyriform, yellow or orange-yellow, often flushed or checked with red.

18. *C. visenda*.

Fruit subglobose or oval.

Leaf-blades with large blunt or rounded lobes.

19. *C. egregia*.

Leaf-blades with numerous small, tooth-like lobes.

Anthers pink or pale-purple: inflorescence pubescent.

20. *C. quaesita*.

Anthers white: inflorescence densely white woolly.

21. *C. cyens*.

VIII. INTEGRAE.

Fruit red.

Anthers light-yellow: calyx deciduous.

22. *C. integra*.

Anthers pale-purple: calyx persistent.

23. *C. adunca*.

Fruit yellow, orange, or orange-red, the cheeks often flushed.

Pubescence of the corymbs copious but thin.

24. *C. panda*.

Pubescence of the corymbs densely white-woolly.

Vernal leaves bright-green: pedicels at maturity 1 cm. long or more.

25. *C. dapsilis*.

Vernal leaves gray-green: pedicels very short.

26. *C. rava*.

IX. DENTATAE.

Fruit red at maturity.

27. *C. compitalis*.

Fruit yellow, orange or orange-red, the cheeks often red.

Pedicels clothed with white spreading hairs: flowers 2-2.5 cm. wide.

28. *C. clara*.

Pedicels white-woolly.

29. *C. amica*.

X. ANISOPHYLLAE.

- Fruit orange, often with flushed cheeks: leaf-blades lobed at the apex. 30. *C. anisophylla*.
 Fruit red or reddish: leaf-blades lobed and toothed. 31. *C. viaria*.

XI. COLONICAE.

- Leaf-blades dentate, slightly glandular-margined. 32. *C. vicana*.

XII. RECURVAE.

- Leaf-blades (exclusive of those on the shoots) less than 2 cm. wide. 33. *C. recurva*.
 Fruit red.
 Fruit yellow, orange, or orange-red, cheeeked or spotted with red.
 Prevalling leaves with the blades abruptly contracted at the base.
 Fruit 8-12 mm. thick: spines mostly 1-2 cm. long. 34. *C. rimosa*.
 Leaf-blades conspicuously dentate and glandular.
 Leaf-blades subtire, the glands less conspicuous.
 Blades obovate or suborbicular. 35. *C. inoptina*.
 Blades much more elongate. 36. *C. villaris*.
 Fruit smaller: spines numerous, 1.5-3.5 cm. long. 37. *C. curva*.
 Prevalling leaves with the blades cuneate at the base, or with long-winged petioles.
 Mature leaves more than 1 cm. wide.
 Vernal leaves long, conspicuously overreaching the flowers.
 Petioles mostly short, never as long as the blades. 38. *C. adusta*.
 Petioles mostly elongate, sometimes as long as the blades.
 Flowers large: sepals 4-5 mm. long. 39. *C. illudens*.
 Flowers small: sepals very small. 40. *C. versuta*.
 Vernal leaves less than 2 cm. long, the petioles white-woolly.
 Mature leaves less than 1 cm. wide. 41. *C. incana*.
 Some or all of the leaves (exclusive of those on the shoots) 42. *C. crocea*.
 2 cm. wide; pubescence of the inflorescence copious but thin. 43. *C. audens*.

XIII. LEPIDAE.

- Fruit globose at maturity.
 Inflorescence tomentose: leaf-blades abruptly contracted below. 44. *C. lepidia*.
 Inflorescence glabrous: leaf-blades cuneate or spatulate. 45. *C. lacrimata*.
 Fruit pyriform or nearly so. 46. *C. condigna*.

XIV. UNIFLORAE.

- Mature fruit pyriform: sepals narrow. 47. *C. Earlei*.

XV. CRUS-GALLI.

- Ripe fruits bright, shining, red: spines slender. 48. *C. pyracanthoides*.

1. *C. apiifolia* (Marsh.) Michx. A shrub, or a small tree, 2-6 m. tall, with smooth gray bark, usually with several crooked stems. Leaf-blades broadly ovate or orbicular, 2-4 cm. long, 2-4 cm. wide, acute at the apex, mostly truncate or cordate at the base, pubescent, at least when young, pinnately and deeply 5-7-cleft, the lobes sharply serrate: corymbs subsimple, 3-10-flowered: pedicels and hypanthium pilose-pubescent: sepals lanceolate, usually glandular-serrate and colored at the tips: corolla 10-12 mm. broad: stamens about 20, the anthers pink or purplish: fruit oblong or oval, 4-7 mm. long, scarlet: nutlets 1-3, the hypostyle upwardly and dorsally extended over the apex.—
 PARSLEY-HAW.

Low rich soil and swamps, and on banks, n. Fla. (Cont.)

2. *C. spatulata* Michx. A shrub or small tree, sometimes 6-8 m. tall, with gray or brown smooth or minutely scaly bark and usually several stems. Leaf-blades spatulate or oblanceolate, 1-4 cm. long, 5-20 mm. wide, narrowed into

winged petioles, obtuse or subacute at the apex, the borders crenate or crenate-serrate and frequently incisely 2-3-lobed, glabrous or very nearly so, shining above: corymbs compound, many-flowered, glabrous: pedicels, hypanthium and short triangular sepals glabrous: corolla 7-10 mm. broad: stamens about 20: fruit globose, red at maturity, 4-6 mm. in diameter: nutlets 3-5, the hypostyle upwardly and dorsally extended over the apex.—SMALL-FRUITED HAW.

Moist rich soil and banks of streams, n. Fla. (Cont.)

3. *C. aestivalis* (Walt.) T. & G. A tree 5-9 m. tall, or a large shrub with several stems, the bark dark reddish brown, fissured and scaly. Leaf-blades elliptic, oblong, oblong-cuneate or obovate, 2-7 cm. long, 1.5-3 cm. wide, either acute or rounded at the apex, narrowed or contracted below into winged petioles, dentate, sinuate or crenate-serrate, tomentose with a pale or rufous covering when young, becoming in age glabrate or glabrous above, below rufous-tomentose, especially along the midrib and veins: corymbs 2-5-flowered, simple: pedicels and hypanthium glabrous: sepals triangular, usually colored near the tips, minutely serrate or entire: stamens about 20, the anthers purple: fruit depressed-globose, red at maturity, punctate, 12-15 mm. in diameter: nutlets 3-5, the hypostyle confined to the lateral faces and terminated at the ventral apex.—MAY-HAW.

Shallow ponds and banks of streams, n. Fla. (Cont.)

4. *C. maleoides* Sarg. A small tree 4-5 m. tall, or more frequently a large shrub with several stems. Leaf-blades oval, obovate or nearly orbicular, those of the shoots usually ovate, 1.5-5 cm. long, 1-4 cm. broad, glabrous or with tufts of hairs in the axils of the veins beneath, acute or rounded at the apex, narrowed or contracted below into short winged petioles, serrate, and at least on the shoots shallowly incised: corymbs simple, 3-5-flowered: pedicels and hypanthium glabrous: sepals lanceolate, usually colored: stamens 15-20, the anthers purple: fruit subglobose or slightly oval, at maturity red, 8-12 mm. thick: nutlets 3-5, the hypostyle confined to the lateral surfaces.

Wet or moist soil bordering streams, Volusia County. (Endemic.)

5. *C. luculenta* Sarg. A slender tree 4-5 m. tall, with ashy gray or dark reddish brown bark. Leaf-blades spatulate or cuneiform, frequently ovate or obovate on the shoots, 2-4 cm. long, 1-3 cm. broad or larger on vigorous branches, cuneate or contracted at the base into margined petioles, acute or bluntly pointed at the apex, irregularly serrate and incised, glabrous when fully grown, or with tufts of pale hairs in the axils of the principal veins beneath: corymbs 2-5-flowered, simple: pedicels, hypanthium and lanceolate sepals glabrous: corolla 15-18 mm. broad: stamens 15-20, the anthers purple: fruit globose or subglobose, 8-10 mm. in diameter, orange-red when ripe: nutlets 3-5, 4-6 mm. long, the hypostyle 3-4 mm. long.

Swampy woods, Volusia County. (Endemic.)

6. *C. viridis* L. A tree often 6-10 m. tall, with gray or reddish brown fissured and frequently exfoliating bark. Leaf-blades ovate-lanceolate, elliptic or oblong-obovate, rarely ovate, 2-7 cm. long, 2-4 cm. wide, or larger on the shoots, acute or bluntly pointed at the apex, narrowed or abruptly contracted at the base, irregularly serrate and often with acute or blunt shallow lobes, glabrous or with tufts of pale hairs in the axils of the veins beneath: corymbs compound, many-flowered, glabrous: corolla 10-14 mm. wide: stamens normally 20: fruit globose or subglobose, 4-7 mm. in diameter, red or orange-red when ripe: nutlets usually 5, the hypostyle three-fourths as long as the ventral angle.

Low ground and moist woods, n. Fla. (Cont.)

7. *C. paludosa* Sarg. A small tree 4-5 m. tall, with gray or reddish brown bark, or more frequently a large shrub with several stems and spiny branches. Leaf-blades oval, elliptic, obovate or oblanceolate, or on the shoots ovate, 2-4 cm. long, 7-30 mm. wide, mostly acute at the apex, cuneate, contracted or on

Shrubs of Florida—3.

the shoots rounded at the base, glabrous or with tufts of pale hairs in the axils of the veins beneath, serrate, occasionally cleft or incised, especially on vigorous shoots: corymbs several-many-flowered: stamens about 20, the anthers purple: fruit subglobose or short-oval, 5-8 mm. in diameter, red or orange-red at maturity: nutlets 3-5, the hypostyle three-fourths the length of the ventral angle.

Low grounds and banks of streams, Volusia County. (*Endemic.*)

8. *C. subviridis* Beadle. A tree 6-8 m. tall, with gray bark. Leaf-blades ovate, obovate or oval, 2.5-6 cm. long, 1-4 cm. wide, or larger on the shoots, acute or acuminate, rarely rounded at the apex, contracted or narrowed at the base, or on the shoots rounded and truncate, glabrous or glabrate when fully grown, the borders serrate and incisely lobed: corymbs compound, many-flowered, pilose-pubescent: pedicels and hypanthium sparsely pilose: sepals narrowly lanceolate, entire or minutely serrate, pubescent on the inner surface, at least at flowering time: corolla 12-15 mm. wide: stamens normally 20: fruit globose, 5-7 mm. in diameter: nutlets 3-5, about 5 mm. long, the hypostyle three-fourths as long as the nutlet.

Low woods and banks of streams, near Chattahoochee. (*Endemic.*)

9. *C. contrita* Beadle. A tree sometimes 6-7 m. tall, with ashy gray or brownish scaly bark, or more frequently a large shrub with spreading branches. Leaf-blades ovate, oval or oblong, rarely short-obovate or suborbicular, 2-5 cm. long, 1.5-5 cm. broad, glabrous at maturity, acute or bluntly terminated at the apex, rounded or contracted at the base, the borders serrate and incised; petioles 5-20 mm. long, margined: corymbs simple, glandular-bracteate, 3-7-flowered: pedicels and hypanthium glabrous: sepals 3-5 mm. long, glandular-serrate: corolla 12-17 mm. wide: stamens 20, the anthers dark purple: fruit subglobose, 7-9 mm. in diameter, at maturity yellow-green or orange, often with ruddy cheeks, the flesh firm: nutlets 2-3, rarely 3-5, about 6 mm. long, the hypostyle occupying a trifle more than half of the ventral angle.

Dry woods and uplands, m. Fla. (*Ga.*)

10. *C. pulcherrima* Ashe. A small tree 4-6 m. tall, with dark rough or scaly bark, or oftener a large shrub with one or several stems. Leaf-blades ovate, oval or slightly obovate, 2-5 cm. long, 1.5-4 cm. wide, glabrous at maturity, mostly acute at the apex, narrowed or contracted, or on leading shoots rounded or truncate at the base, the borders serrate and deeply incised or 3-7-lobed; petioles slender, 5-20 mm. long, margined: corymbs simple, glandular-bracteate, 3-7-flowered: pedicels and hypanthium glabrous: sepals 3-4 mm. long, entire or glandular-serrate: corolla 15-18 mm. wide: stamens 20, the anthers dark purple: fruit oval, 5-7 mm. thick, 6-8 mm. long, at maturity yellow-green, sometimes with flushed cheeks, the flesh thin and firm: nutlets usually 2-3, rarely more, 4-5 mm. long, the hypostyle about half the length of the ventral angle.

Woods and banks, m. Fla. (*Ga.*)

11. *C. abstrusa* Beadle. A shrub or small tree 2-5 m. tall, with gray or brownish scaly bark. Leaf-blades oval, ovate, obovate or orbicular, 2-4.5 cm. long, 1.5-3.5 cm. broad, glabrous, obtuse or slightly pointed at the apex, contracted at the base, borders serrate and with shallow rounded, lobe-like incisions; petioles 5-20 mm. long, margined, remotely glandular: corymbs glandular-bracteate, simple, 3-7-flowered: pedicels 5-12 mm. long, glabrous, as is the hypanthium: sepals triangular-lanceolate, 3-4 mm. long, serrate or entire: corolla 15-20 mm. wide: stamens 20, the anthers dark purple: fruit oval or short-pyriform, 7-9 mm. thick, 10-12 mm. long: the flesh firm: nutlets usually 2-3, rarely more, about 6 mm. long, the hypostyle occupying about half of the ventral angle.

Woods, especially in sandy soil, near Tallahassee. (*Endemic.*)

12. *C. assimilis* Beadle. A small tree or large shrub 3-6 m. tall, with dark gray or brownish scaly bark. Leaf-blades ovate or oval, 2-5 cm. long, 1.5-4 cm. wide, glabrous, acute at the apex, contracted or rounded at the base, the borders serrate and with rounded, lobe-like incisions; petioles 7-20 mm. long, margined: corymbs simple, 3-6-flowered: pedicels and hypanthium glabrous: sepals triangular-lanceolate, 3-4 mm. long, serrate or nearly entire: corolla 15-18 mm. wide: stamens 20, the anthers pale purple: fruit globose, 7-9 mm. wide, the flesh firm: nutlets 3-5, about 6 mm. long, the hypostyle occupying a trifle more than half the ventral angle.

Dry woods and hills, near Chattahoochee. (*Endemic.*)

13. *C. robur* Beadle. A tree, sometimes 7-8 m. tall, with a trunk 1-1.5 dm. in diameter, clothed with gray or brownish scaly bark, or more often a large shrub with one or more stems. Leaf-blades ovate, oval or short obovate, 3-6 cm. long, 1.5-4 cm. broad, or wider on leading shoots, glabrous, acute at the apex, narrowed or contracted, or on vigorous shoots rounded or subtruncate at the base, the borders serrate and incisely lobed or acutely cleft: corymbs simple or subsimple, 3-10-flowered, glandular-bracteate: pedicels 1-2 cm. long, like the hypanthium, glabrous: sepals lanceolate, 3-4 mm. long, entire or sparingly serrate: corolla 15-18 mm. wide: stamens 20, the anthers pale purple: fruit subglobose, 7-9 mm. wide, the flesh firm: nutlets 3-5, 5-6 mm. long, the hypostyle about 4 mm. long.

Woods and borders of fields, near Tallahassee. (*Endemic.*)

14. *C. concinna* Beadle. A shrub 2-4 m. tall, with dark gray scaly bark. Leaf-blades ovate-lanceolate, oblong or elliptic, those of the shoots ovate, 2-5 cm. long, 7 mm.-2 cm. wide or on the shoots 3-4 cm. wide, glabrous, acute or bluntly pointed at the apex, narrowed or contracted or on leading shoots, rounded at the base, the borders serrate and more or less incised, the lobes or incisions rounded or on the larger leaves, acutely notched: corymbs simple, glandular-bracteate, 3-6-flowered: pedicels and hypanthium glabrous: sepals triangular-lanceolate, mostly serrate, 3-4 mm. long: corolla 15-18 mm. wide: stamens 20, the anthers purple: fruit subglobose, 7-8 mm. thick, the flesh firm: nutlets 3-5, about 5 mm. long, the hypostyle about half the length of the ventral angle.

Woods and borders of swamps, w. Fla. (*Endemic.*)

15. *C. galbana* Beadle. A small tree 5-6 m. tall, with a short trunk sometimes 1-1.5 dm. in diameter, clothed with dark gray or brownish black bark, or more frequently a large shrub with one or more stems. Leaf-blades oval, obovate or round-ovate, 1-4 cm. long, 1-3 cm. wide, glabrous at maturity, acute or rounded at the apex, rounded or contracted at the base, the margins irregularly dentate: corymbs simple, 1-5-flowered: pedicels short, like the hypanthium, pubescent: sepals 3-5 mm. long, serrate and glandular: corolla 15-20 mm. wide: stamens 20, the anthers light yellow or nearly white: fruit globose, 9-13 mm. in diameter, at maturity red, the flesh orange-yellow, succulent: nutlets 3-5, about 8 mm. long, 3.5-4.5 mm. deep, the hypostyle about half the length of the ventral angle.

Woods and borders of swamps, near River Junction. (*Endemic.*)

16. *C. abdita* Beadle. A shrub or small tree 3-6 m. tall, with dark ash gray or brownish bark. Leaf-blades obovate, oval or suborbicular, or on leading shoots sometimes broadly ovate, 1.5-3.5 cm. long, 1-3 cm. wide, glabrous or glabrate at maturity, rounded or abruptly pointed at the apex, narrowed or contracted, or occasionally rounded at the base, the margins irregularly dentate: corymbs simple, 3-5-flowered: pedicels mostly 10-15 mm. long, like the hypanthium, white tomentose: sepals 5-6 mm. long, serrate and glandular: corolla 15-20 mm. wide: fruit globose, 10-15 mm. in diameter, at maturity red, the flesh orange or orange-yellow, succulent: nutlets 3-5, 7-9 mm. long, 3.5-5 mm. deep, the hypostyle 5-6 mm. long.

Woods, mostly in sandy soil, River Junction. (*Endemic.*)

17. *C. consanguinea* Beadle. A tree 5-7 m. tall, with a trunk 1-2 dm. in diameter, clothed with ashy gray or brownish black, scaly bark, or often a large shrub with one or more stems. Leaf-blades obovate, round-ovate or nearly orbicular, 1-4.5 cm. long, 1-4 cm. broad, or larger on the shoots, glabrous at maturity, acute or abruptly pointed at the apex, contracted or rounded at the base, the margins serrate or serrate-dentate and shallowly incised; petioles 1-2 cm. long, margined, glandular: corymbs simple, 1-5-flowered: petioles and hypanthium pubescent: sepals 4-5 mm. long, glandular: corolla about 2 cm. wide: stamens 20, the anthers purplish: fruit globose, 9-12 mm. broad, at maturity red or orange flushed with red, the flesh succulent: nutlets 3-5, 7-8 mm. long, the hypostyle 4-5 mm. long.

Woods, mostly in sandy soil, m. Fla. (*Endemic.*)

18. *C. visenda* Beadle. A tree sometimes 10 m. tall, with a trunk 2.5-3 dm. in diameter, clothed with dark gray or brownish rough bark. Leaf-blades ovate, obovate or orbicular, 2-4 cm. long, 1-3.5 cm. broad, glabrous in age, acute or abruptly pointed or occasionally rounded at the apex, contracted at the base, the borders finely dentate and usually with several acute tooth-like lobes; petioles 5-15 mm. long, margined, glandular: corymbs simple, 3-6-flowered: pedicels and hypanthium pubescent: sepals 4-5 mm. long, glandular, serrate: corolla 16-20 mm. broad: stamens 20, the anthers pale purple: fruit pyriform, 10-12 mm. thick, 12-15 mm. long, at maturity orange, diffused or chequed with red, the flesh yellow or orange-yellow, soft: nutlets 3-5, mostly 3, 7-8.5 mm. long, the hypostyle two-thirds as long as the ventral angle.

Sandy soil, near Bristol. (*Endemic.*)

19. *C. egregia* Beadle. A small tree 4-6 m. tall, with dark and very rough bark. Leaf-blades ovate, oval or obovate, 1.5-3.5 cm. long, 7 mm.-3 cm. broad, glabrous at maturity, acute at the apex, narrowed or contracted at the base, the borders glandular, broken by several large, shallow, blunt, or rounded lobes; petioles 5-15 mm. long, margined, glandular: flowers produced in simple few-flowered corymbs: pedicels and hypanthium sparsely pilose-pubescent: sepals about 3 mm. long, entire or sparingly serrate, glandular: stamens 15-20: fruit subglobose, 10-12 mm. in diameter, at maturity yellow or orange, sometimes flushed with red, the flesh orange-yellow, soft: nutlets 3-5, about 8 mm. long, 4-5 mm. deep, the hypostyle about 5 mm. long.

Sandy soil, near Bristol. (*Endemic.*)

20. *C. quaesita* Beadle. A tree occasionally 5-7 m. tall, with a short trunk 1-1.5 dm. in diameter, clothed with ashy gray or brownish black rough bark, the branches drooping, or oftener a large shrub with one or more stems. Leaf-blades obovate or cuneiform, 1.5-5 cm. long, 1-3 cm. wide, or larger on leading shoots, glabrous or glabrate at maturity, abruptly pointed at the apex, cuneate or more abruptly contracted at the base, the borders dentate, serrate-dentate or crenate-dentate and with tooth-like lobes; petioles 5 mm.-2 cm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium pubescent: sepals 3.5-5 mm. long, glandular-serrate: corolla 15-20 mm. wide: stamens 20, the anthers light purple: fruit subglobose, 8-11 mm. in diameter, at maturity orange-red, often with deeper colored cheeks, the flesh soft: nutlets 3-5, about 7 mm. long, the hypostyle occupying about two-thirds of the ventral angle.

Sandy uplands, Apalachicola river basin. (*Endemic.*)

21. *C. egens* Beadle. A tree 4-7 m. tall, with a trunk sometimes 2 dm. in diameter, covered with dark rough bark, the branches crooked and recurved. Leaf-blades obovate, cuneate or spatulate, 1-3 cm. long, 5 mm.-2.5 cm. wide, glabrate at maturity, abruptly pointed at the apex, narrowed or contracted at the base, the borders dentate, glandular and with tooth-like lobes above the middle; petioles 3-15 mm. long, glandular: corymbs simple, 2-4-flowered or flowers solitary: pedicels and hypanthium densely white-woolly: sepals 3-4 mm. long, glandular-serrate: corolla 14-18 mm. wide: stamens 20, the anthers

almost white: fruit subglobose or slightly oval, 9-11 mm. thick, at maturity orange-red with ruddy cheeks, the flesh succulent: nutlets 3-5, about 7 mm. long, the hypostyle about 5 mm. long.

Sandy soil, near Bristol. (*Endemic.*)

22. *C. integra* (Nash) Beadle. A small tree 4-5 m. tall, with a trunk 1-2 dm. in diameter, ashy gray or dark rough bark and drooping branches. Leaf-blades obovate or cuneate, 1.5-4 cm. long, 7 mm.-2.5 cm. wide, pubescent on the lower surface, pointed or occasionally rounded at the apex, contracted or narrowed at the base, the margins glandular, bluntly or undulately lobed; petioles 5 mm.-2 cm. long, margined, glandular, pubescent: corymbs simple, 3-5-flowered: pedicels and hypanthium densely white-tomentose: sepals 4-5 mm. long, glandular-serrate: corolla 15-20 mm. wide: stamens 20, the anthers light yellow: fruit globose, 10-15 mm. in diameter, at maturity red, the flesh soft: nutlets 3-5, about 8 mm. long, the hypostyle 5-6 mm. long.

Sandy woods and old fields, central pen. Fla. (*Endemic.*)

23. *C. adunca* Beadle. A large shrub or small tree 2-5 m. tall, with ashy gray or dark scaly or rough bark. Leaf-blades obovate, 2-3 cm. long, 7 mm.-2.5 cm. wide, or larger on leading shoots, glabrous or glabrate at maturity, abruptly pointed or rounded at the apex and with a small tooth-like point, contracted or narrowed at the base, the borders minutely dentate or nearly entire, glandular, sometimes with shallow tooth-like lobes; petioles 5-15 mm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium tomentose-pubescent: sepals 4-5 mm. long, serrate, glandular: corolla 15-20 mm. wide: stamens 20, the anthers pale purple: fruit globose, 12-15 mm. in diameter, red at maturity, the flesh orange, soft: nutlets 3-5, 7-8 mm. long, the hypostyle 4-5 mm. long.

Sandy woods, about Tallahassee. (*Endemic.*)

24. *C. panda* Beadle. A tree sometimes 6-7 m. tall, with dark rough bark and crooked recurved branches. Leaf-blades obovate or cuneate, 2-4 cm. long, 1-2.5 cm. wide, or broader on leading shoots, glabrous or glabrate at maturity, pointed or rounded and with an abrupt sharp point at the apex, contracted or narrowed at the base, the borders nearly entire, glandular; petioles 5-15 mm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium pubescent: sepals 4-5 mm. long, serrate, glandular: corolla 15-20 mm. wide: stamens 20, the anthers almost white: fruit globose or depressed globose, 10-15 mm. in diameter, at maturity orange-yellow, often tinged or checked with red, the flesh orange-yellow, soft: nutlets 3-5, about 7 mm. long, the hypostyle about 5 mm. long.

Dry sandy soil, about Tallahassee. (*Endemic.*)

25. *C. dapsilis* Beadle. A shrub or small tree 2-5 m. tall, with ashy gray rough bark and drooping or recurved branches. Leaf-blades obovate or cuneate, 1.5-4 cm. long, 7 mm.-2.5 cm. wide, or larger on the shoots, more or less pubescent at maturity, especially on the lower surface along the midrib and in the axils of the veins, rounded or slightly and abruptly pointed at the apex, contracted or narrowed, or on leading shoots sometimes rounded at the base, the borders entire, glandular; petioles 5-15 mm. long, margined, glandular: corymbs 2-4-flowered or flowers solitary: pedicels and hypanthium densely white-tomentose: sepals 4-5 mm. long, glandular, slightly serrate: corolla 15-20 mm. wide: stamens 20, the anthers light yellow: fruit globose or subglobose, 10-15 mm. in diameter, yellow or orange, checked with red, the flesh soft: nutlets 3-5, 8-9 mm. long, the hypostyle 5-6 mm. long.

Sandy soil, central pen. Fla. (*Endemic.*)

26. *C. rava* Beadle. A shrub or small tree 2-5 m. tall, with ashy gray rough or scaly bark and crooked, slightly drooping branches. Leaf-blades obovate, cuneate or spatulate, 1-3 cm. long, 7 mm.-2.5 cm. wide, pubescent or glabrate

at maturity, rounded and mostly with a short abrupt point at the apex, narrowed or contracted at the base, the borders glandular and nearly entire; petioles 5-15 mm. long, margined, glandular: corymbs 2-4-flowered or flowers solitary: pedicels very short, like the hypanthium densely tomentose: sepals 4-5 mm. long, serrate, glandular: corolla 15-20 mm. wide: stamens 20, the anthers light yellow or almost white: fruit globose or subglobose, 10-12 mm. in diameter, when ripe yellow or orange-yellow cheeked or splotted with red, the flesh soft: nutlets 3-5, about 7 mm. long, the hypostyle about 5 mm. long.

Open places, mostly in sandy soil, about Tallahassee. (*Endemic.*)

27. *C. compitalis* Beadle. A small tree, or oftener a large shrub, 2-5 m. tall, with dark gray or brownish rough bark and recurved branches. Leaf-blades obovate or obovate-cuneiform, 2-4 cm. long, 1-3 cm. wide, nearly or quite glabrous in age, rounded or with a small abrupt point at the apex, usually contracted at the base, the borders dentate or serrate-dentate; petioles 5-15 mm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium densely tomentose: sepals 4-5 mm. long, serrate, glandular: corolla 15-18 mm. wide: stamens 20, the anthers light yellow or nearly white: fruit subglobose or oval, 10-13 mm. thick, red when fully ripe, the flesh soft: nutlets 3-5, 8-9 mm. long, the hypostyle 6-7 mm. long.

Roadsides, near Gainesville. (*Endemic.*)

28. *C. clara* Beadle. A small tree 4-6 m. tall, with dark gray or brownish rough bark, or oftener a large much-branched shrub. Leaf-blades obovate or obovate-cuneate, 2-4 cm. long, 1-2 cm. broad, or larger on vigorous shoots, shining above, slightly pubescent below, even in age, rounded or pointed at the apex, narrowed or sometimes more abruptly contracted at the base, the borders dentate or crenate-dentate; petioles 5-15 mm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium pubescent: sepals 4-5 mm. long, serrate, glandular: corolla 15-18 mm. wide: stamens 20, the anthers faintly tinged with purple: fruit globose, 9-12 mm. in diameter, orange-red when ripe: nutlets 3-5, about 7 mm. long, the hypostyle about 5 mm. long.

Sandy soil in oak woods, Apalachicola river basin. (*Endemic.*)

29. *C. amica* Beadle. A small tree, or a large shrub 3-6 m. tall, with dark rough or rimose bark and recurved branches. Leaf-blades cuneate or oblong-cuneiform, or on leading shoots broadly ovate, 1.5-3.5 cm. long, 7 mm.-2.5 cm. broad, or wider on the shoots, mostly pointed or lobed at the apex, narrowed or contracted at the base, the borders glandular, dentate above the middle; petioles 5 mm.-2.5 cm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium densely tomentose: sepals about 5 mm. long, glandular-serrate: corolla about 2 cm. wide: stamens 20, the anthers light yellow: fruit subglobose, 10-13 mm. thick, at maturity orange blotched or cheeked with red, the flesh soft: nutlets 3-5, 6-7 mm. long, the hypostyle occupying three-fourths of the ventral angle.

Sandy woods and along roads, Ocala. (*Endemic.*)

30. *C. anisophylla* Beadle. A large shrub, or a tree sometimes 6 m. tall, with a short trunk 1.5-2 dm. in diameter, clothed with dark brown rough or rimose bark, the branches drooping. Leaf-blades spatulate or cuneate, 2-4 cm. long, 5 mm.-1.5 cm. wide, or a little broader on the shoots, glabrous in age, rounded, pointed or lobed at the apex, wedge-shaped at the base; petioles 5 mm.-3 cm. long, winged, remotely glandular: corymbs simple, 2-4-flowered or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, glandular-serrate: corolla about 15 mm. wide: stamens about 20, the anthers yellow: fruit globose or subglobose, 6-8 mm. in diameter, orange flushed or cheeked with red when fully ripe, the flesh soft: nutlets 3-5, 4.5-5.5 mm. long, the hypostyle about 3 mm. long.

Sandy soil and banks of the St. Johns river. (*Endemic.*)

31. *C. viaria* Beadle. A large shrub, or a small tree 2-5 m. tall, with dark rough bark and drooping branches. Leaf-blades spatulate, cuneate or obovate-cuneiform, 1.5-3.5 cm. long, 1-2 cm. wide, glabrate or pubescent along the midrib and in the axils of the principal veins beneath at maturity, pointed or lobed at the apex, wedge-shaped or more abruptly contracted at the base, the borders dentate, glandular, and usually shallowly lobed above the middle; petioles 7 mm.-2 cm. long, winged, glandular: corymbs simple, 2-4-flowered or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, glandular-serrate or nearly entire: corolla 10-13 mm. wide: stamens 20, the anthers yellow: fruit globose, 7-9 mm. in diameter, red at maturity: nutlets 3-5, 6-7 mm. long, the hypostyle 4-5 mm. long.

Sandy soil, n.e. Fla. (*Endemic.*)

32. *C. vicana* Beadle. A large shrub, or a small tree 2-4 m. tall, with ashy gray or brownish, rough or rimose bark and drooping branches. Leaf-blades cuneate or oblong- or obovate-cuneiform, 1.5-3.5 cm. long, 7 mm.-2 cm. wide, or on leading shoots sometimes 4.5 cm. wide, glabrate or somewhat pubescent beneath at maturity, either pointed or rounded, occasionally truncate at the apex, narrowed or contracted at the base, the margins dentate or shallowly lobed near the apex; petioles 7 mm.-2.5 cm. long, margined, glandular: corymbs simple, 3-5-flowered: pedicels and hypanthium tomentose: sepals 4-5 mm. long, glandular-serrate: corolla 15-20 mm. wide: stamens 20, the anthers light yellow: fruit pyriform or oblong-pyriform, 10-14 mm. thick, about 1.5 cm. long, yellow or orange at maturity, blotched or cheeked with red, the flesh soft: nutlets mostly 3, 8-10 mm. long, the hypostyle 6-7 mm. long.

Sandy soil, near Travers. (*Endemic.*)

33. *C. recurva* Beadle. A shrub, or a small tree 3-5 m. tall, with ashy gray or brownish, rough or rimose bark and pendulous branches. Leaf-blades cuneate or spatulate or on leading shoots obovate-cuneiform, 1.5-3 cm. long, 5-15 mm. wide, or broader on the shoots, glabrous or glabrate at maturity, wedge-shaped or more abruptly contracted at the base, pointed or rounded at the apex, the margins glandular, dentate or lobed; petioles 5-15 mm. long, margined, glandular: corymbs simple, 2-3-flowered or flowers solitary: pedicels and hypanthium tomentose: sepals 4-5 mm. long, glandular-serrate: corolla 12-15 mm. wide: stamens about 20, the anthers light yellow: fruit pyriform or short-pyriform, 7-9 mm. thick, red at maturity, the flesh soft: nutlets 3-5, 6-7 mm. long, the hypostyle about 5 mm. long.

Sandy soil, near Ocala. (*Endemic.*)

34. *C. rimosa* Beadle. A small tree, or a large shrub 2-4 m. tall, with rimose bark and slender drooping branches. Leaf-blades cuneate, spatulate or oblong-cuneiform, 1-2.5 cm. long, 7 mm.-2 cm. wide, or broader on leading shoots, glabrate or pubescent on the lower surface, especially along the midrib and in the axils of the principal veins, usually abruptly contracted, but occasionally wedge-shaped at the base, either rounded, abruptly pointed or lobed at the apex, the borders glandular, dentate above the middle; petioles 5 mm.-2 cm. long, margined, glandular: corymbs simple, 3-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, glandular-serrate: corolla 12-15 mm. wide: stamens 20, the anthers light yellow: fruit short-pyriform, 9-12 mm. thick, at maturity yellow or orange-yellow flushed or cheeked with red, the flesh soft: nutlets 3-5, 6-7 mm. long, the hypostyle 4-5 mm. long, 1.5-2 mm. wide on each side of the ventral angle.

Sandy soil, near Citra. (*Endemic.*)

35. *C. inopina* Beadle. A small tree, or a large shrub 3-5 m. tall, with dark rough or rimose bark and recurved branches. Leaf-blades obovate-cuneiform, sometimes suborbicular, 1.5-2.5 cm. long, 1-2 cm. wide, or larger on leading shoots, glabrate at maturity or with some pubescence on the lower surface and

in the axils of the large veins, usually abruptly contracted, but occasionally wedge-shaped at the base, either rounded, pointed or lobed at the apex, the borders entire or denticulate; petioles 5 mm.-2 cm. long, margined, glandular, mostly scurfy-tomentose: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4.5 mm. long, glandular-serrate: corolla 12-15 mm. wide: stamens 20, the anthers light yellow or almost white: fruit pyriform, 8-11 mm. thick, 12-14 mm. long, at maturity yellow or orange-yellow, sometimes cheeked with red, the flesh soft: nutlets 3-5, 6-7 mm. long, the hypostyle 4-5 mm. long.

Sandy soil, near Ocala. (*Endemic.*)

36. *C. villaris* Beadle. A small tree, or a large shrub 3-5 m. tall, with dark rough or rimose bark and drooping branches. Leaf-blades cuneate or oblong-cuneiform, 1.5-3.5 cm. long, 5 mm.-2 cm. wide or broader on leading shoots, glabrous or glabrate at maturity, usually abruptly contracted, but occasionally wedge-shaped at the base, rounded or abruptly pointed at the apex, the borders glandular, entire or nearly so; petioles 5 mm.-2 cm. long, margined, glandular: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, glandular-serrate: corolla 12-16 mm. wide: fruit pyriform, 8-11 mm. thick, at maturity yellow or orange-yellow, cheeked or flushed with red, the flesh soft: nutlets mostly 3-4, 6-7 mm. long, the hypostyle 4-5 mm. long.

Sandy soil, near Citra. (*Endemic.*)

37. *C. curva* Beadle. A shrub, or a very small tree 2-4 m. tall, usually with several trunks clothed with dark rough bark, and crooked, drooping, very spiny branches. Leaf-blades obovate or obovate-cuneiform, 1-2 cm. long, 5 mm.-2 cm. wide, glabrate at maturity or with some conspicuous pubescence along the midrib in the axils of the prominent veins beneath, rounded or abruptly pointed at the apex, abruptly contracted at the base, the borders subentire or denticulate and shallowly lobed; petioles 5-15 mm. long, margined, glandular: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, serrate, glandular: corolla 12-15 mm. wide: stamens 20, the anthers light yellow: fruit pyriform, 6-9 mm. thick, at maturity orange-red or orange with red cheeks, the flesh very thin: nutlets usually 3-4, 6-7 mm. long, the hypostyle 4-5 mm. long, 2-2.5 mm. wide near the top of each lateral surface.

Sandy soil, n.e. Fla. (*Endemic.*)

38. *C. adusta* Beadle. A large shrub, or a small tree 2-5 m. tall, with dark gray or brownish rough bark and drooping branches. Leaf-blades cuneiform, 1.5-3 cm. long, 7 mm.-2 cm. wide or larger and obovate-cuneiform on the leading shoots, glabrate at maturity, rounded or with a short, abrupt point at the apex, the borders glandular, sub-entire, or dentate near the apex; petioles 5-15 mm. long, margined, glandular: corymbs simple, 2-4-flowered or flowers solitary: pedicels and hypanthium tomentose: sepals 3-5 mm. long, glandular-serrate: corolla 14-18 mm. wide: stamens 20, the anthers almost white: fruit short-pyriform, 9-11 mm. thick, at maturity orange-red, usually spotted and streaked with red, the flesh soft: nutlets 3-5, about 8 mm. long, the hypostyle 5-6 mm. long.

