

Key to Florida Wetland Plants

For use the the manual: **FLORIDA WETLAND PLANTS, AN IDENTIFICATION MANUAL**

This manual is color coded for use in finding the following great groups, within each great group the families and genera are arranged alphabetically.

Color Great Group

GREEN - Ferns and Fern Allies

BROWN - Gymnosperms (Conifers)

BLUE - Monocots (Flowering plants)

GOLD - Dicots (Flowering plants)

Once you discover the family characteristics you will be able to use this book more efficiently. The following key has been constructed using primarily vegetative and growth form characteristics to help with identifying the families. For example, there are groups for palms, grass like plants, carnivorous plants. This key presupposes that the user knows something about the life history of the plant in question, for example: spore versus seed production, cones versus flowers, aquatic versus terrestrial.

Like the manual, the following keys are arranged by great groups;

(1) Ferns and Fern Allies, (2) Gymnosperms (conifers), (3) Monocots, (4) Herbaceous Dicots and (5) Woody Dicots.

Almost all the Keys are dichotomous. They are arranged by subgroups and these were created by grouping plants with similar vegetative characteristics. The subgroups contain keys to the families.

Key to the Great Groups

The following characteristics are shared by each great group.

1. Plants reproducing by dust-like spores produced in cones or on leaves, leaves either small and scale-like or larger and nearly always pinnately compound. **Ferns and Fern Allies**
1. Plants reproducing by seeds produced in cones or flowers; leaves various, if broad usually with net venation 2
 2. Plants with cones, needlelike leaves, and often a turpentine-like smell; trees and shrubs
Gymnosperms (conifers)
 2. Plants with flowers, fruit or broad leaves; trees, shrubs or herbs
Flowering Plants (Angiosperms), contains two groups, the monocots and dicots

Keys to the Flowering Plants (Angiosperms)

1. Plants with parallel veins, flowers in parts of threes, generally herbaceous (except for palms)
Monocots
1. Plants with net venations, flowers in parts of 4s or 5s, fruit various Dicots
 2. Plants with herbaceous growth, generally plants in the groundcover. **Herbaceous Dicots**
 2. Plants with woody growth, shrubs and trees. **Woody Dicots**

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Key to the Ferns and Fern Allies

The nomenclature generally follows that found in **A Field Manual of the Ferns and Fern-allies of the United States and Canada** by David B. Lellinger, Smithsonian Institution Press, Washington, D.C. 1985 or

1a. Plants with small, simple, scale-like leaves on spreading or creeping above-ground stems or with grass-like leaves having swollen bases enclosing a single sporangium

2a. Plants consist of a tuft of grass like leaves **ISOETACEAE**

2b. Plants otherwise, stems creeping or underground rhizomes

3a. Stems dichotomously branched, leafless **PSILOTACEAE**

3b. Stems not as above

4a. Stems jointed, ridged and with dark bands and a toothed sheath; 4a
rough to the touch **EQUISETACEAE**

4b. Stems without joints, creeping or erect, with many small,
triangular, scalelike leaves

5a. Spores produced in four sided sporangia .. **SELAGINELLACEAE**

5b. Spores produced in cylindrical sporangia .. **LYCOPODIACEAE**

1b. Plants with larger, usually pinnately compound leaves or
4-foliolate leaves, primarily produced from underground stems
(rhizomes) or plants floating or rooted emergent aquatics with
simple to highly branched leaves

6a. Plants terrestrial with clover-like leaves or plants
floating or rooted as an emergent aquatic

7a. Plants terrestrial with 4-foliolate leaves
..... **MARSILEACEAE**

7b. Plants floating with simple leaves or floating
and/or emergent aquatics with highly
branched leaves

8a. Plants with highly branched leaves . **PARKERIACEAE**

8b. Plants with simple leaves

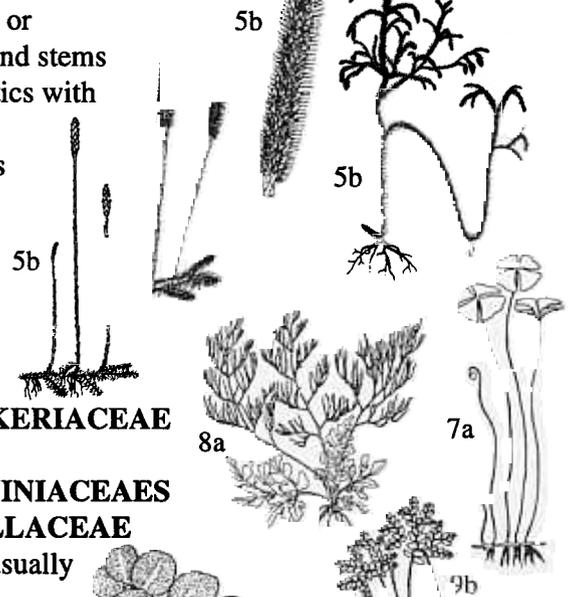
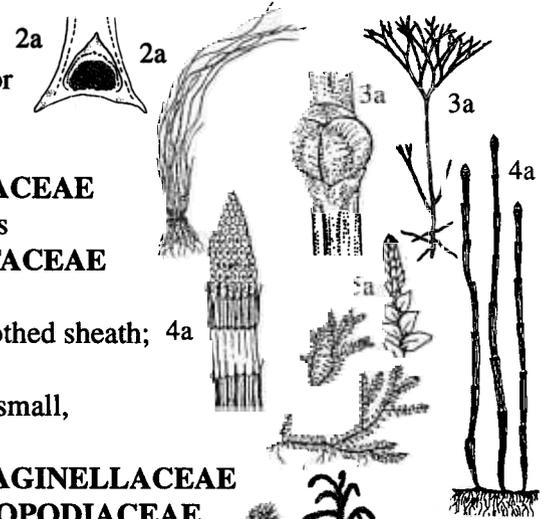
9a. Leaves oval **SALVINIACEAES**

9b. Leaves scale-like..... **AZOLLACEAE**

6a. Plants rooted in the ground or epiphytic, leaves usually
pinnately compound

10a. Plants with large (about 2 m long) evergreen,
leathery leaves, stiff and erect with thick petioles;
sporangia in a thick, brown layer on the underside
of leaves; rhizome large and woody; plants of
south Florida and coastal areas of
central Florida **PTERIDACEAE** (*Acrostichum*)

10b. Plants with smaller, thinner leaves, evergreen
or deciduous; sporangia in round or elongate
clusters (sori) on underside of leaves or stalked
in globular clusters or beadlike; rhizome smaller,
creeping or with wiry, mat-like roots



dark brown sori are
found on the uppermost leaflets

11a. Plants with two types of leaves, i.e. dimorphic, one type fertile and the other sterile (vegetative)

12a. Sterile leaves tripinnate, toothed or lobed, triangular in outline or simple, round to elliptic, entire **OPHIOGLOSSACEAE**

12b. Leaves pinnate or bipinnately lobed, margins variously lobed to unlobed

13b. Sterile leaves bipinnately lobed or with pinnae margins lobed; fertile leaves erect, brownish-red to tan; rhizomes with black wiry roots..... **OSMUNDACEAE**

13a. Sterile leaves, pinnately lobed with pinnae margins entire or with small teeth

14a. Fertile leaves with elongate sori on thin spreading fertile pinnae; sterile leaves with pinnae alternate in part, **BLECHNACEAE** (*Woodwardia areolata*)

14b. Fertile leaves with bead-like fertile pinnae; sterile leaves with pinnae opposite.....
 ◇ **WOODSIACEAE** (*Onoclea sensibilis*)

11b. Plants with one type of leaf, i.e. fertile and sterile leaves look the same

15a. Sporangia with indusia, a flap-like structures over the sori

16a. Sporangia oblong to linear

17a. Sori oblong in a continuous row parallel to the length of the fertile pinnae ...
BLECHNACEAE (*Blechnum serrulatum*)

17b. Sori linear or curved, not in a continuous row, leaves pinnatifid

18a. Sori J-shaped,

19a. Leaves pinnatifid, petioles often reddish
 ◇ **WOODSIACEAE** (*Athyrium filix-femina*)

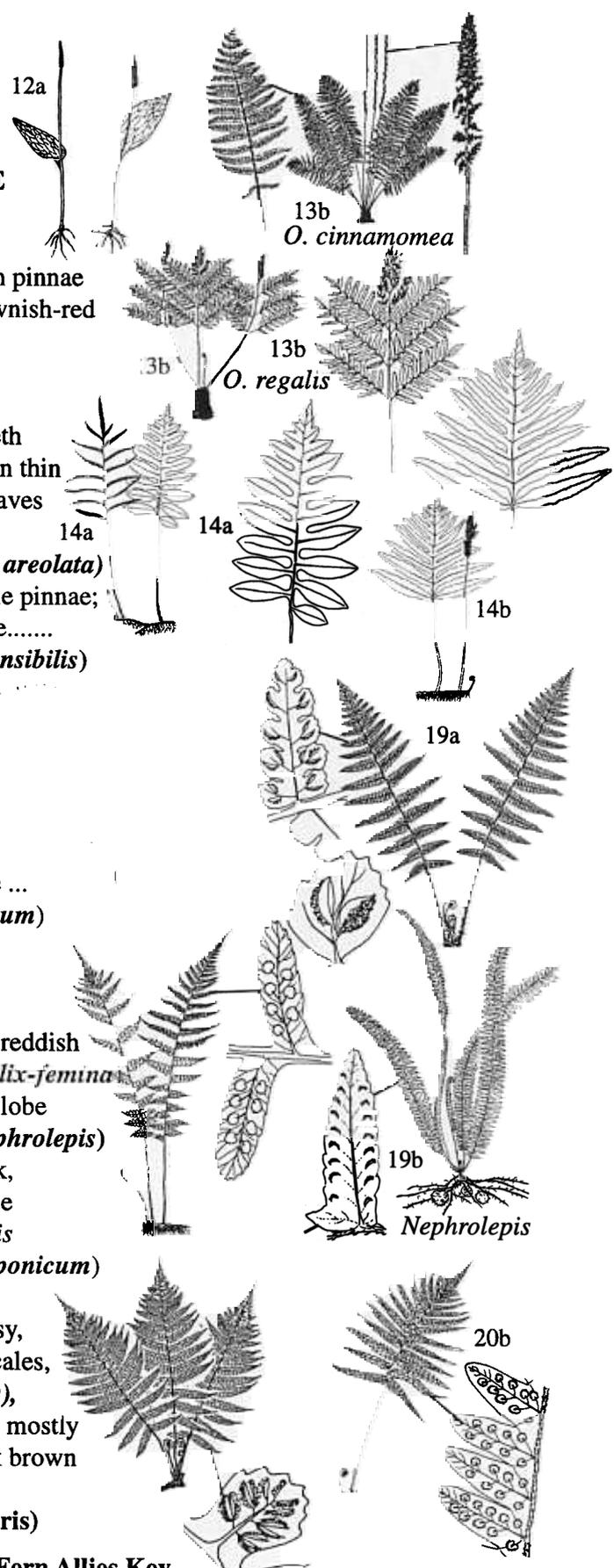
19b. Leaves with conspicuous ear like lobe
 * ◇ **NEPHROLEPIDACEAE** (*Nephrolepis*)

18b. Sori linear, often paired, back to back, petiole dark green, superficially these ferns look very much like *Thelypteris*
 ◇ **WOODSIACEAE** (*Diplazium japonicum*)

16b. Sporangia otherwise, sori round

20a. Leaves once pinnate, dark green, glossy, evergreen, stipes with tan to brown scales, **DRYOPTERIDACEAE** (*Dryopteris*),

20b. Leaves pale green (except *T. dentata*), mostly pinnate-pinnatifid; stipe green to dark brown usually without scales
THELYPTERIDACEAE (*Thelypteris*)



* Note: *N. biserta* and *N. multiflora* have round indusia and sori

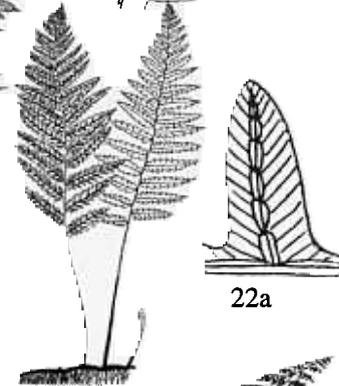
15b. Sporangia without an indusium or covered by a false indusium

21a. False indusium absent; sporangia round, several found between the midrib and margin of each lobe; frond lobes pinnatifid in part, **DRYOPTERIDACEAE** (21a)
(*Ctenitis submarginalis*)



21b. False indusium present

22a. Sori in long rows with an elongate false indusium, chain-like cells associated with leaves ... in part, **BLECHNACEAE** (22a)
(*Woodwardia virginica*)



22b. Sori not as above

23a. Plants climbing, vine-like or arching or scrambling

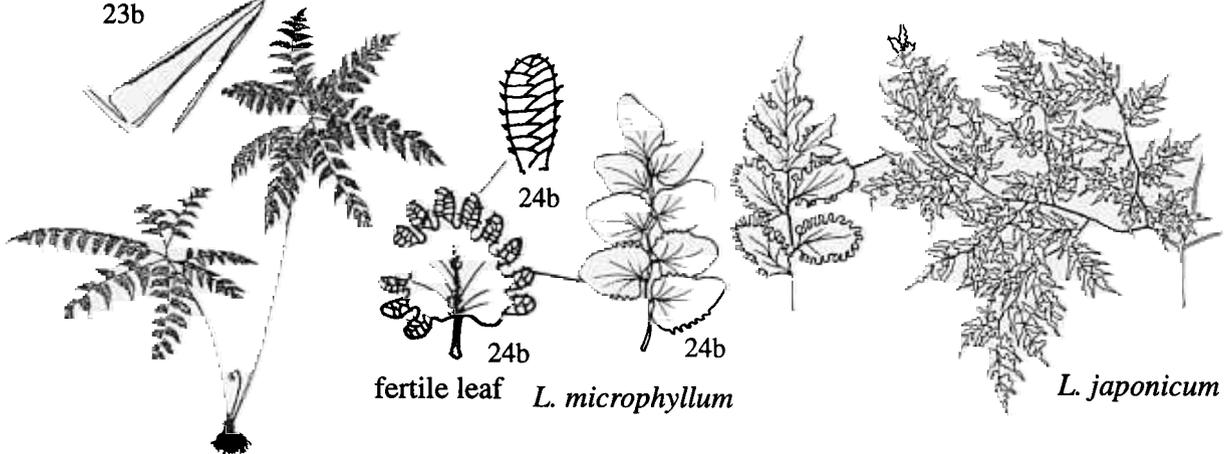
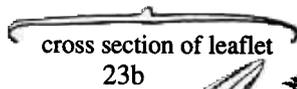
24a. Fronds climbing by arching, not twining, covered with stiff, prickly hairs

DENNSTAEDTIACEAE (*Hypolepis repens*)

24b. Fronds twining, vine-like, without stiff, prickly hairs **SCHIZAECEAE** (*Lygodium spp.*)



23b. Plants not as above - Leaves compound; false indusium a continuous, marginal flap of leaf tissue ◊ **PTERIDACEAE** (*Pteris tripartita*)



Note: The following fern families are **not** found in the **Florida Wetland Plants, An Identification Manual**. ISOETACEAE, PSILOTACEAE, SELAGNELLACEAE, MARSILEACEAE, PARKERiaceae, SALVINIACEAE, AZOLLACEAE, SCHIZAECE.

◊The following fern families are included in the manual **HOWEVER nomenclature has been changed**, this follows Lellinger and Wunderlin.

WOODSIACEAE = ASPENIACEAE (in **Florida Wetland Plants, An Identification Manual**)

NEPHROLEPIDACEAE (or DAVALLIACEAE) = DRYOPTERIDACEAE, in part (in **Manual**)

PTERIDIACEAE = ADIANTACEAE (in **Manual**)

Key to the Gymnosperms (Conifers)

1a. Plants with evergreen leaves, these in clusters of 2-5 or small, triangular and oppositely arranged on a flattened branch; female cones large (5-15 cm long) and woody or small (5-8 mm in diameter) and semi-woody; cone scales separate after seeds mature; seeds winged

2a. Leaves are long (greater than 3 cm), needle-like, in fascicles of 2-5; cone large (greater than 4 cm long) and woody, seed with a conspicuous wing longer than the somewhat flattened seed **Pinaceae** (*Pinus* spp.)

3a. Needles in 2's, twisted, 5-10 cm long, female cones small, 3-6 cm long
Pinus glabra (Spruce Pine)

3b. Needles generally in 3's, tend not to be twisted, over 10 cm long, female cones larger, over 4 cm long, cones are generally shed after maturity, stems rarely if ever produced directly from large trunks

4a. Female cones oblong, generally over 9 cm long,

5a. Female cones with thin cone scales, female cones 6-13 cm long, cones bristly to the touch ... ***Pinus taeda*** (Loblolly Pine)

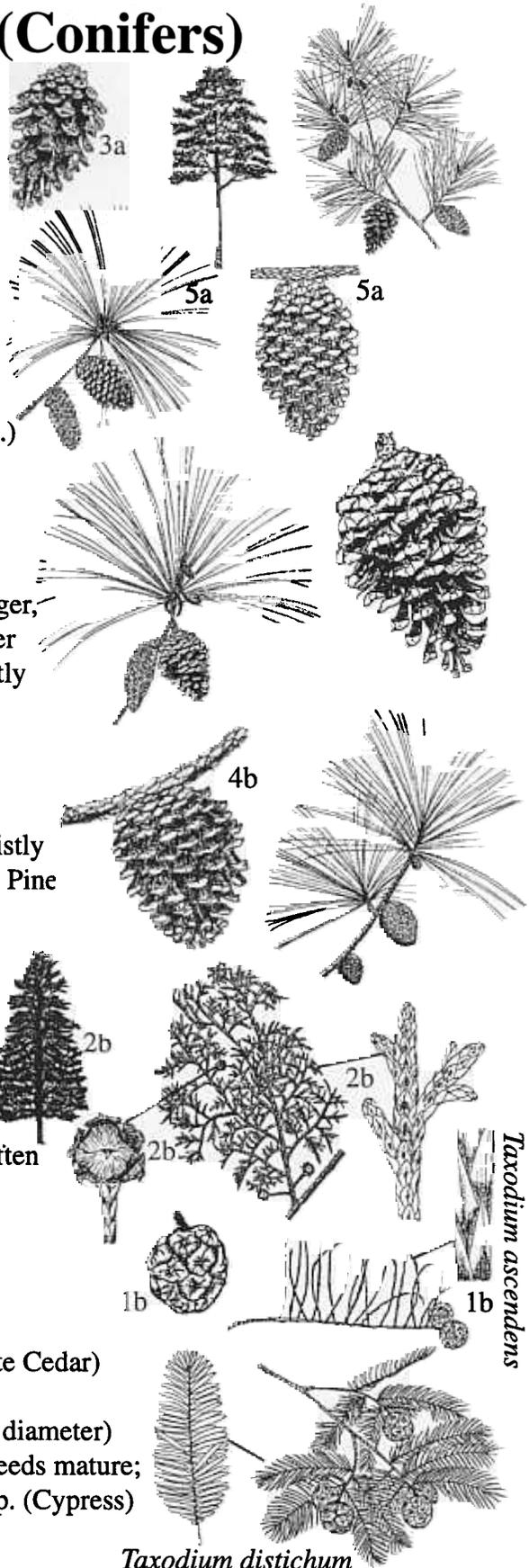
5b. Female cones with thick cone scales, female cones larger, 10-15 cm long, mature cones are not as bristly to the touch ... ***Pinus elliotii*** (Slash Pine)

4b. Female cone egg-shaped, about 5-8 cm long, cones persistent after maturity stems produced directly from large trunks (especially after fire), these are often tufted ***Pinus serotina*** (Pond Pine)

2b. Leaves smaller (less than 1 cm), triangular and produced in opposing pairs on a flattened branch; female cones small (less than 1 cm diameter); seed with a two lateral wings .

Cupressaceae ... ***Chamaecyparis thyoides*** (White Cedar)

1b. Plants with deciduous, feathery or awl-like leaves, not in clusters, female cones, hard, round (ca. 5 cm diameter) with tightly fitted scales; cones disintegrate when seeds mature; seeds unwinged **Taxodiaceae** ... ***Taxodium*** spp. (Cypress)



Key to Monocots

GROUP I

Herbs normally with floating leaves or stems.

1a. Leaves with petioles and elliptic to heart-shaped blades.

2a. Leaf blades elliptic.

ALISMATACEAE (*Sagittaria*)

2b. Leaf blades heart-shaped.

HYDROCHARITACEAE (*Limnobium*)

1b. Leaves without petioles or absent, the blade narrow or absent.

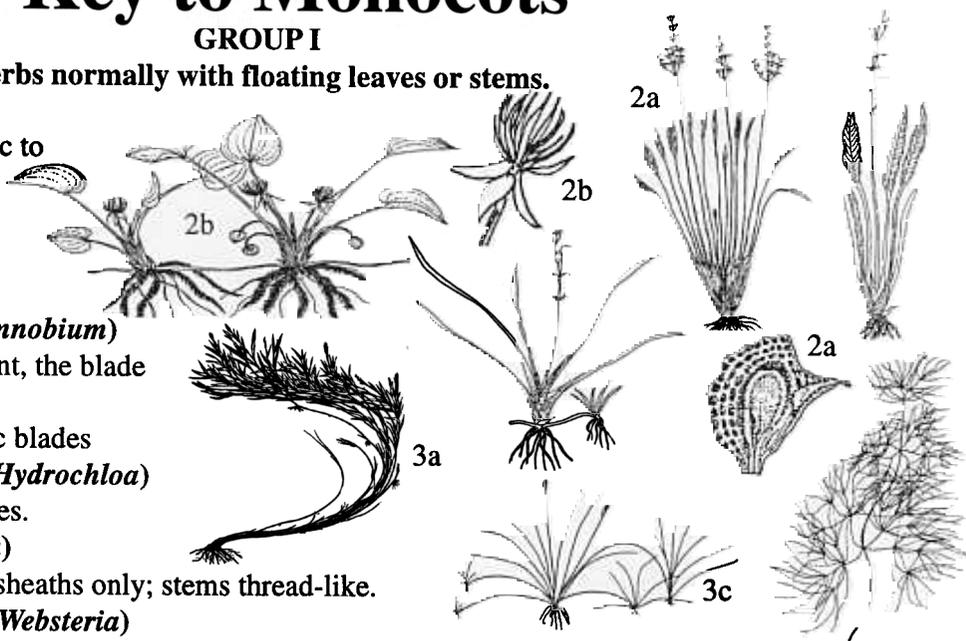
3a. Leaves with narrowly elliptic blades up to 7 cm long. **POACEAE** (*Hydrochloa*)

3b. Leaves with long linear blades.

ALISMATACEAE (*Sagittaria*)

3c. Leaves absent or reduced to sheaths only; stems thread-like.

CYPERACEAE (*Eleocharis*, *Websteria*)



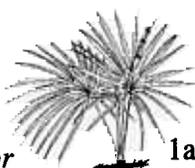
GROUP II

Palms and palmettos:

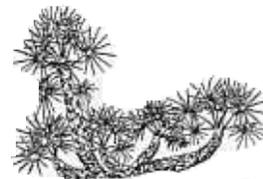
1a. Shrubs or unbranched trees; leaves large, tough, with long petioles, the blade divided like a fan or feather into long stiff segments.

ARECACEAE

Sabal minor



1a



Serenoa repens



Sabal palmetto



Roystonea

GROUP III

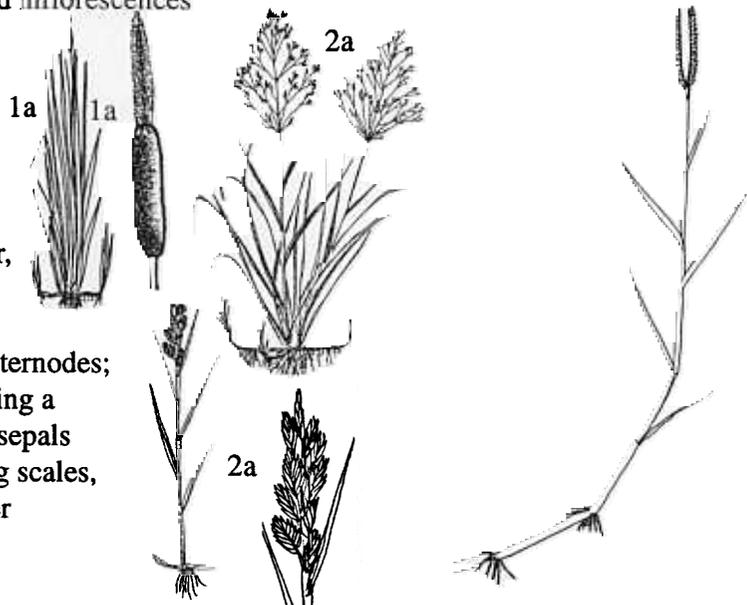
Grass-like plants:

Plants not fleshy; leaves simple, usually long and narrow, without a petiole, 2- or 3-ranked but not equitant (iris-like), the base wrapping around the stem to form a sheath; flowers small, green or brown, often covered with scales, and usually arranged in clusters in branched inflorescences

1a. Inflorescence a brown hot-dog-shaped cylinder of densely packed flowers; leaves all basal, erect, long, thick, strap-shaped; plants up to 3 m tall. **TYPHACEAE**

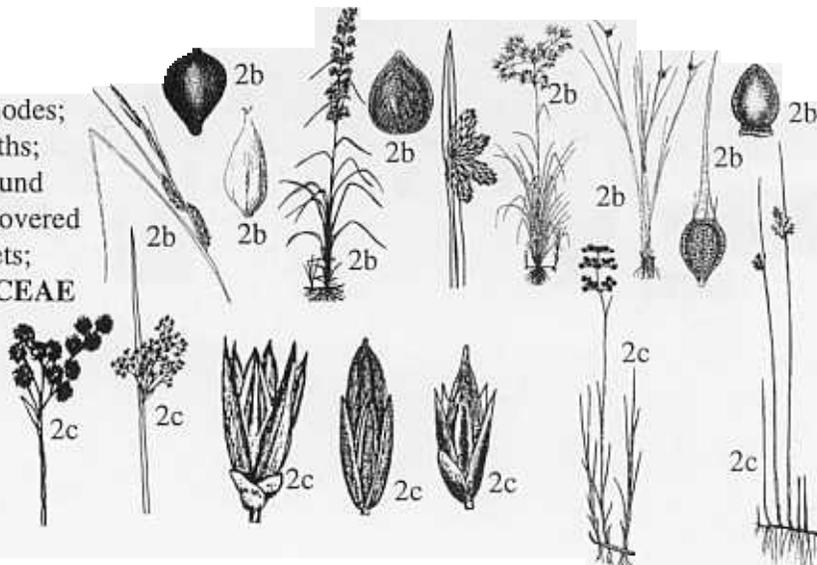
1b. Inflorescence otherwise; leaves otherwise (often arching, not erect); plants usually shorter, but if 2 to 3 m tall, then bearing leaves or leaf sheaths on stem.

2a. Stems round, with solid nodes and hollow internodes; leaves 2-ranked; leaf sheaths open, not forming a solid tube around stem; each flower lacking sepals or petals, covered by at least two overlapping scales, the flowers arranged in spikelets; each flower producing one seed. **POACEAE**



2b. Stems 3-angled or round, with solid internodes; leaves 3-ranked, sometimes reduced to sheaths; leaf sheaths closed, forming a solid tube around stem; each flower lacking sepals or petals, covered by one scale, the flowers arranged in spikelets; each flower producing one seed. **CYPERACEAE**

2c. Stems round, with solid internodes; leaves 3-ranked, sometimes round in cross-section or reduced to sheaths; leaf sheaths open; flowers with six brownish perianth segments, not covered by scales; each flower producing many seeds in a capsule. **JUNCACEAE**



GROUP IV

Herbs having leaves with petioles and broad blades.

1a. Leaf blades palmately compound.

ARACEAE (*Arisaema*)

1b. Leaf blades simple.

2a. Leaf blades arrow-shaped or heart-shaped.

3a. Leaf blades peltate (the petiole attached to middle of blade, not to edge), to 1 m long.

ARACEAE (*Colocasia*)

3b. Leaf blades not peltate, usually smaller.

4a. Leaf blades large, to 1 m long and broad.

ARACEAE (*Xanthosoma*)

4b. Leaf blades smaller.

5a. Leaf blades narrowly to broadly heart-shaped in outline.

6a. Leaf blades with cross-veins between the parallel main veins; flowers white.

7a. Leaf blades with several obvious main veins, often large; flowers in whorls on a long stalk. **ALISMATACEAE**

7b. Leaf blades with only the midvein obvious, small (up to 7 cm long); flowers on short stalks from the leaf bases. **HYDROCHARITACEAE**

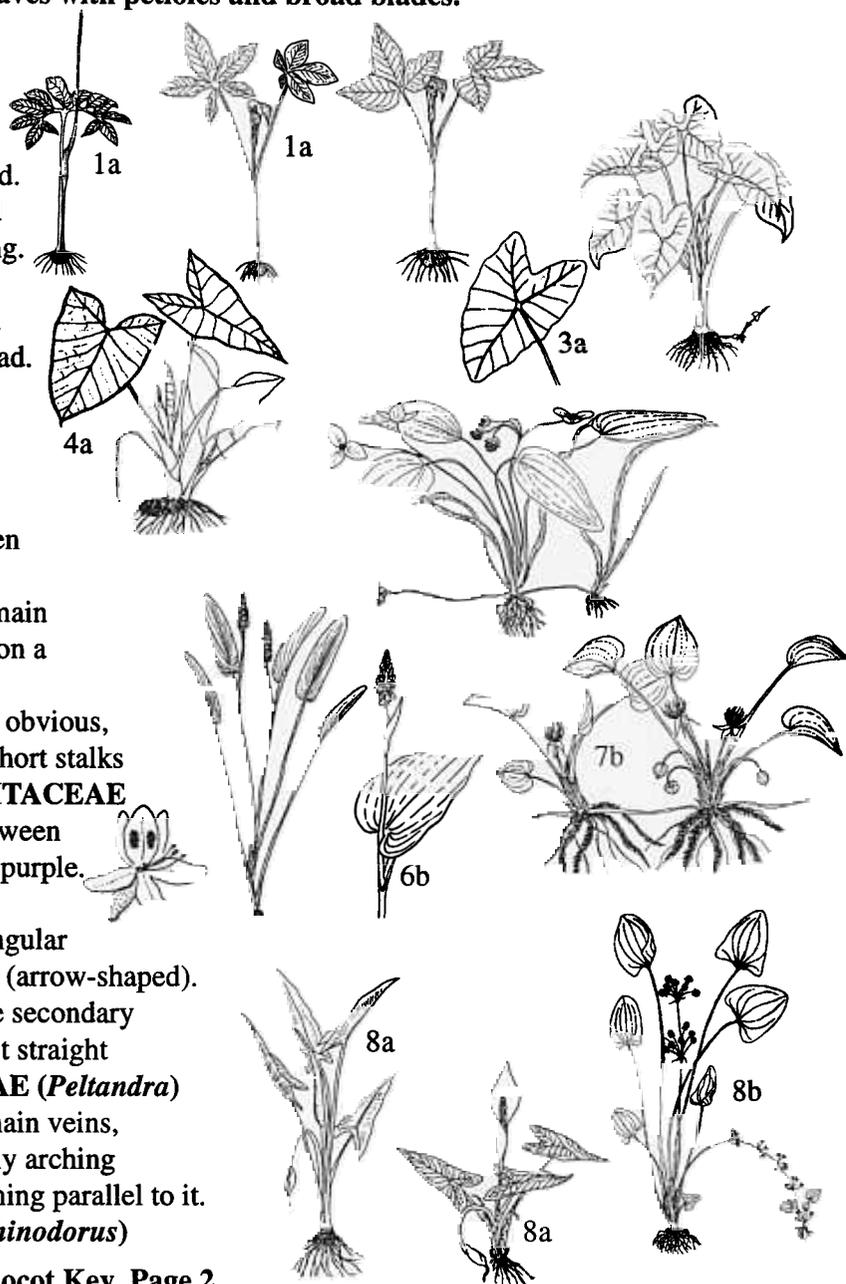
6b. Leaf blades without cross-veins between the many parallel main veins; flowers purple.

PONTEDERIAACEAE

5b. Leaf blades narrowly to broadly triangular in outline, with two pointed basal lobes (arrow-shaped).

8a. Leaves with three main veins, the secondary veins inconspicuous, running almost straight out from the central vein. **ARACEAE (*Peltandra*)**

8b. Leaf blades with three or more main veins, the secondary veins evident, strongly arching back toward the central vein or running parallel to it. **ALISMATACEAE (*Sagittaria, Echinodorus*)**



2b. Leaf blades narrowly to broadly elliptic, lanceolate, or ovate.

9a. Leaf blades large (to almost 1 m long), on long petioles; flowers small, with purple petals, on a tall stem with zigzag branches. **MARANTACEAE** (*Thalia*)

9b. Leaf blades and petioles shorter; flowers not as above.

10a. Leaves borne along stem; blades elliptic, to 0.6 m long, petiole short or absent; flowers large, yellow or red.

CANNACEAE (*Canna*)

10b. Leaves mostly basal; blades shorter, with evident petiole; flowers smaller, white, purple, or yellow.

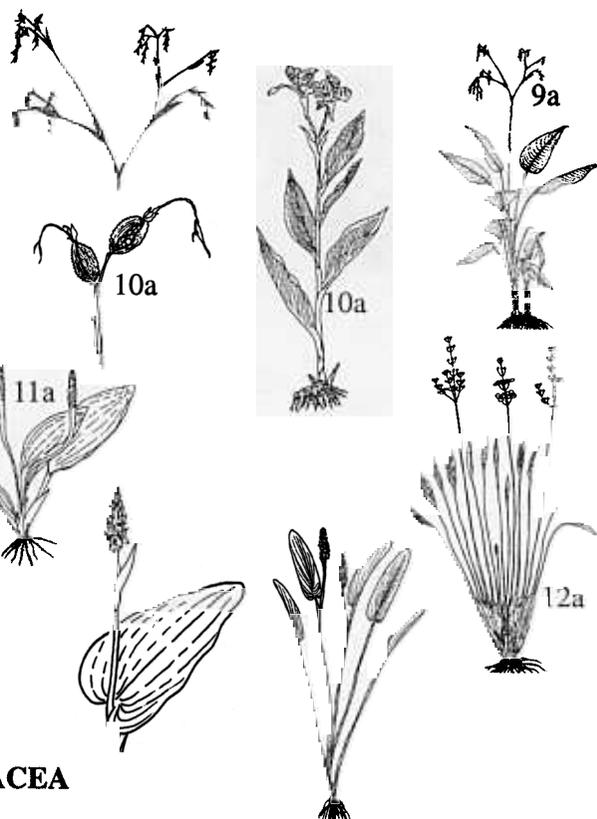
11a. Leaf blades oblong-elliptic, bluish green, with a satiny sheen on top; flowers minute, on a "gold club" at the tip of a white stalk.

ARACEAE (*Orontium*)

11b. Leaf blades neither oblong, nor bluish green, nor satiny; flowers larger, white or purple.

12a. Leaf blades with cross-veins between the parallel main veins; flowers white. **ALISMATACEAE**

12b. Leaf blades without cross-veins between the many parallel main veins; flowers purple. **PONTEDERIACEA**



GROUP V

Herbs having leaves without petioles, the basal leaves equitant (iris-like).

1a. Roots bright red, with red juice.

HAEMODORACEAE (*Lachnanthes*)

1b. Roots not bright red.

2a. Leaves mostly basal.

3a. Flowers in a tight, brown, egg-shaped or cylindrical head on a leafless stalk; flowers conspicuous (though ephemeral), with 3 yellow or white petals; leaves often yellow-green with brown or red bases; plants without rhizomes.

XYRIDACEAE

3b. Flowers not in a tight head, yellow, white, or blue; leaves usually not yellow-green; plants often with obvious rhizomes.

4a. Stems flat, with two wings; flowers blue, with six tepals; leaves pale green, linear, to 4 mm wide.

IRIDACEAE (*Sisyrinchium*)

4b. Stems round; flowers yellow or white.

5a. Stems and flowers covered with gray hairs; flowers yellow, in a flat-topped cluster.

HAEMODORACEAE (*Lophiola*)

5b. Stems covered with glands, rough to the touch; flowers creamy white, in a narrow raceme-like inflorescence. **LILIACEAE** (*Tofieldia*)

2b. Leaves both basal and on stem, up to 0.8 m long; plants with large creeping rhizomes; flowers blue to purple, white, yellow, or red. **IRIDACEAE** (*Iris*)



GROUP VI

Herbs having leaves without petioles, sometimes reduced to tiny scales or bladeless sheaths; the basal leaves, if present, not equitant.

1a. Leaves reduced to tiny scales or sheaths without blades.

2a. Leaves reduced to tiny scales; plants up to 20 cm tall. *BURMANNIACEAE*

2b. Leaves reduced to sheaths without blades; plants often taller. *CYPERACEAE* (*Eleocharis*, *Scirpus*); *JUNCACEAE* (*Juncus*)

1a. Leaves (at least some) larger.

3a. Leaves all basal.

4a. Fresh leaves thick, fleshy or spongy, slender and round in cross-section or strap-shaped; flowers large, white, and 6-parted or tiny and green.

5a. Leaves narrowly to broadly strap-shaped, usually arching, often keeled; flowers large, white, six-parted, solitary or in umbels. *AMARYLLIDACEAE*

5b. Leaves slender, erect or ascending, round in cross-section; flowers tiny and green, in a raceme. *JUNCAGINACEAE*

4b. Fresh leaves not fleshy or spongy (except sometimes at base); flowers not as above.