Sandy woods, near Gainesville. (*Endemic.*)

39. *C. illudens* Beadle. A small tree, or a large shrub with dark gray or brownish rough bark and drooping branches. Leaf-blades cuneiform, 1.5-3.5 cm. long, 7 mm.-2 cm. wide, or broader on vigorous shoots, glabrous or glabrate at maturity, rounded, pointed or lobed at the apex, the borders entire or denticulate, glandular, sometimes lobed above the middle, especially on leading shoots; petioles 7 mm.-3 cm. long, winged, glandular: corymbs 2-4-flowered, or flowers occasionally solitary: pedicels and hypanthium tomentose: sepals

3.5-5 mm. long, glandular-serrate: corolla 14-18 mm. wide: fruit pyriform, 8-11 mm. thick, yellow at maturity, the flesh soft: nutlets mostly 3, about 7 mm. long, the hypostyle about 5 mm. long.

Sandy soil, near Citra. (*Endemic.*)

40. *C. incana* Beadle. A large shrub 2-4 m. tall, with dark gray or brownish, rough or scaly bark and crooked recurved branches. Leaf-blades cuneate or obovate-cuneate, 1-2.5 cm. long, 7 mm.-2 cm. wide, pubescent, abruptly pointed or rounded at the apex, wedge-shaped or more abruptly contracted at the base, the margins glandular, sub-entire or shallowly lobed; petioles 5-15 mm. long, margined, densely white-tomentose when young, glandular: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium densely white-tomentose: sepals 4-5 mm. long, glandular: corolla about 15 mm. wide: stamens 20, the anthers nearly white: fruit pyriform, 8-9 mm. thick, at maturity orange-yellow, flushed or cheeked with red: nutlets 3-5, about 7 mm. long, the hypostyle about 5 mm. long.

Woods and banks, m. Fla. (*Ga.*)

41. *C. versuta* Beadle. A shrub, or a small tree 3-6 m. tall, with dark rough bark and drooping branches. Leaf-blades cuneiform, 1-3 cm. long, 5 mm.-2 cm. wide, or broader on leading shoots, pubescent or tomentose at maturity, at least on the lower surface along the midrib and in the axils of the principal veins, rounded, pointed or lobed at the apex, the borders glandular, dentate or lobed above the middle; petioles 5 mm.-3 cm. long, winged, glandular, pubescent: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 2-3 mm. long, glandular: corolla 10-12 mm. wide: stamens 20, the anthers light yellow: fruit short-pyriform, 6-9 mm. thick, at maturity orange or greenish yellow with ruddy cheeks: nutlets 3-5, about 6 mm. long, the hypostyle 3-4 mm. long.

Sandy oak woods, Apalachicola river basin. (*Endemic.*)

42. *C. crocea* Beadle. A small tree, or a large shrub 3-6 m. tall, with dark rough bark and slender drooping branches. Leaf-blades cuneiform, 1-2.5 cm. long, 5-15 mm. wide, or broader on leading shoots, at maturity smooth above, more or less pubescent beneath, especially along the midrib, either pointed or rounded at the apex, the borders glandular, denticulate above the middle; petioles 7 mm.-2 cm. long, margined, glandular, pubescent or glabrate: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3-4 mm. long, glandular-serrate: corolla 15 mm. wide: stamens 15-20, the anthers nearly white: fruit pyriform, 9-12 mm. thick, at maturity yellow or orange-yellow, rarely cheeked with russet-red, the flesh soft: nutlets 3-5, about 6 mm. long, the hypostyle 4-5 mm. long.

Sandy soil, near Citra. (*Endemic.*)

43. *C. audens* Beadle. A large shrub, or a small tree, with dark gray or brownish rough or scaly bark. Leaf-blades obovate or obovate-cuneiform, 1.5-3.5 cm. long, 1-3.5 cm. wide, at maturity glabrate and shining on the upper surface, pubescent beneath especially along the midrib and principal veins, abruptly pointed, rounded or lobed at the apex, contracted or narrowed at the base, the margins dentate and shallowly lobed; petioles 5-15 mm. long, margined, glandular, pubescent: corymbs simple, 2-5-flowered, or flowers occasionally solitary: pedicels and hypanthium pubescent: sepals 4-5 mm. long, glandular-serrate: corolla 15-16 mm. wide: stamens 20, the anthers almost white: fruit pyriform, 9-12 mm. thick, at maturity orange-yellow, flushed or cheeked with red, the flesh soft: nutlets mostly 3, 7-8 mm. long, the hypostyle 4-5 mm. long.

Dry hills, near Chattahoochee. (*Endemic.*)

44. *C. lepida* Beadle. A small very spiny shrub, seldom more than 1-1.5 m. tall, with drooping branches. Leaf-blades obovate, round-ovate, suborbicular or spatu-

late, 5 mm.-2 cm. long, 4 mm.-2 cm. wide, at maturity glabrous and lustrous above, more or less pubescent beneath, especially along the principal veins and in their axils, rounded, truncate or short-pointed at the apex, abruptly contracted at the base, or sometimes cuneate, the margins denticulate or crenate-dentate, glandular; petioles 2 mm.-1 cm. long, margined, glandular: corymbs 2-3-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 2-3 mm. long, glandular-serrate: stamens 20; fruit subglobose, 7-11 mm. in diameter, at maturity orange or orange-red: nutlets 3-5, 6-7 mm. long, 3-4 mm. deep, the hypostyle 4-5 mm. long.

Sandy soil and open woods, e. Fla. (*Ga.*)

45. *C. lacrimata* Small. A small tree, sometimes 4-5 m. tall, or more frequently a large shrub with several stems clothed with ashy gray often scaly bark, the branches drooping. Leaf-blades cuneate-spatulate, 1-2.5 cm. long, 7-15 mm. wide, or broader on vigorous leading shoots, glabrous in age, rounded, truncate or pointed at the apex, wedge-shaped at the base, the borders dentate above the middle, glandular: petioles 5-15 mm. long, pubescent, glandular: corymbs simple, 2-4-flowered, or flowers solitary: pedicels and hypanthium glabrous: sepals 2.5-3 mm. long, entire or nearly so, glabrous: stamens 20, the anthers light yellow: fruit globose, or subglobose, at maturity yellow or orange, mostly with ruddy cheeks, the flesh soft: nutlets 3-5, 5-6 mm. long, the hypostyle occupying about two-thirds of the ventral angle.

Sandy woods and borders of streams, w. Fla. (*Endemic.*)

46. *C. condigna* Beadle. A large shrub, with one or more stems, or sometimes a small tree 5 m. tall, with ashy gray or brownish scaly bark. Leaf-blades cuneate, obovate-cuneate or on vigorous shoots broadly obovate, 1-3 cm. long, 7 mm.-2.5 cm. broad, glabrate in age, rounded or abruptly pointed at the apex, wedge-shaped or more abruptly narrowed at the base, the borders crenate or crenate-dentate; petioles 3 mm.-1 cm. long: corymbs simple, mostly 2-3-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals 3.5-5 mm. long, serrate, glandular: corolla about 16 mm. wide: stamens 20, the anthers almost white: fruit pyriform or nearly so, 7-9 mm. wide, 8-11 mm. long, at maturity yellow-green or orange, flushed with red: nutlets 3-5, 5-6 mm. long, about 4 mm. deep, the hypostyle about 4 mm. long.

Sandy soil, m. Fla. (*Ga.*)

47. *C. Earlei* Ashe. A shrub 1-3 m. tall. Leaf-blades cuneate or obovate, or oblong-cuneiform, 1-2.5 cm. long, 5-15 mm. wide, or broader on leading shoots, pubescent on the lower surface at maturity, especially along the midrib and veins, either rounded or pointed at the apex, wedge-shaped at the base, the borders serrate, at least above the middle; petioles 1-10 mm. long, pubescent: corymbs 2-3-flowered, or flowers solitary: pedicels and hypanthium tomentose: sepals narrow, 5-7 mm. long, serrate or entire: corolla about 15 mm. wide: stamens 20, the anthers nearly white: fruit pyriform, 7-9 mm. wide, 8-11 mm. long: nutlets 3-5, 5-7 mm. long, the hypostyle occupying about three-fourths of the ventral angle.

Dry hills and sandy soil, n. Fla. (*Ala.*)

48. *C. pyracanthoides* Beadle. A shrub, or a small tree 2-5 m. tall, with ashy gray or brownish smooth or scaly bark. Leaf-blades obovate, oblanceolate or elliptic, 1.5-5 cm. long, 7 mm.-3 cm. wide, glabrous, acute or rounded at the apex, cuneate at the base, the margins serrate above the middle; petioles 2-10 mm. long, margined: corymbs compound, glabrous, many-flowered: pedicels and hypanthium glabrous: sepals 2.5-4 cm. long, entire or remotely serrate: stamens 7-12, the anthers purplish: fruit globose or nearly so, 5-8 mm. in diameter, bright red at maturity: nutlets mostly 2, 5-6 mm. long, the hypostyle about half the length of the nutlet.

Banks of the Chipola river. (*Endemic.*)

FAMILY 7. AMYGDALACEAE. PLUM FAMILY.

Shrubs or trees, commonly with prussic acid in the tissues. 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.

Drupe with a pulpy exocarp: leaves deciduous: flowers in clusters.

Drupe with a dry exocarp: leaves persistent: flowers in axillary racemes.

1. *CHRYSOBALANUS*.

2. *GEOBALANUS*.

3. *PRUNUS*.

4. *LAUCROCERASUS*.

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.

Drupe globular or spheroidal: petals cuneate.

Drupe obovoid or oblong-obovoid: petals spatulate.

1. *C. Icaeo*.

2. *C. pellocarpus*.

1. *C. Icaeo* L. Shrub, or tree sometimes 10 m. tall, and when growing on the beach, with radially creeping branches: 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.—COCOA-PLUM.

Coastal hammocks, sand-dunes, and sandy shores, s. pen. Fla. and the F. Keys. (W. I.)

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 or oblong-obovoid, 1.5-2 cm. long, purple: stone oblong or oblong-obovoid, sharp-ridged.—SMALL-FRUITED COCOA-PLUM.

Everglades, s. pen. Fla. (W. I.)

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.—Spr.—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.

Woods, pinelands, and sand-dunes, nearly throughout Fla., except the F. Keys. (Cont.)

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, E. Keys. (Endemic.)

3. *PRUNUS* [Tourn.] L. Shrubs or trees. Leaves sometimes slightly impregnated with prussic acid. Flowers in corymbose or umbel-like clusters, relatively long-pedicelled. Corolla mostly white. Drupes usually glabrous and glaucous, the stone smooth or nearly so.—Spr.—PLUM.

Drupe purple or nearly black beneath the bloom, 15 mm. in diameter, or less.

Drupe red or orange, without a bloom or nearly so, over 15 mm. in diameter.

Flowers manifestly pedicelled: mature pedicels over 8 mm. long: leaf-blades over twice as long as wide.

Flowers sessile or nearly so: mature pedicels 2-3 mm. long: leaf-blades less than twice as long as wide.

1. *P. umbellata*.

2. *P. angustifolia*.

3. *P. geniculata*.

1. *P. umbellata* Ell. Small tree or shrub: leaf-blades thinnish, oblong, elliptic, or nearly oval, sometimes broadest above or below the middle, short-acuminate, or merely acute, serrate, rounded or acute at the base, glabrous: flowers mostly expanding before the leaves, in lateral clusters: sepals pubescent within: petals 4-7 mm. long: drupes globose or nearly so, 12-15 mm. in diameter, nearly black beneath the bloom, with an acid flesh; stone plump, acute at both ends.—BLACK-SLOE. HOG-PLUM. BULLACE-PLUM.

Dry woods and hammocks, n. Fla. and the upper pen. (Cont.)

2. *P. angustifolia* Marsh. Sparingly spiny small tree or shrub, often forming thickets: leaf-blades rather thin, oblong or oblong-lanceolate, 3-10 cm. long, acute or slightly acuminate at the apex, serrulate, acute or rounded at the base, short-petioled: flowers in lateral clusters, appearing before the leaves: sepals ovate: petals with mainly orbicular or reniform blades: drupes oval-globose, 22-26 mm. long, red or yellowish, with a slight bloom; stone ovoid, hardly flattened, acute, one of the rounded edges slightly grooved.—OLD-FIELD PLUM. CHICKSAW-PLUM.

Old fields and thickets, n. Fla. and n. pen. (Cont.)

3. *P. geniculata* Harper. Diffusely branched shrub, 1.5 m. tall or less, with numerous zigzag somewhat spinescent branches: leaf-blades oblong, 1-2.5 cm. long, mucronate, finely crenate-serrate, rather short-petioled: flowers in lateral few-flowered sessile umbels appearing before the leaves: pedicels stout, 2-3 mm. long: corolla white, 1 cm. wide or less: drupes oval or globose-oval, 2.5 cm. long or less.

Sandy soil, vicinity of Lake Apopka.

4. **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.

Petals larger than the sepals: drupe subglobose.

1. *L. myrtifolia*.

Petals smaller than the sepals: drupe oblong or oval.

2. *L. caroliniana*.

1. *L. myrtifolia* (L.) Britton. Shrub or small tree: leaf-blades elliptic: racemes loosely flowered, the pedicels slender: petals slightly angled: drupes 8-12 mm. in diameter: stone sphaeroidal. [*L. sphaerocarpa* (Sw.) Roem.]—WEST-INDIAN CHERRY.

Hammocks, E. Keys and F. Keys. (W. I.)—Fall.

2. *L. caroliniana* (Mill.) Roem. Shrub or small tree: leaf-blades narrowly elliptic to oblong-oblancoelate: racemes densely flowered, the pedicels stout: petals saliently angled: drupes 10-13 mm. long: stone ovoid.—MOCK-ORANGE.

Woods and river-banks, nearly throughout Fla., except the F. Keys. (Cont., W. I.)—Winter-spr.

FAMILY 8. 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: petals united.

Filaments partially united into a tube: corolla and calyx unlike.

Pods contorted and spiral: seeds arillate: leaves few-foliate.

Pods straight: seeds not arillate: leaves many-foliate.

Filaments distinct: corolla like the calyx, but longer.

Ovary stipitate: petals partly united, commonly only to below the middle: pods flat, dry, the seeds not in two distinct rows.

Ovary sessile: petals united into a tubular-funnelform shallowly lobed corolla: pods nearly terete or broader than high, pulpy within, the seeds in 2 separate rows.

Stamens as many as the petals: petals distinct.

1. PITHECOLOBIUM.
2. ALBIZZIA.

3. ACACIA.

4. VACHELLIA.
5. LEUCAENA.

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.—All year.

Ovary glabrous, shorter than the stipe: petioles longer than the petiolules.

1. *P. Unguis-cati*.

Ovary pubescent, longer than the stipe: petioles shorter than the petiolules.

2. *P. guadelupense*.

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.—CAT'S-CLAW.

Hammocks, E. Keys, lower w. coast, and F. Keys. (W. I.)

2. **P. guadelupense** 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.—BLACK-BEAD.

Pinelands and hammocks, E. Keys and F. Keys. (W. I.)

2. **ALBIZZIA** Durazz. Shrubs or trees. Leaves 2-pinnate: leaflets numerous. Spikes capitate. Calyx-lobes relatively short and small. Corolla about twice as long as the calyx. Pod linear, flat.

1. **A. Julibrissin** (Willd.) Durazz. Shrub or tree becoming 10 m. tall: leaves with 16-24 pinnae; leaflets 50-70, the blades falcate-lanceolate, 7-16 mm. long, obliquely acute: calyx about 2 mm. long: corolla 6-8 mm. long; larger lobes ovate: pods broadly linear, 10-15 cm. long: seeds oblong, 3.5-4.5 mm. wide.—JULIBRISSIN. ACACIA.

Woods and fields, nearly throughout Fla. Nat. of Asia. (Cont., W. I.)—Spr.-sum.

3. **ACACIA** [Tourn.] L. Shrubs or trees, or sometimes herbs. Leaves mostly 2-pinnate, sometimes reduced to phyllodia: leaflets usually numerous. Spikes capitate or cylindrical. Calyx cupulate or resembling the corolla. Petals distinct or partially united. Filaments distinct, or some of them slightly united at the base. Pods flat.

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.]—ACACIA.

Pinelands, pen. Fla. (Cont.)

4. **VACHELLIA** Wight & Arn. Shrubs or small trees. Leaves 2-pinnate: leaflets numerous, small. Spikes globose. Calyx-lobes minute and relatively short. Corolla about twice as long as the calyx, the lobes short. Filaments distinct. Pod very turgid.

1. **V. Farnesiana** (L.) Wight & Arn. Shrub or small tree: leaf-pinnæ 8-16; leaflets 20-25, 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.—**YELLOW-OPOPANAX**.

Woods, thickets, pinelands and hammocks, nearly throughout Fla. Naturalized in some places. (*Cont.*, W. I.)

5. **LEUCAENA** Benth. Shrubs or trees. Leaves mostly 2-pinnate: leaflets often small and numerous. Spikes 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 small tree: leaflets 6-12 mm. long; blades narrowly oblong to lanceolate, over 1.5 mm. broad: calyx 2-2.5 mm. long or rarely shorter: petals 4-4.5 mm. long: pods 15-25 cm. long.—**LEAD-TREE**.

Hammocks, E. Keys and F. Keys. (*W. I.*)

FAMILY 9. CASSIACEAE. SENNA FAMILY.

Trees, shrubs, or herbs. Leaves alternate: blades compound, 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.

Corolla apparently papilionaceous: leaves with 1-foliolate blades 1. **CERCIS**.
Corolla irregular, but not papilionaceous.

Leaves with 1-pinnate blades. 2. **CASSIA**.

Leaves with 2-pinnate blades.

Pods long, smooth: standard with a suborbicular or reniform blade.

Leaf with a very short petiole which ends in a spine, each division with a long, flat phyllode-like rachis. 3. **PARKINSONIA**.

Leaf with a relatively long petiole, the rachises of the divisions not phyllode-like.

Calyx-lobes valvate. 4. **DELONIX**.

Calyx-lobes imbricate.

Petals, except the standard, long-clawed. 5. **POINCIANA**.

Petals, except the standard, sessile or with very short claws. 6. **CAESALPINIA**.

Pods short, prickly-armed: standard with a cuneate or spatulate blade. 7. **GUILANDINA**.

1. **CERCIS** L. Shrubs or trees. Leaves 1-foliolate: leaflet broad. Calyx shallowly lobed: tube gibbous. Corolla pink-purple: keel-petals of the apparently papilionaceous corolla longer than the others. Anthers short, opening lengthwise. Pod very flat.

1. **C. canadensis** L. Shrub or tree: leaf-blades broadly ovate to reniform: pedicels mostly less than 1.5 cm. long: sinuses of the calyx nearly as broad as the lobes: larger petals 12-13 mm. long; blades ovate: pods linear-oblong, 6-9 cm. long.—**RED-BUD**. **JUDAS-TREE**.

Rich woods, n. Fla. and the upper pen. (*Cont.*)—Spr.

2. **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 rather tardily dehiscent.—**SENNA**.

Pods short- and stout-stipitate: corollas less than 3 cm. wide: leaflet-blades of an ovate or lanceolate type.

Petiolar gland elongate, near the base of the rachis.

1. *C. ligustrina*.

Petiolar gland short, between the lower pair of leaflets or near it.

2. *C. bahamensis*.

Pods long- and slender-stipitate: corollas over 3.5 cm. wide: leaflet-blades of an oblong or obovate type.

3. *C. biflora*.

1. *C. ligustrina* L. Shrub 6–20 dm. tall, nearly glabrous: leaflets 12–16; blades lanceolate to elliptic-lanceolate or linear-lanceolate, 2–6 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, rather uniform in shape: pods curved, flat, prominently margined, 7–8 mm. wide.

Hammocks, pen. Fla. (W. I.)

2. *C. bahamensis* Mill. Shrub 2 m. tall or less: leaflets 6–10; blades subcoriaceous, ovate or oblong-ovate, mucronate, 1.5–4 cm. long: petiolar gland depressed, between lower pair of leaflets or near it: stipules ovate to lanceolate: sepals 7–12 mm. long: petals 10–15 mm. long, or sometimes smaller: pods flat, with lateral depressions between the seeds, 9–11 cm. long, 5 mm. wide.

Pinelands, E. Keys and F. Keys. (W. I.)

3. *C. biflora* L. Shrub 1.5 m. tall or less: leaflets 4–10; blades coriaceous, oblong to obovate, mucronulate, 4 cm. long: petiolar gland stipitate, slender, between lower pair of leaflets, or sometimes additional glands between the other pairs: stipules setaceous: sepals 6–10 mm. long: petals 19–26 mm. long, rather prominently clawed: pods falcate, narrowly linear, 9 cm. long, 5 mm. wide.

Woods and roadsides, pen. Fla. (W. I.)

3. **PARKINSONIA** [Plum.] L. Shrubs or trees, with simple or branching thorns. Leaflets numerous, borne on the phyllode-like rachises. Blades of the short-clawed petals mainly of an ovate type. Pod markedly tortulose, the swollen portions nearly terete.

1. *P. aculeata* L. Shrub or small tree: leaves 2–4 dm. long, the rachis winged; leaflets numerous, distant, the blades linear to linear-oblongate, 1–10 mm. long: sepals oblong, 8–10 mm. long: petals 10–17 mm. long; blades except that of the standard, oval or ovate: pods 5–10 cm. long, acuminate.—HORSEBEAN. JERUSALEM-THORN.

Roadsides and hammocks, pen. Fla. and the F. Keys. Nat. of trop. Am. (Cont., W. I.)

4. **DELONIX** Raf. Unarmed shrubs or spreading trees. Leaflets relatively small and numerous: blades narrow. Sepals much shorter than the petals. Blades of the petals mainly flabellate, all long-clawed. Pod elongate-linear, flat, the valves woody.

1. *D. regia* (Boj.) Raf. Shrub or tree with a wide top: larger leaves with 20–50 pinnae; leaflets numerous, the blades linear-oblong, 4–10 mm. long: sepals 22–26 mm. long: petals 5–7 cm. long, red or orange; blades broader than long, crisped: pods linear, commonly 3–5 dm. long.—ROYAL-POINCIANA. FLAME-TREE. PEACOCK-FLOWER.

Hammocks, pinelands, and roadsides, s. pen. Fla. and the F. Keys. Nat. of Madagascar. (W. I.)—Spr.

5. **POINCIANA** [Tourn.] L. Erect mostly unarmed 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 numerous; 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.—BARBADOS-FLOWER. DWARF-POINCIANA.

Hammocks and pinelands, s. pen. Fla. and the F. Keys. Nat. of the W. I.

6. *CAESALPINIA* L. Erect unarmed or slightly armed shrubs or trees. Leaflets usually few and relatively large: blades broad. Sepals slightly shorter than the petals. Blades of the short-clawed petals not flabellate, often obovate. Pod flat, narrow, the valves leathery. Seeds flattened.

1. *C. pauciflora* (Griseb.) C. Wright. Shrub 2 m. tall or less: leaflets glabrous, mostly 6-12 on each pinna; blades oblong to obovate, 6-12 mm. long: sepals 8-10 mm. long: corolla mainly yellow; standard 8-10 mm. long: filaments 8-11 mm. long: pods oblong-elliptic, 2-3.5 cm. long.

Pinelands, F. Keys. (W. I.)

7. *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.—NICKER.

Leaves with foliaceous stipules: seeds gray or lead-colored.

1. *G. Crista*.

Leaves without stipules: seeds yellow.

Leaflet-blades neither rounded nor retuse: corolla 2.5 cm. wide or more.

2. *G. Bonduc*.

Leaflet-blades rounded or retuse: corollas 1.5 cm. wide or less.

3. *G. ovalifolia*.

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.—GRAY-NICKER.

Hammocks and coastal sand-dunes, E. Keys and F. Keys. (W. I.)

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.—YELLOW-NICKER.

Coastal sand-dunes and shore-hammocks, E. Keys and F. Keys. (W. I.)

3. *G. ovalifolia* (Urban) Britton. Straggling shrub with curved or hooked prickles, the foliage minutely pubescent. Leaves 1-2 dm. long or more, the leaflets numerous, the blades oval or suborbicular, varying to ovate or obovate, mostly 1-2 cm. long, rounded or retuse and mucronate at the apex: racemes 1.5-2 dm. long: bracts spreading: corolla light yellow, less than 1.5 cm. wide: pods obovate, 6-8 cm. long, prickly all over: seeds yellow or yellowish.

Hammocks, s. Fla. (W. I.)

FAMILY 10. FABACEAE. PEA FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades 1-compound, sometimes 1-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 monadelphous, 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.

Shrubs, or trees or woody vines, with 1-foliate or pinnate leaf-blades.

Fruit 2-valved or indehiscent, not a loment.

Foliage not glandular-dotted.

Pods dehiscent.

Pods indehiscent.

Foliage glandular-dotted.

Fruit a loment.

Shrubs or trees with 3-foliate leaf-blades.

- Tribe II. GALEGEAE.
- Tribe III. DALBERGIEAE.
- Tribe IV. PSORALEAE.
- Tribe V. HEDYSAREAE.
- Tribe VI. PHASEOLEAE.

TRIBE I. SOPHOREAE.

Inflorescence racemose: pods moniliform, drooping.

1. SOPHORA.

TRIBE II. GALEGEAE.

Leaf-blades unequally pinnate.

Erect or diffuse plants: wings cohering with the keel: keel-petals slightly auricled at the base of the blades.

Twining vines: wings not cohering with the keel: keel-petals with slender auricles at the base of the blades.

Leaf-blades equally pinnate.

Pod somewhat flattened, wingless.

Pod 4-angled and 4-winged.

- 2. CRACCA.
- 3. KRAUNHIA.
- 4. AGATI.
- 5. DAUBENTONIA.

TRIBE III. DALBERGIEAE.

Calyx not 2-lipped: standard flabellately veined, long-clawed.

Calyx prominently 2-lipped: standard pinnately veined, short-clawed.

- 6. DALBERGIA.
- 7. AMERIMNON.

TRIBE IV. PSORALEAE

Leaf-blades digitately 3-5-foliate.

Leaf-blades pinnately several- to many-foliate.

- 8. PAROSELA.
- 9. AMORPHIA.

TRIBE V. HEDYSAREAE.

Erect or diffuse plants with white, blue, violet or purple corollas.

10. MEIBOMIA.

TRIBE VI. PHASEOLEAE.

Prickly shrubs or trees with broad leaflet-blades and red corollas.

11. ERYTHRINA.

1. **SOPHORA** L. Shrubs, trees, or herbs. Leaf-blades several-foliate. 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, s. pen. Fla. and the F. Keys. (W. I.)

2. **CRACCA** L. Herbs partly wood plants, or shrubs. Leaflets several or many, broad or narrow. Flowers in racemes or spike-like panicles. Calyx 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.

Calyx with short scattered appressed hairs: leaflets and rachis, glabrous.

Calyx permanently hirsute: leaflets, and rachis, hirsute.

- 1. *C. angustissima*.
- 2. *C. coralticola*.

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, E. Keys. (Endemic.)

Shrubs of Florida—4.

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, E. Keys. (*Endemic.*)

3. *KRAUNHIA* Raf. Woody vines. Leaflets several; blades entire. Flowers borne in drooping racemes or panicles; calyx 2-lipped. Corolla blue, purple, or white; standard clawed, the broad blade with 2 appendages at the base. Wings and keel-petals with long slender auricles at the base and slender claws. Pod turgid, torulose.

1. *K. frutescens* (L.) Britton. Stems twining; leaves 1-2.5 cm. long; leaflets 1.5-6 cm. long, the blades mainly oblong, elliptic, or narrowly ovate, acute or obtuse at the base; racemes stout, 4-12 cm. long; standard 15-18 mm. long; pods 5-10 cm. long.—*WISTERIA*.

Thickets and rich woods, n. Fla. (*Cont.*)—Spr.

4. *AGATI* Adans. Trees or shrubs; but short-lived. Leaflets numerous. Racemes 2-4-flowered. Calyx slightly 2-lipped, but usually with obscure, very broad lobes. Corolla large, pinkish or red; standard with an oblong or ovate blade; or obtuse at the base; keel-petals merely angular at the base of the blade. Pods greatly elongate, straight or nearly so.

1. *A. grandiflora* (L.) Desv. Shrub or small tree; leaves 1-3 dm. long; leaflets numerous, the blades oblong to linear-oblong, 2-4 cm. long; calyx 2-2.5 cm. long; standard 6-10 cm. long, the blade ovate; pods elongate-linear, 2-4 dm. long.—*AUSTRALIAN CORKWOOD-TREE*.

Hammocks and cultivated grounds, s. pen. Fla. and Key West. Nat. of E. Indies. (*W. I.*)—Spr.-sum.

5. *DAUBENTONIA* DC. Shrubs or trees. Leaflets numerous. Racemes several-flowered. Calyx minutely 5-lobed and scarcely 2-lipped. Corolla yellow; standard with an orbicular-reniform blade; wings and keel-petals not auricled. Pods relatively long, the body winged.

1. *D. longifolia* (Cav.) DC. Shrub; leaflets 12-60; blades oblong, 1-2.5 cm. long, mucronate; calyx-lobes acute; corolla scarlet or paler; blade of the standard 13-18 mm. wide; wings and keel-petals 18-20 mm. long; pods 6-9 cm. long, the stipe 1-1.5 cm. long.

Sandy waste places and cultivated grounds, n. Fla. Nat. of Mex. (*Cont.*)

6. *DALBERGIA* L. f. Shrubs. Leaflets solitary; blades broad. 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.

Coastal sand-dunes and shore-hammocks, s. pen. Fla. and the F. Keys. (*W. I.*)

7. *AMERIMNON* Jacq. Shrubs. Leaflets solitary. Racemes short. Calyx 2-lipped; upper lip with 2 broad lobes; lower lip with 2 short lateral lobes and a long middle one. Corolla white or pink; standard with an obovate or cuneate blade and a short claw. Filaments and ovary as in *Dalbergia*. Pods more or less elongate, stipitate.

1. **A. Brownei** Jacq. Shrub with reclining or trailing branches. Leaves 1-foliate; leaflets thickish, the blades 6–12 cm. long, ovate to oblong-ovate, obtuse or acutish, glabrous in age; racemes short: calyx 4–5 mm. long; upper lip with 2 broad lobes; lateral lobes of the lower lip ovate, the middle lobe lanceolate: corolla white or pink; standard 8–10 mm. long, the blade obovate or cuneate: pods oval, oblong or linear-oblong, 1–3.5 cm. long. [*Dalbergia Amerimnum* Benth.]

Hammocks, F. Keys. (W. I.)

8. **PAROSELA** Cav. Shrubs or herbs. Leaflets numerous, few or 3. Spikes slender or stout. Calyx nearly regular or the lower lobe elongated. 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. Shrub 8–30 dm. tall, velvety-pubescent: leaflets 13–15; blades oval, oblong, obovate, or cuneate, 4–8 mm. long: bracts ovate: calyx-lobes longer than the tube: standard 5–6 mm. long; blade orbicular-ovate, longer than the claw: pods 3–3.5 mm. long.—Sometimes mainly herbaceous.

Hammocks and adjacent pinelands, s. pen. Fla. (W. I.)

9. **AMORPHA** L. Shrubs. Leaflets several or many, dotted. 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.—LEAD-PLANT.

Lower pair of leaflets approximate to the stem.

Lower pair of leaflets remote from the stem.

Pods strongly curved on the back.

Pods straight on the back or nearly so.

Calyx slightly 2-lipped, the lower lobes little or scarcely longer than the upper.

Calyx markedly 2-lipped, the lower lobes much longer than the upper.

1. *A. herbacea*.

2. *A. fruticosa*.

3. *A. virgata*.

4. *A. caroliniana*.

1. **A. herbacea** Walt. Shrub 3–8 dm. tall, grayish-pubescent: 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, 2–2.5 mm. wide, rounded on the ventral and nearly straight on the dorsal suture, marked with numerous dark glands.

Pinelands and hammocks, nearly throughout Fla. (Cont.)—Spr. or all year.

2. **A. fruticosa** L. Shrub 1.5–6 m. tall: leaflets 11–25; blades oblong-ovate, oval or elliptic-oblong, 1.5–4 cm. long: racemes usually clustered, 7–15 cm. long: calyx about 3.5 mm. long, the two upper lobes rounded, the three lower ones triangular, acute, the middle one a little longer than the others: standard round-ovate, emarginate, abruptly narrowed at the base, about 6 mm. long: pods 7–9 mm. long, usually much curved, conspicuously marked with large amber-colored, raised glands.

Swamps and river-banks, n. Fla. (Cont.)—Spr.

3. **A. virgata** Small. Shrub 1–2 m. tall: leaflets 11–19; blades oblong, oblong-ovate or ovate, 2–5 cm. long, nearly smooth above, sparsely pubescent beneath, the petiolules 2–3 mm. long: racemes one or several, 8–15 cm. long: calyx about 3 mm. long, sparsely pubescent; lobes triangular, acute: standard orbicular, about 6 mm. long, abruptly narrowed at the base: pods about 7 mm. long,

rounded on the ventral edge, nearly straight on the dorsal, dark-brown, marked with small glands.

Sandy or rocky soil, n. Fla. (*Cont.*)—Spr.

4. *A. caroliniana* Croom. Shrub 1-2 m. tall: leaflets numerous; blades elliptic-oblong, 9-18 mm. long, rounded at both ends, dotted with dark glands, the petiolules about 1 mm. long; racemes one or several, 9-20 cm. long, nearly glabrous: calyx 3-4 mm. long; lobes ciliate, the two upper rounded, the lower subulate-pointed: pods 4-5 mm. long, rounded on the ventral edge, nearly straight on the dorsal, marked with numerous dark glands. [*A. glabra* Boynton. Not Poir.]

Sandy woods, m. and w. Fla. (*Cont.*)—Spr.

10. **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.

1. *M. supina* (Sw.) Britton. Shrub with glabrous or nearly glabrous stems: stipules lanceolate or ovate-lanceolate: leaflets about 2 cm. long; blades oval or elliptic: lateral calyx-lobes lanceolate: standard 5-6 mm. long, truncate or subcordate above the short claw; androecium 5-6 mm. long; loment-joints 1-1.5 mm. wide, much longer.—TICK-TREFOIL. BEGGAR'S-TICKS.

Hammocks, E. Keys. (*W. I.*)

11. **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 the keel-petals very small, nearly equal in size, the blades short-clawed. Androecium exerted: filaments united to about the middle and slightly above it. Ovary long-stipitate. Pod torulose.

1. *E. arborea* (Chapm.) Small. Shrub or tree 3-8 m. tall: leaflets 3.5-10 cm. long; blades deltoid to hastately 3-lobed: racemes few-flowered: calyx cylindrical: standard 35-40 mm. long; blade about 1 cm. wide: wing-petals 11-12 mm. long: pods drooping, 8-15 cm. long.—CORAL-BEAN.

Hammocks, E. Keys and F. Keys. (*Endemic.*)

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.

Flowers regular: sepals without dorsal glands.

Flowers irregular: sepals with dorsal glands.

Plants with secreting glands, these often in the leaves, or only in the bark.

Leaf-blades punctate by oil-glands.

Leaf-blades not punctate.

Gynoecium of distinct carpels.

Gynoecium of more or less united carpels.

Fam. 1. ZYGOPHYLLACEAE.

Fam. 2. MALPIGHACEAE.

Fam. 3. RUTACEAE.

Fam. 4. SURIANACEAE.

Fam. 5. SIMARUBACEAE.

FAMILY 1. **ZYGOPHYLLACEAE.** CALTROP FAMILY.

Shrubs, trees, or perennial herbs. Leaves opposite or alternate by the suppression of one of each pair: blades compound. Flowers perfect. Calyx of 4-6, mostly 5, sepals. Corolla of 4-6, mostly 5, petals or rarely wanting. Androecium of twice as many stamens as there are sepals. Gynoecium of 2-4-united carpels. Fruit capsular, sometimes baccate at maturity, sometimes separating into nut-like carpels.

1. **GUAIAECUM** [Plum.] L. Shrubs or trees. Leaves relatively large, persistent, the leaflets but little longer than wide. Sepals 5 or rarely 4, unequal. Petals blue or purple. Filaments unappendaged. Fruit angled or winged.

1. **G. sanctum** L. Shrub or tree sometimes 10 m. tall, the bark pale: leaves 5-10 cm. long; leaflets 6-8, the blades broadly oblong to obovate, 2-3 cm. long: sepals obovate to oblong-obovate, 6-7 mm. long: corolla about 2.5 cm. wide; petals broadly obovate: fruit obovoid, 15-17 mm. long, orange.—**LIGNUM-VITAE.**

Hammocks, F. Keys. (W. I.)—Spr.

FAMILY 2. **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 partly sterile stamens. Gynoecium of 2-4, usually 3, distinct or united carpels. Fruit drupaceous, capsular, or nut-like.

1. **BYRSONIMA** L. C. Rich. Shrubs or trees. Flowers in terminal racemes or panicles. Petals white, reddish, or purplish, reflexed. Stigmas acute. Carpels permanently united. Cotyledons circinate-coiled.

1. **B. lucida** (Sw.) DC. Evergreen shrub or small tree, mostly 3-18 dm. tall: 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 4-6 mm. in diameter.—**LOCUST-BERRY.**

Hammocks, E. Keys and F. Keys. (W. I.)

FAMILY 3. **RUTACEAE.** RUE FAMILY.