6a. Leaves erect, strap-shaped, up to 3 m long; inflorescence a brown hot-dog-shaped cylinder of densely packed flowers. *TYPHACEA*

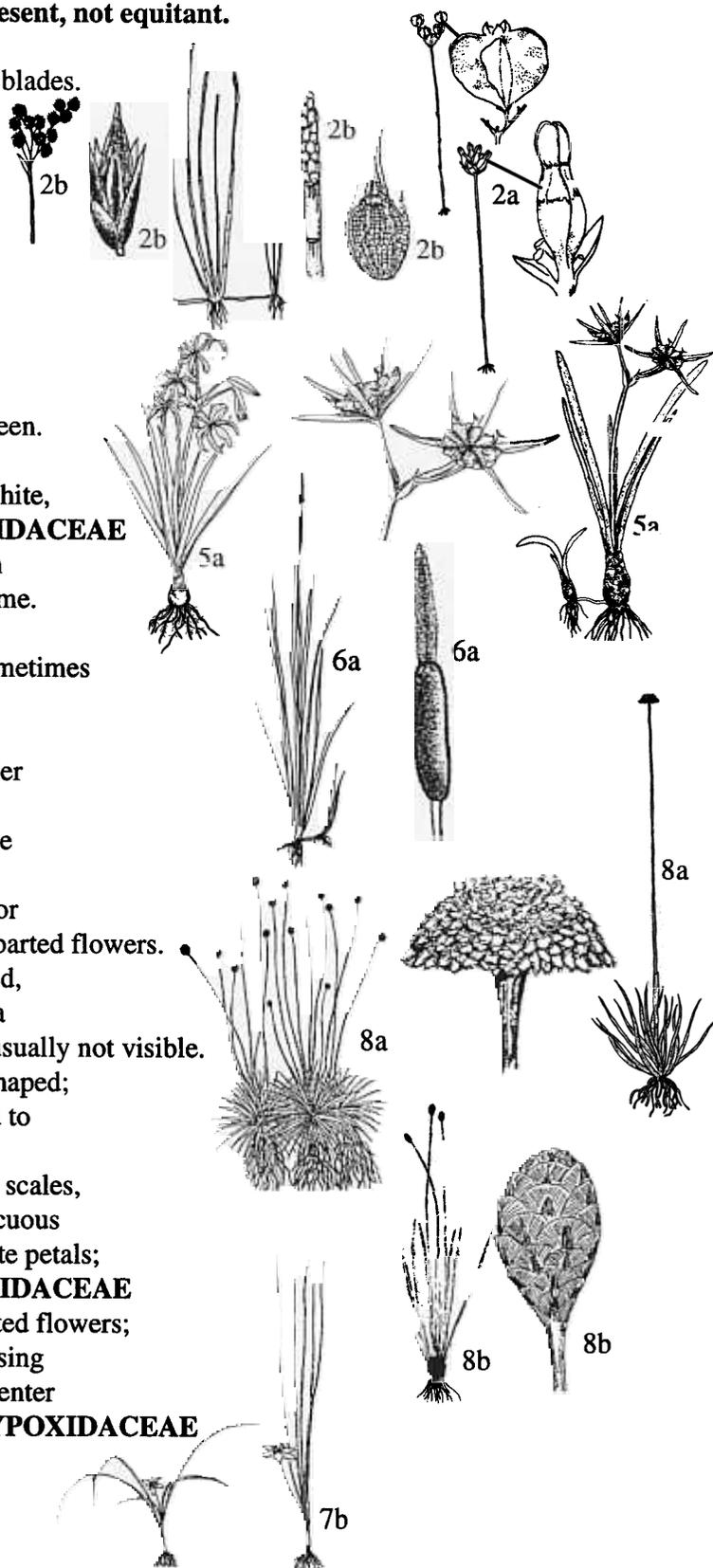
6b. Leaves ascending, arching, or pressed to the ground, much shorter; inflorescence either a white, gray, or brown button- or egg-shaped or cylindrical head or of one to few yellow six-parted flowers.

7a. Inflorescence a button-shaped, egg-shaped, or cylindrical head; leaves usually stiff, in a tight rosette at base of stem, the midveins usually not visible.

8a. Flowering head white or gray, button-shaped; flowers minute; leaves sometimes pressed to the ground. *ERIOCAULACEAE*

8b. Flowering head brown, of overlapping scales, egg-shaped or cylindrical; flowers conspicuous (though ephemeral), with 3 yellow or white petals; leaves always arching or ascending. *XYRIDACEAE*

7b. Inflorescence of one to few yellow 6-parted flowers; leaves linear, not stiff, in a loose cluster arising from a corm, flat or rolled, often with off-center midveins and a few hairs near the base. *HYPOXIDACEAE*



3b. At least some leaves on stem.

9a. Plants prostrate or sprawling, sometimes forming mats.

COMMELINACEAE

9b. Plants erect or arching.

10a. Leaves large (to 0.6 m long), elliptic, with many straight lateral veins running upward from the midrib at a sharp angle; flowers large, yellow to red; fruit an ovoid capsule with dark brown to black seeds.

CANNACEAE

10b. Leaves not as above.

11a. Leaves obviously distichous (in two rows on either side of stem) and spreading at wide angles from stem, usually oblong or lanceolate, sheathing; stems unbranched, often arching; flowers large, white or brightly colored; plants fairly large. **ZINGIBERACEAE**

11b. Leaves not obviously distichous and spreading at wide angle from stem; plants often smaller.

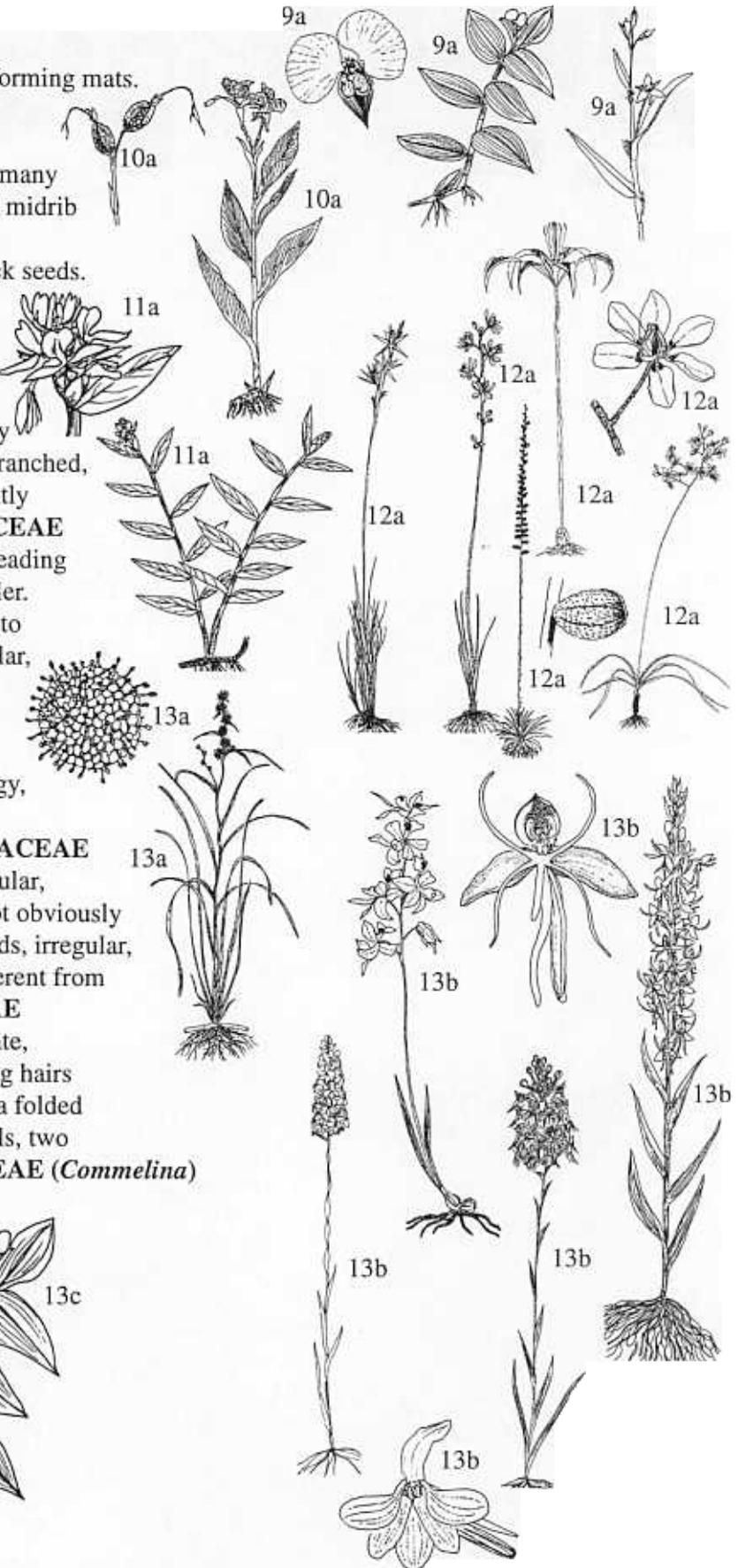
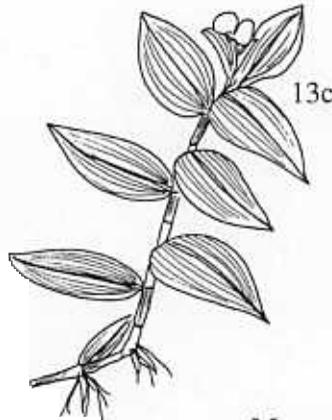
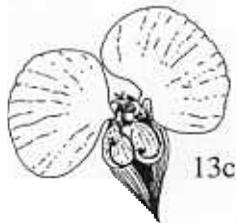
12a. Leaf bases not wrapping around stem to form a sheath; flowers often showy, regular, six-parted; ovary superior. **LILIACEAE**

12b. Leaf bases forming a sheath around stem; flowers not as above.

13a. Leaves long and strap-shaped, spongy, two-ranked, ascending, bright green; flowers in ball-like heads. **SPARGANIACEAE**

13b. Leaves narrowly lanceolate to orbicular, often thick and shiny but not spongy, not obviously two-ranked; flowers not in ball-like heads, irregular, with one petal fringed or otherwise different from the rest, forming a lip. **ORCHIDACEAE**

13c. Leaves narrowly to broadly lanceolate, not spongy, the sheaths usually with long hairs at their summit; flower buds hidden by a folded leaf-like spathe; flowers with three petals, two large and one small. **COMMELINACEAE** (*Commelina*)



Key to Herbaceous Dicots

GROUP I VINES

1a. Woody or herbaceous vines, climbing by twining; leaves simple, unlobed or palmately lobed.

2a. Leaves opposite, pinnately veined, unlobed, lanceolate, elliptic, or suborbicular, with acuminate tips; flowers in branched clusters in axils of leaves, the corolla tubular, pale yellow, with 5 short lobes; fruit a pair of long, narrow, cylindrical pods (follicles).

APOCYNACEAE (*Trachelospermum*).

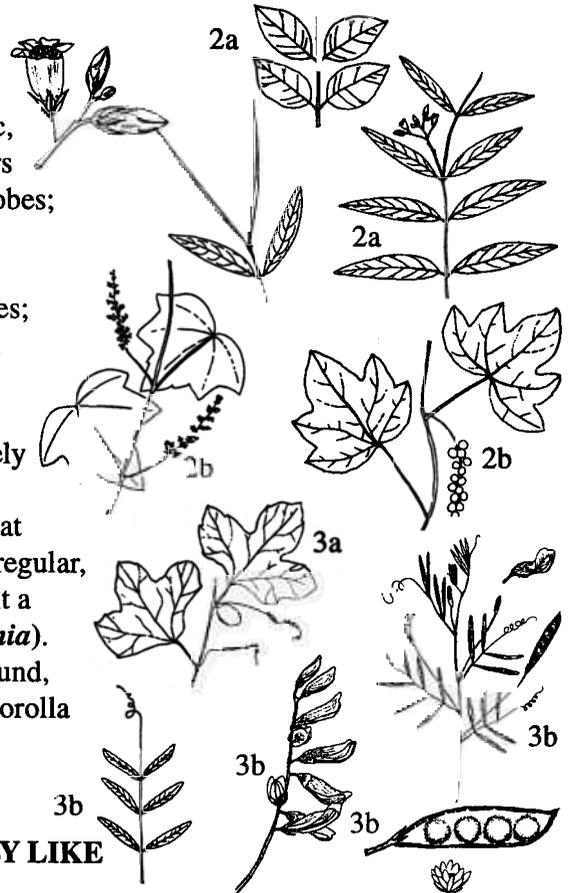
2b. Leaves alternate, palmately veined, unlobed or with 3 to 5 lobes; flowers in narrow clusters arising above the axils of leaves, with 6 cream-colored sepals and no petals; fruit a black drupe.

MENISPERMACEAE (*Calycocarpum*).

1b. Herbaceous vines, climbing by tendrils; leaves alternate, palmately lobed or pinnately compound.

3a. Tendrils arising from stems; leaves palmately lobed, somewhat rough to the touch; flowers 1 to few in leaf axils, the corolla regular, greenish white, with a short tube and five spreading lobes; fruit a pulpy reddish ellipsoid berry. **CUCURBITACEAE** (*Cayaponia*).

3b. Tendrils arising from ends of leaves; leaves pinnately compound, not rough to the touch; flowers few to many in leaf axils, the corolla irregular (pea-like), white, blue, violet, or pale yellow; fruit a cylindrical or flattened pod (legume). **FABACEAE** (*Vicia*).



GROUP II PLANTS WATER-LILY LIKE

Plants water-lily-like, the stems buried in mud, the leaves generally supported by water, the blades either peltate or deeply notched at the base.

1a. Leaf blades peltate, orbicular; flowers solitary, on long stalks, with many pale yellow petals. **NELUMBONACEAE**.

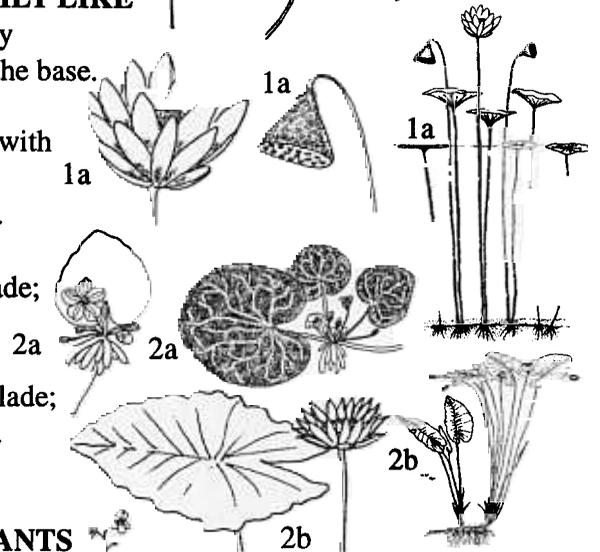
1b. Leaf blades deeply notched at the base, lanceolate to orbicular.

2a. Leaf blades less than 15 cm long, the plants often bearing a banana-like cluster of roots on the stem just below the leaf blade; flowers in small clusters, with a white, 5-parted corolla.

MENYANTHACEAE.

2b. Leaf blades over 15 cm long, without roots below the leaf blade; flowers solitary, white, pink, blue, or yellow, with many parts.

NYMPHAEACEAE.



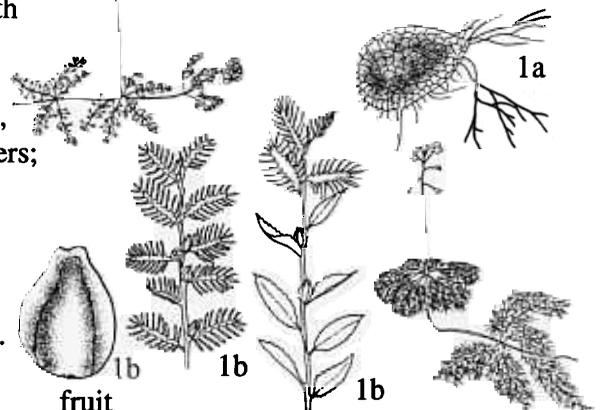
GROUP III AQUATIC PLANTS

Plants aquatic (stems or leaves generally supported by water), with at least some leaf blades divided into thread-like segments.

1a. Submerged leaves finely divided into many flexible segments, forming dense bushy masses; leaf segments bearing tiny bladders; flowers bilaterally symmetric, yellow or purple, on stalks held above the water. **LENTIBULARIACEAE** (*Utricularia*).

1b. Submerged leaves divided like a feather into few (10-20) stiffish linear segments, not forming bushy masses; bladders absent; flowers radially symmetric, green, one in each leaf axil.

HALORAGACEAE.



GROUP IV CARNIVOROUS PLANTS

Carnivores: plants with unique leaves adapted for trapping animals, the leaves either greasy, or covered with sticky red hairs, or bearing minute bladders, or forming hollow tubes; growing in water or in nitrogen-poor, generally sunny habitats with frequently saturated soil.

- 1a.** Leaves either absent or finely divided into many flexible segments, forming dense bushy masses; leaf segments bearing tiny bladders (these underground and hard to see in those plants growing in sand); flowers bilaterally symmetric, yellow or purple, on erect stalks; plants floating in water or growing in wet sands.

LENTIBULARIACEAE (*Utricularia*).

- 1b.** Leaves present, in a basal rosette, not finely divided into many segments; flowers radially symmetric or nearly so.

- 2a.** Leaves prostrate, lying on ground, or if not lying on ground, horizontally spreading.

- 3a.** Leaves greasy, without visible hairs, pale green to reddish or translucent; flowers white, yellow, or blue to purple, the corollas with short tubes and five spreading notched lobes.

LENTIBULARIACEAE (*Pinguicula*).

- 3b.** Leaves not greasy.

- 4a.** Leaves forming a hollow tube with a beak-like or flap-like hood at the tip, hairless on the outside; flowers large, with 5 pendent maroon or purple petals and a leathery, umbrella-like stigma. **SARRACENIACEAE.**

- 4b.** Leaves not forming a hollow tube

- 5a.** Leaves covered with red hairs each of which has a clear droplet of sticky liquid at its tip; flowers with 5 white to pink petals. **DROSERACEAE (*Drosera*).**

- 5b.** Leaves not covered with red hairs, the blades hinged lengthwise, forming two kidney shaped halves that snap shut when stimulated, hairs few; flowers with 5 white petals.