Shrubs or trees or rarely herbs, often prickly armed, with glandular-punctate tissues. Leaves alternate or opposite: blades simple or pinnately compound, sometimes 1-foliate. 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 thrice as many. Gynoecium of 2-5 distinct or united carpels. Fruit capsular, samaroid, drupaceous or baccate.

Fruit dry, follicular or samaroid.

Fruit dehiscent, a follicle.

Fruit indehiscent, a samara.

Fruit fleshy, drupaceous or baccate.

Fruit a drupe: ovary 1-celled.

Fruit a berry: ovary 2-several-celled.

Stamens 6-10: carpels 1-ovuled.

Styles very short or obsolete, persistent: ovary 5-celled.

Styles elongate, deciduous: ovary 3- or 4-celled.

Stamens 20 or more: carpels several-ovuled.

1. **ZANTHOXYLUM.**

2. **PTELEA.**

3. **AMYRIS.**

4. **GLYCOSMIS.**

5. **TRIPHASIA.**

6. **CITRUS.**

1. **ZANTHOXYLUM** [Catesby] L. Shrubs or trees. Leaf-blades pinnate, sometimes 1-foliolate. Flowers polygamous, in axillary spikes or terminal corymb-like or cyme-like panicles. Sepals present or wanting. Petals 4 or 5, mostly erect. Mature carpels solitary, or 2-5 together.—Spr.—sum., or all year.

Flowers in small axillary spikes: sepals, petals and stamens 4. 1. *Z. Fagara*.
 Flowers in large terminal cyme-like or corymb-like panicles:
 sepals, petals and stamens 3 or 5.
 Sepals, and petals, 5: leaflets herbaceous.
 Sepals triangular or deltoid, partially united, persistent. 2. *Z. flavum*.
 Sepals ovate or ovate-lanceolate, distinct, deciduous. 3. *Z. Clava-Herculis*.
 Sepals, and petals, 3: leaflets leathery. 4. *Z. coriaceum*.

1. **Z. Fagara** (L.) Sarg. Shrub, or tree sometimes 10 m. tall, the trunk slender, often inclining: 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: mature carpels subglobose, 3.5-4 mm. long.—WILD-LIME.

Coastal hammocks, lower pen. Fla., and those of the E. Keys and F. Keys. (W. I.)

2. **Z. flavum** Vahl. Shrub, or tree sometimes 12 m. tall, unarmed, the twigs stellate-canescens: leaves 9-25 cm. long, the rachis terete: blades of the lateral leaflets mostly oblong or ovate, 3.5-10 cm. long: mature carpels obovoid, 5-9 mm. long.—YELLOW-WOOD. SATIN-WOOD.

Hammocks, lower F. Keys. (W. I.)

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: mature carpels mostly 2-5 together, about 4-6 mm. long.—TOOTHACHE-TREE. PRICKLY-ASH. SEA-ASH. PEPPER-WOOD.

Hammocks, nearly throughout Fla., except the F. Keys. (Cont.)

4. **Z. coriaceum** 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: mature carpels 5-6 mm. long.—HERCULES'-CLUB.

Coastal hammocks, lower eastern coast of Fla. and the F. Keys. (W. I.)

2. **PTELEA** L. Shrubs or trees. Leaf-blades 3-foliolate or rarely 5-foliolate. Flowers polygamous, in corymbose or panicled cymes. Sepals 4 or 5. Petals 4 or 5, narrow. Ovary 2-3-celled. Ovules 2 in each cavity, superposed. Samara winged all around. SHRUBBY-TREFOIL.

Filaments copiously pubescent nearly up to the anthers: anthers ovoid, narrowed at the apex. 1. *P. trifoliata*.

Filaments pubescent at the middle: anthers oval, rounded at the apex. 2. *P. Baldwinii*.

1. **P. trifoliata** L. Shrub, or tree sometimes 8 m. tall: blades of the leaflets ovate, oval, elliptic, oblong, oblong-lanceolate, or oblanceolate, 4-12 cm. long: panicles many-flowered: sepals ovate or oblong-ovate, 1.5 mm. long: petals nearly oblong, 4-6 mm. long: filaments 3.5-4 mm. long: anthers ovoid, about 1.5 mm. long: samaras suborbicular or oval-orbicular, 2-2.5 cm. long.—HOR-TREE. WAFER-ASH.

Rich woods and rocky river-banks, n. Fla. (Cont.)—Spr.

2. **P. Baldwinii** T. & G. Shrub: blades of the leaflets oval or ovate, 1-2 cm. long: panicles few-flowered: sepals oval, less than 1 mm. long: petals oblong-oblanceolate or oval, 3-4 mm. long: filaments 1.5-2 mm. long: anthers oval, about 1 mm. long.

Woods, vicinity of St. Johns, e. Fla. (Endemic.)—Early spr.—Not recently collected.

3. **AMYRIS** [P. Br.] L. Shrubs or trees. Leaf-blades pinnate, or 1-foliolate, the petiole wingless. Flowers perfect or polygamous, paniculate.

Sepals 4 or 5. Petals 4 or 5, broad. Ovary 1-celled: style short or wanting. Ovules 2. Drupe with a single seed.—All year. The following species have yellow or deep-yellow, very resinous, close-grained, heavy, hard, and strong heart-wood.

Fruits globose: ovary glabrous: leaflets shining beneath. 1. *A. elemifera*.
Fruits obovoid to oblong-obovoid: ovary pubescent: leaflets dull beneath. 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.—TORCHWOOD.

Coastal hammocks, lower eastern coast, E. Keys and adj. western coast. and on the F. Keys. (W. I.)

2. *A. balsamifera* L. Shrub, or small tree sometimes 10 m. tall: leaflets 3-5; blades ovate to rhombic-ovate, 5-13 cm. long, dull beneath: drupes obovoid-oblong to obovoid, 6-14 mm. long.—BALSAM-TORCHWOOD.

Coastal hammocks, s. pen. Fla. (W. I.)

4. *GLYCOSMIS* Correa. Shrubs or trees. Leaf-blades 1-several-foliolate: leaflets mostly entire. Flowers perfect, relatively small. Sepals nearly distinct. Petals 5, elongate. Ovary 2-5-celled: styles very short. Ovules solitary in each cavity. Berry globular, the pulp very thin.

1. *G. pentaphylla* (Retz.) DC. Shrub 1-4 m. tall or small tree: leaves 1-5-foliolate; leaflets elliptic to oblong, or broadest above the middle, 8-16 cm. long, glabrous: sepals orbicular to oval, 1-2 mm. long: petals oblong sometimes broadly so, 3-4 mm. long: filaments clavate: berries 7-10 mm. in diameter, white or pink.—GLYCOSMIS.

Hammocks, Key West, Nat. of Trop. Asia. (W. I.)

5. *TRIPHASIA* Lour. Shrubs. Leaf-blades 3-foliolate: leaflets with toothed blades. Flowers perfect, relatively large. Sepals united. Petals 3 or 4, narrow. Ovary 3- or 4-celled: styles elongate, united. Ovules solitary in each cavity. Berry resembling a small orange.

1. *T. trifolia* (Burm. f.) P. Wilson. Shrub mostly 1-2 m. tall: leaflets 3; blades ovate to nearly oblong, or oval, 1-5 cm. long, shallowly crenate: calyx-lobes acute: petals 12-16 mm. long: berries oblong to globular-oblong, 10-16 mm. long.—BERGAMOT-LIME. LIME-BERRY.

Hammocks and fields, pen. Fla. Nat. of the E. Indies. (Cont., W. I.)

5. *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: styles united, deciduous. Ovules several. Berry several-seeded.

The wood of the several species of *Citrus* is yellow or yellowish-white, close-grained, hard, and heavy. The following species of *Citrus* were introduced in Florida from tropical and temperate countries, some of them at a very early date. The following species, and others, are extensively cultivated in Florida.

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.

Wings of the petioles usually narrow: pulp of the berry sweet or sour.

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.

Corolla 3-5 cm. wide: leaflets with an acute apex.

Berry relatively large, with a thick rind, the pulp only

slightly developed, with little juice, and not very acid.

1. *C. vulgaris*.

2. *C. Aurantium*.

3. *C. Lima*.

4. *C. Limonium*.

5. *C. Medica*.

1. *C. vulgaris* Risso. Thorny shrub or small tree: 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.—BITTER-SWEET ORANGE.

Woods and hammocks, pen. Fla. and the Keys. (W. I.)

2. *C. Aurantium* L. Thorny shrub or small tree: 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.—SWEET-ORANGE.

Woods and hammocks, pen. Fla. and the Keys. (W. I.)

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.—LIME.

Woods, thickets and hammocks, pen. Fla. and the Keys. (W. I.)

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.—LEMON.

Woods and hammocks, pen. Fla. and the Keys. (W. I.)

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.—CITRON.

Hammocks and woods, pen. Fla. and the Keys. (W. I.)

FAMILY 4. 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.—BAY-CEDAR.

Sand-dunes and coastal hammocks, s. pen. Fla. and the F. Keys. (W. I.)

FAMILY 5. SIMAROUBACEAE. QUASSIA FAMILY.

Shrubs, trees, or rarely herbs. Leaves alternate or rarely opposite: blades pinnately compound, 1-3-foliolate or rarely simple. Flowers polygamous, deciduous, or rarely perfect, solitary, spicate, racemose or paniculate. Calyx of 3-5 sepals. Corolla of 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.

Fruit baccate : corolla present : ovary not notched at the apex.
Fruit samaroid : corolla wanting : ovary notched at the apex.

1. PICRAMNIA.
2. ALVARADOA.

1. **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.—BITTER-BUSH.

Hammocks, E. Keys and F. Keys. (W. I.)

2. **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 samaroid.

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.—ALVARADOA.

Hammocks, E. Keys. (W. I.)

Order 16. 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, drupaceous or baccate. Seeds often carunculate.

FAMILY 1. EUPHORBIACEAE. SPURGE FAMILY.

Herbs, shrubs, or trees, often with milky sap. Leaves opposite, whorled, or alternate: blades simple and entire, toothed or lobed, or compound. Flowers monoecious or dioecious, solitary or variously clustered, or much reduced and in an involucre (*Euphorbia* and related genera). Calyx of 2-several sepals or obsolete. Corolla of 2-several petals or wanting. Androecium of few-many stamens. Fruit usually depressed or slightly elongate.

Flowers not in an involucre: calyx of several sepals.

Ovules and seeds 2 in each cavity.

Stamens 5: corolla present.

Stamens 2 or 3: corolla wanting.

1. SAVIA.

- 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.
 Anthers opening vertically: fruits baccate.
 Androecium and gynoecium not surrounded by a disk at the base.
 Dioecious: ovary 1-2-celled: fruit drupaceous.
 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.
 Stamens 5-6: filaments distinct.
 Stamens 10: filaments monadelphous.
 Styles 2-cleft: petals distinct.
 Styles several-cleft: petals united at the base.
 Corolla wanting.
 Pistillate flowers and capsules pedicelled.
 Pistillate flowers and capsules sessile.
 Receptacle with a central column.
 Fruit dry: seeds with caruncles.
 Fruit fleshy: seeds without caruncles.
 Receptacle with 3 lateral horns.
 Flowers either staminate or pistillate, or both, in cymes, or corymbs.
 Leaf-blades peltate.
 Leaf-blades not peltate.
 Flowers in forking cyme-like panicles.
 Flowers in simple or branched racemes.
 Flowers in involucre: calyx represented by a scale.
 Involucre regular or nearly so, nearly or quite equilateral.
 Involucre irregular, very oblique.
2. XYLOPHYLLA.
 3. CICCA.
 4. BREYNIA.
 5. DRYPETES.
 6. CROTON.
 7. GYMANTHES.
 8. SEBASTIANA.
 9. SAPIUM.
 10. STILLINGIA.
 11. RICINUS.
 12. JATROPHA.
 13. MANIHOT.
 14. CHAMAESYCE.
 15. PEDILANTHUS.

1. **SAVIA** Willd. Shrubs or trees. Leaves alternate: blades thick, entire. Flowers dioecious; the staminate densely clustered, with 5 broad rounded sepals and 5 thin petals broadened upward: stamens 5, exerted. Pistillate flowers solitary or few together, with 5 broad sepals and 5 nearly similar petals: ovary 3-lobed; styles 2-parted. Capsule depressed.

1. **S. bahamensis** Britton. Shrub or small tree, the bark pale-gray or whitish: leaf-blades typically obovate, varying to narrowly obovate or oval-obovate, 2-5 cm. long, rounded at the apex, or rarely retuse or acutish, pale-green, shining above, glabrous, short-petioled: staminate flowers with orbicular-ovate sepals about 2 mm. long and cuneate or flabellate thin petals shorter than the sepals: pistillate flowers with suborbicular sepals and petals about 2 mm. long: capsules spheroidal, 5-6 mm. long: seeds 4-5 mm. long.—SAVIA.

Hammocks and palmlands, lower F. Keys. (W. I.)

2. **XYLOPHYLLA** L. Shrubs or small trees, with flattened leaf-like, usually distichous, branchlets. Leaves minute or obsolete. Flowers borne in clusters along the margins of the leaf-like branchlets. Staminate flowers mostly with 6 sepals and 3 stamens. Pistillate flowers mostly with 6 sepals and a 3-celled ovary. Fruit capsular.

1. **X. Epiphyllanthus** (L.) Britton. Shrub 1-2 m. tall: flattened branches almost linear, varying to somewhat spatulate or lanceolate, commonly 4-10 cm. long: larger sepals of the staminate flowers 1-1.5 mm. long: capsules 4-5 mm. broad.

Hammocks and sandy places Key West. (W. I.) Not recently collected.

3. **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.—*OTAHEITE-GOOSEBERRY*.

Pinelands and roadsides, s. pen. Fla. Nat. of the E. Indies. (W. I.)

4. *BREYNIA* Forst. Shrubs or trees. Leaves alternate: blades broad, entire. Flowers monoecious, solitary in the axils, or the staminate few together. Staminate flowers with a turbinate calyx-tube and 6 minute broad lobes surrounding the minute orifice: stamens erect, united, the narrow anthers opening vertically. Pistillate flowers with a short, broad calyx-tube and 6 very broad imbricated lobes: ovary 3-celled: styles very short: stigmas 2-lobed. Berry depressed.

1. *B. nivosa* (W. J. Smith) Small. Shrub with irregularly and loosely branched stems, 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: capsule 9-12 mm. broad.—*SNOW-BUSH*.

Pinelands, waste places, and cultivated grounds, s. pen. Fla. Nat. of the S. Sea Islands.

5. *DRYPETES* Vahl. Shrubs or trees. Leaf-blades entire or undulate-toothed. Flowers apetalous. Staminate flowers in rather dense clusters, with 4-8 sepals and 4-16 stamens. Pistillate flowers few in a cluster, with 4-8 sepals and a 1-2-celled ovary. Fruit a berry or a drupe.

Sepals 4: gynoeceum 2-carpellary: drupe subglobose, less than 15 mm. long.

Sepals 5: gynoeceum 1-carpellary: drupe elongate, over 15 mm. long.

1. *D. lateriflora*.

2. *D. diversifolia*.

1. *D. lateriflora* (Sw.) Krug & Urban. Shrub, or tree becoming 10 m. tall: leaf-blades oblong or elliptic: stamens 4: drupes 9-11 mm. in diameter, ripe in spring or summer.—*GUIANA-PLUM*.

Hammocks, E. Keys and F. Keys. (W. I.)—Fall-winter.

2. *D. diversifolia* Krug & Urban. Shrub, or tree becoming 12 m. tall: leaf-blades long, elliptic or oval: stamens 8: drupes 2-2.5 cm. long, ripe in fall.—*WHITEWOOD*.

Hammocks, F. Keys. (W. I.)—Spr.

6. *CROTON* L. Shrubs or herbs. 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.

Leaf-blades ovate to ovate-oblong.

Leaf-blades linear to narrowly oblong.

Leaf-blades narrowly linear, glabrate above, yellowish-pubescent beneath.

Leaf-blades mostly narrowly oblong, stellate above, white-pubescent beneath.

1. *C. Berlandieri*.

2. *C. linearis*.

3. *C. Fergusonii*.

1. *C. Berlandieri* Torr. Shrub 3-8 dm. tall: leaf-blades ovate to ovate-oblong, 2.5-3.5 cm. long, usually abruptly acute, the edges slightly repand and glandular, rounded or subcordate at the base, tomentose above when young, pubescent and paler below: staminate flowers on slender pedicels, with 15-20 stamens:

pistillate flowers 2-6 at base of raceme, usually short-pedicelled: sepals oblong-spatulate, with sessile or short-stipitate marginal glands: styles 3, palmately 4-parted, or twice 2-parted: capsules globose, 4-5 mm. high.

Sandy soil or waste places, Key West. (Cont.)

2. **C. linearis** Jacq. Shrub 6-20 dm. tall: leaf-blades narrowly linear, 4-7 cm. long, obtuse, dark-green and smooth above, yellowish-pubescent beneath: racemes 4-8 cm. long or longer: sepals 5-6, triangular: petals spatulate, surpassing the sepals, obtuse, ciliate: stamens about 15: pistillate racemes 4-5 cm. long, frequently exceeded by the leaves: sepals narrow, acuminate: capsules subglobose, 5 mm. high, yellowish-floccose: seeds broadly oblong, about 3 mm. long.

Pinelands and coastal sand-dunes, E. Keys and F. Keys. (W. I.)

3. **C. Fergusonii** Small. Shrub 4-12 dm. tall: leaf-blades narrowly oblong to broadly linear, 3-6 cm. long, blunt, entire, white-pubescent beneath, the upper surface channeled and green but minutely stellate: staminate flowers 12-25 in stout interrupted racemes 3-5 cm. long: sepals deltoid, acute: petals spatulate, 2.5-3 mm. long, surpassing the sepals, ciliate: stamens about 15: pistillate flowers about 6, in racemes 2-3 cm. long: capsules subglobose, about 5 mm. long: seeds 3.5-4 mm. long.

Pinelands, E. Keys.

7. **GYMNANTHES** Sw. Shrubs or trees. Leaf-blades entire or toothed. Flowers, monoecious or rarely dioecious, apetalous. Staminate flowers with a rudimentary or obsolete calyx and 2 or 3 stamens. Pistillate flowers with a rudimentary calyx and a 3-celled ovary. Fruit a capsule.

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: seeds ovoid, 6-8 mm. long.—CRABWOOD.

Hammocks, E. Keys and F. Keys. (W. I.)—Fall.

8. **SEBASTIANA** Muell. Arg. Shrubs or rarely herbs. Leaf-blades entire or barely smoothed. Flowers monoecious, apetalous. Staminate flowers with a calyx of 3-5 sepals and 2 or 3, or rarely 4, stamens. Pistillate flowers with 3 sepals and a 3-celled ovary. Fruit a dry capsule.

1. **S. ligustrina** (Michx.) Muell. Arg. Shrub 1-4 m. tall: leaf-blades oblong, elliptic or oval, 3-8 cm. long: spikes shorter than the leaves: capsules depressed, nearly 1 cm. broad: seeds subglobose, about 4 mm. long.

Swamps and river-banks, n. Fla. and the upper pen. (Cont.)—Spr.

9. **SAPIUM** P. Br. Shrubs or trees. Leaf-blades entire or sparingly row. Flowers monoecious, in narrow spike-like panicles, apetalous. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 2 or 3 sepals and a 2- or 3-celled ovary. Fruit a dry capsule.

1. **S. glandulosum** (L.) Morong. Small tree or shrub, resembling a willow: leaf-blades acute, 16 cm. long, serrulate, short-petioled: capsules about 1 cm. broad: seeds 6-7 mm. long.—MILK-TREE.

Roadsides and waste places, w. Fla. Nat. of S. Am. (W. I.)—Spr.

10. **STILLINGIA** Garden. Shrubs or herbs. Leaf-blades entire or toothed. Flowers monoecious, apetalous. Staminate flowers with 2 or 3 sepals and 2 or 3 stamens. Pistillate flowers with 3 sepals and a 2- or 3-celled ovary. Fruit a capsule.—QUEEN'S-DELIGHT. QUEEN-ROOT.

Spikes yellow; glands smaller than the bracts: seeds coarsely reticulate.

1. *S. aquatica*.

Spikes red; glands as large as the bracts or larger: seeds finely reticulate.

2. *S. tenuis*.

1. *S. aquatica* Chapm. Plants 6-20 dm. tall, with stout stems or branches: blades of the upper leaves linear to linear-oblong, serrulate: spikes stout, mainly yellow: capsules about 10 mm. wide.

Swamps and wet pinelands, n. Fla. and the upper pen. (Cont.)

2. *S. tenuis* Small. Plants 3-12 dm. tall, with slender stems not umbellately branched at the top: blades of the upper leaves narrowly linear, crenulate: spikes slender, mainly red: capsules about 7 mm. wide.

Everglades about the E. Keys. (Endemic.)

11. **RICINUS** [Tourn.] L. Herbs, shrubs or trees. Leaf-blades peltate, palmately lobed. Flowers monoecious, apetalous. 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. Small tree or shrub, 1-5 m. tall, the stem widely branched: leaf-blades nearly orbicular, 6-11-lobed: capsules 12-16 mm. in diameter.—CASTOR-OIL PLANT. PALMA-CRISTI.

Waste places, fields, and hammocks, nearly throughout Fla. (Cont., W. I.)

12. **JATROPHA** L. Partially woody plants or herbs. Leaf-blades angled or lobed. Flowers monoecious, petaliferous. Staminate flowers with 5 sepals, 5 small petals, and 10 stamens. Pistillate flowers with a mainly 2-3-celled ovary. Fruit a capsule.

Leaf-blades 3-5-lobed; lobes toothed, glandular-ciliate: inflorescence pubescent.

1. *J. gossypifolia*.

Leaf-blades 9-11-lobed; lobes incised, eciliate: inflorescence glabrous.

2. *J. multifida*.

1. *J. gossypifolia* L. Shrub 5-11 dm. tall: leaf-blades palmately 3-5-lobed, 8-15 cm. wide, the lobes broad, shallowly toothed and glandular-ciliate: cymules paniculate: petals scarcely twice as long as the sepals: capsules globular-oblong, about 1 cm. long, slightly warty: seeds 7-8 mm. long.

Roadsides and cultivated grounds, Key West. Nat. of the tropics. (W. I.)

2. *J. multifida* L. Shrub 9-20 dm. tall: leaf-blades palmately 9-11-lobed, mostly 10-20 cm. wide, the lobes narrow, entire or incised, not ciliate: cymules corymbose: petals thrice as long as the sepals: capsules globose-obovoid, 2.5-3 cm. long, smooth: seeds 18-25 mm. long.

Pinelands, E. Keys. Nat. of Trop. Am. (W. I.)

13. **MANIHOT** Adans. Shrubs or herbs. Leaf-blades entire, or palmately lobed or parted. Flowers monoecious, apetalous. Staminate flowers with 5 sepals and 10 stamens. Pistillate flowers often smaller than the staminate, with a 3-celled ovary. Fruit a capsule.

1. *M. Manihot* (L.) Karst. Plants 9-16 dm. tall: leaf-blades 3-7-parted: capsules with crenate-undulate wings.—CASSAVA.

Cultivated grounds and pinelands, E. Keys and F. Keys. Nat. of S. Am. (W. I.)

14. **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.

Appendages of the involucrel glands obsolete: ovary, and capsule, pubescent.

Appendages of the involucrel glands present: ovary, and capsule, glabrous.

1. *C. adicioides*.

2. *C. buxifolia*.

1. *C. adicioides* Small. Shrub mostly less than 0.5 m. tall, finely pubescent with pale hairs, rather copiously branched above, zigzag: leaves numerous; blades ovate to oval, 2-3 mm. long, acute or acutish, entire, short-petioled: involucrel campanulate, barely 1 mm. high, longer than the peduncles, minutely pubescent, deciduous: glands about 0.4 mm. broad: appendages obsolete: capsules pubescent, less than 1 mm. long.

Sandy shores or hammocks, F. Keys. (*Endemi.*)

2. *C. buxifolia* (Lam.) Small. Shrub 1 m. tall or less, glabrous, branching, often purple, with long or short internodes: leaf-blades ovate to broadly oblong or cuneate near the base of the stem, rather fleshy, 8-12 mm. long, obtuse or acutish, involute, rounded or subcordate, nearly sessile: involucrel campanulate, about 1.5 mm. high, as long as the peduncles or shorter: glands transversely oblong, 0.5 mm. broad: appendages whitish: capsules 2.5-3 mm. broad, glabrous.

Coastal sand-dunes and beaches, s. pen. Fla. and the F. Keys. (*W. I.*)

15. **PEDILANTHUS** Neck. Shrubs with fleshy branches. Leaves succulent: blades flat, entire or undulate-crested. Involucrel 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: involucrel 12-14 mm. long, mainly red, the two terminal lobes broadly ovate, ciliolate: stamens and style exserted: capsules 6-7 mm. long: seeds 3-3.5 mm. long.—**JEW-BUSH. RED-BIRD FLOWER.**

Hammocks and pinelands, E. Keys and F. Keys. Nat. of Trop. Am.

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. Gynoeceum a single carpel, or of several united carpels. Ovary superior. Ovules 1 or 2, or several, in each cavity of the ovary, pendulous, with the raphe away from the axis of the ovary, or erect or ascending. Fruit various.

Stigmas tufted or many-cleft.

Stigmas entire.

Plants with resin-bearing tissues.

Plants not resin-bearing.

Leaf-blades simple, pinnately veined.

Each cavity of the ovary with a single ovule.

Flowers in racemes: fruit capsular or leathery.

Flowers not racemose: fruit a drupe.

Each cavity of the ovary with 2 or more ovules.

Corolla present: flower with a disk.

Seeds arilled: anthers introrse.

Seeds not arilled: anthers extrorse.

Corolla wanting: flowers without a disk, or this obsolete.

Leaf-blades simple and palmately veined or compound.

Leaves opposite.

Leaves alternate.

Fam. 1. EMPETRACEAE.

Fam. 2. SPONDIACEAE.

Fam. 3. CYRILLACEAE.

Fam. 4. AQUIFOLIACEAE.

Fam. 5. CELASTRACEAE.

Fam. 6. HIPPOCRATACEAE.

Fam. 7. DODONAEACEAE.

Fam. 8. AESCULACEAE.

Fam. 9. SAPINDACEAE.

FAMILY 1. **EMPETRACEAE.** CROW-BERRY FAMILY.

Shrubs, mostly resembling heaths. Leaves alternate or whorled, sometimes numerous and crowded. Flowers dioecious or rarely polygamous. Calyx of 2 or 3 sepals. Corolla of 2 or 3 petals, or wanting. Androecium of 2-4, mostly 3 stamens. Gynoecium of 2-several united carpels.

1. **CERATIOLA** Michx. Evergreen shrubs. Leaf-blades narrow, revolute and thus almost tubular. Flowers 2 or 3 in an axil. Sepals 2. Petals 2. Stamens 2. Ovary 2-celled. Drupe with 2 nutlets.

1. **C. ericoides** Michx. Shrub 3-15 dm. tall: leaves crowded and spreading, 8-12 mm. long: sepals about 1 mm. long: stamens exerted: drupes subglobose, 4-6 mm. in diameter, yellow.

Pinelands and inland sand-dunes, nearly throughout Fla., except the F. Keys. (Cont.)

FAMILY 2. **SPONDIACEAE.** SUMAC FAMILY.

Shrubs, trees, or vines, with 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 sepals. 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.

Drupe somewhat elongate, the coats permanently united.

Drupe depressed, the coats ultimately separating.

Drupe with a glabrous outer coat: stone ribbed.

Drupe with a pubescent outer coat: stone smooth.

Flowers polygamous, in terminal thyrsoid panicles appearing after the leaves.

Flowers polygamo-dioecious, in solitary or clustered spikes in the axils before the leaves.

1. **METOPIMUM.**

2. **TOXICODENDRON.**

3. **RHUS.**

4. **SCHMALTZIA.**

1. **METOPIMUM** P. Br. Shrubs or trees. Leaf-blades pinnate. Flowers dioecious, in open panicles. Sepals 5. Petals 5. Ovary equilateral. Styles united: stigma 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 leathery, ovate, 3-9 cm. long: panicles 1-2 dm. long: sepals reniform or suborbicular: petals oblong to ovate: drupes 10-15 mm. long.—**POISONWOOD. DOCTOR-GUM.**

Hammocks and pinelands, E. Keys and F. Keys, and on coastal sand-dunes at the lower end of the pen. (W. I.)—Spr. or all year.

2. **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. Seed ribbed.

Leaf-blades 3-foliate: vines or low shrubs: panicles of fruits spreading.

Stems climbing: blades of the leaflets coarsely toothed or entire.

Stems erect: blades of the leaflets lobed.

Leaf-blades 7-11-foliate: tall shrub or tree: panicles of fruits drooping.

1. *T. radicans.*

2. *T. Toxicodendron.*

3. *T. Vernix.*

1. **T. radicans** (L.) Kuntze. Stems climbing: blades of the leaflets membranous, ovate to ovate-lanceolate, 3-20 cm. long: sepals ovate, 1 mm. long: petals oblong to oblong-ovate, 3-4 mm. long: drupes 3-6 mm. in diameter.—**POISON-IVY. POISON-OAK.**

Woods, thickets, pinelands, hammocks, and fence-rows, nearly throughout Fla. (Cont., W. I.)—Spr.—Includes the forms described as *Rhus Bodgeitii* and *R. floridana*.

2. **T. Toxicodendron** (L.) Britton. Shrub, with densely pubescent twigs: blades of the leaflets ovate in outline or rarely obovate, 4-12 cm. long, coarsely crenate-lobed: panicles densely flowered: petals oblong-lanceolate, about 2.5 mm. long: drupes depressed-globose.—POISON-OAK.

Pinelands, n. Fla. and the upper pen. (Cont.)—Spr.

3. **T. Vernix** (L.) Kuntze. Shrub or small tree: blades of the lateral leaflets oblong, elliptic, or oval, 4-15 cm. long, undulate: petals linear-oblong, about 2 mm. long: drupes subglobose, about 5 mm. broad, in drooping panicles.—POISON-SUMAC. THUNDERWOOD.

Swamps, n. Fla. (Cont.)—Spr.

3. **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. Style short. Drupe pubescent. Seed smooth and even.—Spr.

Bark of the trunk gray, dull: petals about 2.5 mm. long: anthers broadly oblong, scarcely 1 mm. long.

Blades of the leaflets acuminate, and usually acute: leaf-rachis broadly winged.

Blades of the leaflets obtuse: leaf-rachis narrowly winged.
Bark of the trunk red, shining: petals about 3 mm. long: anthers linear-oblong, fully 1 mm. long.

1. *R. copallina*.
2. *R. obtusifolia*.
3. *R. leucantha*.

1. **R. copallina** L. Shrub, or tree becoming 10 m. tall, the bark thick, hard, scaly: leaflets 9-21; blades oblong to oblong-lanceolate or sometimes oval, 3-10 cm. long: stone of the drupe 2.5-3 mm. long.—DWARF-SUMAC.

Open woods and thickets, n. Fla. and the upper pen. (Cont.)

2. **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.

Pinelands, n. Fla. and the pen. (Cont.)

3. **R. leucantha** Jacq. Shrub, or tree becoming 9 m. tall, the bark thin, soft, smooth, peeling: leaflets 15-33; blades narrowly oblong to linear-lanceolate, 3-9 cm. long: stone of the drupe about 3 mm. long.—SOUTHERN-SUMAC.

Hammocks, E. Keys. (W. I.)

4. **SCHMALTZIA** Desv. Shrubs or trees. Leaf-blades pinnately compound, usually 3-foliolate. Flowers polygamous or dioecious, in ament-like racemes or panicles. Sepals commonly 5. Petals commonly 5. Ovary pubescent: styles short. Drupe pubescent, the sarcocarp not wax-secreting. Seed smooth and even.—SUMAC.

1. **S. crenata** (Mill.) Greene. Shrub with diffuse stems, 1-2.5 m. tall: leaflets 3; blade of the terminal one mostly ovate or obovate: flowers yellow: drupes 7-8 mm. in diameter. [*S. aromatica* (Ait.) Desv.]—FRAGRANT-SUMAC.

Dry open woods, n. Fla. (Cont.)—Spr.

FAMILY 3. CYRILLACEAE. TITI FAMILY.

Shrubs or trees. Leaves alternate: blades simple, entire. Flowers perfect, racemose. Calyx of mostly 5 sepals. Corolla of mostly 5 petals. Androecium of 5-10 stamens. Gynoecium of 2-5 united carpels. Fruit dehiscent or indehiscent.

Racemes lateral: sepals 5, equal: petals contorted, acute: stamens 5: ovary 2-celled: ovules 2-3: fruit dehiscent, not winged.

Racemes terminal: sepals 5-8, unequal: petals imbricated, obtuse: stamens 10: ovary 3-4-celled: ovule 1: fruit indehiscent, winged.

1. CYRILLA.
2. CLIFTONIA.

1. **CYRILLA** Garden. Shrubs or trees, with pale close bark. Sepals nearly equal. Petals clawless. Stamens equal: filaments winged. Style short. Fruit erect or ascending.—Spr.—IRONWOOD. RED-TITL. WHITE-TITL.

Capsule ovoid, about 2.5 mm. long: larger leaves 5-10 cm. long. 1. *C. racemiflora*. Capsule subglobose, 2 mm. long or less: larger leaves 1-4 cm. long. 2. *C. parvifolia*.

1. **C. racemiflora** L. Shrub, or tree becoming 10 m. tall: leaf-blades oblanceolate to obovate or nearly oblong, 2-10 cm. long: racemes mostly over 8 cm. long: sepals acuminate: petals 2.5-3 mm. long: filaments over 2 mm. long: capsules ovoid, about 2.5 mm. long.—LEATHERWOOD. TITL. HE-HUCKLEBERRY. MYRTLE.

Swamps and ponds in pinelands, n. Fla. (Cont., W. I.)

2. **C. parvifolia** Raf. Low shrub: leaf-blades oblanceolate to linear-oblanceolate, 1-4 cm. long: racemes mostly less than 8 cm. long: sepals acute: petals 1.5-2 mm. long: filaments less than 1.5 mm. long.—TITL.

Swamps and along streams, n. Fla. and the upper pen. (Cont.)

2. **CLIFTONIA** Gaertn. Shrubs or trees, with dark scaly bark. Sepals unequal. Petals clawed. Stamens unequal: filaments appendaged below. Style wanting. Fruit drooping.

1. **C. monophylla** (Lam.) Britton. Shrub, or small tree becoming 8 m. tall: leaf-blades narrowly elliptic to elliptic-oblanceolate, 4-6 cm. long: racemes 2-6 cm. long: petals 3-3.5 mm. long: fruit ovoid, 6-7 mm. long.—TITL. BLACK-TITL. IRONWOOD.

Pineland-swamps and bays, n. Fla. (Cont.)—Winter-spr.

FAMILY 4. **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, often united at the base. Androecium of 4-6 stamens. Gynoeceium of 4-8 united carpels. Fruit drupaceous.

1. **ILEX** L. Shrubs or trees. Leaves mostly persistent: blades entire or toothed. Flowers sometimes nearly dioecious. Sepals persistent. Corolla deciduous. Drupe with 4-8 nutlets.

Fruits with smooth nutlets.

Berries black: leaves persistent; blades leathery.

Leaves with blades of an obovate or spatulate type prevailing; petioles relatively short and stout.

Leaf-blades shallowly crenate near the apex, not spine-tipped: drupes mostly less than 6 mm. in diameter. 1. *I. glabra*.

Leaf-blades spinescent-toothed, or spine-tipped: drupes mostly over 6 mm. in diameter. 2. *I. coriacea*.

Leaves with blades of an ovate type prevailing; petioles relatively long and slender. 3. *I. Krugiana*.

Berries red or scarlet: leaves deciduous; blades herbaceous. 4. *I. verticillata*.

Fruits with ribbed nutlets.

Leaves deciduous: blades herbaceous.

Leaf-blades broadest above the middle, blunt-toothed: drupes nearly sessile. 5. *I. decidua*.

Leaf-blades not broadest above the middle, sharp-toothed: drupes decidedly pedicelled. 6. *I. caroliniana*.

Leaves persistent: blades leathery.

Leaf-blades entire or with a few appressed teeth near the apex.

Leaf-blades linear, 1-4 cm. long. 7. *I. myrtifolia*.

Leaf-blades oblong or oblanceolate, 4-10 cm. long. 8. *I. Cassine*.

Leaf-blades toothed. 9. *I. vomitoria*.

Shrubs of Florida—5.

1. *I. glabra* (L.) A. Gray. Shrub 0.5–1.5 m. tall with velvety-pubescent twigs: leaf-blades obovate, oblanceolate, elliptic, or oval, or rarely ovate, 1–5 cm. long, acute or obtuse, entire or distantly serrate above the middle, deep-green and lustrous above, short-petioled: staminate calyx fully 3 mm. wide: staminate corolla about 7 mm. wide: drupes 4–6 mm. in diameter, shorter than the stalks.—INK-BERRY. EVERGREEN-WINTERBERRY. GALLBERRY.

Low sandy soil and swamps, n. Fla. and the upper pen. (Cont.)—Spr.

2. *I. coriacea* (Pursh) Chapm. Shrub 1–3 m. tall, glabrous or nearly so: leaf-blades obovate, oblong, oblong-oblanceolate, elliptic, or oval, 2–9 cm. long, acute or usually short-acuminate, entire or with appressed spinescent teeth above the middle, dark-green and lustrous above, short-petioled: staminate calyx 3.5–4 mm. wide: staminate corolla 5.5–7 mm. wide: drupes globose, 6–8 mm. in diameter, black, shining.—LARGE-GALLBERRY.