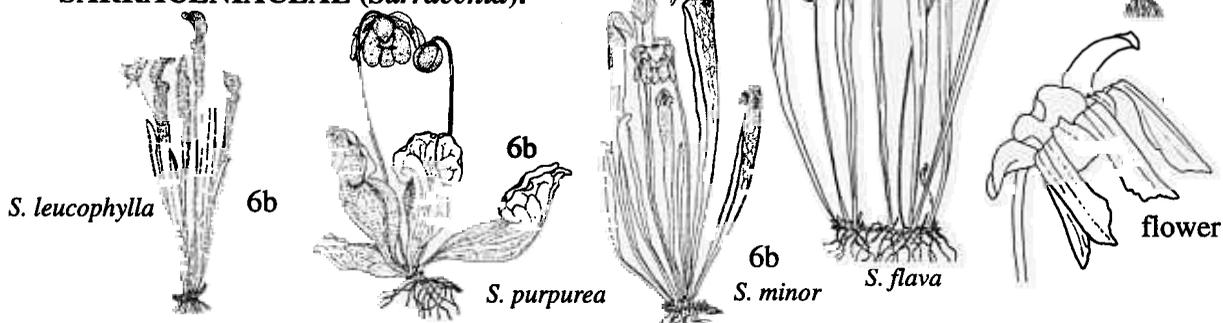
DROSERACEAE (*Dionaea*).

- 2b.** Leaves erect or ascending, not lying on ground.

- 6a.** Leaves not hollow, narrowly cylindrical, covered with red or greenish hairs each of which has a clear droplet of sticky liquid at its tip; flowers with 5 spreading white to pink petals. **DROSERACEAE (*Drosera*).**

- 6b.** Leaves forming a hollow tube with a hood or flap at the tip (but the first leaves of the season flat, not hollow), hairless on the outside; flowers large, with 5 pendent yellow to maroon or purple petals and a leathery, umbrella-like stigma.

SARRACENIACEAE (*Sarracenia*).



GROUP V PLANT WITH COMPOUND OR DEEPLY DISSECTED LEAVES, NOT AQUATIC.

1a. Leaves divided into narrow, linear segments less than 1 or 2 mm wide.

2a. Leaves divided into 3 linear segments; flowers in flat-topped clusters (umbels), white. **APIACEAE** (*Oxypolis ternata*).

2b. Leaves divided into 4-7 linear segments; flowers single in leaf axils, yellow; plants much branched, with usually purple stems.

SCROPHULARIACEAE (*Seymeria*).

2c. At least some leaves divided like a feather into 10-20 stiffish linear segments, flowers single in each leaf axil, green.

HALORAGACEAE.

2d. Leaves divided into many linear segments; flowers in flat-topped clusters (umbels) or in heads, white or yellow.

3a. Plants to 2 m tall when mature, the stems hairy and often reddish when young; flowers small, in few-flowered white heads. **ASTERACEAE** (*Eupatorium*).

3b. Plants usually much less than 1 m tall, the stems hairless; flowers yellow and in daisy-like heads, or white and in umbels.

4a. Plants much-branched above; flowers yellow, in daisy-like heads; weedy plants of various habitats.

ASTERACEAE (*Helenium amarum*).

4b. Plants with a single main stem; flowers white, in flat-topped clusters (umbels) or racemes; plants of wetlands, not usually weedy.

5a. Plants with dissected leaves under water, toothed to deeply cut leaves above water; flowers in racemes, with 4 petals and 6 stamens; fruit a small pod (silique) opening on two sides.

BRASSICACEAE (*Armoracia*).

5b. Plants with all leaves dissected; flowers in umbels, with 5 petals and stamens; fruit two-parted, dry, not opening.

APIACEAE (*Ptilimnium, Trepocarpus*).

1b. Leaflets or leaf segments not linear, or if linear then more than 2 mm wide.

6a. Leaves pinnately compound, with more than 5 distinct leaflets; leaflets entire, narrowly elliptic or oblong; flowers pale to bright yellow or red, pea-like (papilionaceous).

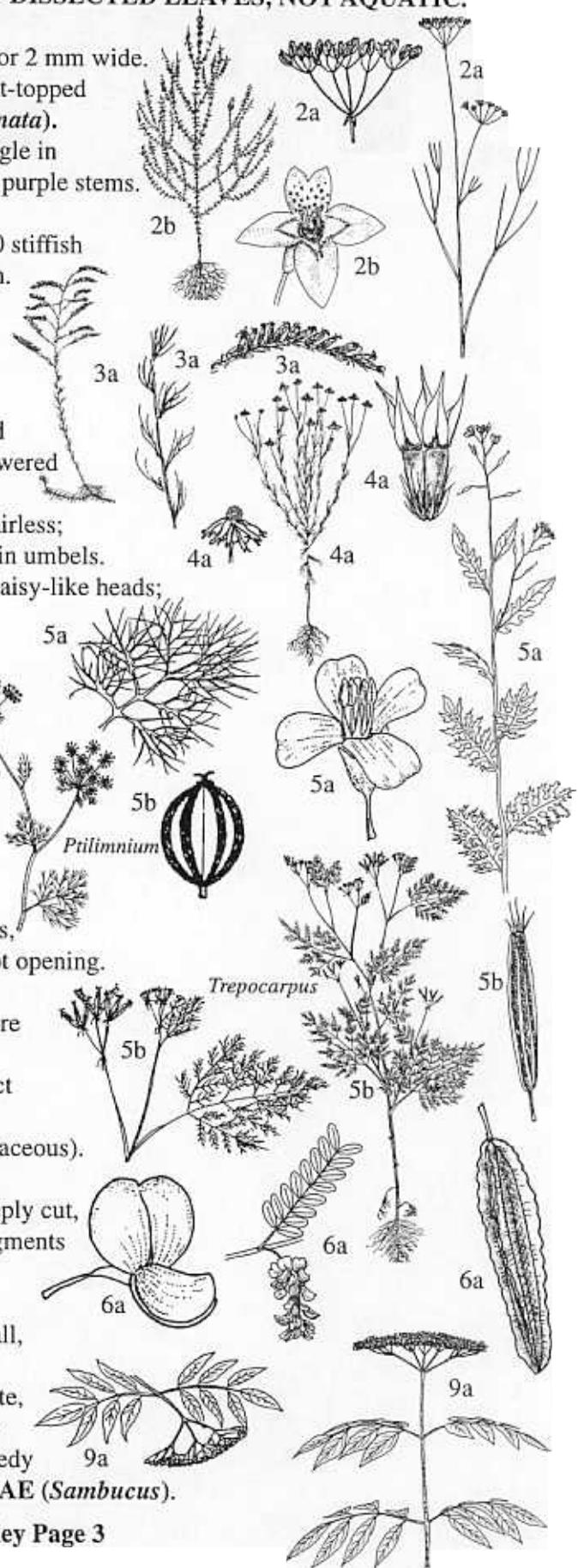
FABACEAE.

6b. Leaves pinnately or palmately compound or only deeply cut, with 3 or more leaflets or segments; leaflets or leaf segments usually with teeth or lobes; flowers not pea-like.

7a. Leaves pinnately compound or dissected.

8a. Large herbs or shrubs, 1 to 4 m tall; flowers small, white, in flat-topped clusters.

9a. Stems solid, becoming woody; leaves opposite, once pinnately compound, with 5 to 11 serrate leaflets; fruits juicy purplish-black drupes; weedy plants of various habitats. **CAPRIFOLIACEAE** (*Sambucus*).



9b. Stems hollow, herbaceous at base; leaves alternate, often doubly or triply pinnately compound; fruits dry two-parted schizocarps with corky ribs; plants of streams, marshes, and swamps, often in water.

APIACEAE (*Cicuta*, *Sium*).



8b. Smaller herbs, usually less than 1 m tall; flowers not in flat-topped clusters.

10a. Stems hollow; flowers bright yellow, in daisy-like heads (the heads in flat-topped clusters); plants of floodplains, swamps, pond margins, and ditches.

ASTERACEAE (*Senecio*).

10b. Stems not hollow; flowers either in daisy-like heads or not in heads and with four petals.

11a. Leaves in a basal rosette or alternate; flowers with four petals; fruit a slender cylindrical pod (silique).

BRASSICACEAE.

11b. Leaves borne on stem, often opposite; flowers in daisy-like heads that look like a single flower; petals (rays) none or 5 to 8, yellow or white; fruit a flattened seed (achene) usually with 2 prongs at the tip.

ASTERACEAE (*Bidens*, *Coreopsis*).

7. Leaves palmately or ternately compound or dissected.

12a. Leaflets on relatively long, slender stalks, either entire or with rounded lobes; flowers small, greenish, in branched open inflorescences. **RANUNCULACEAE** (*Thalictrum*).

12b. Leaflets on short stalks or sessile, often toothed or sharply lobed, or the leaves merely deeply dissected; flowers white or yellow.

13a. flowers in daisy-like heads that look like a single flower; "petals" (rays) none or 5 to 8, yellow or white; leaves often opposite; plants erect, up to 1 or 2 m tall; fruit a flattened seed (achene) usually with 2 prongs at the tip.

ASTERACEAE (*Bidens*, *Coreopsis*).

13b. Flowers not in daisy-like heads; leaves alternate; plants erect or spreading, of various sizes; fruit not as above.

14a. Plants usually erect, up to 1 or 2 m tall, often covered with branched (stellate) hairs and felty or rough to the touch; flowers large, showy, with five white, cream, pink, or scarlet petals; stamens joined into a tube around the pistil, forming a column in the center of the flower.

MALVACEAE.

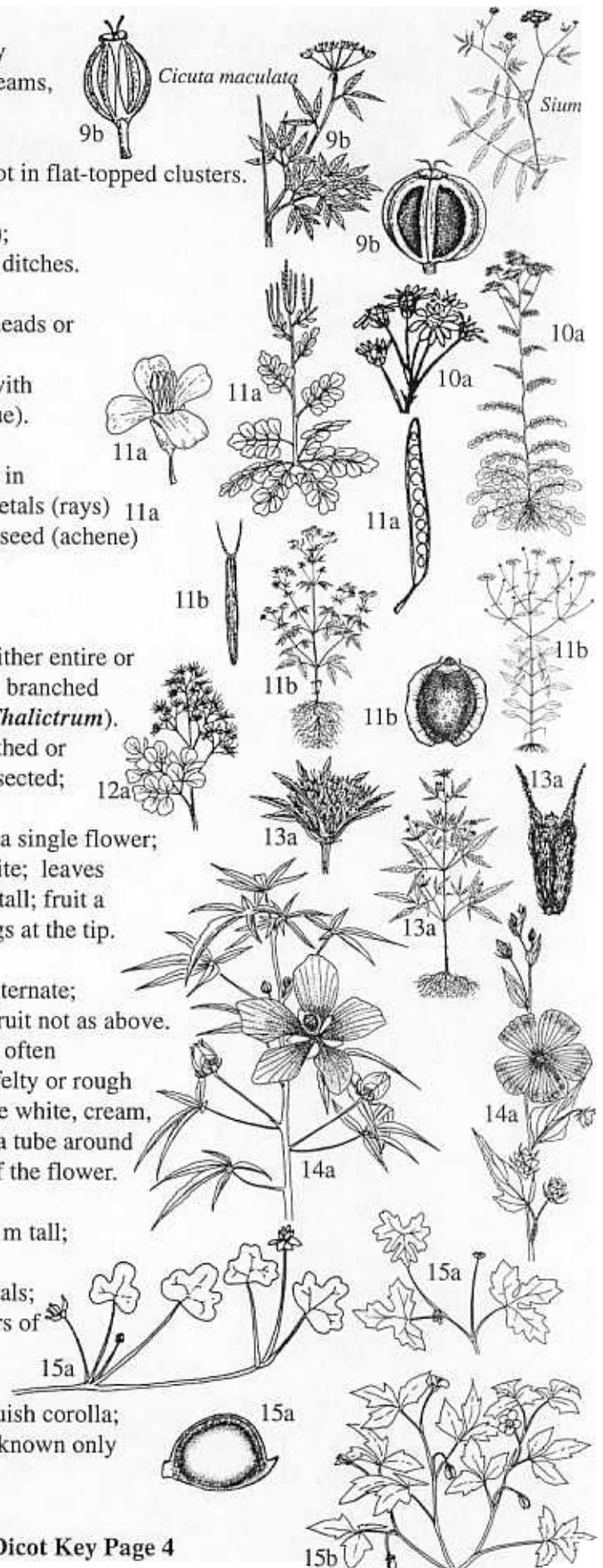
14b. Plants small, often spreading, up to 0.5 m tall; hairs and flowers not as above.

15a. Flowers with pale to bright yellow petals; ovaries many in each flower; fruits clusters of dry achenes; Tampa and Orlando north.

RANUNCULACEAE (*Ranunculus*).

15b. Flowers minute, with white to pale bluish corolla; ovary one in each flower; fruit a capsule; known only from Apalachicola River region.

HYDROPHYLLACEAE (*Nemophila*).



GROUP VI Plants with simple opposite or whorled leaves.

1a. Leaves whorled.

2a. Plants sprawling, often freely branched, or arching and rooting at the tips.

3a. Leaves obviously saw-toothed to deeply and finely dissected; flowers solitary in leaf axils, with a tubular, lavender or pale violet, 2-lipped corolla; plants often in water. **SCROPHULARIACEAE (*Limnophila*).**



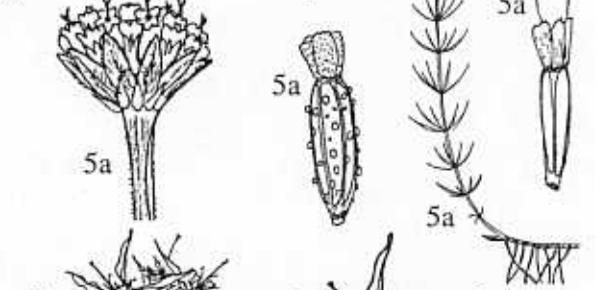
3b. Leaves with fine teeth at the most; flowers not as above; plants of various habitats.

4a. Plants with angled stems, usually rough or prickly to the touch, freely branching; flowers on branched stalks arising from the leaf axils, radially symmetric, small, with four white corolla lobes. **RUBIACEAE (*Galium*).**



4b. Plants with rounded or angled stems, not rough or prickly to the touch; flowers not as above.

5a. Leaves narrowly linear; stems herbaceous, unbranched, the lower stems forming mats, but upper stems often ascending to erect; flowers pink to lavender, in a single head at the tip of each stem, with a tubular, 5-lobed corolla. **ASTERACEAE (*Sclerolepis*).**



5b. Leaves lanceolate (willow-like) to elliptic; plants becoming woody at base, with arching stems that root at the tip; flowers in clusters in the leaf axils, with 5 to 7 separate, stalked, crinkly, magenta petals. **LYTHRACEAE (*Decodon*).**



2b. Plants generally erect, the branches ascending to erect.

6a. Roots with a wintergreen odor; leaves entire; flowers in a dense cylindrical head at the end of each branch, bilaterally symmetric, the calyx and corolla purple; plants not over 1 m tall. **POLYGALACEAE.**



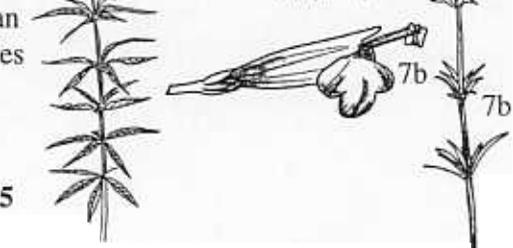
6b. Roots without a wintergreen odor; leaves toothed; flowers not in dense heads, or if in heads then the flowers radially symmetric; plants to 2 or 3 m tall.

7a. Flowers in dense heads surrounded by bracts; corollas tubular, purple, with 5 equal lobes; stamens 5, joined in a tube only slightly longer than the corolla; heads arranged in flat- or round-topped branching clusters at the tip of the stem; leaves with sharp or rounded teeth.

ASTERACEAE (*Eupatoriadelphus*).

7b. Flowers not in dense heads surrounded by bracts; corollas tubular, white or purplish, with 5 nearly equal lobes; stamens 2, separate, much longer than the corolla; flowers arranged in long slender spikes at the tip of the stem; leaves with sharp teeth.

SCROPHULARIACEAE (*Veronicastrum*).



1b. Leaves opposite.

8a. Leaves toothed.

9a. Leaves with 3 main veins from the base, a midrib and one vein on either side.

10a. Leaves sessile, linear to elliptic, with few small teeth; flowers showy, with four white, yellow, or pink petals; fruits urn-shaped capsules having a spherical base and a cylindrical neck.

MELASTOMATACEAE.

10b. Leaves on stalks, narrowly to broadly ovate, serrate, the teeth many and large; flowers inconspicuous, greenish, without petals, in clusters in the leaf axils; fruits tiny achenes.

URTICACEAE (*Boehmeria*).

9b. Leaves with 1 major vein at the base of the blade.

11a. Stems rounded or angled, but not square.

12a. Flowers clustered in heads at ends of branches that simulate a single flower, at least the central flowers of the heads with five (or sometimes four) equal corolla lobes; ovary inferior.

12b. Flowers not clustered in heads at ends of branches, or if clustered at ends of branches the flowers two-lipped, the corolla lobes unequal in size; ovary superior.

13a. Plants with main stems creeping along the ground, widely spreading and sometimes forming mats (but with the stem tips or flowering branches sometimes erect).

14a. Flowers in head-like spikes at the end of erect branches, white to pink or purple.

VERBENACEAE (*Phyla*).

14b. Flowers single or few in leaf axils, sessile or on stalks.

SCROPHULARIACEAE (*Gratiola, Lindernia*).

13b. Plants with main stems erect or ascending, neither widely spreading nor forming mats.

SCROPHULARIACEAE (*Gratiola, Lindernia*).

11b. Stems four-angled, square or nearly so in cross section.

15a. Flowers in spikes or racemes at the ends of branches.

15b. Flowers single to clustered in leaf axils, not borne at ends of branches.

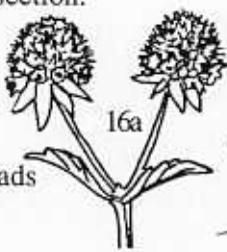
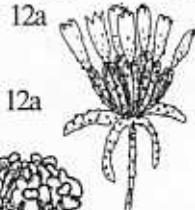
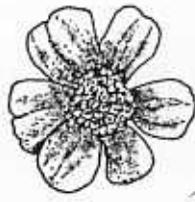
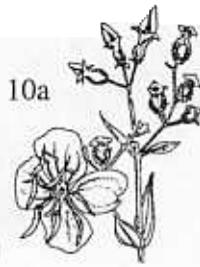
16a. Flowers borne in tough ball-shaped heads on stalks from the leaf axils, white.

LAMIACEAE (*Hyptis alata*).

16b. Flowers not as above, white, pale yellow, pink or purple, or bright orange.

17a. Flowers with a short to long tube, with four or five nearly equal petals.

SCROPHULARIACEAE.



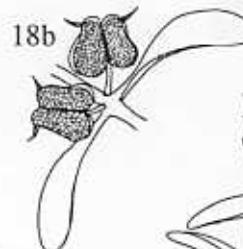
- 17b. Flowers tubular, with strongly unequal petals, usually forming an upper hood and a lower lip. 17b



LAMIACEAE.

- 8b. Leaves entire or only slightly wavy on the margin.

- 18a. Plants tiny, aquatic, with weak stems supported by water; leaves linear to oblong; flowers minute, in leaf axils, without sepals or petals.



CALLITRICHACEAE.

- 18b. Plants not supported by water; flowers usually with sepals or petals or both.