Swamps, n. Fla. and the upper pen. (Cont.)—Spr.

3. *I. Krugiana* Loesener. 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.—KRUG'S-HOLLY.

Hammocks and pinelands, E. Keys. (W. I.)—All year.

4. *I. verticillata* (L.) A. Gray. Shrub, or small tree sometimes 7 m. tall, with glabrous or slightly pubescent twigs: leaf-blades thickish, elliptic or oval, varying to ovate or obovate, 2–8 cm. long, acute or acuminate at both ends, more or less pubescent beneath, often strongly reticulate, serrate: staminate calyx about 2.5 mm. wide: staminate corolla 6–7 mm. wide: drupes 6–8 mm. in diameter, red.—BLACK-ALDER. WINTERBERRY. FEVER-BUSH.

Swamps and low woods, n. Fla. (Cont.)—Spr.-sum.

5. *I. decidua* Walt. Shrub, or small tree 10 m. tall, the twigs glabrous or nearly so: leaf-blades thickish, mainly spatulate, oblanceolate, or elliptic, 2–6 cm. long, obtuse or retuse at the apex, crenate-serrate, dark-green and glabrous above, paler and usually pubescent beneath: staminate calyx 2.5–3 mm. wide: staminate corolla 4.5–6 mm. wide: drupes globose, 7–9 mm. in diameter, orange or nearly scarlet.—DECIDUOUS-HOLLY. BEAR-BERRY.

Swamps and stream-banks, n. Fla. (Cont.)—Spr.

6. *I. caroliniana* (Walt.) Trelase. Shrub, or small tree rarely 6 m. tall, with glabrous or nearly glabrous twigs: leaf-blades thin, broadly oval varying to ovate or obovate, 4–7 cm. long, acute or short-acuminate, serrate at least above the middle with appressed bristle-tipped teeth, glabrous or nearly so: staminate calyx 2–2.5 mm. wide: staminate corolla 4–5 mm. wide: drupes globose-oblong, 6–7 mm. in diameter.—CAROLINA-HOLLY.

Margins of swamps, n. Fla. (Cont.)—Spr.

7. *I. myrtifolia* Walt. Shrub or small tree, with very rigid branches: leaf-blades leathery, narrowly oblong or linear, or broader on shoots 1–4 cm. long, apiculate, more or less revolute, dark-green and glabrous above, pale and usually glabrous beneath, short-petioled: calyx 1–1.5 mm. broad: corolla 4–5 mm. broad: drupes globose, about 6 mm. in diameter, red.—MYRTLE-LEAVED HOLLY.

About pineland-ponds and cypress-swamps, n. Fla. (Cont.)—Spr.

8. *I. Cassine* L. Shrub, or small tree 12 m. tall, with usually pubescent twigs: leaf-blades leathery, 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, or 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.—**DAHOON.** YAUPON.

Swamp-margins and hammocks, nearly throughout n. Fla. and the pen. (*Cont., W. I.*)—Spr. or all year.

9. I. vomitoria Ait. Shrub, or small tree 8 m. tall, leaf-blades leathery, oblong, oval, or elliptic, sometimes oblong-lanceolate on shoots, 1-2.5 cm. long, obtuse, crenate-serrate, deep-green and lustrous above, pale-green beneath: calyx 2 mm. broad: corolla 5-5.5 mm. broad: drupes globose, red, 5-6 mm. in diameter, longer than their pedicels.—**CASSENA.** YAUPON.

Swamp-margins and sand-ridges, especially near the coast, n. Fla. and the upper pen. (*Cont.*)—Spr.

FAMILY 5. **CELASTRACEAE.** STAFF-TREE FAMILY.

Shrubs or 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 under the disk. Gynoecium of 3-6 united carpels. Fruit a capsule, a drupe, or a berry. Seed often arillate.

Fruits capsular, dehiscent.

Leaves opposite: fruit-clusters drooping: capsules depressed at the apex.

Leaves alternate: fruit-clusters not drooping: capsules pointed. 1. **EUONYMUS.**

Fruits drupaceous: indehiscent.

Flowers perfect: ovary 4-celled: fruits oblique. 2. **MAYTENUS.**

Flowers dioecious: ovary 2-celled: fruits not oblique. 3. **RHACOMA.**

Leaves opposite: flower-clusters peduncled: calyx deciduous: drupe not lobed. 4. **GYMINDA.**

Leaves alternate: flower-clusters sessile: calyx persistent: drupe lobed. 5. **SCHAEFFERIA.**

1. EUONYMUS [Tourn.] L. Shrubs, trees, or rarely vines. Leaves opposite: entire or toothed. Flowers perfect. Sepals 4 or 5. Petals 4 or 5. Stamens 4 or 5, borne on the lobes of the disk: filaments very short: anthersacs diverging. Stigmas 3-5. **STRAWBERRY-BUSH.**

1. E. atropurpureus Jacq. Shrub, or tree becoming 8 m. tall: leaf-blades 5-16 cm. long, serrate: petals dark-purple, orbicular-ovate or suborbicular, 2-4 mm. long: capsules depressed: seeds 8-10 mm. long.—**BURNING-BUSH.**

River-banks, w. Fla. (*Cont.*)—Spr.

2. MAYTENUS Molina. Shrubs or trees. Leaves alternate, persistent: blades leathery, entire or toothed. Flowers polygamous or dioecious, solitary or clustered. Sepals 5. Petals 5. Stamens 5, borne beneath the disk. Capsules erect.

1. M. phyllanthoides Benth. Shrub or small tree: leaf-blades obovate to oblong-oblancoelate, 2-4 cm. long: hypanthium broadly turbinate: corolla 2-3 mm. broad: capsules obovoid, 8-12 mm. in diameter, red.—**MAYTENUS.**

Hammocks, lower eastern coast of Fla. and the F. Keys. (*Cont., W. I.*)

3. RHACOMA L. Shrubs or small trees. Leaves alternate, opposite, or whorled, persistent: blades entire or toothed. Flowers perfect, few together or solitary in axillary peduncled cymes. Sepals 4 or 5. Petals 4 or 5. Stamens 4 or 5, borne between the lobes of the disk. Drupe smooth.

Leaf-blades crenate or entire: cymes long-stalked (10-15 mm.). 1. *R. Crossopetalum.*
Leaf-blades spiny toothed: cymes short-stalked (3-5 mm.). 2. *R. ilicifolia.*

1. R. Crossopetalum L. Erect shrub or tree, with glabrous twigs: leaf-blades obovate or rarely somewhat elliptic, 1-4 cm. long, shallowly crenate or entire:

cymes long-peduncled: petals oval or orbicular, 1 mm. long or less: drupes obovoid, 5-6 mm. long, red.—RHACOMA.

Hammocks, lower eastern coast of Fla. and the F. Keys. (W. I.)

2. *R. ilicifolia* (Poir.) Trelease. Depressed shrub with pubescent twigs: leaf-blades oval or ovate, 10-15 mm. long, coarsely spiny toothed: cymes short-peduncled: petals suborbicular, less than 1 mm. long: drupes subglobose, 3-4 mm. long.

Pinelands, E. Keys and F. Keys. (W. I.)

4. *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 without a disk. Stigmas disk-like. Drupe smooth.

1. *G. latifolia* (Sw.) Urban. Shrub or small tree: leaf-blades obovate to elliptic-obovate, 2-4 cm. long, bright-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.—FALSE-BOXWOOD.

Hammocks, F. Keys. (W. I.)

5. *SCHAEFFERIA* Jacq. Shrubs or trees, the twigs terete. Leaves alternate, persistent: blades entire. Flowers dioecious, in axillary clusters. Sepals 4. Petals 4. Stamens 4, borne without the disk. Stigmas recurved. Drupes tuberculate.

1. *S. frutescens* Jacq. Shrub or small tree: leaves not clustered; blades elliptic, oval, elliptic-obovate or elliptic-oblancoleate, 4-6 cm. long, shining above: flowers manifestly pedicelled: drupes about 5 mm. in diameter.—BOXWOOD. YELLOW-WOOD.

Hammocks, lower eastern coast of Fla., E. Keys and F. Keys. (W. I.)

FAMILY 6. HIPPOCRATEACEAE. HIPPOCRATEA FAMILY.

Shrubs or trees, or vines. Leaves opposite: blades simple. Flowers perfect, in axillary racemes, panicles, or cymes. Calyx of 5 persistent sepals. Corolla 5 petals. Androecium of mostly 3 stamens. Gynoecium of 3 united carpels. Fruit a berry, a drupe, or a capsule, of 3 or fewer carpels cohering at the base. Seeds flattened.

1. *HIPPOCRATEA* L. Trees or woody vines. Leaf-blades leathery. Sepals and petals 5. Stamens 3: filaments dilated at the base. Capsule lobed. Seeds winged.

1. *H. volubilis* L. Climber: leaf-blades oblong or elliptic, varying to ovate or obovate, 5-14 cm. long, crenate-serrate: corolla 5-6 mm. broad: mature carpels broadly obovate, 2.5-3 cm. long. [*H. ovata* Lam.]

Hammocks, F. Keys. (W. I.)

FAMILY 7. 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 reticulated septicidal capsule. Seeds subglobose or somewhat flattened.—Spr. or all year.

1. *DODONAEA* [Plum.] L. Erect shrubs or trees, with usually viscid foliage. Leaf-blades broadened upward. Capsule winged.

Leaf-blades narrowly spatulate: fruits less than 2 cm. wide: seeds 2-2.5 mm. in diameter.

Leaf-blades broadly spatulate to oblong: fruits over 2 cm. wide: seeds 3-3.5 mm. in diameter.

1. *D. jamaicensis*.

2. *D. viscosa*.

1. *D. jamaicensis* DC. Shrub 1-4 m. tall: leaves 3-11 cm. long; blades narrowly spatulate, gradually narrowed to the base: sepals oblong or oval, 2.5-3 mm. long, ciliolate: anthers about as long as the sepals: fruits 10-16 mm. long, deeply notched at the apex: seeds orbicular-lenticular, 2-2.5 mm. in diameter.

Hammocks and pinelands, E. Keys and F. Keys. (W. I.)

2. *D. viscosa* L. Shrub 2-5 m. tall: leaves 8-15 cm. long; blades broadly spatulate to oblong, gradually or abruptly narrowed at the base: sepals ovate or oval, 2.5-3 mm. long: anthers rather shorter than the sepals: fruits 23-30 mm. long, deeply notched at the apex: seeds orbicular-reniform, 3-3.5 mm. in diameter.

Woods and thickets, m. pen. Fla. (W. I.)

FAMILY 8. AESCULACEAE. BUCKEYE FAMILY.

Shrubs or trees. Leaves opposite: blades palmately compound. Flowers polygamous, in terminal racemes or panicles. Calyx of 5 partially united sepals. Corolla of 4 or 5 unequal clawed petals. Androecium of 5-8 stamens. Gynoecium of 3 united carpels. Fruit a leathery loculicidal capsule.

1. *AESCULUS* L. Shrubs or trees. Leaf-blades palmately 5-9-foliolate. Petals with their claws mostly in the calyx-tube. Filaments slender. Capsule smooth or echinate. — BUCKEYE. HORSE-CHESTNUT.

Corolla red; claws of the lateral petals about as long as the calyx: stamens slightly exceeding the corolla.

Corolla white; claws of the lateral petals exerted: stamens greatly exerted.

1. *Ae. Pavia*.

2. *Ae. parviflora*.

1. *Ae. Pavia* L. Shrub or small tree: leaflets 5-7; blades oblanceolate or elliptic-oblanceolate: calyx 15-17 mm. long: corolla red; lateral petals 2-3 cm. long, with suborbicular blades: capsules 3-5 cm. in diameter.—RED-BUCKEYE.

Rich woods, n. Fla. (Cont.)—Spr.

2. *Ae. parviflora* Walt. Shrub: leaflets 5-7; blades elliptic-oblanceolate to obovate, 5-18 cm. long: calyx 5-7 mm. long: corolla white: lateral petals 16-20 mm. long: capsules globular, 2.5-3 cm. in diameter.

Woods, w. Fla. (Cont.)—Spr.

FAMILY 9. 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.

1. *SAPINDUS* [Tourn.] L. Shrubs or trees. Leaves alternate: blades pinnate. Flowers polygamous, regular. Sepals 4 or 5. Petals 4 or 5, appendaged. Stamens 8-10. Baccate fruit not elongate, lobed. — Winter & spr.

Leaf-rachis winged: blades of the leaflets obtuse, at least not acuminate: petals short-clawed. 1. *S. Saponaria*.

Leaf-rachis wingless: blades of the leaflets acuminate: petals long-clawed.

Mature carpels globose: seed globose or spheroidal.

2. *S. marginatus*.

Mature carpels oval or obovoid: seed somewhat elongate.

3. *S. manatensis*.

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.—SOAPBERRY. FALSE-DOGWOOD.

Hammocks, E. Keys and adj. pen., and F. Keys. (W. I.)

2. *S. marginatus* Willd. Tree 10-15 m. tall, the twigs and inflorescence pubescent: leaflets 7-13; blades lanceolate to oblong-lanceolate, 5-15 cm. long: leaf-rachis margined above: mature carpels globose, 10-15 mm. in diameter.

Hammocks along or near the coast, pen. Fla. (Cont., W. I.)

3. *S. manatensis* Radlk. Tree becoming 10 m. tall or shrub, the twigs and inflorescence glabrous: leaflets 7-13; blades oblong-lanceolate: leaf-rachis wingless: mature carpels oval or obovoid, 20-23 mm. long.

Hammocks, islands about the mouth of the Manatee river. (Endemic.)

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.

Fruits drupaceous, pulpy, the stone 1-3-celled.

Petals wanting.

Sepals crested.

Sepals crestless.

Petals present.

Fruits dry or baccate, with 2-4 separating nutlets.

Fruit fleshy: disk forming a hypanthium with the ovary seated in the bottom of it.

Hypanthium flattish: disk conspicuous.

Hypanthium cup-like: disk inconspicuous, but lining the hypanthium.

Fruit dry: disk annular the ovary immersed in it.

Fruit not winged, seated in the persistent calyx.

Sepals inflexed: petals on slender claws.

Sepals spreading: petals sessile, involutely folded over the filaments.

Fruit winged, crowned with the sepals.

1. KRUGIODENDRON.

2. REYNOSIA.

3. BERCHEMIA.

4. SAGERETIA.

5. RHAMNUS.

6. CEANOTHUS.

7. COLUBRINA.

8. 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 small tree 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.—BLACK-IRONWOOD.

Hammocks, lower eastern coast, E. Keys and F. Keys. (W. I.)—Spr.

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. Shrub, or tree 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.—RED-IRONWOOD. DARLING-PLUM.

Hammocks, E. Keys and F. Keys. (W. I.)—Spr.-sum.

3. **BERCHEMIA** Neck. Shrubs or vines. Leaves alternate: blades many-ribbed. Flowers perfect or polygamous. Sepals 5, flat. Petals 5, hooded, sessile. Stamens 5, often shorter than the petals. Drupe somewhat flattened, slightly longer than ¹/₂ thick.

1. **B. scandens** (Hill) Trelease. Glabrous climber with wide-spreading branches: leaf-blades oval, elliptic, oblong, or sometimes varying to lanceolate, 4-8 cm. long, entire or undulate-crenate: sepals longer than the hypanthium: petals obovate, about as long as the sepals: drupes oblong or ovoid-oblong, 6-8 mm. long.—SUPPLE-JACK.

Sandy thickets and open woods, n. Fla. and the upper pen. (Cont.)—Spr.

4. **SAGERETIA** Brongn. Shrubs with diffuse branches. Leaves opposite or nearly so: blades of firm-texture, finely toothed. Flowers perfect. Sepals 5, keeled within. Petals 5, hooded, clawed. Stamens 5, about as long as the petals. Drupe separating into 3 leathery nutlets.

1. **S. minutiflora** (Michx.) Trelease. Pubescent, spinescent shrub: leaf-blades ovate or orbicular-ovate, 1-5 cm. long: spikes 1-4 cm. long: calyx 2-2.5 mm. broad: petals orbicular, ovate, about $\frac{1}{2}$ as long as the sepals: drupes subglobose, 7-9 mm. in diameter.

Sandy thickets and hammocks, near the coast, n. Fla. (Cont.)—Spr.

5. **RHAMNUS** [Tourn.] L. Shrubs or trees. Leaves alternate: blades entire or toothed, many-ribbed. Flowers perfect or polygamo-dioecious. Sepals 4 or 5, keeled within. Petals 4 or 5, commonly concave, clawless, shorter than the sepals, or wanting. Stamens 4 or 5, included anthers acute. Drupe berry-like, not lobed, with 3 or 4 nutlets.—BUCKTHORN.

1. **R. caroliniana** Walt. Shrub, or tree becoming 11 m. tall: leaf-blades oblong or elliptic, or slightly obovate, 5-12 cm. long: calyx about 4 mm. broad: petals about $\frac{1}{3}$ as long as the sepals: drupes black, 10-11 mm. in diameter.—INDIAN-CHERRY.

Rich woods, m. and w. Fla. (Cont.)—Spr.

6. **CEANOTHUS** L. Shrubs or trees. Leaves alternate: blades usually toothed, commonly 3-ribbed. Flowers perfect. Sepals 5, converging. Petals 5, longer than the sepals, clawed, the blades hooded. Stamens 5, exerted: anthers emarginate. Drupe lobed, separating into 3 carpels.

Leaf-blades entire, fleshy.

Leaf-blades toothed, membranous or nearly so.

A low decumbent shrub: leaves 5-10 mm. long, persistent.

Erect shrubs: leaves deciduous.

Leaves 1-3 cm. long: calyx about 3 mm. wide.

Leaves 3-10 cm. long: calyx about 4 mm. wide.

1. *C. microphyllus*.

2. *C. serpyllifolius*.

3. *C. intermedius*.

4. *C. americanus*.

1. *C. microphyllus* Michx. Plants 3-6 dm. tall, diffuse: leaf-blades suborbicular, oval, or oblong, 3-6 mm. long: sepals acute or abruptly pointed: petals about 1.5 mm. long: anthers brown: fruits depressed, 4-5 mm. wide.

Pinelands, n. Fla. and the upper pen. (Ga.)

2. *C. serpyllifolius* Nutt. Shrub with diffuse or decumbent, very slender or filiform branches: leaf-blades oblong to ovate-oblong, serrulate, strigose beneath: sepals mostly 1 mm. long and obtuse: petals about 1.5 mm. long.

Pinelands, e. Fla. and the adj. pen. (Ga.)

3. *C. intermedius* Pursh. Shrub 3-10 dm. tall: leaf-blades ovate to oblong-ovate, or nearly oblong, finely serrate: sepals about 1 mm. long: petals about 1.5 mm. long: fruits 4-5 mm. broad.

Pinelands, n. Fla. and the upper pen. (Cont.)

4. *C. americanus* L. Shrub 2-9 dm. tall: leaf-blades ovate to ovate-lanceolate or rarely orbicular-ovate, prominently serrate: sepals about 1.5 mm. long: petals about 2 mm. long: fruits 5-6 mm. broad.—NEW JERSEY TEA. RED-ROOT.

Dry woods and hillsides, n. Fla. (Cont.)

7. **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. — Fall-spr.

Young foliage glabrous or inconspicuously pubescent: calyx 3.5-4.5 mm. wide.

Young foliage conspicuously red-tomentose: calyx 7-8 mm. wide. 1. *C. reclinata*.
2. *C. Colubrina*.

1. *C. reclinata* (L'Her.) Brongn. Shrub, or small 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 hypanthium.—NAKEDWOOD.

Hammocks, E. Keys and F. Keys. (W. I.)

2. *C. Colubrina* (Jacq.) Millsp. Shrub or 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.—WILD-COFFEE.

Hammocks, E. Keys and F. Keys. (W. I.)

18. **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.]—CHEW-STICK.

Hammocks, s. pen. Fla. and the F. Keys. (W. I.)

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 caducous, 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-foliolate.

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.—Spr.—GRAPE.

Leaf-blades green and glabrous beneath, at least at maturity. Leaf-blades densely woolly, or floccose, or cobwebby beneath.

Leaf-blades cobwebby or flocculent beneath at maturity.

Young foliage gray-cobwebby.

Young foliage ferruginous-pubescent, at least on the veins of the leaf-blades.

Twigs, and often the expanding leaves, dotted with close, felt-like, pubescence.

Twigs, and often the expanding leaves, more or less densely tomentose.

Leaf-blades not lobed, except on shoots, the margins shallowly sinuate-toothed.

Leaf-blades usually manifestly lobed, the margins coarsely toothed.

Leaf-blades felt-like, or densely tomentose beneath at maturity.

Leaf-blades felty-tomentose with white hairs beneath.

Leaf-blades densely tomentose with tawny or rusty hairs beneath.

1. *V. cordifolia*.
2. *V. cinerea*.
3. *V. austrina*.
4. *V. tiliifolia*.
5. *V. rufotomentosa*.
6. *V. coriacea*.
7. *V. Simpsonii*.

1. **V. cordifolia** Lam. Leaf-blades thin, deep-green, longer than broad, commonly ovate in outline, rarely 3-lobed or 3-angled near the apex, rather coarsely and irregularly toothed, glabrous or sometimes sparingly pubescent beneath when young, more or less deeply cordate at the base (persistent and lustrous in *V. cordifolia sempervirens*): panicles 1-3 dm. long, commonly drooping: berries globose, 8-10 mm. in diameter, black under a slight bloom. Pleasantly acid, persistent.—FROST-GRAPE. CHICKEN-GRAPE.

Woods and thickets, n. Fla. and the adj. pen. (Cont.)

2. **V. cinerea** Engelm. Leaf-blades thinnish, mostly longer than broad, 8-20 cm. in diameter, shallowly toothed, otherwise entire, or distinctly angularly 3-lobed near the apex, cobwebby above or glabrous and rugose in age, more or less softly pubescent beneath with ashy or dark-brown webby hairs, cordate at the base: panicles 1.5-3 dm. long, irregular, drooping: berries subglobose, 10-14 mm. in diameter, black, barely glaucous, rather numerous.—DOWNY-GRAPE.

Hillsides and along streams, n. Fla. (Cont.)

3. **V. austrina** Small. Leaf-blades thinnish, orbicular or ovate-orbicular, 10-15 cm. in diameter, more or less distinctly 3-lobed, triangular at the apex, finely pubescent beneath and often rusty on the nerves, dull-green above, cordate, the teeth very low, remote: panicles relatively small: peduncles often about as long as the panicles: berries mostly 6-9 mm. in diameter, black, without a bloom.

Swamps and low woods, n. Fla. and the adj. pen.

4. **V. tiliifolia** 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, pen. Fla. (W. I.)

5. *V. rufotomentosa* Small. Leaf-blades suborbicular to ovate-orbicular, 10-20 cm. long, or sometimes shorter, dull-green above, finely and closely tomentose beneath, especially rusty on and about the nerves, rather coarsely and irregularly toothed, cordate at the base: panicles rather small, or ample, sometimes 2.5-3 dm. long: peduncles much shorter than the panicles: berries black, with little or no bloom, often 5-6 mm. in diameter.

Dry sandy thickets and woods, n. Fla. and the upper pen. (Cont.)

6. *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, pen. Fla. (W. I.)

7. *V. Simpsonii* Munson. Leaf-blades suborbicular in outline, 5-18 cm. broad, prominently or mostly deeply 3-5-lobed, and shallowly toothed, glabrate above, more or less densely tawny- or rusty-tomentose beneath, cordate; panicles 5-10 cm. long, usually compact: berries commonly 15 mm. in diameter, black, mostly 4-seeded.

Dry sandy thickets and woods, pen. Fla. (Endemic.)

2. **MUSCADINIA** Small. Vines. Leaf-blades angled or coarsely toothed. Flowers in racemes or panicles. Calyx minute. Petals cohering. Berries rather juicy, ultimately edible.

Berries 1-1.5 cm. in diameter; the skin and pulp tender, the latter acid: seeds 3-5 mm. long.

Berries 1.5-2.5 cm. in diameter; the skin and pulp tough, the latter musky: seeds 6-9 mm. long.

1. *M. Munsoniana*.

2. *M. rotundifolia*.

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. [*Vitis peltata* Raf.]—BULLACE-GRAPE.

Hammocks, nearly throughout Fla. (Ga., W. I.)—Spr. or all year southward.

2. *M. rotundifolia* (Michx.) Small. Leaf-blades firm or leathery, suborbicular to ovate-orbicular, 4-9 cm. in diameter or larger, usually acuminate, coarsely toothed, glabrous, except the axils and sometimes the nerves beneath, cordate: berries subglobose, dull-purple, without bloom, with musky pulp, the bunches globular.—MUSCADINE. SOUTHERN FOX-GRAPE. SCUPPERNONG.

Thickets, swamps, river-banks, or hammocks, n. Fla. and the upper pen. (Cont.)—Spr.

3. **CISSUS** L. Fleshy vines. Leaf-blades simple or 3-foliolate. Flowers in small cymes. Petals spreading. Berries inedible.

Leaf-blades simple, distantly serrate.

Leaf-blades 3-foliolate the leaflets coarsely toothed.

1. *C. sicyoides*.

Flowers in compound umbel-like cymes: berries thickest below the middle.

Flowers in trichotomous cymes: berries thickest above the middle.

2. *C. trifoliata*.

3. *C. incisa*.

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, s. pen. Fla. and the Keys. (W. I.)

2. *C. trifoliata* L. Plants glabrous: leaf-blades 3-foliolate; 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.]

Hammocks, mostly near the coast, s. pen. Fla. and the F. Keys. (W. I.)

3. *C. incisa* Desmoul. Plants glabrous: leaf-blades 3-foliolate; leaflets pale-green, very fleshy, 3-10 cm. long, coarsely toothed and incised, the terminal one sometimes 3-lobed, the lateral ones, 2-lobed, all more or less cuneately narrowed at the base, on stout petiolules: berries obovoid or obovoid-globose, 10-12 mm. long, apiculate.

Sand-dunes and hammocks, nearly throughout the coastal region of Fla., except the F. Keys. (Cont.)

4. **AMPELOPSIS** Michx. Woody vines. Leaf-blades simple or bipinnate. Flowers in flat cymes. Petals spreading. Berries inedible.

Leaf-blades bipinnate: ovary surpassing the disk, the latter mostly adnate to it.

Leaf-blades simple: ovary not surpassing the disk but nearly free from it. 1. *A. arborea*.

2. *A. cordata*.

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.—PEPPER-VINE.

Hammocks, nearly throughout Fla., except the F. Keys. (Cont., W. I.)—Spr. or all year southward.

2. *A. cordata* Michx. Leaf-blades ovate or triangular-ovate, 4-12 cm. long, shallowly serrate, long-petioled: styles slender: berries 6-8 mm. in diameter, bluish or greenish-blue.

Woods and river-banks, n. Fla. (Cont.)—Spr.

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.—VIRGINIA-CREEPER. AMERICAN-IVY.

Hammocks, banks and woods, nearly throughout Fla. (Cont., W. I.)

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 as many as the sepals.

Fam. 1. MALVACEAE.
Fam. 2. BUETTNERIACEAE.

FAMILY 1. MALVACEAE. MALLOW FAMILY.

Herbs, shrubs, or trees. Leaves alternate: blades simple, palmately veined. Flowers perfect. Calyx of 5 more or less united valvate sepals.

Corolla of 5 convolute petals. Androecium of numerous monadelphous stamens. Gynoecium of several united carpels. Fruit capsular or sometimes baccate.

Fruit of several radially disposed carpels which separate at maturity.

- | | |
|---|---------------|
| Mature carpels spine-armed. | 1. PAVONIA. |
| Mature carpels spineless, sometimes cuspidate. | 2. MALACHE. |
| Fruit a loculicidal capsule, or rarely indehiscent. | |
| Styles distinct: seeds reniform. | |
| Bractlets of the involucrel distinct. | 3. HIBISCUS. |
| Bractlets of the involucrel united into a lobed cup. | 4. PARITIUM. |
| Styles united: seeds not reniform. | |
| Bractlets of the involucrel entire: seeds short-hairy. | 5. THESPESIA. |
| Bractlets of the involucrel lacinate: seeds long-hairy. | 6. GOSSYPIUM. |

1. **PAVONIA** Cav. Shrubs or woody herbs. Leaf-blades angled or lobed. Involucrel present. Sepals 5, partially united. Petals 5, often showy. Carpels 5, 1-celled, spine armed.

1. **P. spinifex** (L.) Cav. Shrub 1-3 m. tall, hirsute and stigillose: leaf-blades ovate to oblong-ovate, 5-10 cm. long: bractlets linear to lanceolate: calyx-lobes lanceolate to ovate-lanceolate: petals yellow, 2.5 cm. long: mature carpels 5-6 mm. long, the spines slender-subulate.

Sandy woods and thickets, e. coast of Fla. (Cont., W. I.)

2. **MALACHE** B. Vogel. Shrubs or partially woody plants. Leaf-blades broad, remotely serrate or repand, 3-ribbed. Involucrel of 6-8 bractlets or more. Sepals 5, partially united. Petals 5, pale. Carpels with a median crest 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, s. pen. Fla. and the F. Keys. (W. I.)

3. **HIBISCUS** L. Herbs, shrubs, or trees. Leaf-blades entire, lobed, or parted. Involucrel of several, rarely 3, distinct bractlets. Sepals 5, more or less united. Petals 5, white, colored or variegated. Carpels forming a 5-valved capsule.

Corolla with more or less spreading petals.

Corolla mainly red or salmon: calyx-lobes lanceolate or triangular-lanceolate.

- | | |
|---|------------------------------|
| Corolla nearly pink or white: calyx-lobes triangular-ovate. | 1. <i>H. Rosa-Sinensis</i> . |
| Corolla cylindrical, or with the tips of the petals slightly spreading. | 2. <i>H. syriacus</i> . |
| | 3. <i>H. spiralis</i> . |

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.—SHOE-BLACK PLANT. CHINESE-ROSE.

Fields, waste places, and roadsides, pen. Fla. Nat. of China. (W. I.)

2. **H. syriacus** L. Shrub or small tree, minutely pubescent when young: leaf-blades 3-lobed, coarsely crenate, 3-12 cm. long: bractlets linear or linear-spatulate, 10-20 mm. long: calyx-lobes triangular-ovate: petals deep-pink, or white with crimson blotches at the base: capsules oblong-ovoid, 2-2.5 cm. long.—SHRUBBY-ALTHAEA. ROSE-OF-SHARON.

Fields and roadsides, n. Fla. and the upper pen. Nat. of W. Asia. (Cont.)

3. **H. spiralis** Cav. Plants 3-18 dm. tall, stellate-hirsute: leaf-blades triangular-ovate or angulately 3-lobed, 1-4 cm. long: bractlets linear or nearly so, 7-9 mm.

long: calyx-lobes acuminate: petals crimson, 2-2.5 cm. long: capsules fully 1 cm. long. [*H. tubiflorus* DC.]

Hammocks, F. Keys. (*W. I.*)

4. **PARITUM** St. Hil. Shrubs or trees, resembling *Hibiscus* in habit, but with the bractlets of the involucl united into a lobed cup.

1. **P. tiliaceum** (L.) Juss. Small tree or shrub, 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.—**MAHOE**.

Shores, E. Keys and F. Keys. (*W. I.*)—Spr.-sum.

5. **THESPESIA** Soland. Shrubs or trees, resembling species of *Hibiscus*. Leaf-blades entire or angulate-lobed. Involucl 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. Low tree or shrub: 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.—**SEASIDE-MAHOE**.

Shores, E. Keys and F. Keys. Nat. prob. of the Old World Tropics. (*W. I.*)—Sum.-fall.

6. **GOSSYPIUM** L. Herbs, shrubs, or trees. Leaf-blades palmately lobed or rarely entire. Involucl of 3 large bracts. Sepals 5, united into a cup-like calyx. Petals 5, usually dark-colored at the base. Capsule 5-valved.—**COTTON**.

Seed-body and hairs (cotton) tightly adherent.

1. *G. hirsutum*.

Seed-body and hairs (cotton) easily separable.

2. *G. barbadense*.

1. **G. hirsutum** L. Shrub or small tree, with usually hirsute twigs: leaf-blades 4-11 cm. wide, sometimes pubescent, 3-lobed, the lobes ovate to deltoid, as long as the body of the leaf or very short: calyx becoming 1-1.5 cm. wide: corolla creamy-white except the purplish base, becoming pink; petals 3-5 cm. long: capsules ovoid, 2.5-3 cm. long.—**WILD-COTTON**.

Hammocks, F. Keys. (*W. I.*)

2. **G. barbadense** L. Shrub with glabrous twigs, often 2 m. tall or more: leaf-blades with 3-5 lanceolate or ovate-lanceolate lobes: capsules ovoid, acute, 3.5-5 cm. long.—**SEA-ISLAND COTTON**.

Sandy thickets and open woods n. Fla. and the upper pen. Presumably nat. of trop. Am. (*Cont., W. I.*)

Order HYPERICALES.

Herbs, shrubs, or trees. Leaves various. Flowers mostly perfect, complete and regular (irregular in *Violaceae*), sometimes involuclate. Calyx of distinct or essentially distinct sepals. Corolla of distinct petals (partially united in *Fouquieriaceae*), rarely wanting. Androecium of several united carpels. Ovary superior, mostly with parietal placentae. Fruit capsular, baccate, or drupaceous.

Styles wanting: stigmas introrse.

Fam. 1. **TAMARICACEAE**.

Styles present, distinct or united: stigmas terminal.

Stigmas not brush-like.

Petals imbricate, not oblique: leaves alternate.

Fam. 2. **THEACEAE**.

Petals convolute, oblique: leaves opposite or whorled.

Fam. 3. **HYPERICACEAE**.

Stigmas brush-like.

Fam. 4. **TURNERACEAE**.

FAMILY 1. **TAMARICACEAE.** TAMARISK FAMILY.

Shrubs or trees, or partially herbaceous plants. Leaves alternate: blades entire, often scale-like. Flowers mainly perfect, sometimes in profuse panicles. Calyx of 5, or 4 or 6, sepals. Corolla of 5, or 4 or 6, petals. Androecium of 5 or many stamens. Gynoecium of 2-5 united carpels. Ovary 1-celled. Fruit a capsule.

1. **TAMARIX** L. Irregularly branching shrubs or trees. Leaves scale-like, clasping or sheathing. Flowers borne in plume-like panicles. Capsule many-seeded.

1. **T. gallica** L. Small tree or shrub, with weak branches, the branchlets clothed with the imbricate leaves: panicles with numerous spikes: sepals about 0.5 mm. long: petals white or pinkish: capsules about 1 mm. long.—**TAMARISK.**

Roadsides and thickets, n. and pen. Fla. Nat. of s. Eu. (Cont.)—Sum.-fall.

FAMILY 2. **THEACEAE.** CAMELLIA FAMILY.

Shrubs, trees, or vines. Leaves alternate. Flowers perfect and showy. Calyx of 5, or rarely 4-7, imbricate sepals. Corolla of 5, or rarely of 4-7, petals. Androecium of numerous, or rarely few, stamens. Gynoecium of 3-5 partially or wholly united carpels. Fruit mostly capsular, sometimes indehiscent.

1. **STUARTIA** L. Shrubs. Leaf-blades usually toothed. Sepals mostly 5, relatively broad. Petals mostly 5. Style columnar. Stigma radiate. Capsule globular or depressed.

1. **S. Malachodendron** L. Shrub 1-5 m. tall: leaf-blades oval, elliptic or sometimes ovate or obovate, 5-11 cm. long: sepals about 1 cm. long: petals obovate, 3-5 cm. long: capsules depressed-globular, 12-17 mm. in diameter.

Woods and hillsides, n. Fla. (Cont.)—Spr.

FAMILY 3. **HYPERICACEAE.** ST. JOHN'S-WORT FAMILY.

Shrubs or herbs. Leaves opposite: blades mostly punctate, entire or nearly so, sometimes scale-like. Flowers perfect. Calyx of 4 or 5 sometimes unequal sepals. Corolla of 4 or 5 yellow or pink petals. Androecium of few or many stamens, sometimes grouped, the groups sometimes alternating with the glands. Gynoecium of 3-7 united carpels. Fruit a capsule.

Sepals 4, in more or less unequal pairs: petals mostly 4.

Pairs of sepals very unequal in size or shape or both, the outer pair enclosing the capsule. 1. **ASCYRUM.**

Pairs of sepals nearly equal in size and shape, much surpassed by the capsule. 2. **CROCKEA.**

Sepals and petals mostly 5. 3. **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.**

Styles 2: inner sepals very small, petal-like or obsolete.

Peduncles reflexed at maturity: calyx without bractlets, conspicuously surpassing the leaves. 1. **A. punctatum.**

Peduncles not recurved: calyx subtended by a pair of bractlets, not conspicuously surpassing the leaves.

Outer sepals ovate at maturity: capsule included. 2. **A. hypericoides.**

Outer sepals oblong or elliptic at maturity: capsule exerted at the tip. 3. **A. unifolium.**

Styles 3-4: inner sepals slightly smaller than the outer.

Leaf-blades merely sessile: outer sepals fully as broad as long.

Leaf-blades clasping: outer sepals longer than broad.

Outer sepals broader than the leaf-blades: inner sepals shorter than the outer.

Outer sepals narrower than the leaf-blades: inner sepals as long as the outer.

4. *A. cuneifolium*.

5. *A. stans*.

6. *A. tetrapetalum*.

1. *A. pumilum* Michx. Shrub depressed: leaf-blades oval, obovate, or linear-oblong, 3-9 mm. long: outer sepals ovate to suborbicular, 6-10 mm. long, the inner obsolete or nearly so: petals yellow, obovate: capsules about 5 mm. long.