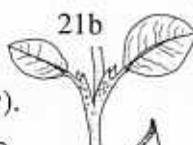
- 19a. Plants succulent, the main stems spreading on the ground, sometimes the branches erect; plants usually (but not always) of salt marshes or sandy coasts.

- 20a. Plants prostrate, forming mats, often without erect branches; leaves linear to suborbicular.

- 21a. Leaves narrowly oblong to oblanceolate, each pair joined at the base to form a sheath around the stem; flowers small, white, in stalked or unstalked many-flowered heads from leaf axils. **AMARANTHACEAE**

(*Alternanthera maritima*, *Phloxerus vermicularis*).

- 21b. Leaves linear to suborbicular, sometimes one of each pair of opposite leaves larger than the other, not forming a sheath around the stem but sometimes with stipules; flowers few in each leaf axil, with five equal petal-like sepals, greenish to pink. **AIZOACEAE.**



- 20b. Plants with erect branches; leaves cylindrical or reduced to tiny scales; flowers green, in spikes in the leaf axils or sunken in pits in the stem, the sepals hardly visible; plants of salt marshes.

- 22a. Stems succulent, jointed, cylindrical; leaves hardly noticeable, reduced to tiny scales pressed to the stem; flowers in groups of 3, sunken in pits in the stem.

CHENOPODIACEAE (*Salicornia*).

- 22b. Young stems succulent, older stems woody, not obviously jointed; leaves evident, succulent, cylindrical, spreading; flowers in spikes in the leaf axils.

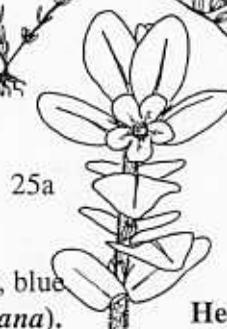
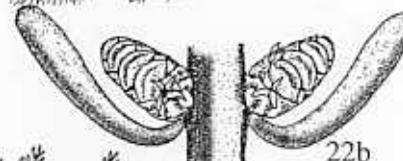
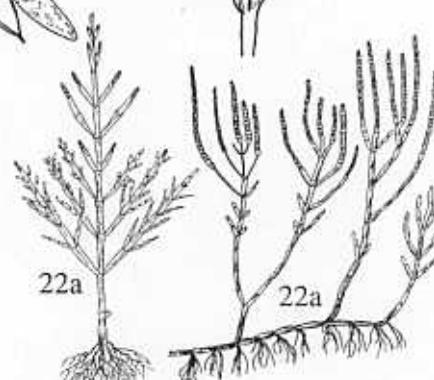
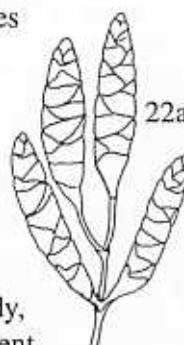
BATAACEAE.

- 19b. Plants not succulent, or if slightly succulent than either not spreading on the ground or not growing in salt marshes or on beaches.

- 23a. Plants with main stems creeping along the ground or arching and rooting at the nodes, widely spreading and sometimes forming mats (but with the stem tips or flowering branches sometimes erect).

- 24a. Leaf blades orbicular or nearly so.

- 25a. Plants lemon-scented; stems round, covered with short hairs; flowers in leaf axils, blue. **SCROPHULARIACEAE (*Bacopa caroliniana*).**



25b. Plants not lemon-scented; flowers pink, white, or yellow.

26a. Plants often reddish, often growing in water; leaves gradually narrowed into a short stalk at base; flowers small, with four yellow, separate, petals.

ONAGRACEAE (*Ludwigia repens*).

26b. Plants not reddish, of various habitats; leaves without stalks or the blades abruptly narrowed into a short stalk; flowers with petals not yellow, the petals five and separate or the petals united into a tube.

27a. Stems four-angled; leaves up to 15-20 mm long and broad, gland-dotted; flowers solitary in leaf axils, with the corolla tubular, 5-lobed, and pale pink with darker splotches. **LAMIACEAE** (*Micromeria*).

27b. Stems round.

28a. Leaves minute, usually around 5 mm long and broad; flowers barely visible to the naked eye, solitary and stalkless in leaf axils, the corolla white, with a short tube and 3 or 4 lobes.

SCROPHULARIACEAE (*Micranthemum*).

28b. Leaves larger, up to 20 mm long and broad; flowers on branching stalks from the leaf axils, with five white separate petals, each petal cleft lengthwise.

CARYOPHYLLACEAE (*Drymaria*).

24b. Leaf blades longer than broad, linear to broadly ovate, but not orbicular.

29a. Plants in shallow water of streams, lakes, canals, or ditches or on banks near standing or flowing water, often forming large mats; leaves up to 1.5 cm wide, with obvious secondary veins.

30a. Stems four-angled, solid; flowers solitary or in clusters in the leaf axils, with pale blue, tubular, two-lipped corolla.

ACANTHACEAE (*Hygrophila*).

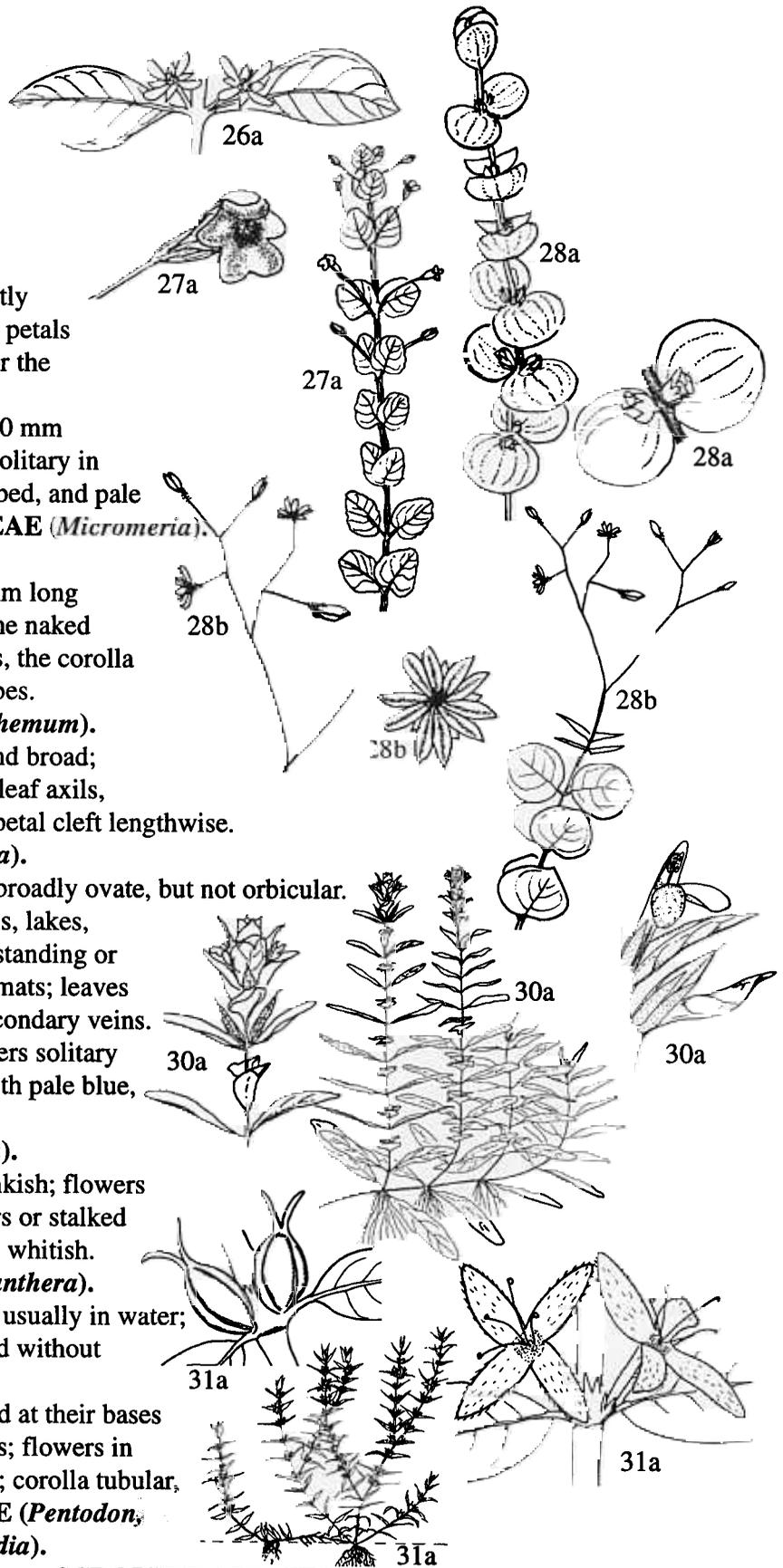
30b. Stems round, hollow, often pinkish; flowers tiny, in sessile cylindrical clusters or stalked heads arising from the leaf axils, whitish.

AMARANTHACEAE (*Alternanthera*).

29b. Plants in various habitats but not usually in water; leaves often less than 1 cm wide and without obvious secondary veins.

31a. Each pair of leaves connected at their bases by a pair of stipules with bristles; flowers in pairs or clusters in the leaf axils; corolla tubular, with 4 or 5 lobes. **RUBIACEAE** (*Pentodon*, *Diodia*, *Spermacoce*, *Oldenlandia*).

31b. Leaves without bristly stipules. **SCROPHULARIACEAE**.



23b. Plants with main stems erect or ascending, not spreading or forming mats.

32a. Plants with milky juice; flowers either inconspicuous and greenish, with 3-lobed ovary, or showy and white, purplish, or bright orange, with five reflexed petals and five erect hoods.

33a. Flowers inconspicuous, greenish or with five small petals, with a stalked, 3-lobed ovary in some; fruit a 3-lobed capsule with one seed per lobe; seeds hairless. **EUPHORBIACEAE** (*Euphorbia*).

33b. Flowers showy, white, purplish, or bright orange, with five reflexed petals and five erect hoods; fruit a pod (follicle) opening on one side and releasing many seeds with long hairs. **ASCLEPIADACEAE**.

32b. Plants without milky juice.

34a. Flowers small, arranged in heads that simulate a single flower, the heads surrounded by green bracts at the base, at least the central flowers in the heads with a tubular, 4- or 5-lobed corolla; ovary inferior; fruit an achene. **ASTERACEAE**.

34b. Flowers not in heads, or if in heads then the flowers, ovary, or fruit not as above.

35a. Leaves linear to narrowly oblong.

36a. Leaves with papery stipules; small plants with spreading branches and leaves less than 2.5 cm long.

37a. Flowers with a four-lobed, white corolla, stalkless in the leaf axils or forks of branches; plants not fleshy, in various habitats.

38a. Stipules bristly; flowers in the leaf axils. **RUBIACEAE** (*Oldenlandia*).

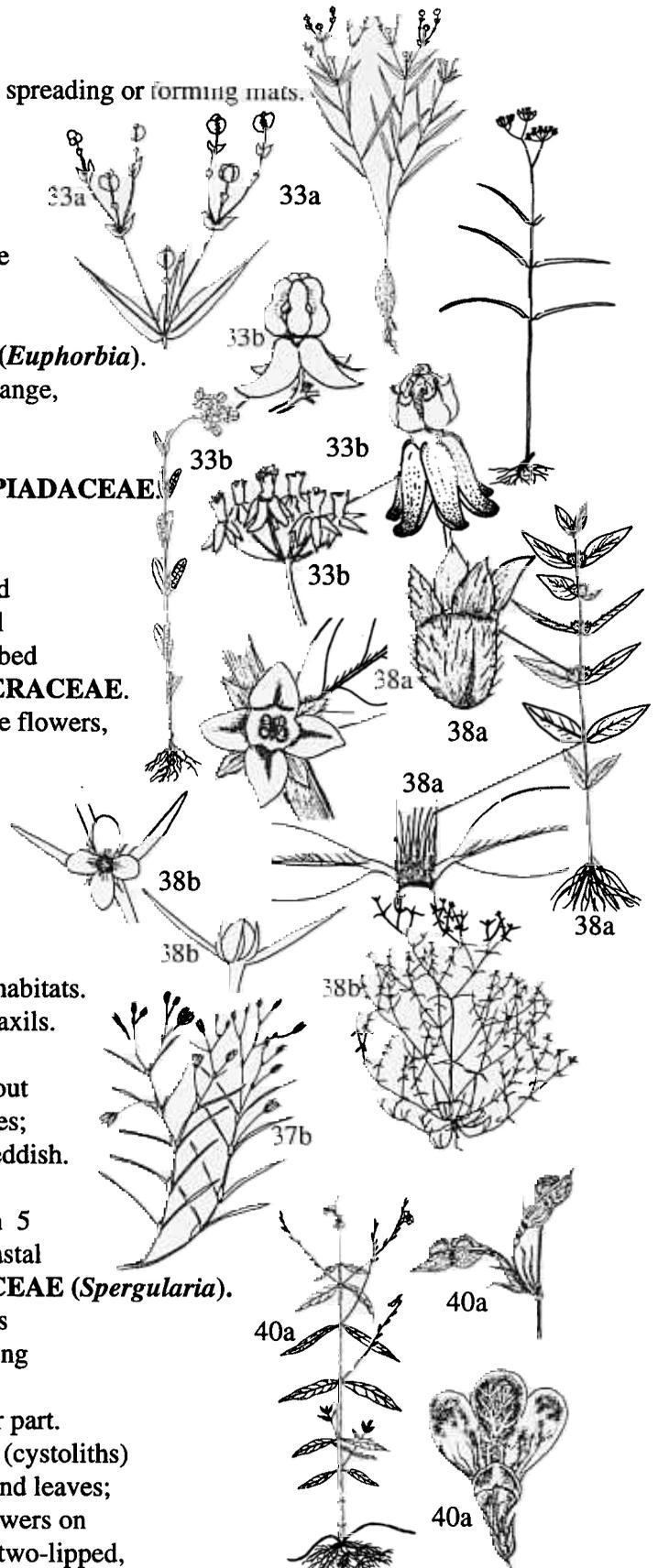
38b. Stipules a whitish membrane, without bristles; flowers in the forks of branches; plants usually much branched, often reddish. **LOGANIACEAE** (*Polypremum*).

37b. Stipules without bristles; flowers with 5 separate white petals; plants fleshy, in coastal marshes and swales. **CARYOPHYLLACEAE** (*Spergularia*).

36b. Leaves without stipules or stipular lines (the nodes sometimes swollen and simulating a stipule scar, but more rounded).

39a. Stem four-angled, at least in upper part.

40a. Plants with small hard structures (cystoliths) that appear as dots or lines in stems and leaves; leaves fairly long, few, spreading; flowers on stalks from the leaf axils, the corolla two-lipped, white to red or purple with purple or white markings on the lower lip. **ACANTHACEAE** (*Justicia*).



40b. Plants without small hard structures in leaves and stems; leaves fairly short, often numerous, spreading to erect; flowers nearly stalkless in leaf axils, with 4 or 6 separate white to pink petals. **LYTHRACEAE (Ammannia)**.

39b. Stem round or angled, but not 4-angled.

41a. Flowers tubular, pink, with 5 equal corolla lobes; plants often much branched but not forking into two equal branches. **SCROPHULARIACEAE (Agalinis)**.

41b. Flowers not tubular, white to yellow, with 5 separate petals; plant usually unbranched below, then forking a few times above. **LINACEAE**.

35b. Leaves wider, lanceolate to broadly ovate, elliptic, or obovate.

42a. At least the lower leaves with definite leafstalks.

43a. Plants with main stem creeping along the ground and rooting at the nodes, any erect portion usually short; leaf blades obovate to spatulate, tapering at base. **ONAGRACEAE (Ludwigia)**.

43b. Plants with main stem erect or ascending; leaves oblong to narrowly elliptic or lanceolate.

44a. Leaf blades oblong, broadly rounded at base and tip, with clear dots in the blade tissue; flowers with five dull pink petals. **HYPERICACEAE (Triadenum)**.

44b. Leaf blades usually not oblong, pointed at least at tip, without clear dots in the blade tissue.

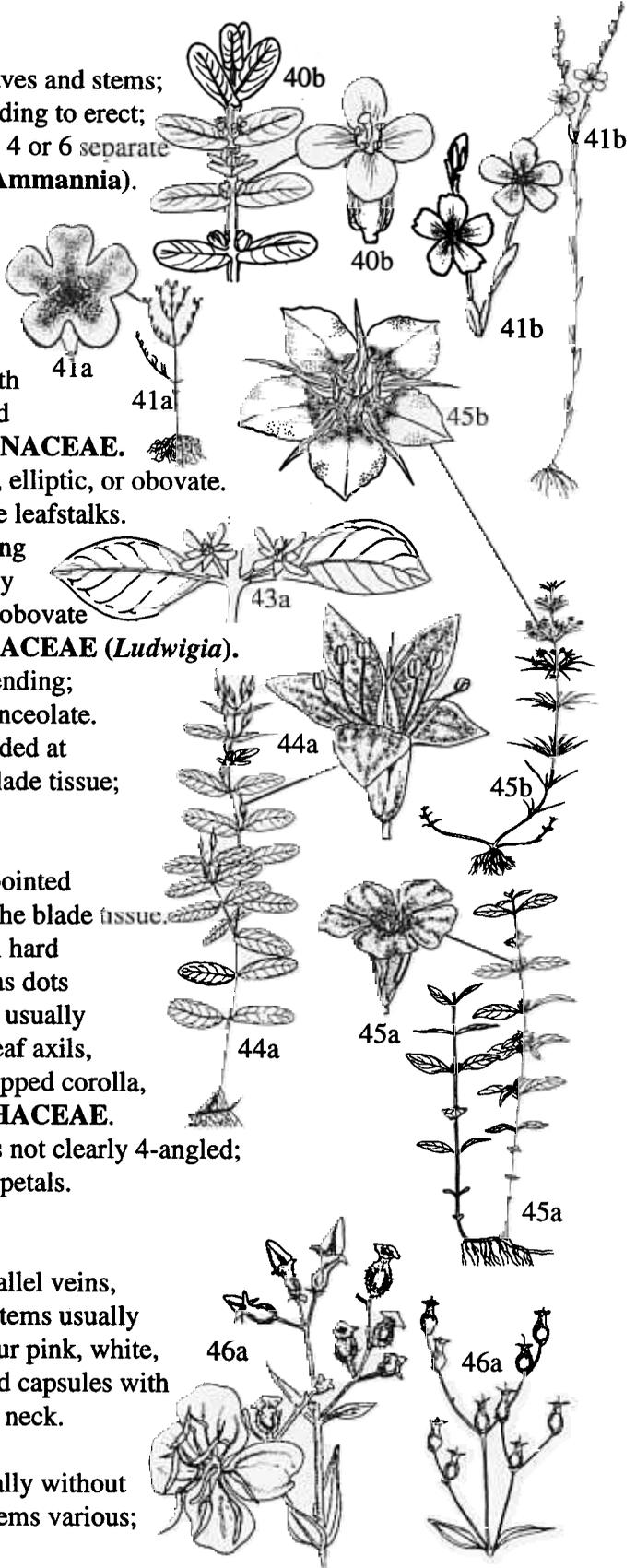
45a. Plants nearly always with small hard structures (cystoliths) that appear as dots or lines in stems and leaves; stems usually 4-angled; flowers on stalks from leaf axils, with a tubular, five-lobed or two-lipped corolla, white to pink or purple. **ACANTHACEAE**.