Pinelands, n. Fla. and the adj. pen. (*Ga.*)

2. *A. hypericoides* L. Shrub diffuse: leaf-blades linear, often narrowly so, 5-15 mm. long: outer sepals cuneate-obovate to oblong or oblong-lanceolate, 7-9 mm. long, the inner petaloid: petals pale-yellow: capsules 7-8 mm. long.

Dry woods and hammocks, nearly throughout Fla., except the F. Keys. (*Cont., W. I.*)

3. *A. linifolium* Spach. Shrub mostly erect: leaf-blades linear-spatulate to oblanceolate, oblong, or obovate-oblong, 1-3.5 cm. long: outer sepals ovate to oblong-ovate, 6-9 mm. long, the inner petaloid: petals bright-yellow: capsules 5-8 mm. long.

Pinelands, pen. Fla. (*Cont., W. I.*)

4. *A. cuneifolium* Chapm. Shrub 1-2 dm. tall: leaf-blades cuneate or obovate, 5-20 mm. long: inner sepals oblong or nearly so: capsules broadly ovoid.

Low pinelands, n. Fla. (*Cont.*)

5. *A. stans* Michx. Shrub 3-9 dm. tall: leaf-blades oblong-elliptic, varying to obovate: inner sepals lanceolate: capsules narrowly ovoid.

Pinelands, n. Fla. and the adj. pen. (*Cont.*)

6. *A. tetrapetalum* (Lam.) Vail. Shrub 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.

Low pinelands and swamps, nearly throughout Fla., except the F. Keys. (*Ga.*)

2. **CROOKEA** Small. Shrubs resembling species of *Ascyrum*. Sepals 4, nearly equal. Stamens numerous: filaments distinct. Styles relatively long. Capsule not included.

1. *C. microsepala* (T. & G.) Small. Shrub less than 1 m. tall: leaves numerous; blades cuneate to linear-cuneate, or narrowly oblong, 6-14 mm. long: petals yellow, the larger obovate, the smaller oblong: capsules oblong, 7-8 mm. long.

Sandy woods, n. Fla. and the upper pen. (*Ga.*)

3. **HYPERICUM** [Tourn.] L. Herbs or shrubs. Sepals 5, essentially equal. Stamens mostly in groups. Style relatively long. Capsule not included. —ST. JOHN'S-WORT.

Capsule 1-celled or incompletely 3-celled.

Capsule with parietal placentae, these not intruded.

Capsule with 3 intruded placentae, incompletely 3-celled.

Sepals small, not foliaceous.

Leaves not in conspicuous axillary clusters: blades relatively broad.

Sepals less than $\frac{1}{2}$ as long as the petals: capsules 6-7 mm. long.

Sepals over $\frac{1}{2}$ as long as the petals: capsules 12-13 mm. long.

Leaves in conspicuous axillary clusters: blades narrow.

Leaves of the axillary clusters smaller than the subtending pair; blades neither subulate nor fleshy.

1. *H. opacum*.

2. *H. nudiflorum*.

3. *H. apocynifolium*.

Leaf-blades linear-oblong, spatulate or oblanceolate.

Leaf-blades narrowly linear or narrowly linear-spatulate.

Leaves of the axillary clusters about as large as the subtending pair; blades subulate or linear-subulate, fleshy, about as thick as wide.

Sepals as long as the petals or fully $\frac{1}{2}$ as long; leaves mostly over 10 mm. long.

Sepals less than $\frac{1}{2}$ as long as the petals; leaves mostly less than 10 mm. long.

Sepals foliaceous.

Capsule completely 3-celled.

4. *H. ambiguum*.

5. *H. galioides*.

6. *H. fasciculatum*.

7. *H. aspalathoides*.

8. *H. myrtifolium*.

9. *H. densiflorum*.

1. *H. opacum* T. & G. Shrub 3-12 dm. tall; leaves few; blades oblong to oblong-lanceolate, or sometimes linear-oblong, 1-3 cm. long; petals 3-5 mm. long.

Low pinelands and swamps, nearly throughout Fla., except the F. Keys. (Cont.)

2. *H. nudiflorum* Michx. Shrub 3-10 dm. tall; leaf-blades elliptic-oblong to elliptic-lanceolate, 1.5-6 cm. long; sepals elliptic-oblong to elliptic-oblanceolate, 3-4 mm. long; petals nearly oblong, 6-8 mm. long; capsules conic-ovoid.

Stream-banks, swamp-margins, and rich woods, n. Fla. (Cont.)

3. *H. apocynifolium* Small. Shrub 4-7 dm. tall; leaf-blades oblong or nearly so, 2-4 cm. long; sepals spatulate, elliptic, or oval, 3-5 mm. long; petals oblong, 8-9 mm. long; capsules oblong-conic.

Swamps, w. Fla. (Cont.)

4. *H. ambiguum* Ell. Shrub 0.5-1.5 m. tall; leaf-blades linear-oblong to spatulate, 1-2.5 cm. long; sepals linear or slightly broadened upward, 3-5 mm. long; petals obliquely obovate or cuneate, almost laterally apiculate, 5-7 mm. long; capsules almost conic, 5-6 mm. high.

River-banks, river-swamps, and low grounds, n. Fla. (Cont.)

5. *H. galioides* Lam. Shrub 3-8 dm. high or taller; leaf-blades narrowly linear or slightly broadened upward, 0.5-1.5 cm. long; sepals linear or linear-spatulate, 3-4 mm. long; petals cuneately narrowed, obliquely or almost laterally pointed, 4-7 mm. long; capsules conic, 5-6 mm. long, acute.

Dry woods and banks, n. Fla. (Cont.)

6. *H. fasciculatum* Lam. Shrub 1-5 m. tall; leaves numerous, a bunch usually clustered in the axils of the larger ones; blades leathery, linear-filiform, 1-2 cm. long, or shorter in the clusters; sepals linear, 3-4 mm. long, about 1 cm. wide; petals bright-yellow, obliquely apiculate, 7-8 mm. long; capsules ovoid or conic-ovoid, 4-5 mm. long.

Low or wet pinelands or swamps, nearly throughout Fla., except the F. Keys. (Cont., W. I.)

7. *H. aspalathoides* Willd. Shrub 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, n. and pen. Fla., and the F. Keys. (Cont., W. I.)

8. *H. myrtifolium* Lam. Shrub 3-10 dm. tall; leaf-blades ovate to oblong-ovate, or ovate-lanceolate or rarely nearly oblong, 1-3 cm. long; sepals foliaceous, ovate, 5-8 mm. long; petals obovate, 12-15 mm. long; capsules pyramidal-ovoid, incompletely 3-celled or rarely 4-celled, 5-6 mm. high.

Low pinelands, n. and pen. Fla. (Cont.)

9. *H. densiflorum* Pursh. Shrub 6-18 dm. tall; leaf-blades linear, linear-oblanceolate, or linear-oblong, 1-5 cm. long, acute; sepals unequal, oblong to elliptic-oblong, 2-2.5 mm. long; corolla bright-yellow, 1-1.5 cm. broad; petals obliquely pointed; capsules ovoid, 4-6 mm. long, slightly 3-lobed, completely 3-celled.

Swamps and river-banks, n. Fla. (Cont.)

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. **TURNERA** L. Shrubs or shrubby plants. Flowers usually solitary and axillary. Corolla yellow. Stigmas 3, brush-like.

1. **T. ulmifolia** L. Shrub 2 m. tall or less, with appressed-pubescent branchlets: leaf-blades ovate, varying to oblong, elliptic or spatulate, mostly 3-9 cm. long, serrate or crenate-serrate, 2-glandular at the base, short-petioled: calyx 14-17 mm. long; lobes lanceolate to ovate-lanceolate, acuminate: petioles yellow, 2.5-3 cm. long: capsules globular to ovoid, 8-10 mm. long.

Hammocks and waste places, Key West. Nat. of Trop. Am. (*Cont., W. I.*)

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.

FAMILY 1. **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.

Plants little, if at all, jointed: leaves none or obsolete: areolae without bristles.

Plants prostrate, reclining or climbing.

Plants reclining, without aerial roots: fruits spiny.

Plants climbing, with aerial roots: fruits scaly.

Plants erect, the stem and branches columnar, grooved.

Style exerted: berry smooth: flowers short-campanulate: perianth green-purple.

Style included: berry scaly: flowers long-campanulate: perianth white.

Plants conspicuously jointed: leaves present on the young joints: areolae with barbed bristles.

1. **ACANTHOCEREUS.**

2. **HYLOCEREUS.**

3. **CEPHALOCEREUS.**

4. **HARRISIA.**

5. **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. Fruit 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 and sand-dunes, s. pen. Fla. and the F. Keys. (*W. I.*)

Shrubs of Florida—6.

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. Fruit scaly.

1. **H. tricostatus** (Gosselin) Britt. & Rose. Stem and branches stout, often 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: fruits ovoid, 8-10 cm. long, scarlet, the scales flat.—NIGHTBLOOMING-CEREUS.

Hammocks, s. pen. Fla. and the F. Keys. Nat. of Mexico. (W. I.)

3. **CEPHALOCEREUS** Pfeiff. Plants fleshy with ribbed usually branched stems, the upper areolae usually developing wool. Leaves obsolete. Flowers nocturnal, relatively small, one from an areolae. Hypanthium short, funnel-form, with few scales. Sepals and petals fleshy. Ovary globular, spineless, sometimes with few scales. Fruits fleshy, relatively small, globular or depressed. Seeds reticulate, shining.

1. **C. keyensis** Britt. & Rose. Stem and branches erect or nearly so, becoming 5 or 6 m. tall, glaucous, the 9 or 10 ribs separated by deep grooves: areolae 1-2 cm. apart, slightly elevated: spines acicular, about 15, yellow, 15 mm. long, or less: flowers brownish purple, about 6 cm. long, garlic-scented when opening in the late afternoon or evening: sepals oblong-spatulate, blunt-tipped: petals acutish: fruits spheroidal, about 3.5 cm. thick, reddish.

Hammocks, Key West. (Endemic.)

4. **HARRISIA** Britton. Plants fleshy with cylindric stems and fluted branches, the shallow grooves with frequent areolae each of which supports several slender spines. Leaves obsolete. Flowers nocturnal, relatively large, borne near the ends of the branches. Hypanthium cylindric, spineless, scaly. Sepals colored. Petals white. Fruits fleshy, globose to ovoid, spineless, but scaly. Seeds small, often black.

1. **H. Brookii** Britton. Stem and branches reclining or climbing, sometimes 5 m. tall, prominently 10-ribbed: areolae about 2 cm. apart: spines 9-12, the longer ones 2-2.5 cm. long: fruits ellipsoid, rounded at both ends, about 8 cm. long, yellowish, the tubercles with tips about 1.5 mm. high, becoming smooth.

Coastal hammocks, s. pen. Fla. and the F. Keys. (W. I.)

5. **OPUNTIA** [Tourn.] Mill. Plants conspicuously jointed, with separated usually spine-bearing areolae. Flowers arising from the areolae. Style cylindric. Fruits fleshy or dry.—PRICKLY-PEAR.

Joints firmly attached to each other: flowers large: corolla 5 cm. wide or more.

Plants prostrate or diffusely branched.

Plants prostrate: roots fibrous.

Plants diffuse: roots tuber-bearing.

Plants erect, bushy-branched.

Spines copious: corolla yellow.

Spines none or imperfectly developed: corolla salmon or sometimes yellow.

Joints readily separating when shocked: flowers small: corolla 4 cm. wide or less.

1. *O. Opuntia*.

2. *O. austrina*.

3. *O. Dillenii*.

4. *O. inermis*.

5. *O. Pes-Corvi*.

1. **O. Opuntia** (L.) Coulter. Stems prostrate from fibrous roots, the joints orbicular to obovate, pale or light green, 5-10 cm. long, bearing thick leaves 4-5 mm. long: bristle-cushions rather remote, usually unarmed: bristles few, yellowish green: spines few, when present solitary, less than 2.5 cm. long, variegated: flowers pale yellow, 5-6 cm. broad: fruits obovoid or clavate-

obovoid, 2-3 cm. long: seeds 4 mm. wide or less, thick-margined. [*O. vulgaris* Mill.]

Sandy woods, n. Fla. (Cont.)

2. *O. austrina* Small. Stems 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 retuse at the slightly eroded tip, and mucronate: fruits 2.5-3 cm. long.

Pinelands and coastal sand-dunes, s. pen. Fla. (Endemic.)

3. *O. Dillenii* (Ker.) Haw. Stems erect, 9-12 dm. tall, proliferous, the joints oval or elliptic, 10-20 cm. long: areolae remote above, with clusters of 4-6 short rigid or subulate yellow spines, varying from very short to 3.5 cm. in length: flowers bright-yellow, showy, 7.5-10 cm. broad: fruits rather pear-shaped, 5-6 cm. long, edible. [*O. Tuna*, Chapm. Not Mill.]

Hammocks, s. pen. Fla. and the F. Keys. (W. I.)

4. *O. inermis* DC. Stems erect, 12-18 dm. tall, proliferous: the joints thick, obovate to elliptic, 10-15 cm. long, with the cushions of bristles immersed, spineless or sometimes with a very short spine: flowers salmon or yellow, 7.5-10 cm. broad: fruits obovoid, bristly, 5-6 cm. long, edible, the pulp red. [*O. Ficus-Indica* Chapm. Not Mill.]

Hammocks, F. Keys. (Endemic.)

5. *O. Pes-Corvi* LeConte. Stems prostrate or diffusely spreading, 3-7 dm. long, the joints narrowly ovoid to obovoid, nearly terete, 2.5-7.5 cm. long, light green, loosely attached to each other: bristle-cushions quite numerous, the upper ones armed, the bristles pale: spines slender, solitary or 2-3 together, straight, 2.5-3.5 cm. long, often flattened at the base and twisted: flowers yellow, 3.5-4 cm. broad: fruits obovoid, 12-15 mm. long, rose-purple, bristly: seeds often 4-5 mm. long, with an obtuse margin. [*O. Drummondii* Graham.]

Sandy woods and ridges, mostly near the coast, n. Fla. (Cont.)

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 of twice as many. Anthers opening by slits or hinged valves. Gynoecium a single carpel. Ovary inferior. Ovules mostly solitary. Fruit usually baccate or drupaceous.

Anthers opening by slits: calyx obscurely lobed.
Anthers opening by valves: calyx deeply lobed.

Fam. 1. DAPHNACEAE.
Fam. 2. LAURACEAE.

FAMILY 1. DAPHNACEAE. MEZEREON FAMILY.

Shrubs or trees, or rarely herbs, often pubescent. Leaves opposite or alternate: blades entire. Calyx of 4 or 5 sepals, sometimes with 4 or 5 scales within. Androecium of as many stamens as there are sepals or twice as many. Gynoecium seated in the bottom of the hypanthium. Style usually eccentric.

1. **DIRCA** L. Shrubs. Leaves alternate. Flowers appearing before the leaves. Sepals usually shorter than the hypanthium. Filaments slender. Ovary 1-celled: style filiform. Drupe slightly elongate.

1. **D. palustris** L. Shrub 0.5-2 m. tall: leaf-blades oval or obovate, 4-8 cm. long: flowers lemon-yellow: hypanthium 7-8 mm. long: sepals very short: drupe oval, 7-9 mm. long, red.—LEATHERWOOD. MOOSE-WOOD.

Woods and along streams, m. and w. Fla. (*Ccnt.*)—Spr.

FAMILY 2. LAURACEAE. LAUREL FAMILY.

Aromatic shrubs or trees. Leaves alternate or opposite: blades entire or lobed. Flowers in open or congested cymes. Calyx of 5 (or rarely 4-10) sepals in 2 series. Corolla wanting. 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. Fruit drupaceous.

Flowers mostly perfect: stamens 12, the 3 inner staminodia: leaves persistent.

Leaf-blades several-ribbed.

Leaf-blades plnnately veined.

Calyx persistent: fruit seated on the calyx.

Calyx deciduous: fruit seated on the hypanthium.

Flowers mostly dioecious: stamens 9: leaves deciduous.

Anthers 4-celled, 4-valved: flowers in involucrate umbel-like cymes.

Anthers 2-celled, 2-valved: flowers in umbel-like or cluster-like cymes.

1. CAMPHORA.

2. TAMALA.

3. OCOTEA.

4. GLABRARIA.

5. BENZOIN.

1. **CAMPHORA** [Gronov.] L. Trees or shrubs. Leaves alternate or opposite, persistent: blades entire. Flowers in paniced axillary cymes. Style slender. Stigma minute. Drupe equilateral, as broad as long, or nearly so.

1. **C. Camphora** (L.) Karst. Small tree or shrub: leaf-blades elliptic to ovate, 4-12 cm. long, short-acuminate, pale beneath, long-petioled: panicles slender-peduncled: sepals 1-1.5 mm. long: drupes globose to oval-globose, 6-9 mm. in diameter.—CAMPHOR-TREE.

Woods and thickets, pen. Fla. Nat. of China and Japan. (*W. I.*)

2. **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.—Spr.

Peduncles, pedicels and petioles glabrous or appressed-pubescent: fruit over 1 cm. thick.

Leaf-blades glabrous or nearly so, except sometimes the nerves beneath.

Leaf-blades lustrous-pubescent beneath.

Peduncles, pedicels and petioles tomentose: fruit less than 1 cm. thick.

1. *T. littoralis*.

2. *T. humilis*.

3. *T. pubescens*.

1. **T. littoralis** Small. Shrub or tree: leaf-blades elliptic or oblong-elliptic, 2-5.5 cm. long, mostly obtuse at the apex, bright-green and lustrous above, pale and glabrous beneath, not reticulate, the lateral veins inconspicuous: fruits globular, 12-14 mm. long, purple-black under the bloom. [*Persea littoralis* Small.]—SHORE-BAY.

Coastal hammocks, lower e. coast. (*Endemic.*)

2. **T. humilis** (Nash) Small. Shrub or small tree, the twigs, lower leaf-surfaces and the inflorescence silky-pubescent: leaf-blades elliptic or oblong, 4-10 cm. long, more or less revolute, glabrous and shining above, lustrous beneath: sepals erect, obtuse, the inner oblong, 5 mm. long: fruits globular, about 1.5 cm. long, purplish-black under the bloom. [*Persea humilis* Nash.]—SILK-BAY.

Scrublands, cent. pen. Fla. (*Endemic.*)

3. **T. pubescens** (Pursh) Small. Shrub or small tree, the twigs, lower leaf-surfaces and inflorescence tomentose: leaf-blades narrowly elliptic or elliptic-lanceolate, or rarely oval, 5-20 cm. long, usually obtuse, often acuminate at the apex, slightly revolute: sepals erect, acutish, the inner oblong-obovate, about twice as long as the outer: fruits oval, 8-11 mm. long, dark-blue with a thin bloom. [*Persea pubescens* (Pursh) Sarg.]—SWAMP-BAY. SWAMP RED-BAY.

Hammocks and swamps, nearly throughout Fla. (Cont., W. I.)

3. **OCOTEA** Aubl. Shrubs or trees. Leaves alternate, persistent: blades entire. Flowers in paniced cymes. Sepals 6, nearly similar, somewhat elongate, spreading. Style cylindric: stigma capitate. Drupe somewhat elongate, seated in the cup-like hypanthium from which the calyx has fallen away.

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.—LANCEWOOD.

Hammocks, lower pen. Fla. and the F. Keys. (W. I.)—Winter-spr.

4. **GLABRARIA** L. Shrubs or trees. Leaves alternate (ours deciduous): blades entire. Flowers in clustered umbel-like involucrate cymes. Style subulate. Drupe (ours) subglobose. [*Malapoena* Adans.]

1. **G. geniculata** (Walt.) Britton. A spreading shrub 2-3 m. tall, with zigzag branches: leaf-blades oblong to elliptic, 1.5-6 cm. long: flowers 2-4 together: sepals yellow, 2-3 mm. long: drupes 5-6 mm. in diameter, red.—POND-SPICE.

Ponds, n. Fla. (Cont.)—Winter-spr.

5. **BENZOIN** Fabr. Shrubs or trees, strong-scented. Leaves alternate, deciduous: blades entire. Flowers in sessile cluster-like or umbel-like cymes. Style slender-columnar. Drupes somewhat elongate.—Spr.

Leaf-blades rounded or cordate at the base, stout-petioled.
Leaf-blades narrowed at the base, slender-petioled.

1. *B. melissaefolium*,
2. *B. aestivale*.

1. **B. melissaefolium** (Walt.) Nees. Shrub 3-10 dm. tall, the branches pubescent: leaf-blades quite firm, oblong or ovate-oblong, 3-12 cm. long, acutish, usually short-acuminate, more or less densely pubescent on both sides, rounded or cordate at the base: flowers yellow, in dense lateral clusters, appearing before the leaves: pedicels equalling the sepals or longer: sepals thin, 1-1.5 mm. long: drupe obovoid, nearly 1 cm. long.

About ponds and swamps, w. Fla. (Cont.)

2. **B. aestivale** (L.) Nees. Shrub 1-3 m. tall, the branches often glabrous: leaf-blades obovate, oval or elliptic, 5-12 cm. long, thin, obtuse or usually short-acuminate and acute at the apex, often slightly ciliate, acute or acuminate at the base, deep green and glabrous above, pale or glaucescent and glabrous or sparingly pubescent beneath: flowers yellow, in dense clusters appearing before the leaves, 6-8 mm. broad: pedicels 3-5 cm. long: sepals thin, obovate or oblong, obtuse, truncate or retuse at the apex: drupe oval, about 1 cm. long. [*Lindera Benzoin* (L.) Blume.]—SPICE-BUSH. BENJAMIN-BUSH.

Swamps and stream-banks, n. Fla. (Cont.)

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. Androecium of few or many stamens: anthers opening by slits or pores. Gynoecium 1-several-carpellary. Fruit capsular, baccate, or achene-like.

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 fall-

ing away as a cap: leaves without stipules.

Sepals valvate: leaves with stipules.

Fam. 1. MELASTOMACEAE.

Fam. 2. LYTHRACEAE.

Fam. 3. PUNICACEAE.

Fam. 4. TERMINALIACEAE.

Fam. 5. MYRTACEAE.

Fam. 6. RHIZOPHORACEAE.

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.

1. **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, the hypanthium-neck short.

1. **T. bicolor** (Mill.) Cogn. Shrub or small tree with scaly bark: leaf-blades lanceolate to oblong-lanceolate, 8-20 cm. long, silvery beneath, stout-petioled: panicle 1-2 dm. long: calyx about 1 mm. long: petals white, 7-8 mm. long, cuneate: anthers lanceolate, 5-6 mm. long: berries purple or black, the body 8-10 mm. long.—**TETRAZYGIA**.

Hammocks and pinelands, E. Keys. (W. I.)—Winter-spr.

FAMILY 2. LYTHRACEAE. LOOSESTRIFE FAMILY.

Herbs, shrubs, or 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 in the hypanthium.

Flowers in terminal panicles: stamens numerous.

Flowers in axillary cymes: stamens 8 or 10.

1. **LAGERSTROEMIA**.

2. **DECODON**.

1. **LAGERSTROEMIA** L. Shrubs or trees. Leaves persistent: blades short. Flowers in terminal panicles. Sepals 6. Petals 6, the blades crisped. Stamens numerous. Capsule loculicidally 3-6-valved.

1. **L. indica** L. Small tree or shrub: leaf-blades obovate or oval, 1-2.5 cm. long, entire: sepals shorter than the hypanthium: petals purple, pink, or nearly white, the blades crisped: capsules oval-globose, 8-9 mm. long.—**CRAPE-MYRTLE**.

Fields and roadsides, throughout Fla., except the s. part. Nat. of the E. Indies. (Cont., W. I.)—Spr.-sum.

2. **DECODON** J. F. Gmel. Aquatic shrubs. Leaves deciduous: blades entire, somewhat elongate. Flowers in axillary peduncled cymes. Sepals 5-7, alternating and small teeth. Petals 5-7. Stamens 10 or rarely 8, alternating short and long, the longer exerted. Capsule loculicidally 3-6-valved.

1. **D. verticillatus** (L.) Ell. Stems arching, mostly 4-16 dm. long: leaf-blades lanceolate or elliptic-lanceolate, 3-20 cm. long: sepals acuminate: petals purple,

lanceolate to ovate, 7-9 mm. long: capsules about 5 mm. in diameter.—SWAMP LOOSE-STRIFE.

Swamps and ponds, n. Fla. (*Cont.*)—Spr.-sum.

FAMILY 3. PUNICACEAE. POMEGRANATE FAMILY.

Shrubs or trees. Leaves opposite or nearly so, persistent: blades simple. Flowers perfect, solitary or in short-peduncled 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. Small tree or shrub: leaf-blades oval, elliptic, or oblong, varying to broadest above or below the middle, 1-8 cm. long: sepals triangular to triangular-lanceolate: petals scarlet, 1.5-2.5 cm. long: berries subglobose or spheroidal, 5-10 cm. in diameter.—POMEGRANATE.

Woods and waste places, nearly throughout Fla. Nat. of s. Eu. (*W. I.*)

FAMILY 4. TERMINALIACEAE. WHITE-MANGROVE FAMILY.

Shrubs or trees, or woody vines. Leaves alternate or opposite: blades simple, leathery. Flowers often apetalous, regular, perfect or polygamous, racemose or capitate. Calyx of 4-5 valvate deciduous or rarely persistent sepals. Corolla of 4-5 petals, or wanting. Androecium of twice, or rarely thrice, as many stamens as the sepals. Filaments distinct. Gynoecium a single carpel. Ovary 1-celled. Style terminal. Stigma entire or nearly so. Fruit drupaceous or berry-like, indehiscent, often crowned with the accrescent calyx.

Sepals deciduous: corolla wanting.
Sepals persistent: corolla present.

1. CONOCARPUS.
2. LAGUNCULARIA.

1. **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, with glabrous or fine-silky foliage: 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.—BUTTONWOOD.

Coastal hammocks and sandy shores, pen. Fla., and on the E. Keys and F. Keys. (*W. I.*)

2. **LAGUNCULARIA** Gaertn. 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** Gaertn. f. Shrub, or tree sometimes 20 m. tall: leaf-blades oblong, varying to oval or obovate, 2-5 cm. long, entire: spikes 3-6 cm. long: drupes oblong-obovoid, 2 cm. long.—WHITE-MANGROVE. WHITE-BUTTONWOOD.

Sandy shores and coastal hammocks, pen. Fla., and on the E. Keys and F. Keys. (*W. I.*)

FAMILY 5. MYRTACEAE. MYRTLE FAMILY.

Shrubs or trees, or rarely herbs, abounding in pungent and aromatic volatile oil. Leaves opposite, or rarely alternate or whorled: blades often

simple, pellucid-punctate, flat, terete or semiterete, often with nerves parallel with the margins. Flowers perfect, regular. Calyx of 4 or 5, or many, valvate or imbricate, persistent sepals, or cap-like and deciduous. Petals borne on the margin of a hypanthium or wanting. Androecium of numerous stamens, or very rarely of as many as the sepals. Gynoecium compound. Ovary inferior or partly so, 1-many-celled. Styles united. Fruit 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.

Leaf-blades broadest below the middle: fruit broader than long.

1. *E. buxifolia*.

Leaf-blades broadest above the middle: fruit longer than broad.

2. *E. axillaris*.

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 4-5 mm. broad; petals longer than wide: fruits oval or oblong-oval, 6-7 mm. broad, black.—SPANISH-STOPPER.

Coastal hammocks of lower pen. Fla. and further n. on the eastern coast, and in the hammocks of the E. Keys and F. Keys. (W. I.)—Sum.

2. **E. axillaris** (Sw.) Willd. Shrub or small tree, the bark scaly: 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.—WHITE-STOPPER.

Coastal hammocks of the lower eastern coast, and those of the E. Keys and F. Keys. (W. I.)—Sum.

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.

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.

Petals 4-5 mm. long: calyx less than 1 cm. wide.

2. *A. longipes*.

Petals 6-7 mm. long: calyx over 1 cm. wide.

3. *A. bahamensis*.

1. **A. dicrana** (Berg) Britton. Shrub, or small 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.—NAKED-STOPPER.

Hammocks, coastal region of lower pen. Fla. and further n. on the eastern coast, and on the E. Keys and F. Keys. (W. I.)

2. **A. longipes** (Berg) Britton. Shrub or small tree, with prostrate-diffuse or sometimes erect stems: 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.—LONG-STALKED STOPPER.

Pinelands and about hammocks, E. Keys and F. Keys. (W. I.)

3. **A. bahamensis** (Kiaersk.) Britton. Shrub with diffuse branches or a small tree: leaf-blades orbicular, oval, or elliptic, or somewhat ovate, mostly 2-4 cm.

long, very thick, shining above, obscurely reticulate beneath: peduncles and pedicels strongly flattened: corolla about 1.5 cm. wide; petals white or nearly so: fruits about 1 cm. in diameter. [*Eugenia bahamensis* Kiaersk.]

Pinelands, Big Pine Key. (W. I.)

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. Tree sometimes 8 m. tall, with roughish bark, or a shrub: 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.—GUAVA.

Hammocks, pinelands, thickets, and fields, pen. Fla. and the F. Keys. (W. I.)

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.

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. 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 during anthesis: calyx pubescent, less than 2 mm. in diameter: fruits subglobose or oval, 5-7 mm. in diameter, pubescent: seeds about 4 mm. long.—SPICEWOOD.

Hammocks, lower eastern coast, and on the E. Keys and F. Keys. (W. I.)

2. C. Zuzygium (L.) Sw. 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 during anthesis: calyx glabrous 3.5-4 mm. wide: fruits subglobose or spheroidal, 8-10 mm. in diameter, glabrous: seeds about 5 mm. long.—MYRTLE-OF-THE-RIVER.

Hammocks, E. Keys. (W. I.)

FAMILY 6. RHIZOPHORACEAE. MANGROVE FAMILY.

Maritime 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 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 united. Fruit a leathery berry crowned with or surrounded by the calyx.

1. RHIZOPHORA L. Evergreen trees. Leaf-blades leathery, entire. Flowers 2-several in peduncled clusters. Sepals 4, leathery. Petals 4, leathery. Stamens 4-12. Ovary 2-celled, provided with a fleshy cone at maturity. Fruits pendulous, the seed germinating and sending out a long radicle before the fruits fall.

1. R. Mangle L. Shrub, or tree becoming 10 m. tall, with pale ultimately furrowed bark, forming impenetrable thickets on salt and 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 radicle becoming several dm. long.—MANGROVE.

Coasts of s. pen. Fla., and on the shores of creeks and rivers to the limit of salt or brackish water, and on the F. Keys. (*W. I.*)

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 sepals surmounting the hypanthium. Corolla typically of 5 petals, or wanting. Androecium of as many stamens as the sepals. Gynoecium 2-carpellary or rarely several-1-carpellary. Ovary inferior. Fruit drupaceous or baccate, or dry and then a cremocarp.

Style single: leaves opposite.
Styles several: leaves alternate.

Fam. 1. NYSSACEAE.
Fam. 2. HEDERACEAE.

FAMILY 1. NYSSACEAE. DOGWOOD FAMILY.

Shrubs or trees, or rarely partly herbaceous plants. Leaves opposite or alternate: blades usually entire. Flowers perfect or unisexual, borne in naked or involucrate open or congested cymes. Calyx of mostly 4 or 5 sepals. Corolla of 4 or 5, or rarely more, petals, or wanting. Androecium of usually as many stamens as the sepals. Gynoecium of 1 or of 2-4 united carpels. Styles united. Fruit mostly a drupe.

Flowers in open cymes, not subtended by an involucre: fruit surmounted by the style.

1. *SVIDA*.

Flowers in a head subtended by a large involucre: fruit surmounted by the calyx.

2. *CYNOXYLON*.

1. **SVIDA** Opiz. Shrubs or trees. Leaves opposite or rarely alternate. Flowers in naked corymb-like cymes. Sepals 4, minute. Petals 4, white, spreading. Stamens 4. Drupe globular or depressed.—Spr.—CORNEL.

Leaves glabrous.

1. *S. stricta*.

Leaves pubescent.

Drupes about 4 mm. in diameter; stone longer than wide.

2. *S. microcarpa*.

Drupes 6-8 mm. in diameter; stone wider than long.

3. *S. Amomum*.

1. **S. stricta** (Lam.) Small. Shrub, or small tree with smoothish bark: leaf-blades elliptic, oval, or ovate, 4-12 cm. long: petals linear-oblong to linear-lanceolate: drupes 5-6 mm. in diameter, pale-blue.

Swamps, n. Fla. and adj. pen. (*Cont.*)

2. **S. microcarpa** (Nash) Small. Shrub with brownish twigs: leaf-blades oval or elliptic, 3-9 cm. long: petals ovate-lanceolate to oblong-lanceolate: drupes about 4 mm. in diameter, light-blue.

Low woods, n. Fla. (*Ga.*)

3. **S. Amomum** (Mill.) Small. Shrub with purple twigs: leaf-blades lanceolate to broadly ovate, 3-13 cm. long: drupes 6-8 mm. in diameter, pale-blue.

Banks of streams, n. Fla. (*Cont.*)

2. **CYNOXYLON** Raf. Trees. Leaves opposite. Flowers perfect, borne in involucrate heads. Sepals 4, broadly ovate to oblong. Petals 4, greenish or yellow-green, recurving. Stamens 4. Drupe elongate.—DOGWOOD.

1. *C. floridum* (L.) Raf. Tree sometimes 15 m. tall, with rough black bark, or shrub: leaf-blades elliptic to oval, 5-18 cm. long, pale beneath: involucrel bracts white or pink, obovate, 4-6 cm. long: petals linear, 3-4.5 mm. long: drupes oblong to oval, about 15 mm. long, red.—FLOWERING-DOGWOOD.

Woods, n. Fla. and the upper pen. (Cont.)—Spr.

FAMILY 2. HEDERACEAE. IVY FAMILY.

Herbs, shrubs, trees, or vines. Leaves alternate: blades simple or compound. Flowers perfect or polygamous, often umbellate. Calyx of 5 sepals, or obsolete. Corolla of 5 or 10 petals. Gynoecium of 2-5 united carpels. Styles often distinct. Fruit a berry or a drupe.

1. *ARALIA* [Tourn.] L. Perennial herbs, or shrubs or trees, sometimes prickly-armed or spiny. Leaves alternate: blades pinnately or ternately compound. Umbel compound. Ovary mostly 5-celled. Styles distinct. Fruit black.

1. *A. spinosa* L. Shrub or small tree, prickly-armed: blades of the leaflets leathery: hypanthium broad-turbinate: petals longer than the hypanthium: berries 6-7 mm. in diameter: seeds about 4 mm. long.—PRICKLY-ASH. HERCULES'-CLUB.

Rich woods and swamps, n. Fla. (Cont.)—Sum.

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.

Gynoecium with a superior ovary: fruit capsular.

Petals distinct, short: pollen-grains simple.

Fam. 1. CLETHRACEAE.

Petals more or less united, except in *Bejaria*, which has

Fam. 2. ERICACEAE.

long petals: pollen-grains compound.

Gynoecium with an inferior ovary: fruit baccate or drupaceous. Fam. 3. VACCINIACEAE.

FAMILY 1. CLETHRACEAE. WHITE-ALDER FAMILY.

Shrubs or trees, the pubescence of branched hairs. Leaves deciduous: blades mostly toothed. Flowers in racemes or panicles. Calyx of 5 persistent sepals. Corolla white, of 5 distinct petals. Androecium of 10 stamens: filaments elongate: anthers inverted in anthesis. Gynoecium of 3 united carpels: stigmas 3. Fruit a 3-valved loculicidal capsule.

1. *CLETHRA* [Gronov.] L. Erect shrubs or trees, with toothed leaf-blades and elongate racemes or panicles.—Sum.—PEPPERBUSH. WHITE-ALDER.

Sepals acute: leaf-blades glabrous beneath, or nearly so.

1. *C. alnifolia*.

Sepals obtuse: leaf-blades tomentose beneath.

2. *C. tomentosa*.

1. *C. alnifolia* L. Shrub 1-3 m. tall, the twigs sparingly pubescent: leaf-blades obovate or cuneate, 3-8 cm. long: pedicels 1-3 mm. long: sepals oblong to

lanceolate, 2.5-3 mm. long: petals 5-6 mm. long: capsules subglobose, 2.5-3 mm. in diameter, erect.—SWEET-PEPPERBUSH.

Moist woods, n. Fla. (Cont.)

2. *C. tomentosa* Lam. Shrub 1-3 m. tall, the twigs tomentose; leaf-blades obovate to narrowly or broadly cuneate, 4-10 cm. long: pedicels 2-5 mm. long: sepals oval or ovate-oblong, 3-3.5 mm. long: petals 5-6 mm. long: capsules spheroidal, 4-4.5 mm. in diameter, drooping.

Swamps, n. and w. Fla. (Cont.)

FAMILY 2. 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.

Erect, diffuse or climbing shrubs.

Fruit a septelcidal capsule.

Corolla of distinct petals.

Corolla of partly united petals.

Corolla funnelliform or campanulate: anthers not springing from sacs in the corolla.

Corolla funnelliform; limb 2-lipped.

Corolla campanulate, limb scarcely 2-lipped.

Corolla rotate: anthers springing from sacs in the corolla.

Sepals persistent: capsule spheroidal: corolla-lobes obtuse.

Sepals deciduous: capsule ovoid: corolla-lobes acute.

Fruit a loculicidal capsule.

Anther-sacs opening by terminal pores or chinks.

Calyx-lobes imbricate.

Anther-sacs awnless: calyx not bracteolate: bracts persistent.

Anther-sacs awned: calyx bibracteolate: bracts deciduous.

Calyx-lobes valvate.

Anther-sacs awned: capsule-sutures not thickened.

Calyx several times exceeded by the corolla: capsule prominently lobed.