45b. Plants without cystoliths; stems not clearly 4-angled; flowers with five separate yellow petals. **PRIMULACEAE (Lysimachia)**.

42b. Leaves without definite leafstalks.

46a. Leaves elliptic, with three parallel veins, a midrib and one on either side; stems usually 4-angled; flowers showy, with four pink, white, or yellow petals; fruits urn-shaped capsules with a spherical base and a cylindrical neck. **MELASTOMATACEAE**.

46b. Leaves variously shaped, usually without three prominent parallel veins; stems various; flowers and fruits not as above.

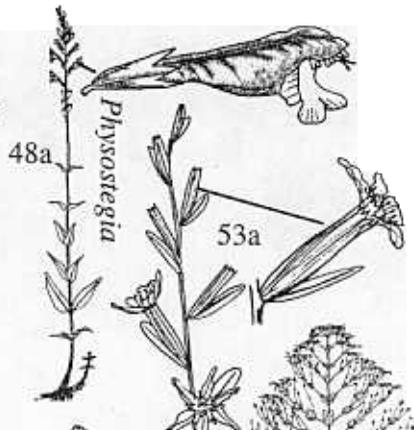


47a. Plants with membranous stipules connecting the bases of each pair of opposite leaves; flowers in clusters at the ends of the stem, with a white or pink, 5-lobed corolla. **LOGANIACEAE** (*Mitreola*, *Spigelia*).



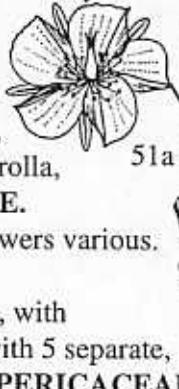
47b. Leaves without stipules.

48a. Stems 4-angled; minty smell. **LAMIACEAE** (*Pycnanthemum*, *Physostegia*).



48b. Stems round or angled; if 4-angled, no minty smell.

49a. Plants nearly always with small hard structures (cystoliths) that appear as dots or lines in stems and leaves; stems usually 4-angled; flowers on stalks from leaf axils, with a tubular, five-lobed or two-lipped corolla, white to pink or purple. **ACANTHACEAE**.



49b. Plants without cystoliths; stems and flowers various.

50a. Plants hairless.

51a. Leaves triangular-ovate to oblong, with clear dots in the leaf tissue; flowers with 5 separate, equal, yellow or dull pink petals. **HYPERICACEAE**.



51b. Leaves without clear dots in the leaf tissue; flowers not as above.

52a. Stems 4-angled at least in their upper parts.

53a. Stems not winged on the angles; flowers without petals or with 4 or 6 separate pink to purple petals. **LYTHRACEAE**.



53b. Stems winged on the angles; flowers with a corolla with a short tube and 5 white to pink spreading lobes. **GENTIANACEAE** (*Sabatia quadrangula*).



52b. Stems round or angled, but not 4-angled; flowers stalkless or on long stalks.

54a. Flowers with a 4- or 5-lobed white to blue or purple corolla, the lobes unequal in size or the corolla 2-lipped; plants small, less than 0.4 m tall. **SCROPHULARIACEAE** (*Veronica*, *Lindernia*).



54b. Flowers with a 4- to 12-lobed white to blue to pink corolla, the lobes nearly equal in size; plants generally from 0.5 m to over 1 m tall. **GENTIANACEAE**.

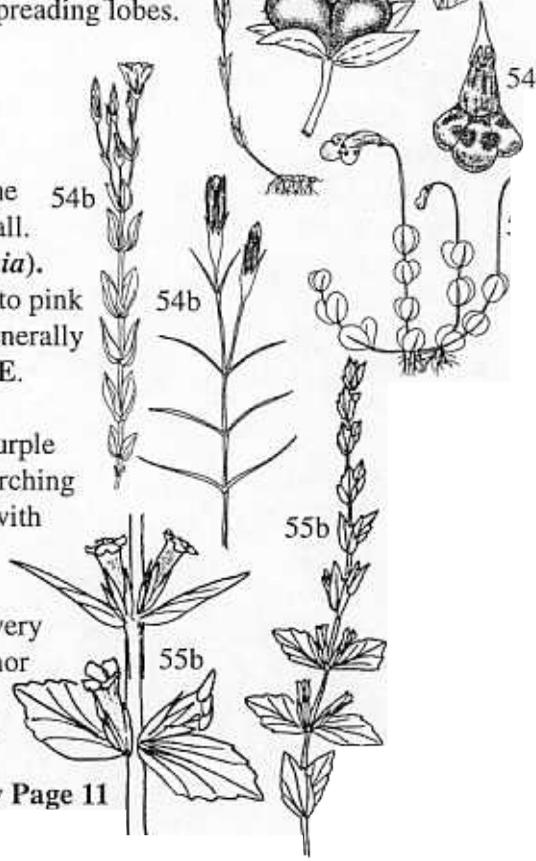


50b. Plants hairy.

55a. Flowers with 6 or more separate pink to purple petals; plants becoming woody at base, with arching stems rooting at the tips (*Decodon*) or plants with sticky glandular hairs (*Cuphea*). **LYTHRACEAE** (*Decodon*, *Cuphea*).



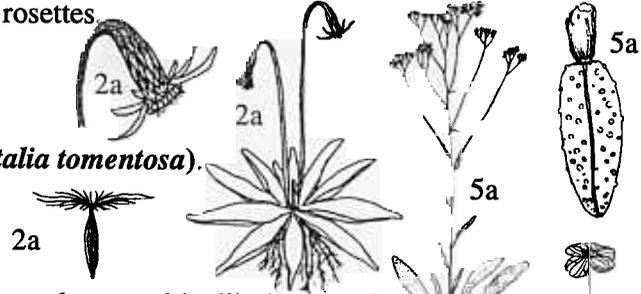
55b. Flowers with a tubular, 5-lobed, white to very pale lavender corolla; plants neither arching nor with sticky glandular hairs. **SCROPHULARIACEAE** (*Gratiola pilosa*).



GROUP VII Plants not aquatic, with simple leaves, alternate or the stem erect & the main leaves basal.

1a. Plants with all or nearly all leaves in basal rosettes

2a. Leaves dark green above, silvery below from dense, matted hairs; flowers in daisy-like heads on leafless stalks, white to cream-colored. **ASTERACEAE** (*Chaptalia tomentosa*).

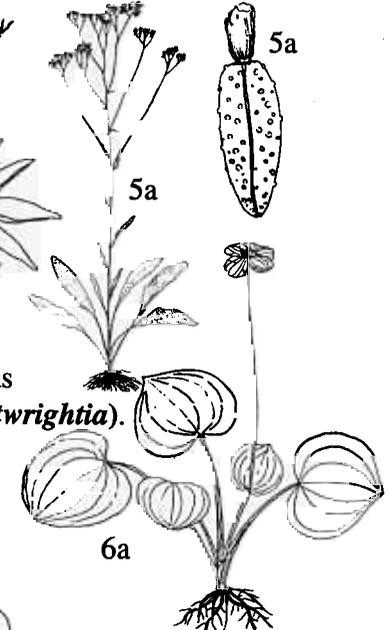


2b. Leaves not silvery below.

3a. Leaves entire.

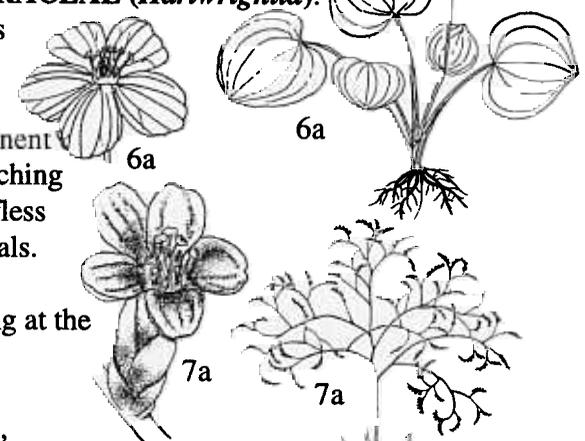
4a. Leaves with definite petioles.

5a. Plants, particularly flowers, sticky; lower leaves with elliptic to oblanceolate blades; flowering stems branching; flowers in few-flowered cylindrical heads surrounded by green bracts; corollas tubular, pinkish purple, with 5 equal lobes. **ASTERACEAE** (*Hartwrightia*).



5b. Plants not sticky; leaves various; flowering stems unbranched or branched; flowers not as above.

6a. Leaf blades broadly ovate to kidney-shaped, truncate to cordate at the base, with several prominent veins branching from the base of the blade and arching toward the leaf tip; flowers single on a nearly leafless stem, with five white green- or yellow-veined petals.



SAXIFRAGACEAE (*Parnassia*).

6b. Leaf blades narrowly to broadly elliptic, tapering at the base, without several equally prominent veins; flowers various, but not solitary.

7a. Leaf blades narrowly oblanceolate to spatulate, thick, dotted with salt glands; flowers in much-branched open clusters, small; corollas pale blue to lavender, with 5 equal lobes; plants of salt marshes along the coast. **PLUMBAGINACEAE**.

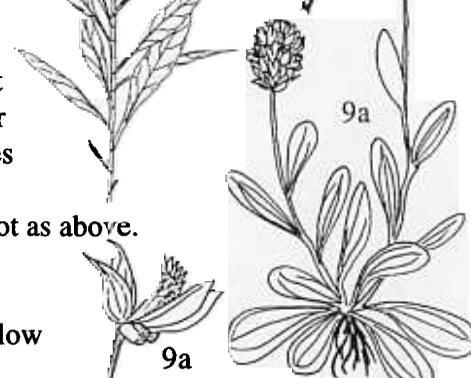


7b. Leaf blades ovate, elliptic, or obovate, without salt glands; flowers in a short spike at the end of an unbranched stem, large; corollas rose-purple, with 5 unequal lobes; plants of wet flatwoods in south Florida.

ACANTHACEAE (*Stenandrium*).

4b. Leaves tapered to the base, without definite petioles.

8a. Flowers in heads that simulate a single flower, each head surrounded by green bracts, the flowers of each head often of two or more kinds, but at least the central flowers of each head with a tubular, 4- or 5-lobed corolla, the calyx absent or reduced to scales or bristles, the ovary inferior. **ASTERACEAE**.



8b. Flowers not in heads, or if in heads the flowers not as above.

9a. Roots with a minty smell; flowers often in tight cylindrical heads, bilaterally symmetric with 2 large lateral sepals (wings), purple or pink to yellow or orange. **POLYGALACEAE**.

9b. Roots without a minty smell; flowers without 2 large lateral sepals, white to pale pink or blue.

10a. Basal leaves lying flat on ground, with prominent secondary veins, the blade tissue raised or puckered between the veins; flowers in a conical spike at the top of an unbranched stem covered with overlapping bracts; corollas white to pale blue, with 5 nearly equal lobes. **ACANTHACEAE** (*Elytraria*).

10b. Basal leaves usually not lying flat on ground, oblong with broadly rounded tips, the secondary veins not evident and the blade tissue smooth; flowers on stalks in open racemes; corollas white to pale pink, with 5 equal lobes. **PRIMULACEAE** (*Samolus*).

3b. Leaves toothed or lobed.

11a. Leaves with definite petioles, narrowly lanceolate to heart-shaped. **VIOLACEAE**.

11b. Leaves without definite petioles.

12a. Leaves lobed, generally oblong or oblanceolate in outline; flowers in heads with yellow centers and many spreading white petals (rays); plants widespread in Florida. **ASTERACEAE** (*Erigeron*).

12b. Leaves with few irregular lobes or rounded teeth, oblanceolate; flowers in cylindrical heads without obvious petals; plants rare in Dade and Monroe counties. **ASTERACEAE** (*Sachsia*).

12c. Leaves with many low regular teeth, narrowly lanceolate; flowers solitary on long stalks, white, bilaterally symmetric. **VIOLACEAE** (*Viola lancifolia*).

1b. Plants with leaves on stem (plants with several obvious stem leaves are keyed here, even if the basal leaves are largest).

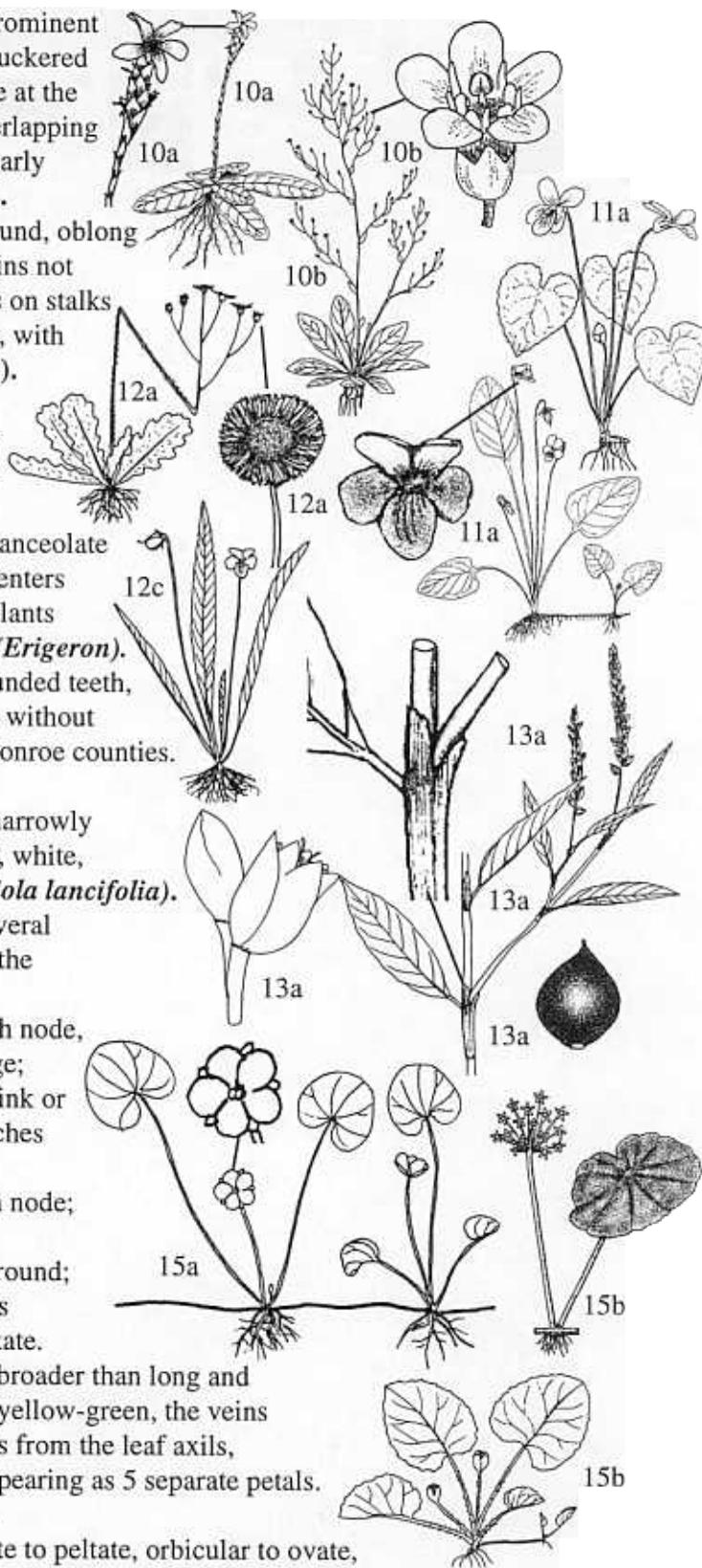
13a. Stems with a papery sheath above each node, sometimes with long bristles at its top edge; leaves entire; flowers small, greenish to pink or white, in long clusters at the ends of branches or in leaf axils. **POLYGONACEAE**.

13b. Stems without a papery sheath at each node; leaves and flowers various.

14a. Plants with main stem creeping on ground; leaves erect, on definite stalks, the blades orbicular to ovate, cordate at base or peltate.

15a. Leaf blades entire, cordate at base, broader than long and kidney-shaped when flattened, usually yellow-green, the veins hardly visible; flowers solitary on stalks from the leaf axils, with a white, deeply 5-lobed corolla appearing as 5 separate petals. **CONVOLVULACEAE** (*Dichondra*).

15b. Leaf blades wavy to toothed, cordate to peltate, orbicular to ovate, the veins usually easy to see; flowers in small clusters (umbels) from the leaf axils, with 5 separate white or translucent petals. **APIACEAE** (*Hydrocotyle*, *Centella*).



14b. Plants with main stem creeping to erect, the leaves either not stalked or not shaped as above.

16a. Plants with main stem creeping on or under ground; leaves erect, to 30 cm tall, linear to spatulate, hollow with cross-partitions; flowers in small clusters at the base of the leaves; plants usually in or near water. **APIACEAE (*Lilaeopsis*)**.

16b. Plants creeping to erect, the leaves not as above.

17a. Plants with white to yellow milky juice.

18a. Leaves lanceolate to elliptic or ovate, entire, all about the same size and shape; flowers in terminal branching clusters; corolla with five narrow pale blue lobes and a yellow eye; fruit a pair of narrow pods (follicles). **APOCYNACEAE (*Amsonia*)**

18b. Leaves linear to elliptic or ovate, entire or toothed, not all the same size and shape: either lowermost leaves much larger than the stem leaves, or leaves under flowering branches opposite.

19a. Flowering stems forking (each stem producing two equal branches and a central flower cluster at its tip); stem leaves entire, linear to narrowly lanceolate, often red-tinged; leaves under flowering branches opposite; flowers small, apparently radially symmetric with 4 or 5 green, maroon, or white petals; fruit a 3-lobed capsule. **EUPHORBIACEAE**.

19b. Flowering stems erect racemes; stem leaves entire to toothed, linear to ovate or elliptic, not red-tinged, the basal leaves usually larger than the stem leaves (though they may be absent at flowering time); corolla white to blue, purple, or scarlet, tubular, 2-lipped, the lower lip with 3 lobes. **CAMPANULACEAE (*Lobelia*)**.

17b. Plants without milky juice.

20a. Leaves entire.

21a. Leaf blades clearly on stalks.

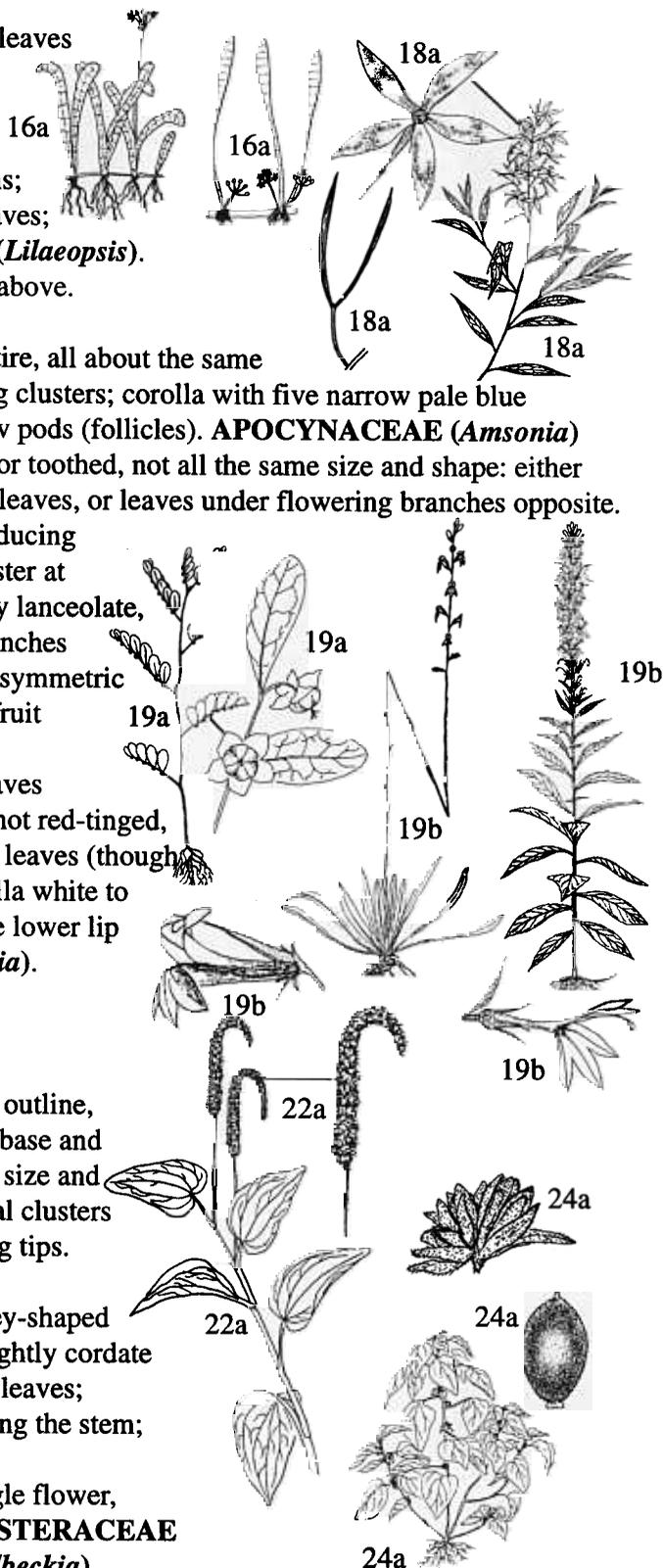
22a. Leaf blades cordate at base, ovate in outline, and pointed at tip; leaf stalks swollen at base and sheathing the stem; all leaves similar in size and shape; flowers white, in dense cylindrical clusters at end of stem, the clusters with drooping tips. **SAURURACEAE**.

22b. Leaf blades elliptic or ovate to kidney-shaped or orbicular, not cordate at base, or if slightly cordate then basal leaves much larger than stem leaves; leaf stalks not swollen at base or sheathing the stem; flower clusters not as above.

23a. Flowers in heads that simulate a single flower, each head surrounded by green bracts. **ASTERACEAE (*Coreopsis, Arnoglossum, Solidago, Rudbeckia*)**.

23b. Flowers not in heads that simulate a single flower.

24a. Leaf blades shaped like a triangle or a diamond, with straight sides and rounded angles; stems translucent, succulent, often spreading on ground; flowers minute, in leaf axils, green; plants small, not over 0.5 m tall. **URTICACEAE (*Parietaria*)**.



33a. Roots with a wintergreen smell; flowers often in tight cylindrical heads, bilaterally symmetric with 2 large lateral sepals (wings), purple or pink to yellow or orange. **POLYGALACEAE**.

33b. Roots without a wintergreen smell; flowers not in heads, radially symmetric with 5 equal yellow or sometimes white petals. **LINACEAE**.

28b. Leaves wider.

34a. Flowers in heads that simulate a single flower, each head surrounded by green bracts, the flowers of each head often of two or more kinds, but at least the central flowers of each head with a tubular, 4- or 5-lobed corolla, the calyx absent or reduced to scales or bristles, the ovary inferior. **ASTERACEAE**.

34b. Flowers not in heads.

35a. Leaves grayish green or silvery gray, scaly below; plants of beach dunes and salt marshes. **CHENOPODIACEAE** (*Atriplex*).

35b. Leaves not grayish green or silvery gray, without scales; plants of various habitats.

36a. Leaves mostly basal, oblong, broadly rounded at tip; flowers on wiry stalks in open racemes; corollas white to pink, with 5 equal lobes. **PRIMULACEAE** (*Samolus*).

36b. Leaves not mostly basal, borne along stem, lanceolate to ovate or elliptic, usually pointed at tip; flowers not in open racemes.

37a. Leaves often with spines in the axils; corolla brilliant blue, with 5 equal lobes. **HYDROPHYLLACEAE** (*Hydrolea*).

37b. Leaves without spines in the axils; corolla not brilliant blue.

38a. Flowers solitary in leaf axils, without petals or with 4 or 5 separate, equal, yellow petals. **ONAGRACEAE**.

38b. Flowers clustered in slender 1-sided spikes at ends of stems that are rolled up before the flowers open; corolla white, yellow, or blue (but not brilliant deep blue), with 5 equal lobes. **BORAGINACEAE** (*Heliotropium*)

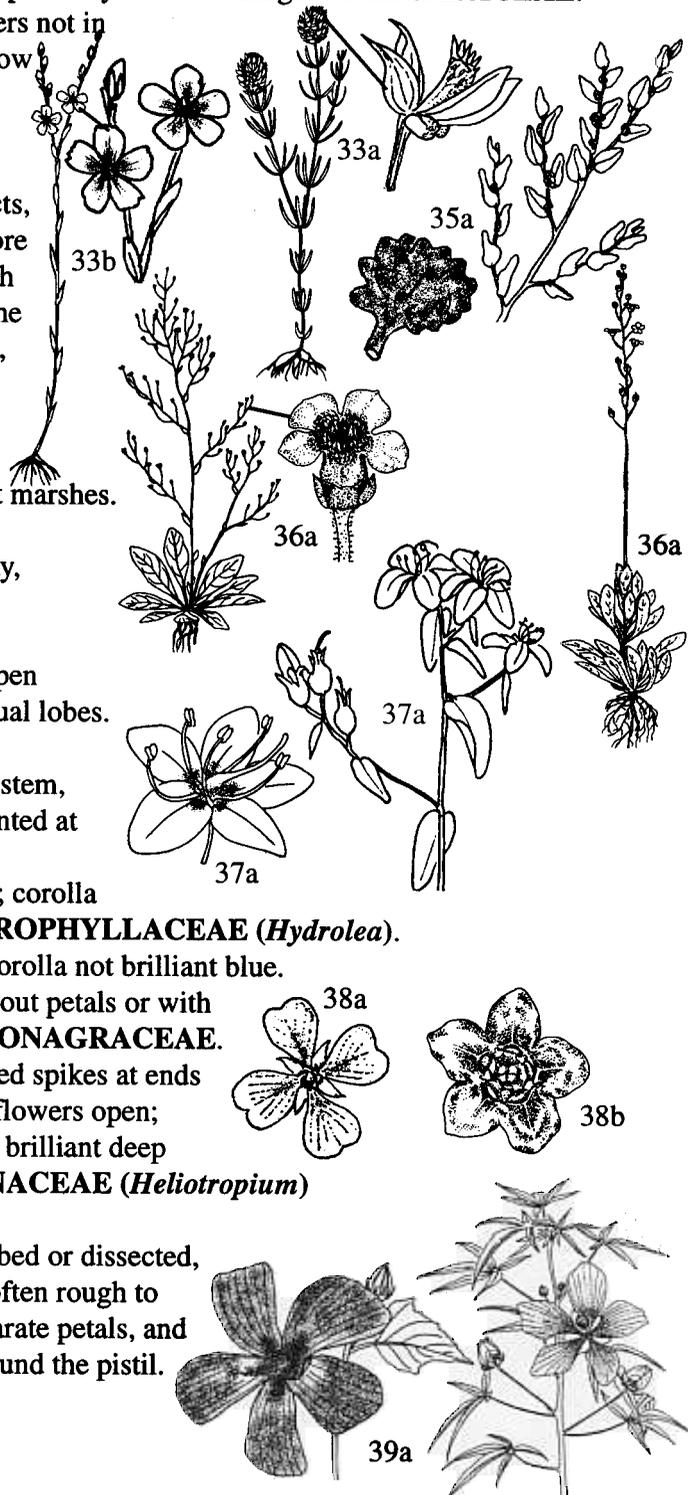
20b. Leaves toothed or lobed.

39a. Leaf blades palmately veined to lobed or dissected, often covered with star-shaped hairs, often rough to the touch; flowers large, with five separate petals, and many stamens fused into a column around the pistil. **MALVACEAE**.

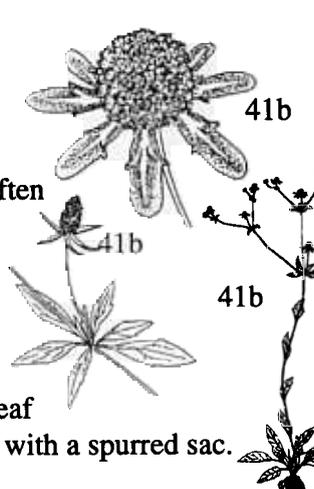
39b. Leaves pinnately veined.

40a. Flowers in tight heads.

41a. Flowers in heads that simulate a single flower, each head surrounded by green bracts, the flowers of each head often of two or more kinds, but at least the central flowers of each head with a tubular, 4- or 5-lobed corolla, the calyx absent or reduced to scales or bristles, the ovary inferior; leaves not spiny, or if spiny then the corollas not blue. **ASTERACEAE**.



41b. Flowers in bristly cylindrical or ovoid heads, the flowers of each head all alike, with 5 separate sepals and 5 separate white to blue petals; leaves often spiny. **APIACEAE** (*Eryngium*).



40b. Flowers not in heads.

42a. Leaves with obvious stalks.

43a. Plants succulent, hairless; leaf blades with shallow rounded teeth; flowers hanging from stalks in the leaf axils, showy, orange with red spots, with a spurred sac.

BALSAMINACEAE.

43b. Plants not succulent, hairy; flowers not as above.

44a. Stems with dense unbranched stinging hairs, not red; leaf blades with sharp teeth; flowers in erect or ascending clusters from the leaf axils or at the end of the stem, small, greenish.

URTICACEAE (*Laportea*).

44b. Stems and leaves with branched (stellate) hairs, the stems usually red; flowers in stalked, tight clusters from the leaf axils, with five pink petals.

STERCULIACEAE.

42b. Leaves without obvious stalks.

45a. Plants with main stems erect or ascending, not spreading and rooting at the nodes; flowers large, solitary on stalks from the leaf axils, with five broad equal yellow petals and many stamens.

TURNERACEAE.

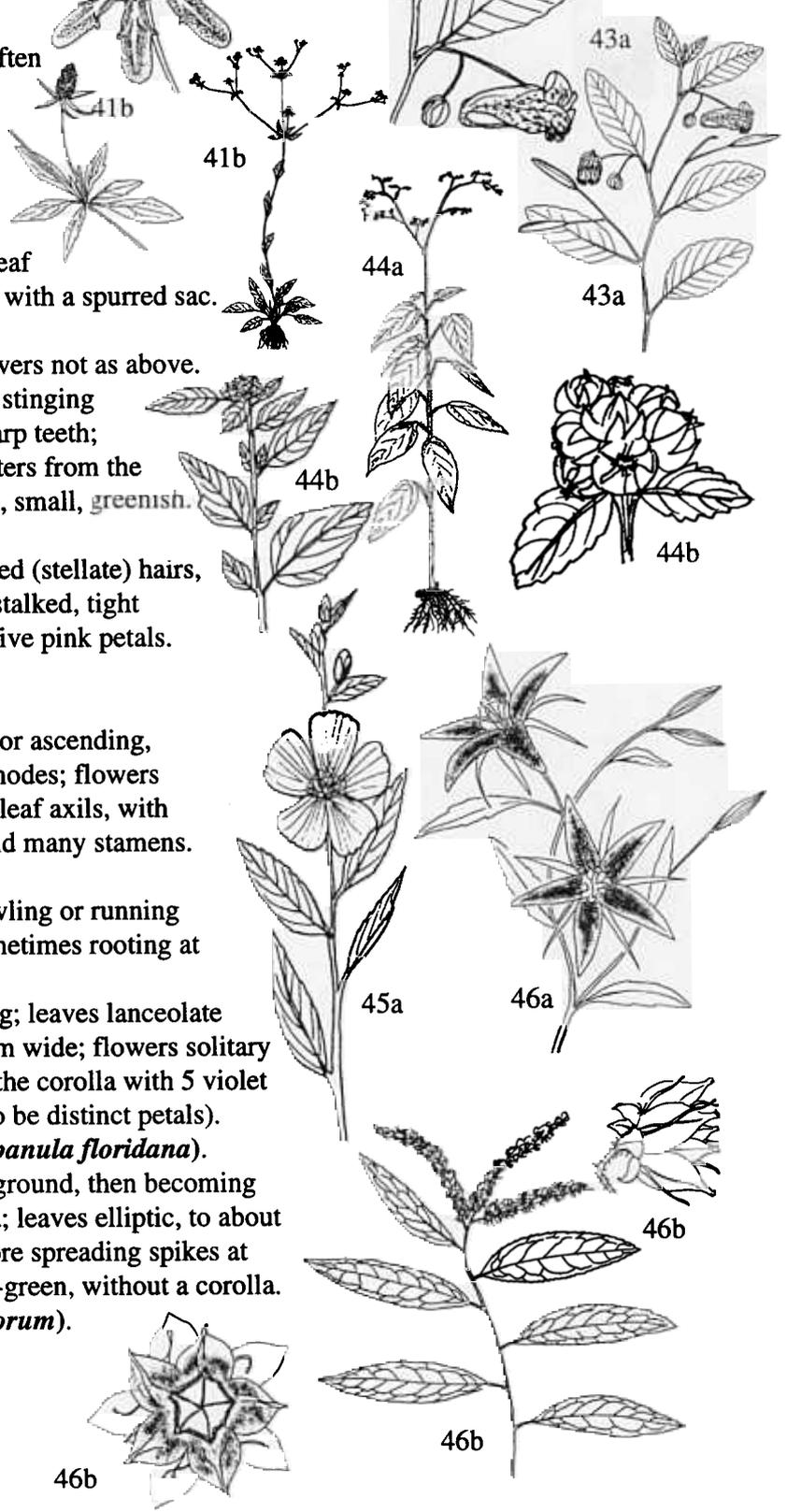
45b. Plants with main stems sprawling or running along the ground at the base, sometimes rooting at the nodes; flowers not as above.

46a. Stems spreading, branching; leaves lanceolate to linear, usually around 0.5 cm wide; flowers solitary at the ends of short branches, the corolla with 5 violet spreading lobes (that appear to be distinct petals).

CAMPANULACEAE (*Campanula floridana*).

46b. Stems running along the ground, then becoming erect, unbranched or branched; leaves elliptic, to about 4 cm wide; flowers in 3 or more spreading spikes at the ends of each stem, yellow-green, without a corolla.

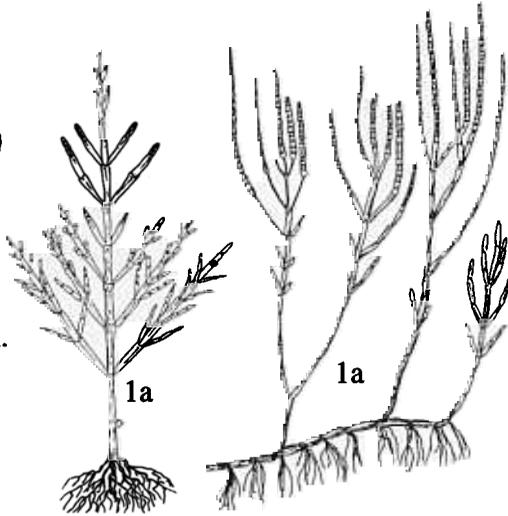
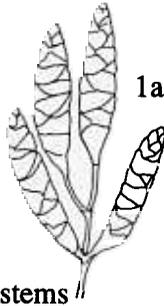
SAXIFRAGACEAE (*Penthorum*).



GROUP VIII

Plants without leaves, or leaves reduced to scales less than 5 mm long.

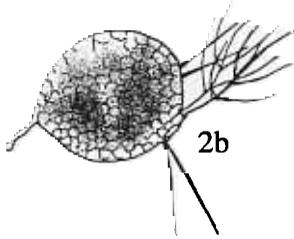
- 1a.** Plants of salt marshes, the main stem often creeping; stems succulent, jointed, often reddish; flowers in groups of 3, sunken in pits in the stem.
CHENOPODIACEAE (*Salicornia*).



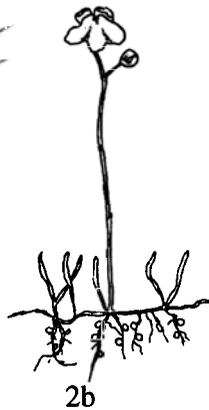
- 1b.** Plants of various wetland habitats but not salt marshes, the main stem erect; stems not succulent or jointed; flowers not sunken in stem.

- 2a.** Flowering stems often with ascending branches; flowers with four equal white corolla lobes.
GENTIANACEAE (*Bartonia*).

- 2b.** Flowering stems unbranched; flowers two-lipped, the corolla yellow or purple; underground stems sometimes with tiny bladders adapted for catching animals.
LENTIBULARIACEAE (*Utricularia*).



"bladder" a trap!



Key to Woody Dicots

GROUP I

Mangroves: evergreen trees or shrubs growing in salt or brackish water with oblong or elliptic leaves and often with aerial roots—either large prop roots arching from the lower stem or slender erect pneumatophores rising from the substrate. Peninsula only (with rare exceptions).

1a. Leaves alternate; flowers in tight spherical heads (“buttons”); fruit brown, cone-like.

COMBRETACEAE (*Conocarpus*).

1b. Leaves opposite; flowers not in tight spherical heads; fruit not cone-like.