Calyx about $\frac{1}{2}$ as long as the corolla: capsule slightly lobed.

Anther-sacs awnless: capsule-sutures thickened. Filaments appendaged: corolla about twice as long as the calyx.

Style fusiform: corolla of an urceolate type: leaf-blades with intramarginal veins: sepals persistent.

Style columnar: corolla of a cylindrical-campanulate type: leaf-blades without intramarginal veins: sepals deciduous.

Filaments unappendaged: corolla several times exceeding the calyx.

Capsule longer than thick, prominently angled: lepidote shrubs with persistent leaves: flowers in axillary clusters.

Capsule depressed, not angled: pubescent shrubs with deciduous leaves: flowers in panicle racemes.

Anther-sacs opening lengthwise.

Prostrate shrub with creeping branches.

1. BEJARIA.

2. AZALEA.

3. RHODODENDRON.

4. KALMIA.

5. KALMIELLA.

6. LEUCOTHOË.

7. EUBOTRYS.

8. ZENOBIA.

9. AMPELOTHAMNUS.

10. DESMOTHAMNUS.

11. NEOPIERIS.

12. XOLISMA.

13. ARSENOCOCCUS.

14. OXYDENDRON.

15. EPIGAEA.

1. *BEJARIA* Mutis. Evergreen shrubs. Leaves alternate: blades thick. Calyx-lobes 6-7. Petals broadened upward. Stamens 12-14: anthers with terminal pores. Ovary 6-7-celled. Capsule 6-7-valved.

1. **B. racemosa** Vent. Shrub 1-2.5 m. tall, the branches hirsute: leaf-blades mainly oblong to oval, 2.5-5 cm. long: calyx about 4 mm. long: petals white, spatulate or linear-spatulate, 2-2.5 cm. long, glutinous: filaments pubescent: capsules spheroidal, 6-9 mm. wide.

Pine-lands and sandy soil, e. Fla. and the pen. (Ga.)—Spr.-sum., or all year southward.

2. **AZALEA** L. Erect deciduous-leaved shrubs. Leaves alternate: blades sometimes bristle-toothed. Calyx deciduous: lobes 5, conspicuously ciliate. Corolla variously colored, funnellform: tube elongate: limb 2-lipped. Stamens 5 or rarely 10, conspicuously exerted: anthers with terminal pores. Style declined. Capsule elongate.—WILD-HONEYSUCKLE.

Flower-clusters appearing before the leaves, or as the leaves unfold.

Corolla red, yellow, or orange.

Corolla pink, white, or purplish.

Corolla-tube hirsute or strigose.

Corolla-tube glandular-pubescent.

Flower-clusters appearing after the leaves.

Leaf-blades permanently white- or pale-tomentose beneath: capsules pale-canescens.

Leaf-blades with scattered hairs, sometimes pubescent only on the midrib: capsule, as far as known hirsute.

Leaf-blades predominatingly of an obovate, cuneate, or oblong-oblancoate type.

Leaf-blades predominatingly of an oblong or oval type.

1. *A. austrina*.

2. *A. nudiflora*.

3. *A. canescens*.

4. *A. candida*.

5. *A. viscosa*.

6. *A. serrulata*.

1. **A. austrina** Small. Shrub mostly 3 m. tall or less with irregular branches and softly pubescent and usually glandular twigs: leaf-blades oval, obovate, oblong, or oblong-spatulate, 2.5-9 cm. long, acute or abruptly gland-tipped, rather firm in age, finely pubescent, usually permanently so, ciliate, short-petioled: pedicels glandular-pubescent: calyx-lobes deltoid to triangular-lanceolate, acute, glandular-ciliate: corolla yellow or orange, 2-3 cm. long, the tube scarcely dilated up to the limb, finely glandular-pubescent, the lobes broad, acute or abruptly short-acuminate: capsules rather slender, slightly narrowed upward, 2-2.5 cm. long, finely glandular-pubescent.

Woods and stream-banks, Chattahoochee region, n. Fla. (Endemic.)—Spr.

2. **A. nudiflora** L. Shrub 3 m. tall or less with irregularly branched stems and minutely pubescent and more or less strigose twigs: leaf-blades oblong to obovate or oblong-obovate, 3-10 cm. long, thick and firm in age, acute or abruptly gland-tipped, strigose on or near the veins beneath, or glabrous, except the margins, short-petioled: pedicels strigose or hirsute-strigose: calyx-lobes ovate to half-orbicular, copiously ciliate: corolla pink or white, or purplish, 2.5-3.5 cm. long, the tube gradually dilated above the middle, pilose or strigose, and sometimes sparingly glandular, the lobes rather broad, abruptly pointed: capsules oblong, linear-oblong or somewhat narrowed upward, strigose or hirsute-strigose.—PINXTER-FLOWER.

Woods and thickets, n. Fla. (Cont.)—Spr.

3. **A. canescens** Michx. Shrub 4 m. tall or less with diffuse or spreading branches and minutely soft-pubescent and usually also strigose twigs: leaf-blades elliptic, elliptic-oblancoate, oblancoate, or narrowly obovate, thickish and firm at maturity, 4-10 cm. long, acute and gland-tipped or sometimes abruptly pointed, ciliate with scattered hairs above or nearly glabrous, permanently tomentose-canescens beneath, short-petioled: pedicels canescens and more or less hirsute: calyx-lobes deltoid to ovate, ciliate: corolla pink, rose, or rarely white, 1.5-2 cm. long, or rarely somewhat longer, the tube finely glandular-pubescent, abruptly dilated near the throat, the lobes acute: capsules slender, narrowed upward, 1.5-3 cm. long, canescens and hirsute.

Stream-banks, n. Fla. (Cont.)—Spr.

4. **A. candida** Small. Shrub 2 m. tall or less with widely branched stems and tomentulose and often somewhat glandular twigs: leaf-blades obovate,

obovate-oblong, cuneate, or oblong, leathery at maturity, 1-7 cm. long, acute or abruptly gland-tipped, thinly fine-pubescent above, white- or pale-tomentose beneath and sometimes reticulate-veiny, short-petioled: pedicels glandular-pubescent: calyx-lobes deltoid, ciliate, obtuse: corolla white or pinkish: capsules narrow, gradually narrowed upward, 2-2.5 cm. long, canescent, curved.

Hammocks and low woods, n. Fla. and the adj. pen. (*Ga.*)—Spr.-sum.

5. *A. viscosa* L. Shrub 0.5-3 dm. tall with loosely pubescent twigs, sometimes diffusely branched: leaf-blades cuneate or obovate, or individually oblong or elliptic-oblong, 2-6 cm. long, thickish, usually abruptly gland-tipped, ciliate, pubescent on the midrib beneath, dull, shining or glaucous, especially beneath, short-petioled: pedicels glandular-pubescent: calyx-lobes ovate to oblong-ovate, pectinate-ciliate, obtuse: corolla white or pink, 2.5-3.5 cm. long, the tube rather abruptly dilated near the limb, the lobes acute or abruptly acuminate: capsules oblong-ovoid, 1.5-2 cm. long, glandular-hirsute.—SWAMP-AZALEA.

Swamps, n. Fla. and the upper pen. (*Cont.*)—Spr.-sum.

6. *A. serrulata* Small. Shrub 4 m. tall or less with irregularly spreading branches and sparingly strigose twigs: leaf-blades oblong or oval, or individually elliptic-oblong, 4-9 cm. long, abruptly gland-tipped, serrulate-ciliate, shining, finely reticulate, glabrous, except for scattered hairs on the midrib and on the short petiole: pedicels glandular-hirsute: calyx-lobes ovate, long-ciliate, obtuse: corolla white, 3-3.5 cm. long, the tube somewhat enlarged near the base, expanded near the limb, glandular-pubescent, the lobes narrow, acute or acuminate: capsules not seen.

Wet hammocks, pen. Fla. (*Endemic.*)—Sum.

3. *RHODODENDRON* L. Evergreen shrubs or trees. Leaves alternate: blades leathery, not ciliate. Calyx persistent: lobes broad and short. Corolla variously colored, campanulate: tube very short: limb 2-lipped. Stamens usually 10, slightly exserted with terminal pores. Style declined. Capsule elongate.

1. *R. Chapmanii* A. Gray. Shrub 1-2 m. tall, the twigs scurfy: leaf-blades oblong to oval, 2-5 cm. long, obtuse, resiniferous: corolla rose-colored, mottled within; tube broadly funnelform, 16-20 mm. long; lobes crisped: capsules nearly 1 cm. long.

Pinelands, w. Fla. (*Endemic.*)—Spr.—Not recently collected.

4. *KALMIA* L. Evergreen shrubs or trees. Leaves alternate, opposite, or whorled: blades entire. Calyx persistent: lobes 5, leathery. Corolla regular, white or pink, rotate, the lobes obtuse: tube short, with 10 sacs. Stamens 10: filaments elastically straightening at maturity: anthers short, attached near the top. Capsule spheroidal.

1. *K. latifolia* L. Shrub, or tree becoming 12 m. tall, the twigs often fuzzy when young: leaf-blades elliptic to oval, 5-12 cm. long, glabrous: sepals oblong to oblong-ovate, about 2 mm. long: corolla white or pink, 20-25 mm. wide: capsules 5-7 mm. wide.—CALICO-BUSH. LAUREL. MOUNTAIN-LAUREL.

Woods or shaded banks, w. Fla. (*Cont.*)—Spr.-sum.

5. *KALMIELLA* Small. Evergreen low shrubs. Leaves alternate: blades relatively small. Calyx deciduous: lobes 5, foliaceous. Corolla regular, pink, mainly similar to that of *Kalmia*, but lobes acute. Stamens 10: filaments elastic: anthers short, attached near the middle. Capsule of an ovoid type.

1. *K. hirsuta* (Walt.) Small. Shrub 1-6 dm. tall, twigs hirsute: leaf-blades oblong, lanceolate or oval-orbicular, 4-10 mm. long: pedicels 4-10 mm. long,

hirsute: calyx-lobes oblong-lanceolate, 5-7 mm. long, acuminate: corolla 10-15 mm. wide: capsules about 3 mm. long.—WICKY.

Pinelands, nearly throughout Fla., except the F. Keys. (Cont.)—Spr.—sum.

6. **LEUCOTHOË** D. Don. Evergreen shrubs with weak stems and branches. Leaves alternate: blades shallowly toothed, sometimes obscurely so, or entire. Flowers in racemes from the axils of the persistent leaves. Calyx-lobes longer than the tube; corolla white, ovoid or mostly urceolate: lobes very short. Stamens 10, included: anthers awnless. Capsule depressed.—Spr.—FETTER-BUSH.

Leaf-blades toothed: filaments papillose-pubescent, straight: anthers prominently bimucronate. 1. *L. axillaris*.

Leaf-blades entire: filaments villous, sigmoid-curved above: anthers obscurely bimucronate. 2. *L. acuminata*.

1. **L. axillaris** (Lam.) D. Don. Shrub 1-2 m. tall: leaf-blades oblong to oblong-lanceolate, 4-15 cm. long: larger calyx-lobes ovate: corolla 6-7 mm. long; lobes ovate: capsules 6-7 mm. wide.

Swamps and damp woods, n. Fla. and the adj. pen. (Cont.)

2. **L. acuminata** (Ait.) D. Don. Shrub 1-4 m. tall: leaf-blades lanceolate to ovate-lanceolate, 3-10 cm. long: larger calyx-lobes broadly ovate, ciliolate: corolla 8-10 mm. long; lobes ovate: capsules about 5-6 mm. wide.

Pond-margins and swamps, n. Fla. and the adj. pen. (Cont.)

7. **EUBOTRYS** Nutt. Deciduous-leaved shrubs with rigid stems and branches. Leaves alternate: blades finely toothed. Flowers in terminal racemes. Calyx-lobes very short. Stamens 10, included: anthers awned. Capsule depressed.—Spr.

Calyx less than $\frac{1}{2}$ as long as the corolla: capsule exceeding the calyx-lobes.

1. *E. racemosa*.

Calyx over $\frac{1}{2}$ as long as the corolla: capsule shorter than the calyx-lobes.

2. *E. elongata*.

1. **E. racemosa** (L.) Nutt. Shrub 1-4 m. tall, the twigs glabrous, at least in age: leaf-blades oblong or elliptic, 2-7 cm. long: calyx-lobes triangular, becoming triangular-lanceolate or deltoid-ovate: corolla 8-9 mm. long: anthers much shorter than the filaments: capsules 4-5 mm. wide.

Swamps and damp thickets, n. Fla. and the upper pen. (Cont.)

2. **E. elongata** Small. Shrub 1-3 m. tall, the twigs copiously pubescent: leaf-blades oblong or elliptic, or sometimes oblong-lanceolate or oblong-ovate, 2-5 cm. long: calyx-lobes lanceolate, often narrowly so: corolla 7-8 mm. long: anthers slightly longer than the filaments: capsules 3-4 mm. wide.

Swamps and wet sandy places n. Fla. (Cont.)

8. **ZENOBI**A D. Don. Deciduous-leaved shrubs. Leaves alternate: blades entire or shallowly toothed. Flowers in clusters from axillary buds. Calyx-lobes 5, longer than the tube. Corolla white or pink, often campanulate: lobes 5, very broad. Stamens 10, included: anthers slender-awned. Capsule depressed.—Spr.

Pedicels and lower surfaces of the leaf-blades green: calyx less than 7 mm. wide.

1. *Z. cassinifolia*.

Pedicels and lower surface of the leaf-blades densely glaucous: calyx over 7 mm. wide.

2. *Z. pulverulenta*.

1. **Z. cassinifolia** (Vent.) Pollard. Shrub 1-2 m. tall, the foliage green: leaf-blades oblong, varying to ovate or obovate, 2-6 cm. long, shallowly serrate: corolla 8-10 mm. long.

Low pinelands, n. Fla. (Cont.)

2. **Z. pulverulenta** (Willd.) Pollard. Shrub 1-2 m. tall, the foliage glaucous: leaf-blades oblong to oval, 2-7 cm. long, entire or obscurely serrate: corolla 6-7 mm. long.

Pineland-swamps or low pinelands, n. Fla. (Cont.)

9. **AMPELOTHAMNUS** Small. Evergreen shrubs or woody vines, the branches nearly terete. Leaves alternate: blades rather broad, leathery, more or less toothed above the middle, short-petioled. Flowers in raceme-like panicles which are borne solitary in the leaf-axils. Calyx-lobes 5, of a lanceolate type, appressed to the corolla, leathery. Corolla white, ovoid, the tube slightly, if at all angled: lobes very short, nearly erect. Filaments flat, broad, sigmoid-curved near the top, unappendaged: anthers appendaged. Capsule spheroidal.

1. **A. phillyreifolius** (Hook.) Small. Shrub with weak branches and puberulent twigs, or a vine: leaf-blades oblong to elliptic, or oval, or rarely oblong-ob lanceolate or obovate, 2-7 cm. long, serrate near the apex: calyx-lobes lanceolate or narrowly triangular-lanceolate, mostly $\frac{1}{2}$ as long as the corolla: corolla 7-8.5 mm. long: capsules slightly depressed, 3-4 mm. long.

Shallow ponds, swamps, low thickets, and low pinelands, m. and w. Fla. (Ga.)—Winter-spr.

10. **DESMOTHAMNUS** Small. Evergreen shrubs with prominently angled branches and glabrous foliage. Leaves alternate: blades thick-leathery, broad, entire, with intramarginal veins, short-petioled. Flowers in clusters axillary to the leaves of the preceding year. Calyx-lobes 5, narrow, somewhat succulent, persistent. Corolla white, pink, or red, ovoid-conic, urceolate, nodding, constricted at the orifice. Filaments slender above the slightly dilated bases, glabrous, each with a pair of appendages near the top: anthers unappendaged. Style fusiform. Capsule globose or ovoid-globose, rounded at the apex, the sutures thickened.

1. **D. nitidus** (Bartr.) Small. Evergreen shrub 1.5-2 m. tall: leaf-blades leathery, elliptic to oval or obovate, 2-8 cm. long, abruptly acuminate: flower-clusters axillary: calyx-lobes narrowly lanceolate, acuminate: corolla white or rose, 7-9 mm. long, fully twice as long as the calyx: capsules 3.5-4 mm. long.—Spr.—FETTER-BUSH.

Low pinelands and swamps, nearly throughout Fla., except the F. Keys. (Cont.)

11. **NEOPIERIS** Britton. Deciduous-leaved shrubs with terete branches and sparingly pubescent or glabrate foliage. Leaves alternate: blades thin-leathery, broad, entire, without intramarginal veins, short-petioled. Flowers in clusters along the leafless branches of the previous year. Calyx-lobes 5, narrow, deciduous with the leaves. Corolla white or pale, cylindraceous-campanulate, nodding. Filaments flat, pubescent, each with a pair of appendages near the top: anthers unappendaged. Style columnar. Capsule of an ovoid type, truncate at the contracted apex, the sutures much thickened.

1. **N. mariana** (L.) Britton. Deciduous-leaved shrub 1-2 m. tall: leaf-blades membranous, oblong to oval, or nearly so, 2-6 cm. long, obtuse or apiculate: flower-clusters lateral: calyx-lobes broadly lanceolate, acute: corolla white or

pinkish, 10–12 mm. long, less than twice as long as the calyx: capsules 7–9 mm. long.—STAGGER-BUSH.

Low woods, swamps, and pinelands, n. Fla. and the upper pen. (Cont.)—Spr.

12. **XOLISMA** Raf. Evergreen shrubs with lepidate foliage. Leaves alternate: blades leathery, or entire or nearly so, often reticulate, short-petioled. Flower-clusters in the axils of the persistent leaves of the previous year. Calyx-lobes broad, short, persistent. Corolla white or pink, globular to urceolate, with short spreading or recurved lobes. Filaments tapering up to the anthers, unappendaged. Capsule somewhat elongate, often of an ovoid type, prominently angled.—Spr.

Leaves slightly reduced toward the ends of the branches; blades inconspicuously reticulate.

Leaves much reduced toward the ends of the branches; blades prominently reticulate.

1. *X. ferruginea*.

2. *X. fruticosa*.

1. **X. ferruginea** (Walt.) Heller. Evergreen tree sometimes 5 m. tall or shrub: leaves not much reduced in size at the ends of the branches; blades elliptic, oval, obovate, or oblanceolate, 2.5–7 cm. long, scarcely reticulate: corolla 2.5–3 mm. long, angled at the base: capsules 4.5–5 mm. long.

Hammocks and scrublands, n. Fla. and the upper pen. (Cont.)

2. **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, e. and pen. Fla. (Cont.)

13. **ARSENOCOCCUS** Small. Deciduous-leaved shrubs with more or less pubescent foliage. Leaves alternate: blades membranous or thickish, sessile or short-petioled. Flower-clusters in terminal paniced racemes. Calyx-lobes broad, short, persistent. Corolla urceolate, usually globular or depressed, with very short spreading or recurved lobes. Filaments thickened below the anthers, unappendaged. Capsules depressed, usually spheroidal, not angled.—Spr.—MALE-BERRY.

Racemes and panicles naked or nearly so.

Racemes and panicles leafy-bracted.

1. *A. frondosus*.

2. *A. ligustrinus*.

1. **A. frondosus** (Pursh) Small. Deciduous-leaved shrub 1–4 m. tall: leaf-blades oblong to narrowly elliptic, or sometimes oval or obovate, 2–8 cm. long, serrulate: corolla mostly less than 3.5 mm. long, often depressed: capsules mainly 2.5–3 mm. wide. [*Andromeda paniculata foliosiflora* Michx.]

Swamps and low pinelands, e. and pen. Fla. (Cont.)

2. **A. ligustrinus** (L.) Small. Deciduous-leaved shrub 1–4 m. tall: leaf-blades oblong, elliptic, or obovate, 3–7 cm. long, entire or indistinctly serrulate: corolla mostly over 3.5 mm. long, not depressed: capsules mainly 3–4 mm. wide.

Hillsides and swamps, m. and w. Fla. (Cont.)

14. **OXYDENDRON** DC. Deciduous-leaved shrubs or trees. Leaves alternate: blades serrate. Flowers drooping in horizontally expanded panicles. Calyx-lobes 5, persistent. Corolla white, ovoid or conic, 5-lobed. Filaments dilated, pubescent all over: anthers linear, awnless, narrower than the filaments. Stigma entire. Capsule ovoid, erect on a recurved pedicel, the valve-margins thickened.

Shrubs of Florida—7

1. *O. arboreum* (L.) DC. Shrub or tree becoming 20 m. tall: leaf-blades oblong, elliptic, or oblong-lanceolate, 8-20 cm. long, acuminate: panicles 1-2 dm. long, the pedicels strongly curved at maturity: calyx-lobes ovate: corolla 6-7 mm. long, pubescent like the calyx: capsules 4-6 mm. long, pubescent.—SOUR-WOOD. SORREL-TREE.

Open woods, n. Fla. (Cont.)—Sum.

15. *EPIGAEA* L. Evergreen creeping shrubs. Leaves alternate: blades entire. Flowers perfect or deciduous, in axillary clusters. Calyx-lobes 5, persistent, but scarcely accrescent. Corolla white or pink, salverform, the limb 5-lobed. Filaments slender, with a tuft of hairs near the middle: anthers oblong-ovoid, awnless. Stigma 5-lobed. Capsule depressed.

1. *E. repens* L. Stem or branches 5-30 cm. long, hirsute: leaf-blades oblong to oblong-ovate or suborbicular, 2-10 cm. long, finely reticulate: calyx-lobes lanceolate, acuminate: corolla about twice as long as the calyx; lobes ovate: capsules 5-7 mm. wide.—TRAILING-ARBUTUS.

Dry sandy soil, n. Fla. (Cont.)—Spr.

FAMILY 3. 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 $\frac{1}{2}$ inferior. Fruit a berry or a drupe.

Ovary 10-celled: fruit a berry-like drupe with 10 nutlets.

1. GAYLUSSACIA.

Ovary 4-5-celled: fruit a many-seeded berry.

Corolla campanulate.

Stamens included: hypanthium jointed to the pedicel.

2. BATODENDRON.

Stamens exserted: hypanthium continuous with the pedicel.

3. POLYCODIUM.

Corolla globose, ovoid, urn-shaped to cylindrical.

4. VACCINIUM.

1. *GAYLUSSACIA* H.B.K. Shrubs. Leaves deciduous: blades entire, commonly reticulate-veiny. Flowers in lateral racemes. Sepals 5. Corolla campanulate, globular-campanulate or conic. Stamens included: anthers tubular at the top, unappendaged. Drupe globular, with 10 nutlets.—Spr.—HUCKLEBERRY.

Pubescence consisting of gland-tipped hairs: drupes not glaucous.

Twigs and racemes pubescent with short close-set hairs: stamens less than 5 mm. long.

1. *G. dumosa*.

Twigs and racemes bristly-hispid: stamens over 5 mm. long.

2. *G. hirtella*.

Pubescence consisting of simple non-glandular hairs: drupes glaucous.

Leaves glaucous, glabrous or nearly so.

3. *G. nana*.

Leaves densely tomentose, especially beneath.

4. *G. tomentosa*.

1. *G. dumosa* (Andr.) A. Gray. Shrub 1-5 dm. tall: leaf-blades oval, obovate or oblanceolate, or rarely narrower, 2-4 cm. long: hypanthium and sepals minutely glandular-pubescent: sepals reniform, deltoid, or ovate-deltoid: corolla 4-6 mm. long: drupes 6-8 mm. in diameter.—DWARF BLACK-HUCKLEBERRY.

Pinelands, n. Fla. and the upper pen. (Cont.)

2. *G. hirtella* (Ait.) T. & G. Shrub somewhat larger than the preceding: leaf-blades oblanceolate-spatulate to elliptic, 3-6 cm. long: hypanthium and sepals glandular-hirsute: sepals ovate to triangular: corolla 7-9 mm. long: drupes 8-10 mm. in diameter.

River-banks and swamp-margins, n. Fla. (Cont.)

3. *G. nana* (A. Gray) Small. Shrub 1-6 dm. tall, with glaucous foliage: leaf-blades elliptic, obovate, or nearly spatulate, 2-3 cm. long, rugose, often very prominently so, and globular-resiniferous beneath: hypanthium and sepals glabrous, glaucous: anthers about as long as the filaments: drupes 6-7 mm. in diameter.

Pinelands, n. Fla. and the upper pen. (Cont.)

4. *G. tomentosa* (Pursh) Chapm. Shrub 4-11 dm. tall, the foliage tomentose: leaf-blades thick, oblong to elliptic, 2.5-7 cm. long, copiously tomentose beneath: hypanthium and sepals globular-resiniferous: anthers about as long as the filaments: drupes 8-9 mm. in diameter.

Hammocks and moist thickets, n. Fla. and the upper pen. (Ga.)

2. **BATODENDRON** Nutt. Shrubs or trees. Leaves somewhat persistent: blades firm, sometimes glandular-denticulate. Flowers in leafy-bracted racemes or panicles. Sepals 5. Corolla campanulate or globular-campanulate. Stamens included: anthers tubular at the top, appendaged. Berry globular, rather astringent, many-seeded.

1. *B. arboreum* (Marsh.) Nutt. Shrub or small tree: leaf-blades oval or obovate, 2.5-5 cm. long, lustrous above: racemes usually proliferous: corolla white or pinkish, 5.5-6 mm. long: berries 5-6 mm. in diameter, black.—SPARKLEBERRY. FARKLEBERRY. TREE-HUCKLEBERRY. GOOSEBERRY.

Sandy woods, n. Fla. and the upper pen. (Cont.)—Spr.

3. **POLYCODIUM** Raf. Shrubs. Leaves mainly deciduous: blades entire. Flowers in racemes, sometimes leafy bracted. Sepals 5. Corolla open-campanulate: lobes not contiguous in the bud. Stamens exerted: anthers tubular at the top and appendaged. Berry globular or pyriform, often mawkish, green or yellowish, few-seeded.—Spr.—BUCKBERRY. SQUAW-HUCKLEBERRY. DEERBERRY.

Racemes with bracts resembling the leaves: sepals eciliate or slightly ciliate at the tips.

Racemes with bracts conspicuously smaller than the leaves: sepals ciliate.

1. *P. floridanum*.

2. *P. neglectum*.

1. *P. floridanum* (Nutt.) Greene. Shrub 2-12 dm. tall: leaf-blades ovate, oval, or oval-ovate, 1.5-4 cm. long, ciliolate, the broader ones subcordate at the base: corolla 3.5-4 mm. long: anthers greatly exerted: berries about 10 mm. in diameter.

Pinelands and sand-hills, n. and pen. Fla. (Cont.)

2. *P. neglectum* Small. Shrub 1-1.5 m. tall: leaf-blades elliptic to oblong or oblong-lanceolate, or occasionally cuneate, 3-10 cm. long, glabrous: corolla about 5 mm. long: anthers slightly exceeding the corolla: berries 5-8 mm. in diameter.

Woods, m. Fla. (Cont.)

4. **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.—Winter-spr.—BLUEBERRY. HUCKLEBERRY.

Leaves persistent, evergreen; blades leathery.
Leaves deciduous; blades membranous, sometimes firm.

1. *V. Myrsinites*.

Leaf-blades toothed.

Flowers appearing after the leaves.

Leaf-blades narrowly elliptic to elliptic-spatulate, narrowed at the base: berries glaucous: low plant.

2. *V. tenellum*.

- Leaf-blades oval, ovate, or broadly elliptic, rounded or cordate at the base; berries not glaucous: tall plant. 3. *V. Elliottii*.
 Flowers appearing before the leaves. 4. *V. virgatum*.
 Leaf-blades entire.
 Leaf-blades pubescent.
 Corolla rose-red: berries not glaucous. 5. *V. formosum*.
 Corolla white: berries glaucous. 6. *V. fuscatum*.
 Leaf-blades glabrous, glaucous beneath. 7. *V. australe*.

1. *V. Myrsinites* Lam. Shrub 2-6 dm. tall, light-green or glaucous: leaf-blades ovate to oblanceolate, oblong, or elliptic, 6-20 mm. long, bristly-toothed: sepals acute or obtuse: corolla 4-7 mm. long: berries 5-8 mm. long, blue or black.

Pinelands, nearly throughout Fla., except the F. Keys. (Cont.)

2. *V. tenellum* Ait. Shrub 2-4 dm. tall, the twigs minutely pubescent: leaf-blades elliptic to elliptic-spatulate, 1-2 cm. long, serrulate, green or glaucous: corolla white or nearly so, oblong-cylindric, 5-6 mm. long: berries about 6 mm. in diameter, black beneath the bloom.

Pinelands and swamp-margins, n. Fla. and the upper pen. (Cont.)

3. *V. Elliottii* Chapm. Shrub 1-2.5 m. tall, the twigs finely pubescent: leaf-blades ovate, oval, or broadly elliptic, 1-2.5 cm. long, ciliate-serrulate, pubescent beneath: corolla reddish, conic, 5-6 mm. long: berries 7-8 mm. in diameter, black.

Swamps, stream-banks, and low thickets, n. Fla. and the upper pen. (Cont.)

4. *V. virgatum* Ait. Shrub 1-3.5 m. tall, the twigs puberulent: leaf-blades oblong-elliptic or oval-oblong, 2.5-6 cm. long, serrulate, pale or glaucescent beneath: corolla white or pinkish, cylindraceous, 6-8 mm. long: berries 5-7 mm. in diameter, black and sometimes slightly glaucous.

Low pinelands and swamps, n. Fla. and the adj. pen. (Cont.)

5. *V. formosum* Andr. Shrub 3-22 dm. tall, the twigs mostly fine-pubescent: leaf-blades ovate, elliptic, or oblong, 2.5-6 cm. long, entire, pubescent beneath: corolla rose-red, cylindric-conic, 7-8 mm. long: berries 5-6 mm. long, not glaucous.

Low pinelands and borders of swamps, n. Fla. (Ga.)

6. *V. fuscatum* Ait. Shrub 1-2 m. tall, the twigs finely and often copiously pubescent: leaf-blades oblong to elliptic, 2-4.5 cm. long, entire, pubescent beneath: corolla white, nearly cylindric, 6-7 mm. long: berries 6-7 mm. in diameter, sometimes glaucous.

Stream-banks and swamps, n. Fla. (Cont.)

7. *V. australe* Small. Shrub 0.3-5 m. tall, the twigs glabrous: leaf-blades elliptic or oval, or elliptic-ovate to oblong-elliptic, mainly 4-8 cm. long, entire, deep-green above, glabrous: corolla white or whitish, nearly cylindric, 8-10 mm. long: berries 7-9 mm. in diameter, glaucous.

Rich woods near streams, swamps, or lakes, e. Fla. and the upper pen. (Cont.)

Order PRIMULALES.

Herbs, shrubs, trees, or vines. Leaves alternate or opposite, sometimes all basal. Flowers perfect or polygamo-dioecious, variously disposed. Calyx of 2-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 a utricle.

Staminodia at the corolla-sinuses: fruit few-many-seeded. Fam. 1. THEOPHRASTACEAE.
 Staminodia wanting: fruit 1-seeded. Fam. 2. ARDISIACEAE.

FAMILY 1. **THEOPHRASTACEAE.** JOE-WOOD FAMILY.

Shrubs or trees. Leaves opposite, persistent: blades leathery, entire. Flowers perfect, in racemes, corymbs, or panicles. Calyx of 5 imbricate sepals. Corolla campanulate or rotate-salverform, of 5 partially united petals. 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. Leaves usually numerous: blades entire, thick and very brittle. Flowers erect. Calyx persistent. Corolla deciduous. Anthers extrorse. Staminodia very broad. Berries erect.

1. **J. keyensis** Mez. Shrub, or tree becoming 5 m. tall, the bark pale: 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.—**JOE-WOOD.**

Hammocks, along the lower w. coast, and those of the E. Keys and F. Keys. (W. I.)

FAMILY 2. **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. Flower 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.—**MYRSINE.**

Coastal hammocks, upper pen. as far n. as Volusia county on the eastern coast, on hammock islands in the Everglades, and on the E. Keys and the F. Keys. (W. I.)

2. **ICACOREA** Aubl. Shrubs or trees. Flowers conspicuous, in panicles, cymes, or clusters, slender-pedicelled. Corolla white or pink, and often purple-streaked: lobes recurved. Stamens with converging anthers. Style elongate: stigma minute, entire.

1. **I. paniculata** (Nutt.) Sudw. Shrub or small tree, with white or whitish 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.—**MARLBERRY. CHERRY.**

Coastal hammocks along the s. two-thirds of the eastern side of pen. Fla. and the s. half of the western side, the hammocks and pinelands on the E. Keys and the F. Keys. (W. I.)

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.

Fam. 1. EBENACEAE.

Styles and stigmas united: flowers mostly perfect.

Stamens as many as the corolla-lobes, at least in our representatives.

Fam. 2. SAPOTACEAE.

Stamens twice as many as the corolla-lobes or more.

Fam. 3. SYMLOCACEAE.

Stamens in several series.

Fam. 4. STYRACACEAE.

Stamens in 1 series.

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 urceolate. 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.—PERSIMMON.

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, sweet when ripe.—PERSIMMON. DATE-PLUM.

Sandy woods, nearly throughout Fla., except the F. Keys. (Cont.)—Spr.

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 of the lobes. 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.

Corolla-lobes without dorsal appendages.

Staminodia wanting.

Staminodia present.

Ovary glabrous: endosperm copious.

Ovary pubescent: endosperm wanting or scant.

Corolla lobes with dorsal appendages.

1. CHRYSOPHYLLUM.

2. DIPHOLIS.

3. BUMELIA.

4. MIMUSOPS.

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 shrub, or tree becoming 10 m. tall, the twigs 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.—SATINLEAF.

Hammocks, along the lower two-thirds of the eastern coast of Fla. and the lower western coast, and in hammocks and pinelands on the E. Keys and the F. Keys. (W. I.)

2. **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 shrub, or tree becoming 16 m. tall: leaf-blades elliptic to elliptic-oblong, 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.—BUSTIC. CASSADA.

Hammocks, E. Keys and F. Keys. (W. I.)

3. **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.

Leaf-blades glabrous, or merely with scattered hairs or inconspicuously cobwebby beneath.

Fruit oblong-cylindrical.

Fruit subglobose or oval.

Leaf-blades of an obovate or spatulate type, mainly broadest above the middle.

Twigs copiously pubescent with deep red hairs.

Twigs glabrous or soon becoming so.

Fruit less than 8 mm. long.

Corolla-lobes about 1.5 mm. long: leaf-blades

blunt: fruit 5 mm. long.

Corolla-lobes about 2 mm. long: leaf-blades

retuse: fruit 6–7 mm. long.

Fruit over 9 mm. long.

Leaf-blades of an elliptic type broadest at the middle.

Leaf-blades manifestly or copiously pubescent beneath.

Pubescence woolly, not at all lustrous.

Pubescence lustrous, white, becoming tawny, brown or coppery.

1. *B. angustifolia*.

2. *B. rufotomentosa*.

3. *B. microcarpa*.

4. *B. reclinata*.

5. *B. megacocca*.

6. *B. lycioides*.

7. *B. lanuginosa*.

8. *B. tenax*.

1. **B. angustifolia** Nutt. Evergreen shrub, or tree becoming 8 m. tall, the twigs glabrous: leaves relatively few and not crowded; blades oblanceolate to oblanceolate-spatulate, 2–4 cm. long, smooth and glabrous: calyx-lobes ovate, 2 mm. long: corolla about 4 mm. wide; lateral divisions of the lobes narrowly lanceolate, irregularly toothed: staminodia 2.5 mm. long, lacerate: berries 17–20 mm. long.—SAFFRON-PLUM. ANTS-WOOD. DOWNWARD-PLUM.

Coastal hammocks, lower pen. Fla. and the F. Keys. (W. I.) All year.

2. **B. rufotomentosa** Small. Evergreen shrub, the twigs red-tomentose: leaf-blades obovate or oval, 1.5–2 cm. long, reticulate and sparingly pubescent beneath with red hairs: calyx-lobes suborbicular, nearly 1.5 mm. long: corolla about 3 mm. wide: lateral divisions of the lobes ovate or ovate-lanceolate, acute: staminodia slightly over 1 mm. long: berries about 5 mm. in diameter.

Pinelands, pen. Fla. (Endemic.)—Spr.-sum.

3. **B. microcarpa** Small. 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; lateral divisions of the lobes ovate-lanceolate, almost 1 mm. long: staminodia 1.5 mm. long, erose: berries subglobose, 5 mm. in diameter.

Sandy woods, n. pen. Fla. (Endemic.)—Spr.-sum.

4. *B. reclinata* Vent. Evergreen shrub, the twigs glabrous: leaf-blades thinnish, oblanceolate, varying to spatulate, obovate, or ovate, 2-5 cm. long, somewhat reticulate and glabrous beneath: calyx-lobes broadly ovate or orbicular-ovate, 1.8 mm. long: corolla about 4 mm. wide; lateral divisions of the lobes broadly lanceolate, fully 1.5 cm. long: staminodia ovate, 2 mm. long, erose: berries oval, 6-7 mm. long.

Pinelands, river-banks, and hammocks, nearly throughout Fla., except the F. Keys. (*Cont.*)—Spr.-sum., or all year southward.

5. *B. megacocca* Small. Evergreen shrub, the twigs glabrous: leaf-blades thick, obovate to oblong-oblanceolate, 1-3.5 cm. long, reticulate and glabrous beneath: flowers not seen: berries globose to broadly oval, 11-13 mm. long.

Sandy woods, pen. Fla. (*Endemic.*)—Spr.-sum.

6. *B. lycioides* (L.) Gaertn. Deciduous-leaved shrub or small tree, the twigs glabrous: leaf-blades elliptic, oblong, or rarely oblanceolate, 4-12 cm. long, dull and prominently reticulate on both sides: calyx-lobes oval or orbicular-ovate, 2 mm. long: corolla about 5 mm. wide; lateral divisions of the lobes lanceolate or broadly lanceolate, 1.5 mm. long, entire: staminodia ovate, 2-2.5 mm. long, entire: berries oval, fully 10 mm. long.—BUCKTHORN.

Rich woods and along rivers, n. Fla. and the upper pen. (*Cont.*)—Sum.

7. *B. lanuginosa* (Michx.) Pers. Deciduous-leaved shrub, or tree becoming 20 m. tall, the twigs dull-tomentose: leaf-blades oblong-oblanceolate, oblong-obovate, or elliptic, 3-8 cm. long, dull-tomentose beneath: calyx-lobes suborbicular or orbicular-ovate, about 3 mm. long: corolla about 5 mm. wide; lateral divisions of the lobes lanceolate, fully 1.5 mm. long: undulate: staminodia ovate, 2 mm. long, acute or acutish: berries oval or obovoid-oblong, 10-15 mm. long.—GUM-ELASTIC.

Sandy woods and near streams, n. Fla. and the adj. pen. (*Cont.*)—Sum.

8. *B. tenax* (L.) Willd. Deciduous-leaved shrub, or tree becoming 9 m. tall, the twigs lustrous-silky, the hairs white, becoming tawny or copper-colored: leaf-blades oblanceolate, obovate-spatulate, or obovate, 2-7 cm. long, lustrous-silky beneath: calyx-lobes suborbicular, 1-1.5 mm. long: corolla about 5 mm. wide; lateral divisions of the lobes ovate or ovate-lanceolate, fully 1.5 mm. long, undulate: staminodia ovate, 2 mm. long, obtuse: berries obovoid or oblong-obovoid, 10-14 mm. long.—TOUGH-BUCKTHORN. IRONWOOD. BLACK-HAW.

Sandy woods, mostly near the coast, n. Fla. and the upper pen. (*Cont.*)—Spr.

4. **MIMUSOPS** L. Shrubs or trees. Leaf-blades leathery, finely many-veined. Calyx-lobes 6 or 8, the outer ones valvate. Corolla with dorsal appendages; lobes 6 or 8, each with 2 very small lateral lobes. Staminodia petaloid.

1. *M. emarginata* (L.) Britton. Evergreen shrub, or small tree: leaves clustered at the ends of the branchlets; blades oblong, 3-10 cm. long: calyx, like the pedicels, red-tomentose; lobes lanceolate to ovate-lanceolate: corolla light-yellow, 1.5-2 cm. wide: staminodia triangular: berries spheroidal, nearly 3 cm. thick.—WILD-DILLY.

Hammocks, F. Keys. (*W. I.*)

FAMILY 3. SYMPLOCOCACEAE. SWEETLEAF FAMILY.

Shrubs or trees, the hairs, when present, simple. Leaves alternate: blades usually leathery, entire or toothed. Flowers polygamo-dioecious or perfect, in close or open clusters. Calyx of 5 partially united sepals. Corolla of 5 more or less united petals. Androecium of numerous stamens in several series, partially adnate to the corolla-tube. Gynoecium of 2-5 carpels, the ovary superior. Fruit baccate or drupaceous.

1. **SYMPLOCOS** Jacq. Leaves often persistent: blades thick. Inflorescence congested or open. Calyx often persistent. Corolla deciduous. Stamens conspicuous. Style columnar. Fruits often crowned with the calyx.

1. **S. tinctoria** (L.) L'Her. Evergreen shrub or small tree: leaf-blades elliptic, oblong, or oblong-oblongate, 4-15 cm. long, undulate or shallowly toothed, tomentose beneath: flowers densely clustered: calyx 2-2.5 mm. long; lobes shorter than the tube: corolla yellowish; lobes obovate or obovate-spatulate, 6-8 mm. long: stamens exserted: drupe 10-14 mm. long.—SWEET-LEAF. HORSE-SUGAR.

Sandy or rich woods, n. Fla. and the adj. pen. (Cont.)—Spr.

FAMILY 4. STYRACACEAE. STORAX FAMILY.

Shrubs or trees, the hairs when present branched or scurfy. Leaves alternate: blades entire or shallowly toothed. Flowers perfect, in racemes, panicles, cymes, or clusters. Calyx of 5, or 4-8, partially united sepals. Corolla of 5, or 4-8, distinct or partially united petals. Androecium of 8-16 stamens in one series, partially adnate to the corolla. Gynoecium of 2-5 united carpels, the ovary sometimes inferior. Fruit drupaceous or capsular.

Ovary inferior: fruits nut-like, elongate, winged.
Ovary superior: fruits drupaceous, subglobose.

1. **HALESIA**.
2. **STYRAX**.

1. **HALESIA** Ellis. Shrubs or trees. Leaves with thinnish blades, deciduous. Inflorescence not leafy-bracted. Calyx with relatively large lobes. Corolla with nearly erect lobes or petals. Anthers oblong. Ovules 4 in each cavity, 1 pair ascending, 1 pair drooping. [*Mohrodendron* Britton.]—Spr.

Corolla-lobes longer than the tube: fruits 2-winged, the stipe wholly included in the wings.

Corolla 2-3 cm. long: fruits over 3 cm. long.

1. *H. diptera*.

Corolla less than 1.5 cm. long: fruits less than 3 cm. long.

2. *H. parviflora*.

Corolla-lobes shorter than the tube: fruits 4-winged, the base of the stipe free.

3. *H. carolina*.

1. **H. diptera** Ellis. Shrub, or tree becoming 15 m. tall, the twigs copiously pubescent: leaf-blades oval, oblong, or obovate, 4-15 cm. long, coarsely toothed: calyx 6-7 mm. long, densely pubescent; corolla 20-30 mm. long; lobes pubescent without: filaments and style pubescent: fruits 2-winged.—SNOWDROP-TREE.

Woods and stream-banks, n. Fla. (Cont.)

2. **H. parviflora** Michx. Shrub similar to the preceding and succeeding species, but smaller in all its parts, the young leaves, pedicels and calyx densely pubescent: corolla white, 8-12 mm. long: drupe less than 3 cm. long, the two wings, including the stipe.

Sandy woods, n. Fla. and the adj. pen. (Ga.)

3. **H. carolina** L. Shrub, or tree becoming 25 m. tall, the twigs sparingly pubescent or glabrous: leaf-blades oblong, oval, or obovate, 5-17 cm. long, finely serrate: calyx 5-6 mm. long, glabrous: corolla 20-25 mm. long; lobes glabrous without: filaments and style glabrous: fruits 4-winged.—SILVER-BELL-TREE.

Woods, n. Fla. and adj. pen. (Cont.)

2. **STYRAX** [Tourn.] L. Shrubs or trees. Leaves with thickish blades but deciduous. Inflorescence leafy-bracted. Calyx with minute lobes. Corolla with recurved petals or lobes. Anthers linear. Ovules several, ascending.—SPR.—STORAX.

Corolla-lobes valvate in the bud.

Corolla-lobes manifestly imbricated or convolute in the bud.

Bracts of the inflorescence mostly leaf-like: leaf-blades slightly pubescent beneath.

Bracts of the inflorescence only leaf-like at the base of the panicle or raceme: leaf-blades densely pubescent beneath.

1. *S. americana*.

2. *S. pulverulenta*.

3. *S. grandifolia*.

1. *S. americana* Lam. Shrub, with sparingly stellate twigs: leaf-blades oval, elliptic or oblong, varying to ovate or obovate, 2-10 cm. long, entire or distinctly and shallowly toothed: pedicels glabrous or nearly so: calyx much shorter than the pedicel: corolla-lobes elliptic-oblong or lanceolate-oblong, acute: drupes 6-8 mm. in diameter.

Swamps, stream-banks, and moist hillsides, n. Fla. and the adj. pen. (Cont.)

2. *S. pulverulenta* Michx. Shrub, with densely stellate twigs: leaf-blades ovate, oval or obovate, 2-8 cm. long, sharply serrate or undulate: pedicels canescent or hoary: calyx about as long as the pedicel: corolla-lobes oblong or oblong-lanceolate, rather obtuse: drupes 7-9 mm. in diameter.

Pineland-swamps, moist pinelands, and stream-banks, n. Fla. and the upper pen. (Cont.)

3. *S. grandifolia* Ait. Shrub, with densely stellate twigs: leaf-blades ovate, oval or sometimes elliptic, 9-20 cm. long, coarsely toothed or nearly entire: pedicels canescent: corolla-lobes elliptic: drupes 8-10 mm. in diameter.

Rich woods and stream-banks, n. Fla. (Cont.)

Order OLEALES.

Shrubs, trees, undershrubs, or partially herbaceous plants. Leaves opposite, or rarely alternate or whorled: blades simple or 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 by suppression.

FAMILY 1. OLEACEAE. OLIVE FAMILY.

Woody or partially woody plants with erect or climbing stems. Leaves predominantly opposite: blades simple and entire or toothed, or pinnately compound.

Shrubs or trees with simple or compound leaf-blades: fruit not didymous.

Fruit dry, a samara: leaf-blades pinnately compound.

Fruit fleshy, a drupe or a berry: leaf-blades simple.

Corolla wanting or obsolete: style slender.

Corolla present: style stout.

Corolla rotate, white; lobes elongate.

Corolla salverform, greenish; lobes short.

Woody vines with compound leaf-blades: fruits didymous.

1. FRAXINUS.

2. FORESTIERA.

3. CHIONANTHUS.

4. OSMANTHUS.

5. JASMINUM.

1. **FRAXINUS** [Tourn.] L. Shrubs or trees. Leaves opposite: blades unequally pinnate. Flowers polygamous, dioecious, or rarely perfect, in clusters or panicles. Calyx unequally 4-lobed, or obsolete. Corolla of 2-4 petals, or wanting. Stamens 2 or rarely 3 or 4. Stigma 2-lobed. Samara winged at the tip or all around. — Spr. — **ASH**.

Samara spatulate or oblong spatulate.

Samara elliptic to ovate or obovate.

1. *F. pauciflora*.

2. *F. caroliniana*.

1. *F. pauciflora* Nutt. Tree becoming 10 m. tall or shrub, the twigs glabrous: leaflets 5-7; blades of the lateral ones lanceolate, elliptic, or oblong or some of them ovate, 4-15 cm. long, undulate or repand: samaras 4-6 cm. long, the wing oblong to spatulate, longitudinally veined.—SWAMP-ASH.

River-swamps, n. Fla. and the upper pen. (*Cont.*)

2. *F. caroliniana* Mill. Tree sometimes 12 m. tall or shrub, the twigs often pubescent: leaflets 5-9, usually 5-7; blades of the lateral ones elliptic-lanceolate, 4-12 cm. long, shallowly serrate or nearly entire: samaras 4-5 cm. long, the wings elliptic, or nearly so, varying to ovate or obovate, pinnately veined.—WATER-ASH. POP-ASH.

River-swamps, n. Fla. and the adj. pen. (*Cont.*)

2. **FORESTIERA** Poir. Shrubs or trees. Leaves opposite: blades simple. Flowers mostly polygamo-dioecious, in lateral clusters. Calyx minute, 4-6-lobed, or obsolete. Corolla wanting, or rarely of 1-2 deciduous petals. Stamens 2-4. Stigma 2-lobed. Drupe oblong to globular.

Leaf-blades entire, obtuse: drupes globular or slightly longer than thick, straight.

Drupe globular.

1. *F. globosa*.

Drupe oblong or oval.

Leaf-blades linear or broadened upward: drupe with an oblong stone less than 6 mm. long.

2. *F. pinetorum*.

Leaf-blades oblong or broadened upward: drupe with an oval stone over 6 mm. long.

3. *F. porulosa*.

Leaf-blades toothed, acuminate: drupes much longer than thick, curved.

4. *F. acuminata*.

1. *F. globosa* Small. Shrub with intricately branched stems 1-3 m. tall, the twigs pale gray and striate: leaf-blades oblong, elliptic or slightly broadened upward, leathery-fleshy, mainly 1-2 cm. long, slightly paler beneath than above: flowers few, nearly sessile: bracts oval to suborbicular, 2-2.5 mm. long, ciliate: sepals minute or obsolete: drupes globular, 7-9 mm. in diameter, blue.

Coastal sand-dunes, e. Fla. (*Endemic.*)

2. *F. pinetorum* Small. Shrub with short rigid branches 0.2-1 m. tall, the twigs puberulent: leaf-blades 1-2.5 cm. long, linear-spatulate, entire, remaining thin: bracts obovate to orbicular-cuneate, 1.5-2 mm. long, ciliate: drupes oval, 5-6 mm. long, equilateral.

Pinelands, E. Keys. (*Endemic.*)

3. *F. porulosa* (Michx.) Poir. Small tree or shrub 1-3 m. tall, the twigs glabrous or nearly so: leaf-blades 1.5-5 cm. long, oblong-lanceolate to spatulate, entire: bracts oval or suborbicular, about 1.5 mm. long, ciliate: drupes oblong, 7-8 m. long.—FLORIDA-PRIVET.

Coastal hammocks, pen. Fla. (*Endemic.*)

4. *F. acuminata* (Michx.) Poir. Tree sometimes 10 m. tall or shrub, the twigs glabrous: leaf-blades 3-10 cm. long, elliptic-oval to ovate-elliptic, slightly serrate: bracts rhombic, 5-6 cm. long: drupes narrowly oblong, 12-15 mm. long.—FORESTIERA.

River-banks, n. Fla. (*Cont.*)—Spr.

3. **CHIONANTHUS** L. Shrubs or trees. Leaves opposite, deciduous: blades simple. Flowers perfect or polygamous, in drooping festoon-like panicles. Calyx deeply 4-lobed. Corolla white: lobes narrow, many times longer than the tube. Stamens 2: filaments adnate to the corolla-tube. Stigma notched or 2-lobed. Drupe oval to subglobose.

1. *C. virginica* L. Tree rarely 10 m. tall or shrub: leaf-blades oval, oblong, or elliptic, varying to obovate, 5-15 cm. long: panicles 5-20 cm. long: calyx-

lobes ovate to lanceolate, acute: petals linear, 1.5-2.5 cm. long: drupes 1.5-2 cm. long, deep-green or nearly black.—FRINGE-TREE. OLD-MAN'S BEARD.

Rich woods and banks of streams, n. Fla. and the upper pen. (*Cont.*)—Spr.

4. OSMANTHUS Lour. Shrubs or trees. Leaves opposite, persistent: blades simple. Flowers polygamous, in axillary racemes or panicles. Calyx prominently 4-lobed. Corolla greenish or white, funnellform: lobes broad, about as long as the tube, or longer. Stamens 2: filaments partially adnate to the corolla-tube. Stigma entire or 2-lobed. Drupe ovoid or globose.—Spr.

Inflorescence-branches glabrous: drupes dark-purple.

Inflorescence-branches pubescent: drupes yellowish-green.

1. *O. americana*.

2. *O. floridana*.

1. *O. americana* (L.) B. & H. Tree becoming 15 m. tall or shrub, the bark pale: leaf-blades narrowly elliptic, varying to oblanceolate or lanceolate, 5-20 cm. long, entire, lustrous above: inflorescence-branches and calyx glabrous: corolla 3-4 mm. long: drupes 10-14 mm. long.—WILD-OLIVE. DEVILWOOD.

Hammocks, n. Fla. and the upper pen. (*Cont.*)

2. *O. floridana* Chapm. Similar to the preceding species, but relatively larger throughout: leaf-blades relatively broader: inflorescence-branches and calyx pubescent: corolla 4-5 mm. long: drupes 16-20 mm. long.—FLORIDA-DEVILWOOD.

Pinelands and sand-dunes, pen. Fla. (*Endemic.*)

5. JASMINUM L. Woody vines. Leaves opposite: blades 3-7-foliolate or sometimes 1-foliolate. Flowers mostly in terminal compound cymes. Calyx-tube short: lobes 4-9, often narrow. Corolla white or colored, salverform: lobes 4-12. Stamens 2: anthers introrse. Ovary 2-celled. Berry 2-lobed. Seeds 1-4, mostly 2, in each carpel.

1. *J. grandiflorum* L. Stems mostly 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.—SPANISH-JESSAMINE.

Roadsides and cultivated grounds, s. pen. Fla. Nat. of Eu. (*W. I.*)

Order GENTIANALES.

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.

Sepals nearly distinct: corolla broadly funnellform: free portions of the filaments elongate: stigmas 4, distinct: capsule flattened.

1. GELSEMIUM.

Sepals well united: corolla trumpet-shaped: free portions of the filaments very short: stigmas united: capsule thick.

2. ADENOPELA.

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.

Gynoeceium of 2 united carpels, or rarely more: ovary 2-celled or rarely 4-celled. Fruit capsular and 2-valved, or baccate or drupaceous.

1. **GELSEMIUM** Juss. Evergreen vines. Flowers in axillary cymes, or solitary. Calyx 5-lobed. Corolla funnellform, straight. Filaments with the free portion much longer than the adnate portion. Stigmas 4. Capsule flattened contrary to the septum, septicial. Seeds winged.

1. **G. sempervirens** (L.) Ait. f. Stem and branches often tangled and matted: leaf-blades lanceolate, oblong-lanceolate or ovate, 1.5-9 cm. long, entire: flower-stalks scaly: calyx-lobes 3-4 mm. long: corolla deep-yellow, 3-4 cm. long: capsules 1-1.5 cm. long, veiny: seed-body barely as long as the wing.—YELLOW-JESSAMINE. EVENING TRUMPET-FLOWER.

Woods and thickets, n. Fla. and the upper pen. (Cont.)—Spr.

2. **ADENOPIEA** Radlk. Shrubs or partially woody plants. Flowers in lax or dense cymes borne in racemes or panicles. Calyx-lobes 4, shorter than the tube. Corolla trumpet-shaped, curved. Filaments to below the middle of the corolla-tube. Capsule thick, septicial.

1. **A. Lindleyana** (Fort.) Small. Stems diffusely branched, 1-2 m. tall, the branches angled: leaf-blades ovate to lanceolate, 3-9 cm. long, entire, glabrous: panicles 1-3 dm. long, often partially drooping: calyx about 2.5 mm. long: corolla purplish, violet or reddish, 12-16 mm. long, the tube curved: capsules 4-5 mm. long.

Waste places, roadsides, and about gardens, n. Fla. and the upper pen. (Cont., W. I.)—Sum.-fall.

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 usually 5 partially united petals. Androeceium of 5 distinct or monadelphous stamens. Pollen granular, or in waxy masses. Gynoeceium of usually 2 carpels sometimes only united at the apex. Stigma terminal. Fruit a pair of follicles, or drupaceous.

FAMILY 1. APOCYNACEAE. DOGBANE FAMILY.

Perennial herbs, vines, shrubs or trees, mostly with a milky acrid juice. Leaf-blades simple. Androeceium of 5 stamens with the anthers converging around the stigma or partly adhering to it. Filaments partially adnate to the corolla-tube. Pollen-grains simple. Gynoeceium of 2 distinct carpels or 2 united carpels. Styles united. Stigmas simple. Fruit usually of 2 follicles or drupes. Seed often appendaged.

Anthers unappendaged at the base, not connected with the stigma: fruit drupaceous.

Corolla salverform: drupe elongate.

1. VALLESIA.

Corolla funnellform: drupe depressed.

2. CERBERA.

Anthers appendaged at the base, partly adherent to the stigma: fruit follicular.

3. NERIUM.

1. **V. VALLESIA** R. & P. Shrubs. Leaves alternate: blades relatively broad. Calyx-lobes short. Corolla salverform, the throat contracted at the mouth. Drupe narrow. Seeds clavate.

1. **V. glabra** Cav. Shrub 3 m. tall or less, the branches sometimes elongate and vine-like: leaves remote; blades elliptic to oblong or oblong-lanceolate,

4-7 cm. long; calyx-lobes deltoid to ovate-deltoid, less than 1 cm. long; corolla white; tube 5-6 mm. long; lobes linear-oblong, 3-4 mm. long; drupe 10-14 mm. long.

Hammocks, F. Keys. (W. I.)

2. **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. [*Thevetia* L.]

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.—**TRUMPET-FLOWER. YELLOW-OLEANDER.**

Pinelands and waste places, s. pen. Fla. and the F. Keys. Nat. of Trop. Am. (W. I.)

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. Follicles elongate.

1. **N. Oleander** L. Tree becoming 10 m. tall, or shrub: 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.—**OLEANDER.**

Roadsides and fields, occasional throughout Fla. Nat. of the Levant. (W. I.)

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 partially united sepals. Corolla of partially 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. Gynoeceium of 2 distinct or several united carpels. Ovary superior. Fruit a capsule, a berry or a drupe, or a group of nutlets or utricle-like.

Stamens 5.

Fruit capsular: styles or stigmas distinct.

Fruit baccate, drupaceous, or of nutlets.

Fruits baccate: styles wholly united: anthers opening by pores.

Fruits drupaceous or of 2 or 4 nutlets: styles partially united: anthers opening lengthwise.

Style, or stigmas, not furnished with a glandular ring.

Style, or stigmas, furnished with a glandular ring.

Fam. 1. CONVOLVULACEAE.

Fam. 2. SOLANACEAE.

Fam. 3. EHRETIACEAE.

Fam. 4. HELIOTROPIACEAE.

Stamens 4.

Corolla not 2-lipped.

Fruits drupaceous: sepals united.

Fruits capsular: sepals nearly distinct.

Corolla 2-lipped.

Carpels ripening into a group of 4 nutlets.

Carpels ripening into a capsule.

Placenta of the ovary axile: calyx 5-lobed.

Placenta of the ovary parietal: calyx 2-lobed.

Fam. 5. VERBENACEAE.

Fam. 6. AVICENNIACEAE.

Fam. 7. LAMIACEAE.

Fam. 8. RHINANTHACEAE.

Fam. 9. BIGNONIACEAE.

FAMILY 1. 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. Androecium of 5 stamens, partially adnate to the corolla-tube, alternate with the lobes. Gynoecium 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.

1. **JACQUEMONTIA** Choisy. Shrubs, herbs, or trailing or twining vines. 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.

1. **J. Curtissii** Peter. Shrub with prostrate, spreading, or erect, glabrous or slightly cobwebby-pubescent stems, 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, E. Keys. (*Endemic.*)

FAMILY 2. 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.	1. SOLANUM.
Corolla little, if at all plicate; lobes imbricate or valvate.	
Stamens adnate to the base of the corolla tube: corolla rotate.	2. CAPSICUM.
Stamens adnate high up on the corolla-tube: corolla salverform or funnellform.	
Stamens unequal: filaments adnate to the mouth of the corolla-tube: seeds flattened.	3. LYCIUM.
Stamens equal or nearly so: filaments adnate to about the middle of the corolla-tube: seeds not flattened.	4. CESTRUM.

1. **SOLANUM** [Tourn.] L. Annual or perennial herbs, or vines or trees. 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. —NIGHTSHADE.

Twigs and leaves glabrous: calyx-lobes lanceolate.	1. <i>S. Pseudo-capsicum.</i>
Twigs and leaves pubescent: calyx-lobes minute, ovate or deltoid.	
Leaf-blades velvety-tomentose beneath, unarmed.	
Corolla-lobes ovate to oval-ovate: ovary pubescent: berries yellow.	2. <i>S. verbascifolium.</i>
Corolla-lobes linear to linear-lanceolate or lanceolate: ovary glabrous: berries red.	3. <i>S. Blodgettii.</i>
Leaf-blades finely and rather harshly pubescent beneath, often spiny.	4. <i>S. bahamense.</i>

1. **S. Pseudo-capsicum** L. Shrub 8-19 dm. tall: leaf-blades oblong to oblanceolate, 3-10 cm. long, undulate or repand: calyx-lobes lanceolate, about 2.5 mm. long, ciliate: corolla white, 11-14 mm. wide; lobes oval to ovate-oval, ciliate: anthers oblong: berries globose, 10-15 mm. in diameter, scarlet.—JERUSALEM-CHERRY.

Waste places and woods, n. Fla. Nat., probably, of the Old World tropics. (*Cont.*)—Spr.-fall.

2. **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.—POTATO-TREE.

Hammocks and pinelands, s. pen. Fla. and the E. Keys and F. Keys. (W. I.)

3. **S. Blodgettii** Chapm. Shrub with simple or sparingly branched stems 3-13 dm. tall: leaf-blades oblong, often narrowly so, 5-15 cm. long, hoary-scurfy and tomentulose, undulate: calyx-lobes minute or deltoid, shorter than the tube: corolla white or bluish, 14-17 mm. wide; lobes linear to linear-lanceolate, obtuse: anthers linear: ovary glabrous: berries red, 4-6 mm. in diameter.—BLODGETT'S-NIGHTSHADE.

Hammocks, E. Keys and F. Keys. (W. I.)

4. **S. bahamense** L. Shrub with much-branched stems 5-20 dm. tall: leaf-blades oblong to oblong-lanceolate, 4-12 cm. long, thinly rough-pubescent, undulate: calyx-lobes minute, 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.—BAHAMA-NIGHTSHADE.

Sand-dunes and hammocks, lower e. coast of Fla., the E. Keys and F. Keys. (W. I.)

2. **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. Filaments adnate to the lower part of the corolla-tube, glabrous: anthers longer than the filaments. Ovary not depressed: stigma minute.—PEPPER.

Calyx markedly toothed at maturity: berries subglobose.

1. *C. baccatum*.

Calyx truncate at maturity: berries oblong to conic.

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, roadsides, and cultivated grounds, pen. Fla. and the F. Keys. (Cont., W. I.)

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 or longer, red.

Hammocks, thickets, and roadsides, pen. Fla. and the F. Keys. (Cont., W. I.)

3. **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.—MATRIMONY-VINE.

1. **L. carolinianum** Walt. Shrub 3-15 dm. tall, with recurring branches: leaves succulent, 0.5-2 cm. long: calyx-lobes deltoid or triangular-ovate, acute: corolla blue or lilac, or rarely white; lobes 3-6 mm. long: berries red, 8-12 mm. long.

Coastal sand-dunes, shore-hammocks, and salt-marshes, nearly throughout Fla. (W. I.)

4. **CESTRUM** L. Shrubs or trees. Leaf-blades entire. Flowers in axillary clusters, sometimes aggregated in a panicle or corymb. Calyx markedly lobed. Corolla white or colored, funnelform or salverform: lobes much shorter than the tube. Filaments adnate to the middle of the corolla-tube or above it, glabrous: anthers globular. Stigma enlarged.—NIGHT-BLOOMING JESSAMINE.

- Corolla 15 mm. long or less: lobes as wide as long: filaments adnate to above the middle of the corolla-tube. 1. *C. diurnum*.
 Corolla 20 mm. long or more; lobes longer than wide: filaments adnate to about the middle of the corolla-tube. 2. *C. Parqui*.

1. *C. diurnum* L. Plants minutely pubescent, 1-2.5 m. tall: leaf-blades oblong to oblong-lanceolate, 5-12 cm. long; petioles mostly less than 10 mm. long: calyx about 3 mm. long; tube campanulate; lobes broadly ovate: corolla 11-15 mm. long; lobes rounded.

Hammocks and roadsides, Key West. Nat. of the W. I. (Cont.)

2. *C. Parqui* L'Her. Plants nearly glabrous, 1-2 m. tall: leaf-blades oblong to oblong-lanceolate, 10-20 cm. long; petioles mostly over 10 mm. long: calyx 4-4.5 mm. long; tube nearly cylindrical; lobes deltoid to triangulate-ovate: corolla 20-25 mm. long; lobes apiculate.

Woods, waste places, and roadsides, n. and pen. Fla. Nat. of Trop. Am. (Cont., W. I.)

FAMILY 3. EHRETIACEAE. EHRETIA FAMILY.

Shrubs, trees, or sometimes herbs. Leaves mainly alternate: blades mostly entire. Flowers perfect, cymose. Calyx of 5, (4-6), partially 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 4, unequally united by pairs: calyx accrescent: fruits enclosed.

Corolla long-funneliform; limb deeply lobed: calyx-tube cylindrical. 1. SEBESTEN.

Corolla short-funneliform; limb slightly lobed: calyx-tube campanulate. 2. VARRONIA.

Styles 2: calyx not accrescent: fruits not enclosed.

3. 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. Small tree or shrub, 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.—GEIGER-TREE.

Hammocks, E. Keys and F. Keys. (W. I.)

2. **VARRONIA** Jacq. Shrubs, trees, or vines. Flowers in open clusters or in heads. Sepals usually united to above the middle. Corolla white or colored, shallowly or deeply lobed. Filaments adnate to above or below the middle of the corolla-tube.

1. *V. globosa* Jacq. Branched shrub 1-3 m. tall: leaf-blades ovate to oblong-ovate, 1-5 cm. long, serrate: calyx about 8 mm. long: corolla white, 5-7 mm. long.

Hammocks, F. Keys. (W. I.)

3. **BOURRERIA** Jacq. 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.

Anthers about as long as the free portion of the filaments: leaf-blades short-petioled.

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. cassintifolia*.

Anthers much shorter than the free portion of the filaments: leaf-blades slender-petioled.

3. *B. ovata*.

Shrubs of Florida—8.

1. **B. revoluta** H.B.K. Small tree or shrub, with pubescent twigs: leaf-blades oblong to obovate, mostly 2-7 cm. long, abruptly pointed, rounded or notched, permanently rough-pubescent and ciliate, or sometimes smooth: 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.—ROUGH-STRONGBACK.

Hammocks and pinelands, E. Keys and F. Keys. (W. I.)

2. **B. cassinifolia** (A. Rich.) Griseb. Shrub: 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, $\frac{1}{3}$ 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.—SMOOTH-STRONGBACK.

Pinelands, E. Keys. (W. I.)

3. **B. ovata** Miers. Small tree or shrub, with glabrous twigs: leaf-blades obovate to oblong-obovate or oval-obovate, 4-12 cm. long, smooth: calyx 6-7 cm. long; lobes triangular, fully $\frac{1}{2}$ as long as the tube: corolla white; tube rather short; lobes slightly shorter than the tube: stamens exerted; anthers about 2 mm. long: drupe orange, about 1 cm. wide.—STRONGBACK.

Hammocks, F. Keys. (W. I.)

FAMILY 4. 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.

Fruit drupaceous.

Fruit dry, separating into nutlets.

1. **TOURNEFORTIA**.

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.

Plants densely and conspicuously silky-tomentose: leaves very numerous and crowded: corolla-lobes ovate to suborbicular. 1. *T. gnaphaloides*.

Plants minutely and inconspicuously pubescent: leaves relatively few and distant: corolla-lobes lanceolate to subulate. 2. *T. volubilis*.

1. **T. gnaphaloides** (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.—SEA-LAVENDER.

Coastal sand-dunes, s. pen. Fla. and the F. Keys. (W. I.)

2. **T. volubilis** L. Woody vine, the pubescence usually rusty: leaf-blades ovate to oblong-lanceolate, 2-6 cm. long: calyx-lobes longer than the tube: corolla-lobes about 1 mm. long: fruit depressed, 2.5-3 mm. wide.

Hammocks, F. Keys. (W. I.)

2. **HELIOTROPIUM** [Tourn.] L. Shrubs or erect, diffuse or prostrate herbs. Sepals nearly distinct. Stamens adnate to the lower part of the corolla-tube. Style very short. Fruit 4-lobed, an aggregate of 4 nutlets.

1. **H. Leavenworthii** Torr. Shrub with pale-pubescent stems, 2-11 dm. tall: leaf-blades linear to linear-elliptic, 1-2 cm. long: calyx-lobes lanceolate, 3-4 mm. long: flowers inodorous: corolla pale-yellow; lobes ovate, obtuse.—**HELIOTROPE.**

Everglades and low hammocks, E. Keys and F. Keys. (*Endemic.*)

FAMILY 5. **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.

Fruit drupaceous.

Flowers in open racemes.

Drupe seated in the calyx: nutlets 2: stigma 2-lobed.

Drupe enclosed in the calyx: nutlets 4: stigma 4-lobed.

Inflorescence centrifugal, cymose: ovules laterally attached.

Corolla regular: stamens equal.

Corolla irregular: stamens paired.

Drupe with two, 2-celled or four 1-celled stones: leaf-blades simple.

Drupe with one, 4-celled stone: leaf-blades compound.

1. **GONIOSTACHYUM.**
2. **LANTANA.**
3. **CITHAREXYLUM.**
4. **DURANTA.**
5. **CALLICARPA.**
6. **CLERODENDRON.**
7. **VITEX.**

1. **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, E. Keys. (*W. I.*)

2. **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. Drupes more or less juicy.

Flower-heads bracted, but not involucrate.

Stem and branches prickly-armed: leaf-blades strigose: corolla-tube over 12 mm. long.

Stems and branches sparingly armed with weak more or less curved prickles: corollas yellow to orange.

Stems and branches copiously armed with stout, rigid, hooked prickles: corollas yellow to purple.

Stem and branches not prickly-armed: leaf-blades not strigose: corolla-tube 10 mm. long or less.

Plants with prostrate stems and branches: drupes 2.5-3.5 mm. long.

Plants with erect stems and branches: drupes 4-5 mm. long.

Flower-heads decidedly involucrate.

Leaf-blades acute or acutish, coarsely toothed: corolla-tube about 10 mm. long.

Leaf-blades rounded or retuse at the apex, crenulate: corolla-tube 2-4 mm. long.

Outer bracts of the involucre ovate.

Outer bracts of the involucre lanceolate or oblong-lanceolate.

1. *L. Camara.*
2. *L. aculeata.*
3. *L. depressa.*
4. *L. ovatifolia.*
5. *L. Sellowiana.*
6. *L. involucrata.*
7. *L. odorata.*

1. *L. Camara* L. Shrub with armed branches, 10–15 dm. tall: leaf-blades ovate to oblong-ovate, 2–7 cm. long: corolla yellow to orange; limb 6–8 mm. high.—Two forms of this species occur in Florida: one with acuminate leaf-blades, derived from plants commonly in cultivation apparently from the West Indies, the other a native plant with obtuse, relatively coarser-toothed leaf-blades.

Roadsides, waste places, and cultivated grounds, n. Fla. and the pen. The native plant occurs in pinelands, hammocks and about swamps. (*Cont.*, *W. I.*)

2. *L. aculeata* L. Shrub with copiously and rigidly armed branches, 2.5 dm. tall or less: leaf-blades ovate, often broadly so, 3–6 cm. long: corolla yellow to purple; limb 7–9 mm. high.

Pinelands, cultivated grounds, and roadsides, pen. Fla. Nat. of the *W. I.*

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, *E. Keys.* (*Endemic.*)

3. *L. ovatifolia* Britton. Shrub 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, s. pen. Fla. (*W. I.*)

5. *L. Sellowiana* Link & Otto. Shrub 3–18 dm. tall, with tomentulose foliage: leaf-blades ovate, oval, or elliptic-ovate, 1–3 cm. long, abruptly narrowed or truncate at the base: corolla magenta or lilac; tube puberulent; limb 8–10 mm. high, the lower lobe much longer than the others.—*POLECAT-GERANIUM.*

Thickets, pinelands, and waste places, pen. Fla. Nat. of Trop. Am. (*W. I.*)

6. *L. involucrata* L. Shrub 4–17 dm. tall, with puberulent or tomentulose foliage: leaf-blades oval, obovate, to 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, pinelands, and sand-dunes, s. pen. Fla. and the *F. Keys.* (*W. I.*)

7. *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 and sand-dunes, s. pen. Fla. and the *F. Keys.* (*W. I.*)

3. *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. Staminiodium present. Stigma 2-lobed. Nutlets 2.

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: fruits 9–10 mm. in diameter.—*FIDDLEWOOD.*

Hammocks and pinelands, lower half of the e. coast of Fla., the *E. Keys* and *F. Keys.* (*W. I.*)

4. *DURANTA* L. Shrubs or trees, often spine-armed. Leaf-blades entire or toothed. Flowers in racemes. Calyx more or less prominently but minutely 5-lobed. Corolla salverform or funnellform: tube mainly curved: limb slightly unequally 5-lobed. Staminiodium mostly obsolete. Stigma 4-lobed. Nutlets 4.

1. *D. repens* L. Shrub or small tree: leaf-blades ovate-elliptic, oval or obovate, 1.5–5 cm. long: racemes 5–15 cm. long, recurving: calyx 3–4 mm. long, angled:

corolla lilac; limb 7-9 mm. wide, the lobes ciliate: fruits 7-11 mm. in diameter, enclosed in the calyx.—GOLDEN-DEWDROP.

Hammocks, Key West. (W. I.)

5. **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 or funnelform, typically 4-lobed, the tube straight. Filaments adnate to 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.—FRENCH-MULBERRY.

Hammocks and pinelands, nearly throughout Fla., except the F. Keys. (Cont.)—Spr.-sum., or all year southward.

6. **CLERODENDRON** [Burm.] L. Shrubs or trees, or half-shrubs. Leaves opposite: blades simple, toothed. Flowers in dense terminal cymes. Calyx prominently 5-lobed. Corolla white or highly colored, funnelform or salverform: tube slightly curved: limb 5-lobed. Filaments adnate to above the middle of the corolla-tube. Stigmas slender. Drupe lobed or ribbed.—Spr.-fall.

Corolla-tube slightly exceeding the calyx: calyx-lobes as long as the tube or longer.

1. *C. fragrans*.

Corolla-tube several times longer than the calyx: calyx-lobes shorter than the tube.

2. *C. foetidum*.

1. **C. fragrans** Vent. Shrub 1-3 m. tall: leaf-blades ovate to deltoid, 9-25 cm. long, mostly abruptly pointed, coarsely and irregularly toothed, finely pubescent beneath, truncate or shallowly cordate at the base, long-petioled: cymes congested: calyx 15-19 mm. long; lobes subulate or subulate-lanceolate, acuminate, ciliate: corolla 22-28 mm. long; lobes nearly as long as the tube, or shorter, white or blue-tinged.—Mostly represented by the form with double-flowers.

Thickets and waste places, pen. Fla. Nat. of China and Japan. (W. I.)

2. **C. foetidum** Bunge. Shrub 1-2 m. tall: leaf-blades deltoid-ovate, 6-15 cm. long, acute or slightly acuminate, serrate or serrate-dentate, mostly truncate at the base, long-petioled: cymes rather compact: calyx 5-6 mm. long; lobes triangular-lanceolate, shorter than the tube: corolla 18-22 mm. long; tube very slender; lobes lilac or purplish.

Fields and thickets, n. Fla. Nat. of China.

7. **VITEX** L. Shrubs or trees. Leaf-blades digitately compound or rarely 1-foliolate. Flowers in open terminal compound cymes. Calyx shallowly 3-lobed or 5-lobed. Corolla white or colored, funnelform, 2-lipped, the tube slightly curved. Filaments adnate to about the middle of the corolla-tube, pubescent at the base.

1. **V. Agnus-Castus** L. Shrub 1-3 m. tall, pale-pubescent: leaf-blades 7-foliolate, the leaflets with linear to linear-elliptic blades 2-10 cm. long, flowers separated: calyx 2-2.5 mm. long, campanulate: corolla blue or purplish; limb 5-6 mm. broad: fruits 3.5-4 mm. long.—CHASTE-TREE.

Roadsides, waste places, and about gardens, n. Fla. and the upper pen. Nat. of the Old World. (Cont.)—Spr.-fall.

FAMILY 6. 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, minutely canescent beneath: calyx 3-4 mm. long: corolla white; lobes longer than the tube, broadly rounded or retuse: fruit oblong or elliptic, 3-5 cm. long, acutish.—**BLACK-MANGROVE.**

Sandy shores and coastal hammocks, pen. Fla., the E. Keys and F. Keys. (*Cont.*, *W. I.*)

FAMILY 7. 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.

Corolla-tube much bent.

Corolla-tube straight.

Calyx with 5 nearly equal lobes, not 2-lipped.

Calyx 2-lipped.

1. **CONRADINA.**

2. **PYCNOTHYMUS.**

3. **CLINOPODIUM.**

1. **CONRADINA** A. Gray. Shrubs, sometimes diffuse. Leaf-blades narrow, entire. Flowers in lax axillary cymes. Calyx 2-lipped, the upper lip with 3 broad lobes, the lower lip with 2 narrow lobes. Corolla purplish, 2-lipped: upper lip broad: lower lip with 3 broad lobes, the middle lobe broadest. Stamens 4, exserted.

Foliage canescent: leaves less than 1 cm. long: upper corolla-lip rounded.

Foliage puberulent: leaves over 1 cm. long: upper corolla-lip retuse. 1. *C. canescens.*

2. *C. puberula.*

1. **C. canescens** (T. & G.) A. Gray. Plants 2-4 dm. tall: leaf-blades linear, mainly 5-9 mm. long: calyx becoming 5-6 mm. long, villous: corolla 13-15 mm. long; middle lobe of the lower lip reniform.

Sand-dunes, w. Fla. (*Cont.*)—Spr.-sum.

2. **C. puberula** Small. Plants 3-7 dm. tall: leaf-blades narrowly linear, mainly 12-25 mm. long: calyx becoming 6-7 mm. long, puberulent: corolla 12-15 mm. long; middle lobe of the lower lip cuneate-flabellate.

Pinelands and sand-hills, e. and pen. Fla. (*Endemic.*)—Spr.-sum., or all year.

2. **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, s. pen. Fla. (*Endemic.*)

3. **CLINOPODIUM** L. Shrubs or annual or perennial herbs. Leaf-blades entire or toothed. Flowers in sessile or peduncled axillary cymes. Calyx 2-lipped, the upper lip with 3 short lobes, the lower lip with 2 long, narrow lobes. Corolla 2-lipped: upper lip sometimes notched: lower lip 3-lobed. Stamens 4: anthers awnless.—Spr.—fall, or all year southward.—BASIL.

Leaf-blades entire: corolla over 25 mm. long.

Calyx less than 1.5 cm. long: corolla 3-4 cm. long.

Calyx over 1.5 cm. long: corolla 4-5 cm. long.

Leaf-blades toothed: corolla less than 15 mm. long.

Clusters 5-6-flowered: leaf-blades broadest below the middle, sessile or nearly so.

Clusters 1-3-flowered: leaf-blades broadest above the middle, petioled.

1. *C. coccineum*.

2. *C. macrocalyx*.

3. *C. georgianum*.

4. *C. dentatum*.

1. **C. coccineum** (Nutt.) Kuntze. Shrub 3-9 dm. tall: leaf-blades obovate to spatulate, linear-spatulate or linear-oblong, 0.5-2 cm. long, entire: calyx 8-11 mm. long; lateral lobes of the upper lip triangular: corolla scarlet, 3-4 mm. long; lobes of the upper lip shorter than those of the lower.

Sandy shores, w. Fla. (*Cont.*)

2. **C. macrocalyx** Small. Similar to *C. coccinea* in habit: leaf-blades broadly spatulate, 1-1.5 mm. long: calyx 16-18 mm. long; lateral lobes of the upper lip lanceolate-subulate: corolla scarlet, 4-5 mm. long; lobes of the upper lip longer than those of the lower.

Pinelands, e. pen. Fla. (*Endemic.*)

3. **C. georgianum** Harper. Shrub 2-6 dm. tall: leaf-blades ovate, oval or oblong, 10-30 mm. long, shallowly serrate: calyx 5-6 mm. long: corolla white or pink-purple, and purple-spotted, 11-13 mm. long; middle lobe of the lower lip quite similar to the lateral ones and scarcely longer. [*C. carolinianum* (Michx.) Heller.]

River-banks and dry woods, m. and w. Fla. (*Cont.*)

4. **C. dentatum** (Chapm.) Kuntze. Shrub 3-7 dm. tall: leaf-blades obovate to oblong-cuneate, 5-12 mm. long, mainly toothed at the apex: calyx 7-8 mm. long: corolla white or purplish, 11-13 mm. long; middle lobe of the lower lip broader than the lateral ones and extending beyond them.

Sand-ridges, m. Fla. (*Endemic.*)

FAMILY 8. 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.

1. **RUSSELIA** Jacq. Shrubs, commonly with rush-like diffuse stems. Leaves opposite or whorled, mostly scale-like, sometimes with small dilated blades. Flowers in diffuse cymes. Calyx-lobes broad. Corolla mostly red, tubular or tubular-filiform: tube elongate: lobes very short. Stamens 4: anther-sac divergent. Styles united. Capsule ovoid or globose.

1. **R. equisetiformis** Schlecht. & Cham. Stems tufted, spreading or arching, the branches striate: leaves various, those of the twigs with spatulate or obovate blades, 1-1.5 cm. long, those of the stem and branches reduced to short scales: flowers numerous: calyx 3-4 mm. long; lobes ovate: corolla showy, bright red, 20-26 mm. long; lobes ovate: capsules ovoid.—CORAL-FLOWER. FOUNTAIN-PLANT.

Fields, waste places, and roadsides, pen. Fla. Nat. of Mex. (*W. I.*)

FAMILY 9. 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. Ovules numerous. Fruit a capsule. Seeds winged or appendaged.

Calyx with an undulate margin: capsule flattened parallel with its partition.

Calyx with 5 lobes: capsule flattened at right angles with its partition.

Erect plant: pod linear, not stipitate.

Climbing plant: pod clavate or fusiform, stipitate.

1. ANISOSTICHUS.

2. TECOMA.
3. BIGNONIA.

1. **ANISOSTICHUS** Bureau. Vines. Leaf-blades 2-3-foliolate or 1-foliolate, often tendril-bearing: leaflets usually with entire blades. Calyx campanulate or cupulate. Corolla with a short tube abruptly expanded into a campanulate throat. Capsule narrow. Seeds winged.

1. **A. crucigera** (L.) Bureau. Glabrous vine: leaves prolonged into tendrils; leaflets 2; blades oblong-oval to oblong-lanceolate, 5-15 cm. long, cordate or auricled at the base: calyx 5-8 mm. long, shallowly lobed: corolla red-orange without, yellow within, 4-5 cm. long: filaments villous at the base: capsules linear, 10-17 cm. long.—CROSS-VINE. TRUMPET-FLOWER.

Thickets and woods, n. and pen. Fla. (Cont.)—Spr.

2. **TECOMA** Juss. Shrubs or partially herbaceous plants. Leaf-blades unequally pinnate. Flowers clustered. Calyx tubular-campanulate, nearly equally 5-lobed. Corolla with the tube gradually enlarged into the funnelliform 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.—YELLOW TRUMPET-FLOWER. YELLOW-ELDER.

Hammocks and about gardens, s. pen. Fla. and the F. Keys. (W. I.)

3. **BIGNONIA** [Tourn.] L. Vines. Leaf-blades unequally pinnate: leaflets with toothed blades. Flowers clustered. Calyx tubular-campanulate, nearly equally 5-lobed. Corolla tubular-funnelform. Capsule stout, fusiform. Seeds membranous-winged.

1. **B. radicans** L. Stout vine: leaves many, 2-2.5 dm long; leaflets 7-11, the blades oval, ovate, or elliptic, 2-6 cm. long, coarsely serrate: calyx 14-18 mm. long; lobes triangular to triangular-ovate: corolla red or orange, 5-9 cm. long: capsules fusiform, 10-18 cm. long.—TRUMPET-CREEPER. COW-ITCH. TRUMPET-FLOWER.

Woods, swamps, and thickets, n. and pen. Fla. (Cont.)—Spr.-fall.

Order SANTALALES.

Herbs, shrubs, or trees, mostly root- or tree-parasites. Leaves with expanded blades or scale-like. Flowers inconspicuous, perfect or imper-

fect. 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.

Leaves opposite: fruit a berry: tree-parasite.

Fam. 1. LORANTHACEAE.

Leaves alternate: fruit a drupe or a nut: root-parasite.

Fam. 2. SANTALACEAE.

FAMILY 1. LORANTHACEAE. MISTLETOE FAMILY.

Green parasitic herbs or shrubs, growing mostly on woody plants. Leaves typically opposite, sometimes scale-like. Flowers monoecious or dioecious, regular. Calyx of minute sepals, or obsolete. Corolla of 2-6 more or less united petals. Androecium of 2-6 stamens. Gynoecium compound, often 2-carpellary, but the inferior ovary 1-celled. Fruit baccate.

1. **PHORADENDRON** Nutt.¹ Soft-wooded half-shrubs parasitic on woody flowering plants, our species without cataphyllary scales on the internodes, minutely pubescent when young. Leaves olive-green. Flowers dioecious, in axillary jointed spikes, about 6-ranked, minute, epigynous, apetalous. Sepals 3. Stamens opposite the sepals and partly adnate to them: anthers minute, nearly sessile, 2-celled, dehiscing longitudinally. Ovary 1-celled. Ovule solitary, erect. Fruit a white berry with viscid pulp investing the green seed.—The plants flower in fall or early winter and mature their fruit a year later.—MISTLETOE.

Spikes permanently short (2-3 cm.), covered by the berries.

Leaf-blades relatively broad, oblanceolate-obovate.

1. *P. flavescens*.

Leaf-blades relatively narrow, subspatulate.

2. *P. Eatoni*.

Spikes becoming elongate (6-7 cm.), with the berries in separated whorls.

3. *P. macrotomum*.

1. ***P. flavescens*** Nutt. Stoutish, somewhat yellowish-pubescent: leaves 2-5 cm. long; blades usually 1.5-2 cm. wide or occasionally 4 cm. wide, oblanceolate-obovate: spikes under 2 cm. long, with about 4 short joints 6-12-flowered, lengthening one-half in fruit, but with the berries nearly meeting.

On oaks, hickories, and other deciduous-leaved trees, n. Fla. (*Cont.*)

2. ***P. Eatoni*** Trelease. Slenderer than *P. flavescens*, minutely velvety: leaves 2-5 cm. long; blades scarcely 1 cm. wide, subspatulate: spikes under 2 cm. long, with 2 or 3 short joints 6-12-flowered or even 30-flowered.

On ash trees, s. w. pen. Fla. (*Endemic.*)

3. ***P. macrotomum*** Trelease. Slightly pubescent: leaves 5-7 cm. long; blades 1.5-2 cm. wide, oblanceolate: spikes 2-3 cm. long, with 4 or 5 oblong joints 6-12-flowered or even 30-flowered, lengthening to 5-7 cm. in fruit, with the whorls of berries distinctly separated.

On oaks and other deciduous-leaved trees, e. Fla. and the upper pen. (*Endemic.*)

FAMILY 2. 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.

¹ Contributed by Professor William Trelease.

Petals united to above the middle: stamens as many as the corolla-lobes and opposite them: drupe nearly enclosed in the disk. 1. *SCHOEFFIA*.
 Petals nearly distinct: stamens twice as many as the petals: drupe naked. 2. *XIMENIA*.

1. *SCHOEFFIA* Schreb. Unarmed shrubs or trees. Leaf-blades entire Hypanthium filled with an elevated disk. Sepals broad. Petals united to above the middle. Filaments adnate to about the middle of the corolla-tube. 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 about 4 mm. long; lobes ovate, glabrous: drupes ovoid or oval-ovoid, 10-12 mm. long.—*WHITEWOOD*.

Coastal hammocks, s. pen. Fla. and the F. Keys, also in hammocks of the E. Keys.—(W. I.)

2. *XIMENIA* [Plum.] L. Thorny shrubs or trees. Leaf-blades entire. Hypanthium without an elevated disk. Sepals minute. Petals nearly distinct. 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.—*TALLOW-WOOD*.

Hammocks, pen. Fla. and in hammocks and pinelands, E. Keys and F. Keys. (W. I.)

Order RUBIALES.

Herbs, shrubs, or trees. Leaves opposite, sometimes whorled. Flowers perfect or polygamous, axillary or cymose. Hypanthium perfect. Calyx of 2 or more often small sepals. Corolla of 3 or more partially united petals. Androecium of as many stamens as there are petals 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 stem 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 or foliaceous stipules. Flower 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, more or less united petals. Androecium of as many stamens as there are petals and alternate with them. Gynoecium 2-several-carpellary. Fruit a capsule, a drupe, or a berry.

Cavities of the ovary with several or many ovules: seeds several or many.

Fruit dry: capsular.

Seeds wingless: sepals long and narrow, some in the outer flowers foliaceous: anthers short and thick. 1. *PINCKNEYA*.

Seeds winged: sepals minute: anthers long and slender. 2. *EXOSTEMA*.

Fruit pulpy: baccate.

Fruit 2-celled.

Flowers in cymes.

3. *CASASIA*.

Flowers solitary.

Sepals 5: corolla-lobes 5: free portions of the filaments short: anthers oblong or nearly so.

4. *RANDIA*.

- Sepals 4: corolla-lobes 4: free portions of the filaments long: anthers linear.
- Fruit 5-celled.
- 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 (*Morinda*).
- 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.
- Corolla rotate: filaments scarcely adnate to the corolla: anthers coherent as a tube around the style.
- Corolla not rotate: filaments manifestly adnate to the corolla-tube: anthers distinct.
- Ovule or seed with a basal attachment.
- Corolla funnelform: seed wingless: erect shrubs or trees.
- Corolla campanulate: seed winged: vines.
- Ovule or seed with a lateral attachment.
- Flowers in terminal clusters, the hypanthia coalescent: sepals minute or obsolete.
- Flowers axillary and solitary: sepals slender.
5. CATESBAEA.
6. HAMELIA.
7. CEPHALANTHUS.
8. GUETTARDA.
9. ERITHALIS.
10. CHIOCCOCCA.
11. STRUMPFIA.
12. PSYCHOTRIA.
13. PAEDERIA.
14. MORINDA.
15. ERNODIA.

1. **PINCKNEYA** Michx. Shrubs or trees. Leaves with broad entire blades. Flowers in corymbose cymes. Sepals 5, 1 or 2 of them, at least in the outer flowers, transformed into leaf-like members. Corolla with a stout tube and 5 rather broad lobes. Stamens 5: filaments adnate to the lower part of the corolla-tube, glabrous: anthers oblong, exerted. Capsule as wide as long. Seeds wingless.

1. **P. pubens** Michx. Shrub or small tree, with pubescent foliage: leaf-blades oblong, oval, or ovate, 5-20 cm. long, short-petioled: foliaceous sepals like the leaves in shape, but smaller and pink: unchanged sepals linear to linear-lanceolate, 1-1.5 cm. long: corolla greenish, mottled with brown or purple: tube 1.5-2 cm. long; lobes as long as the tube or shorter: capsule subglobose, nearly 2 cm. in diameter.—FEVER-TREE.

Sandy swamps and along streams, m. and w. Fla. (*Cont.*)—Spr.-sum.

2. **EXOSTEMA** L. C. Rich. Shrubs or trees. Leaf-blades leathery. Flowers axillary or in paniculate cymes. Sepals 5, short. Corolla with 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.—PRINCEWOOD.

Hammocks, E. Keys and F. Keys. (*W. I.*)

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 elongated, linear-sagittate, included. Berry thick. Seeds angled.

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: hypan-

thium 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.]—SEVEN-YEAR APPLE.

Coastal sand-dunes and hammocks of s. pen. Fla., and on the E. Keys and F. Keys. (W. I.)

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.

Hammocks and pinelands, s. pen. Fla. and the F. Keys. (W. I.)

5. **CATESBAEA** L. Armed shrubs. Leaves very numerous: blades leathery. Flowers axillary. Sepals 4, short. Corolla with a long tube and 4 short lobes. Stamens 4: filaments adnate to the base of the corolla-tube: anthers narrow or linear. Berry thick.

1. **C. parviflora** Sw. Shrub 1-3 m. tall: leaves 5-15 mm. long; blades spatulate, obovate or suborbicular, lustrous: sepals triangular to triangular-lanceolate, 1-1.5 mm. long: corolla white; tube campanulate, 3.5-4 mm. long; lobes deltoid, acutish: berries subglobose, 6-18 mm. long, blue or black.

Hammocks, F. Keys. (W. I.)

6. **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. patens** Jacq. Shrub or small tree: leaf-blades elliptic, oblong, or elliptic-ovate, 8-15 cm. long; hypanthium turbinate: sepals about 1 mm. long: corolla crimson, 1.5-2.3 cm. long; lobes 2-3 mm. long: berries oval or ovoid, 5-7 mm. long, black. [*H. erecta* Jacq.?]—HAMELIA.

Hammocks, lower two-thirds of pen. Fla. and on the F. Keys. (W. I.)

7. **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 to the throat of the corolla: 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 0.5 mm. long: corolla white, about 10 mm. long; lobes ovate to oblong-ovate: nutlets 7-8 mm. long.—BUTTONBUSH.

Swamps and low hammocks, nearly throughout Fla., except the F. Keys. (Cont.) —Spr.-fall.

8. **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 near the top of the corolla-tube: anthers narrow, but short. Drupe globular.—All year.

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 8-11 mm. in diameter.—VELVET-SEED.

Hammocks and pinelands, E. Keys and F. Keys. (W. I.)

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.—ROUGH VELVET-SEED.

Hammocks and pinelands, E. Keys and F. Keys, and coastal hammocks, s. pen. Fla. (W. I.)

9. *ERITHALIS* P. Br. Shrubs. Leaf-blades leathery. Flowers in terminal cymes. Sepals 5-10, short or 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-obovate, 2.5-5 cm. long, lustrous: sepals minute: corolla white; lobes oblong, 3-5 mm. long: berries subglobose, 3-4 mm. thick, dark-purple.

Sand-dunes and coastal hammocks, s. pen. Fla. and the F. Keys. (W. I.)

10. *CHIOCOCCA* P. Br. Shrubs or vines. Leaf-blades leathery. Flowers on 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.

1. *C. alba*.

Corolla-lobes about 2 mm. long: anthers about 2 mm. long: seeds

2-2.5 mm. long.

2. *C. pinetorum*.

1. *C. alba* (L.) A. Hitchc. Large, erect, 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, s. pen. Fla. and the F. Keys. (W. I.)

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, E. Keys and F. Keys. (W. I.)

11. *STRUMPFIA* Jacq. Shrubs. Leaf-blades rigid-leathery. Flowers in axillary raceme-like panicles. Sepals 5, short. Corolla rotate, with a very short tube and 5 longer lobes. Stamens 5: filaments very short, scarcely adnate to the base of the corolla-tube, united: anthers adnate by their broad connectives. Drupe thick.

1. *S. maritima* Jacq. Much branched pubescent shrub, the branches short-jointed: leaf-blades linear to linear-elliptic, 1-2.5 cm. long, revolute: sepals triangular to ovate-triangular, becoming about 1 mm. long, acute: corolla white, pubescent; lobes lanceolate to oblong, 3-4 mm. long: drupes 4-6 mm. long, white or red.

Sandy or rocky hammocks and sand-dunes, F. Keys. (W. I.)

12. *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.

Inflorescence, twigs, and leaves glabrous.

Cymes sessile: sepals very shallow.

Cymes peduncled: sepals deltoid.

Inflorescence, twigs, and leaves pubescent.

1. *P. undata*.

2. *P. bahamensis*.

3. *P. Sulzneri*.

1. *P. undata* Jacq. Shrub or small tree, the twigs glabrous: leaf-blades oval, elliptic, or elliptic-lanceolate, 6-15 cm. long: corolla white; tube 2.5-3 mm. long: anthers oval: drupes 4-4.5 mm. long, red.—WILD-COFFEE.

Hammocks, lower two-thirds of pen. Fla. and outer F. Keys. (W. I.)

2. *P. bahamensis* Millsp. Shrub or small tree, the twigs glabrous: leaf-blades lanceolate, elliptic, or oblanceolate, 3-12 cm. long: corolla white; tube 3-4 mm. long: anthers oblong: drupes oval or globular, 4-5 mm. long, bright-orange.—BAHAMAN WILD-COFFEE.

Hammocks, F. Keys. (W. I.)

3. *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 5-6 mm. long. [*P. tenuifolia* Griseb. Not Sw.]—WILD-COFFEE.

Hammocks, s. pen. Fla. and adj. islands. (W. I.)

13. **PAEDERIA** L. Woody vines. Leaves opposite: blades broad, at least relatively so, entire. Flowers borne in dichotomous cymes. Sepals 4 or 5, narrow. Corolla campanulate: lobes 4 or 5, relatively short. Filaments almost wholly adnate to the corolla-tube: anthers narrow. Styles slender, united at the base. Berry rather dry, the outer coat brittle and early falling away. Seeds flat, margined.

1. *P. foetida* L. Stems twining, often slightly pubescent in lines: leaf-blades oblong to oblong-lanceolate, 3-11 cm. long, acuminate at the apex, rounded, truncate or subcordate at the base, slender-petioled: sepals acute: corolla 7-9 mm. long; lobes about $\frac{1}{4}$ as long as the tube, apiculate: berries obovoid, about 1 cm. long.

Thickets and fence-rows, pen. Fla. Nat. of the E. Indies.

14. **MORINDA** [Vaill.] 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. Roioi* 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, pen. Fla. and the F. Keys. (W. I.)

15. **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 one-third as long as the corolla-tube: anthers narrowly linear.

1. *E. littoralis*.

Sepals about one-half 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, s. pen. Fla. and the F. Keys. (W. I.)

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, E. Keys and F. Keys. (W. I.)

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. Gynoeium 2-5-carpellary. Ovary inferior. Fruit baccate, drupaceous, or capsular.

Corolla rotate to urceolate: stigma 2-5-lobed, sessile.

Leaf-blades pinnate: drupelets with 3-5 nut-like stones.

1. *SAMBUCUS*.

Leaf-blades entire or toothed: drupelets with a single stone.

2. *VIBURNUM*.

Corolla elongate, tubular to trumpet-shaped; limb sometimes 2-lipped.

Flowers in pairs, each of which terminates an axillary peduncle, accompanied by a pair of bracts and bractlets.

3. *NINTOOA*.

Flowers in whorls at or near the ends of the branches, the bracts and usually some of the upper leaves connate-perfoliate.

4. *LONICERA*.

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. Drupelets with 3-5 stones.

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 merely convex: corolla 5-6 mm. wide: drupes 4-6 mm. in diameter, deep-purple or nearly black.—ELDER.

Swamps, woods, and hammocks, nearly throughout the mainland of Fla. (Cont., W. I.)

2. *VIBURNUM* [Tourn.] L. Shrubs or trees, the stems not pithy. Leaf-blades simple. Flowers in round-topped cymes. Sepals minute. Anthers oblong. Ovary 1-celled. Drupelets with a single stone.—Spr.-sum.—ARROW-WOOD.

Leaf-blades palmately veined and usually lobed.

1. *V. densiflorum*.

Leaf-blades pinnately veined, toothed or entire.

Cymes manifestly peduncled.

Leaf-blades coarsely dentate.

Leaf-blades glabrous or with tufts of simple hairs in the vein-axils beneath.

2. *V. dentatum*.

Leaf-blades stellate-pubescent beneath.

3. *V. scabrellum*.

Leaf-blades entire or irregularly erose-crenulate.

Peduncle shorter than the cyme.

4. *V. crassinoides*.

Peduncle longer than the cyme.

5. *V. nudum*.

Cymes sessile or nearly so.

Filaments as long as the corolla or longer: leaves with manifest distinction between blade and petiole; blades toothed all around.

6. *V. ruftdulum*.

Filaments much shorter than the corolla: leaves without distinction between blade and petiole; blades entire or somewhat crenate near the apex.

Drupelets less than 9 mm. long, the stone turgid-suborbicular: leaf-blades narrow.

Drupelets over 9 mm. long, the stone flat, oblong-ovate: leaf-blades broad.

7. *V. obovatum*.

8. *V. Nashii*.

1. *V. densiflorum* Chapm. Erect shrub: leaf-blades undulate, shallowly toothed or sometimes slightly 3-lobed: sepals deltoid, about 0.7 mm. long: hypanthium pubescent: corolla-lobes mostly ovate: drupes oblong, — mm. long.

Woods, w. Fla. (*Ala.*)

2. *V. dentatum* L. Shrub: leaf-blades suborbicular, oval, or ovate, sharply dentate, 3–8 cm. long: corolla-lobes reniform: filaments much exceeding the corolla-lobes: drupes globose-ovoid, 5–6 mm. long, deep-blue or nearly black.

Thickets and swamps, n. Fla. and the upper pen. (*Cont.*)

3. *V. scabrellum* (T. & G.) Chapm. Shrub: leaf-blades broadly ovate to nearly orbicular, coarsely dentate, 8–13 cm. long: corolla 6–8 mm. wide: filaments slightly exceeding the corolla-lobes: drupes ovoid to globose-ovoid, 6–9 mm. long, deep-blue.

Woods and hillsides, m. and w. Fla. (*Cont.*)

4. *V. cassinoides* L. Shrub: leaf-blades thickish, ovate-elliptic, ovate-lanceolate, or oblanceolate, undulate or crenate, 3–8 cm. long: corolla 4–5 mm. wide: filaments much exceeding the corolla-lobes: drupes ovoid or globose-ovoid, 6–9 mm. long, deep-blue or rarely pink.

Swamps, n. Fla. (*Cont.*)

5. *V. nudum* L. Shrub: leaf-blades thick, oval-ovate, oblong, broadly lanceolate, or oblanceolate (linear-oblong or narrowly oblong-lanceolate in *V. nudum angustifolium*), undulate or obscurely toothed, 5–15 cm. long: corolla often larger than that of *V. cassinoides* (smaller in *V. nudum serotinum*): drupes oval to subglobose, 6–10 mm. long, deep-blue.—POSSUM-HAW.

Swamps and low grounds, n. Fla. and the upper pen. (*Cont.*)

6. *V. rufidulum* Raf. Shrub or small tree: leaf-blades thick, oblong or elliptic, or nearly so, serrate, 4–10 cm. long: corolla 7–10 mm. wide: drupes broadly oblong, 10–14 mm. long, deep-blue under the bloom.—SOUTHERN BLACK-HAW.

Woods and thickets, n. Fla. and the adj. pen. (*Cont.*)

7. *V. obovatum* Walt. Shrub or small tree: leaf-blades oblanceolate, cuneate, or obovate, 1.5–6 cm. long, entire or slightly toothed near the apex: corolla 5–6 mm. wide: filaments scarcely equalling the corolla-tube: drupes oval, 6–8 mm. long, black.—SMALL-VIBURNUM.

River-swamps, n. Fla. and the upper pen. (*Cont.*)

8. *V. Nashii* Small. Shrub or small tree: leaf-blades suborbicular or broadly obovate to spatulate, 4–5 cm. long, more or less crenate: drupes oblong, 10–12 mm. long, black.—NASH'S-VIRBURNUM.

River-swamps, w. Fla. (*Endemic.*)

3. **NINTOOA** Sweet. Woody vines. Leaf-blades entire. Flowers in pairs terminating axillary peduncles, accompanied by 2 foliaceous bracts and 2 small bractlets, the hypanthia distinct. Sepals slender or subulate. Corolla relatively long: tube not gibbous: limb 2-lipped. Berries distinct.

1. *N. japonica* (Thunb.) Sweet. Diffusely creeping or climbing vine: leaf-blades oblong, ovate, or orbicular-ovate, 2–5 cm. long: corolla white or pink, becoming yellow; tube about 2 cm. long: stamens and style exerted: berries subglobose or oval, 4–6 mm. long, black.—JAPANESE-HONEYSUCKLE.

Roadsides, thickets, woods, and cultivated grounds, n. and pen. Fla. Nat. of Japan. (*Cont.*)

4. **LONICERA** L. Woody vines. Leaf-blades entire, or lobed on shoots. Flowers in sessile axillary clusters. Hypanthium short. Sepals minute. Co-

rolla mostly 2-lipped: tube more or less gibbous at the base. Berries clustered.—Spr. and sum.—HONEYSUCKLE. WOODBINE.

1. *L. sempervirens* Ait. Twining vine, the twigs glabrous: leaf-blades narrow or broad, mostly 3–9 cm. long: corolla scarlet or yellow, 3–4 cm. long, the lower lip slightly narrower than the lobes of the upper lip.—TRUMPET-HONEYSUCKLE. CORAL-HONEYSUCKLE.

Thickets, woods, and river-banks, n. and pen. Fla. (Cont.)

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. tomentosa* Sims. Stems high-climbing, the branches downy: leaf-blades ovate to suborbicular, 10–18 cm. long, rounded at the apex: peduncle wanting: calyx abruptly bent above the ovary, the limb 2–2.5 cm. wide, yellowish, except the purple orifice, rugose: capsules 4–6 cm. long.—PIPEVINE.

Woods, m. and w. Fla. (Cont.)—Spr.-sum.

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.

FAMILY 1. 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.

Shrubs of Florida—9.

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, s. pen. Fla. and the F. Keys. (W. I.)

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.

Stamens distinct, the anthers merely converging about the stigma.

Stamens united by the anthers, thus forming a tube around the stigma.

Fam. 1. AMBROSIACEAE.

Fam. 2. CARDUACEAE.

FAMILY 1. AMBROSIACEAE. RAGWEED FAMILY.

Annual or perennial herbs, or shrubs, 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.

1. **IVA** L. Shrubs with erect stems. Leaf-blades entire or toothed, sometimes fleshy. Mature pistillate involucre often nodding.—MARSH-ELDER.

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*.

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 region of Fla. (Cont., W. I.)

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.; bracts 2-3 mm. long: achenes 2-2.5 mm. long.

Coastal region, n. and pen. Fla. (Cont.)

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.

Plants not dioecious: disk corollas with funnelform or campanulate throats: ray-corollas, when present, with flat ligules.

Heads without ray-flowers.

Achenes 3-5-angled, ribless: corolla-throat funnelform.

Bracts of the involucre leathery or parchment-like, in many series, striate.

Bracts of the involucre membranous or herbaceous, in 1-few series, not striate.

Achenes 10-ribbed: corolla-throat campanulate.

Heads with ray-flowers.

Plants dioecious: pistillate corollas filiform; staminate corollas funnelform.

1. OSMIA.
2. EUPATORIUM.
3. GARBERIA.
4. CHRYSOMA.
5. BACCHARIS.

1. **OSMIA** Sch. Bip. Shrubs or perennial herbs. Leaves opposite: blades broadest below the middle. Heads borne in corymbs. Involucre ovoid or thick-cylindric. Corolla-lobes ovate or rounded. Anther-appendages triangular. Achene angled. Pappus of capillary bristles.

Bracts of the involucre 5-7-ribbed: receptacle convex.

Bracts of the involucre 3-ribbed: receptacle flat.

1. *O. frustrata*.
2. *O. odorata*.

1. **O. frustrata** (B. L. Robinson) Small. Stems 5-10 dm. tall, minutely pubescent: leaf-blades ovate-lanceolate to deltoid-ovate, 2-3 cm. long, rather obtuse: involucre 6-8 mm. long: corollas about 4 mm. long. [*Eupatorium heteroclinum* Chapm. Not. Griseb., *Eupatorium frustratum* B. L. Robinson.]

Hammocks, F. Keys. (*Endemic*.)

2. **O. odorata** (L.) Sch. Bip. Stems 6-18 dm. tall, pubescent: leaf-blades ovate to lanceolate, 4-10 cm. long, acuminate: involucre 8-10 mm. long: corollas about 5 mm. long.

Hammocks, s. pen. Fla. and the F. Keys. (*Cont., W. I.*)

2. **EUPATORIUM** [Tourn.] L. Shrubs or caulescent herbs. 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.

1. **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, E. Keys. (*W. I.*)

3. **GARBERIA** A. Gray. Shrubs. Leaves alternate: blades broad, entire. Heads borne in rather dense corymbose cymes. Involucre narrow. Corolla-throat campanulate, rather shorter than the much narrower tube: lobes narrowly lanceolate. Androecium conspicuously exerted: anther-appendages notched. Achene long, ribbed. Pappus of scabro-barbellulate capillary bristles in 2 or more rows.

1. **G. fruticosa** (Nutt.) A. Gray. Stems 1-2 m. tall: leaf-blades spatulate to obovate, 2-3 cm. long: involucre 10-12 mm. long; bracts of the involucre puberulent: achenes 9-10 mm. long.

Hammocks, pen. Fla. (*Endemic*.)

4. **CHRYSOMA** Nutt. Shrubs or partly woody plants. Leaves alternate: blades narrow, fleshy-leathery, conspicuously fine-pitted. Heads numerous, thyrsoïd, or somewhat corymbose. Involucres narrow, few-flowered: bracts narrow, the inner much longer than the outer. Ray-flowers 1-3: corollas with a long tube and a yellow ligule. Disk-corollas with a funnelform throat and a tube of about equal length: lobes lanceolate. Anthers longer than the fila-

ments. Stigmas lanceolate. Pappus of 1 or 2 series of brownish capillary bristles.

1. *C. pauciflosculosa* (Michx.) Greene. Stems 3-9 dm. tall: leaf-blades linear-spatulate to linear-oblong, 3-6 cm. long: involucre 4-6 mm. long, the inner bracts linear-lanceolate: ligules of the ray-corollas 4-6 mm. long: achenes 3-4 mm. long.

Sandy shores and banks, n. Fla. (Cont.)

5. *BACCHARIS* L. Shrubs. Leaves alternate: blades leathery, entire or toothed. Heads dioecious, often clustered, discoid. Involucre 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. Leaf-blades broadest above the middle.

Leaf-blades entire.

Leaf-blades toothed.

Inner bracts of the pistillate involucre acute: heads in peduncled panicle clusters.

Inner bracts of the pistillate involucre obtuse: heads in sessile or nearly sessile axillary clusters.

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 involucre with ovate-obtuse outer bracts and linear-lanceolate acuminate inner bracts.

Coastal hammocks, E. Keys. (W. I.)

2. *B. halimifolia* L. Shrub 9-40 dm. tall, resinous: leaf-blades suborbicular to oblong or linear-elliptic, some of them, at least, coarsely toothed: pistillate involucre about 6 mm. long; inner bracts linear.—GROUNDSEL-TREE.

Coastal hammocks and sand-dunes, nearly throughout Fla. (Cont., W. I.)

3. *B. glomeruliflora* Pers. Shrub 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, nearly throughout n. and pen. Fla. (Cont., W. I.)

4. *B. angustifolia* Michx. Shrub 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, nearly throughout Fla. (Cont., W. I.)

LIST OF GENERA AND SPECIES PUBLISHED IN THIS FLORA.

- Cerothamnus pumilus (Michx.) Small. *Myrica cerifera pumila* Michx.
Rubus lucidus Rydb. Type, Dunedin, Florida, *Tracy, 6855*, in herb. N. Y. B. G.
Rosa floridana Rydb. Type, near Jacksonville, Florida, *Curtiss, 4755*, in herb. Columbia University.
AMPELOTHAMNUS Small. Greek, vine-shrub, referring to the habit of the type species, *i. e.* either an erect shrub or a climbing vine.
Ampelothamnus phillyreifolus (Hook.) Small, *Andromeda phillyreifolia* Hook.
DESMOTHAMNUS Small. Greek, fetter-bush, the common name of the type species.
Desmothamnus nitidus (Bartr.) Small, *Andromeda nitida* Bartr.
Arsenococcus frondosus (Pursh) Small. *Andromeda frondosa* Pursh.
Eubotrys elongata Small. *Leucothoë elongata* Small.
Forestiera globosa Small. *Adelia globosa* Small.
Adenoplea Lindleyana (Fort.) Small. *Buddleia Lindleyana* Fort.
Phoradendron Eatoni Trelease. Type, Delp Lake, Florida, *A. A. Eaton, 1310*.
Phoradendron macrotomum Trelease. Type, Curtiss' Second Distr. Pl. S. U. S., *4569*.



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