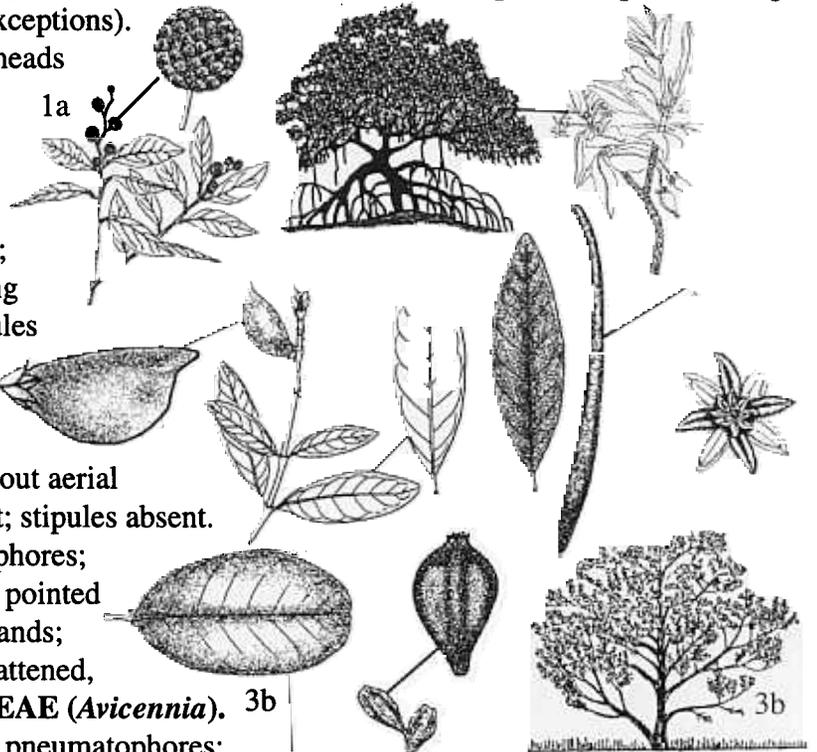
2a. Plants with arching “prop” or “stilt” roots; seeds germinating on parent plant, producing green cylindrical pendulous seedlings; stipules forming a tube around stem tip, leaving a conspicuous line on stem after falling.

RHIZOPHORACEAE (*Rhizophora*).

2b. Plants with erect pneumatophores or without aerial roots; seeds not germinating on parent plant; stipules absent.

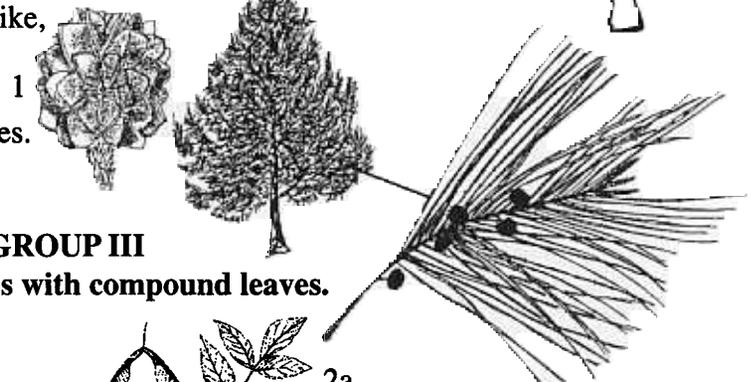
3a. Plants with abundant slender pneumatophores; twigs square in cross-section; leaves often pointed at tip, whitish beneath; petioles without glands; flowers white, conspicuous; fruit green, flattened, smooth, “lima-bean-like” **AVICENNIACEAE (*Avicennia*).** 3b

3b. Plants without aerial roots or with thick pneumatophores; twigs round in cross-section; leaves rounded or notched at tip, green beneath; petioles with pair of swellings (“glands”) just below blade; flowers greenish, inconspicuous; fruit reddish at maturity, rounded, ribbed **COMBRETACEAE (*Laguncularia*).**



GROUP II

1. Australian pine: Trees pine-like, with needle-like, jointed green branches at ends of larger stems; leaves reduced to whorls of brown teeth; fruits aggregated into spherical or cylindrical woody cones. Peninsula only: **CASUARINACEAE.**



GROUP III

Trees or shrubs with compound leaves.

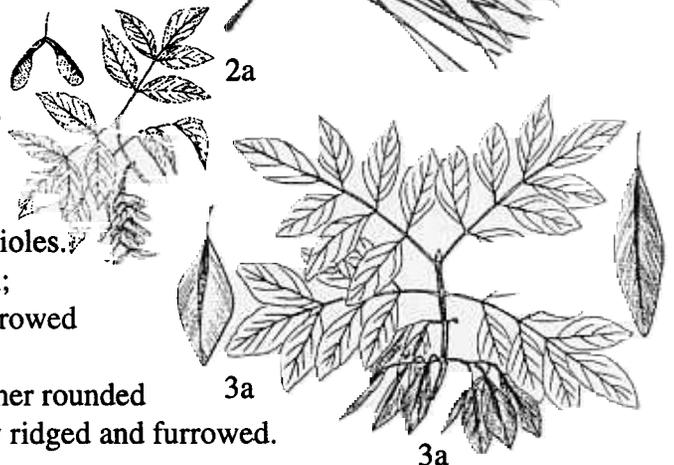
1a. Leaves opposite.

2a. Bases of petioles meeting across stem, enclosing lateral buds; leaves with 3-7 leaflets, the leaflets coarsely toothed or lobed, “poison-ivy-like” **ACERACEAE (*Acer negundo*).**

2b. Bases of petioles not meeting across stem; lateral buds not enclosed by petioles, borne above bases of petioles.

3a. Margins of leaflets entire or with few obscure teeth; fruit flat, winged; older bark coarsely ridged and furrowed **OLEACEAE (*Fraxinus*).**

3b. Margins of leaflets with many small teeth; fruit either rounded and berrylike or a papery bladder; bark not coarsely ridged and furrowed.



4a. Leaves with 3 leaflets; flowers greenish, in few-flowered inflorescences; fruit a papery bladder-like capsule; only along upper Apalachicola River
STAPHYLEACEAE (*Staphylea*).

4b. Leaves with 7 or more leaflets, sometimes with the leaflets themselves compound; flowers white, in many-flowered flat-topped inflorescences; fruit a red or black berrylike drupe; throughout Florida
CAPRIFOLIACEAE (*Sambucus*).

1b. Leaves alternate.

5a. Leaves palmately compound, usually with 5 leaflets; stems weakly woody and leaves prickly
ROSACEAE (*Rubus*).

5b. Leaves with 3 or 4 leaflets or pinnately compound.

*6a. Leaflets 3; stems and leaves prickly; fruit a cluster of berrylike drupes (blackberry)
ROSACEAE (*Rubus*).

*6b. Leaflets 4 in two pairs; stems often spiny; fruit a coiled pod (legume)
FABACEAE (*Pithecellobium*).

*6c. Leaflets more than 4.

7a. Leaves with simple leaflets (once-pinnately compound).

8a. Leaves without a terminal leaflet (even-pinnately compound); leaflets entire; fruit a pod (legume)
FABACEAE (*Sesbania, Gleditsia*).

8b. Leaves with a terminal leaflet (odd-pinnately compound).

9a. Stems to 0.8 m tall, unbranched; wood bright yellow; leaflets usually 5, deeply toothed; flowers small, maroon or greenish; only in Panhandle
RANUNCULACEAE (*Xanthorhiza*).

9b. Stems longer and branched; wood not bright yellow.

10a. Leaflets entire.

11a. Leaflets 9-35, oblong, rounded at tip, their stalks short, not reddish; flowers maroon to blue, in dense erect spikelike racemes at ends of branches; fruit a pod (legume)
FABACEAE (*Amorpha*).

11b. Leaflets 7-15, oblong to ovate, pointed at tip, their stalks short, usually reddish; flowers cream-colored, in open drooping clusters from leaf axils; fruit a white berrylike drupe; north Florida south to Highlands County
ANACARDIACEAE (*Toxicodendron vernix*).



11c. Leaflets 5, broadly ovate to triangular, often blotched with black spots, their stalks long, not reddish; flowers greenish-yellow, in erect clusters from leaf axils; fruit a dull orange drupe; southeast Florida from Martin County south and the Keys
ANACARDIACEAE (*Metopium*).

10b. Leaflets toothed.

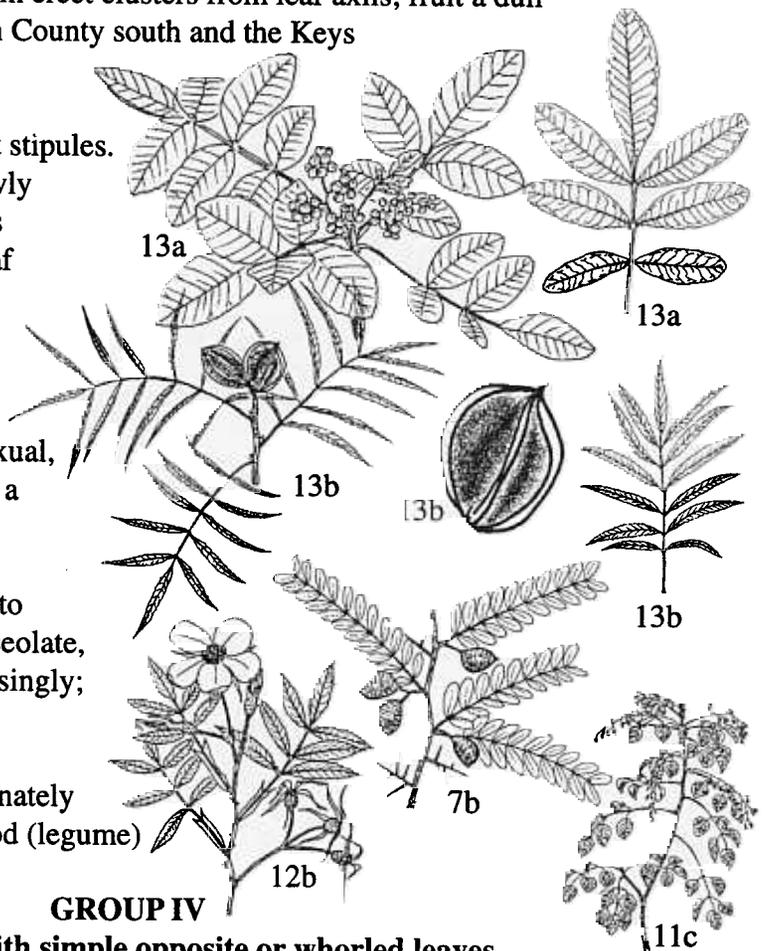
12a. Stems without prickles; leaves without stipules.

13a. Much-branched shrubs; leaflets narrowly elliptic to obovate, rounded at tip; flowers white, in many-flowered clusters from leaf axils; fruit a red berry-like drupe
ANACARDIACEAE (*Schinus*).

13b. Trees of floodplains; leaflets narrowly lanceolate, pointed at tip, the lateral ones often curved (falcate); flowers tiny, unisexual, green, the male in drooping catkins; fruit a nut covered with a green husk
JUGLANDACEAE (*Carya aquatica*).

12b. Stems prickly; stipules large, attached to lower part of petiole; leaflets elliptic to lanceolate, with fine teeth; flowers showy, pink, borne singly; fruit a red "hip" enclosing brown achenes
ROSACEAE (*Rosa palustris*).

7b. Leaves with compound leaflets (twice-pinnately compound or more); leaflets entire; fruit a pod (legume)
FABACEAE (*Gleditsia, Mimosa*).



GROUP IV

Trees or shrubs with simple opposite or whorled leaves.

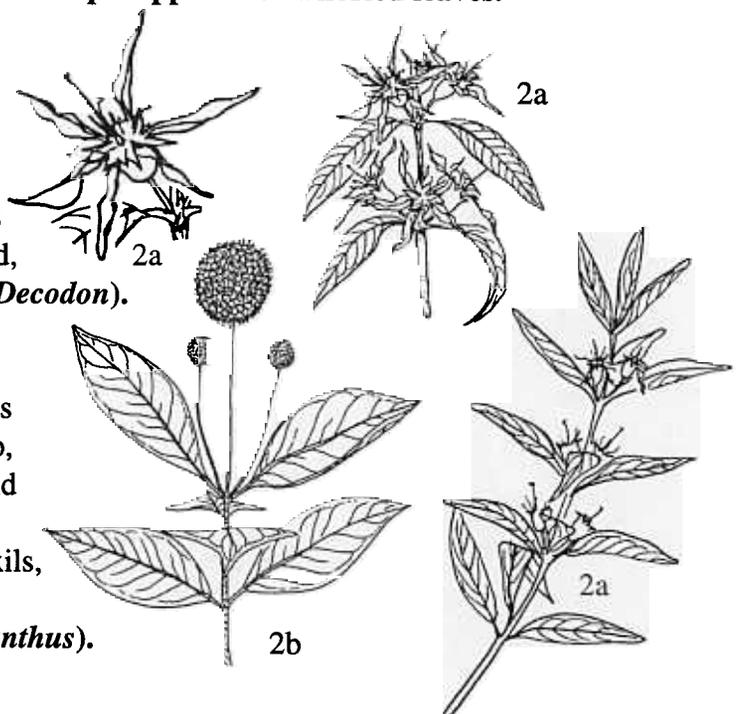
1a. At least some leaves whorled.

2a. Stipules absent; leaves lanceolate ("willow-like") to elliptic; plants becoming woody at base, with arching stems that root at the tip, older stems with bark peeling in cinnamon-colored strips; flowers in clusters in the leaf axils, with 5 to 7 separate, stalked, crinkly, magenta petals
LYTHRACEAE (*Decodon*).

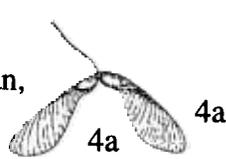
2b. Stipules triangular, between leaf bases, leaving a line on the stem after they fall; leaves elliptic, oblong, or ovate; erect shrubs with stems not arching and rooting at the tip, older stems with light gray or tan, ridged and furrowed bark; flowers in spherical, stalked heads on the ends of branches and in leaf axils, with a slender tubular white corolla having 4 spreading lobes
RUBIACEAE (*Cephalanthus*).

1b. Leaves opposite.

3a. Leaves toothed or lobed.

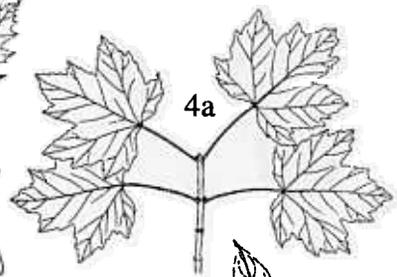
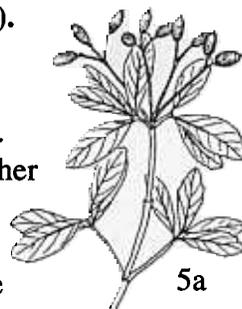


4a. Leaves palmately lobed and veined, with coarse teeth; fruits bright red or tan, dry, with two wings; potentially large trees with a single erect trunk.

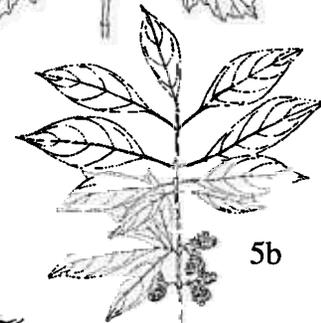


ACERACEAE (*Acer rubrum*, *A. saccharinum*).

4b. Leaves unlobed and pinnately veined; fruits fleshy, berry-like, without wings; much-branched shrubs, often with several stems.



5a. Young stems and leaf stalks covered with either branched (stellate) hairs or rust-colored scales; flowers in round-topped, stalked clusters at the ends of branches, perfect, with a 5-lobed, white or cream-colored corolla. **CAPRIFOLIACEAE** (*Viburnum*).



5b. Young stems and leaf stalks hairless; flowers in small clusters from leaf axils or on leafless branches, unisexual, green, without petals.

OLEACEAE (*Forestiera*).

3b. Leaves entire.

6a. Leaves succulent, linear to oblong, nearly circular in cross-section; main stems becoming woody, creeping or arching, the ultimate stems erect; flowers green, in cylindrical spikes in the leaf axils; plants of salt marshes **BATACEAE**.



6b. Leaves not succulent; habit, flowers, and habitat various.

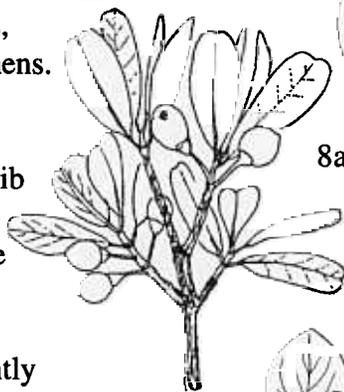
7a. Leaves with 3 prominent veins from the base, shiny green above and light tan below from dense hairs; flowers in clusters in the leaf axils, with 5 rose-purple petals and many stamens.



MYRTACEAE (*Rhodomyrtus*).

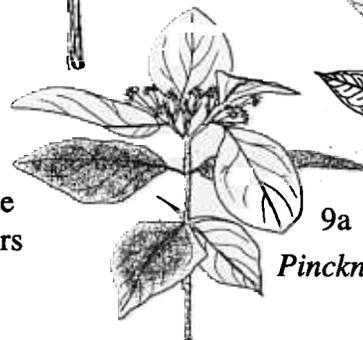
7b. Leaves and flowers not as above.

8a. Leaves notched at tip, with the midrib extending into the notch as a bristle; flowers yellow-green, in clusters in the leaf axils; Monroe and Dade counties.



RHAMNACEAE (*Reynosia*).

8b. Leaves not notched at tip, or if slightly notched then the midrib not extending into the notch as a bristle; flowers various.



9a. Leaves with stipules extending across the stem between the bases of each pair of opposite leaves and leaving a line when they fall; flowers with tubular corollas having 4 or 5 lobes; fruit usually berry-like (but dry and hard in *Cephalanthus* and *Pinckneya*); plants erect to sprawling shrubs or sometimes small trees. **RUBIACEAE**.

Pinckneya

9b. Leaves without stipules or with small stipules that do not extend across the stem; corollas either not tubular or absent; plants small shrubs to small trees, not sprawling.

10a. Leaves with strongly arching secondary veins; delicate white threads emerging from veins when fresh leaf is carefully torn in half; flowers with 4 white petals **CORNACEAE**.

10b. Leaves without strongly arching secondary veins; threads from leaf veins not evident; flowers various.

11a. Leaves dotted with tiny translucent secretory structures, linear and needle-like to ovate or oblong, without leafstalks; flowers with 4 or 5 separate yellow petals that are curved so as to make the flowers "pinwheel-shaped," and usually many stamens; fruits reddish-brown, conical or ovoid capsules **HYPERICACEAE** (*Hypericum*).

11b. Leaves without translucent dots, wider than linear, with or without leafstalks; flowers not as above; fruits berry-like (except in *Pisonia* of the Nyctaginaceae, where they are dry with sticky glands).

12a. Young stems and leaf stalks covered with rust-colored scales; flowers in round-topped, stalked clusters at the ends of branches, with a 5-lobed, white or cream-colored corolla; throughout Florida **CAPRIFOLIACEAE** (*Viburnum*).

12b. Young stems and leaf stalks not covered with rust-colored scales; flowers not as above; peninsula and northeast coast.

13a. Buds 2-4 in each leaf axil, one above the other; leaves usually narrowly obovate, tapering gradually to the base, without a clear leafstalk; flowers in clusters in the leaf axils, green, without petals; plant coastal **OLEACEAE** (*Forestiera segregata*).

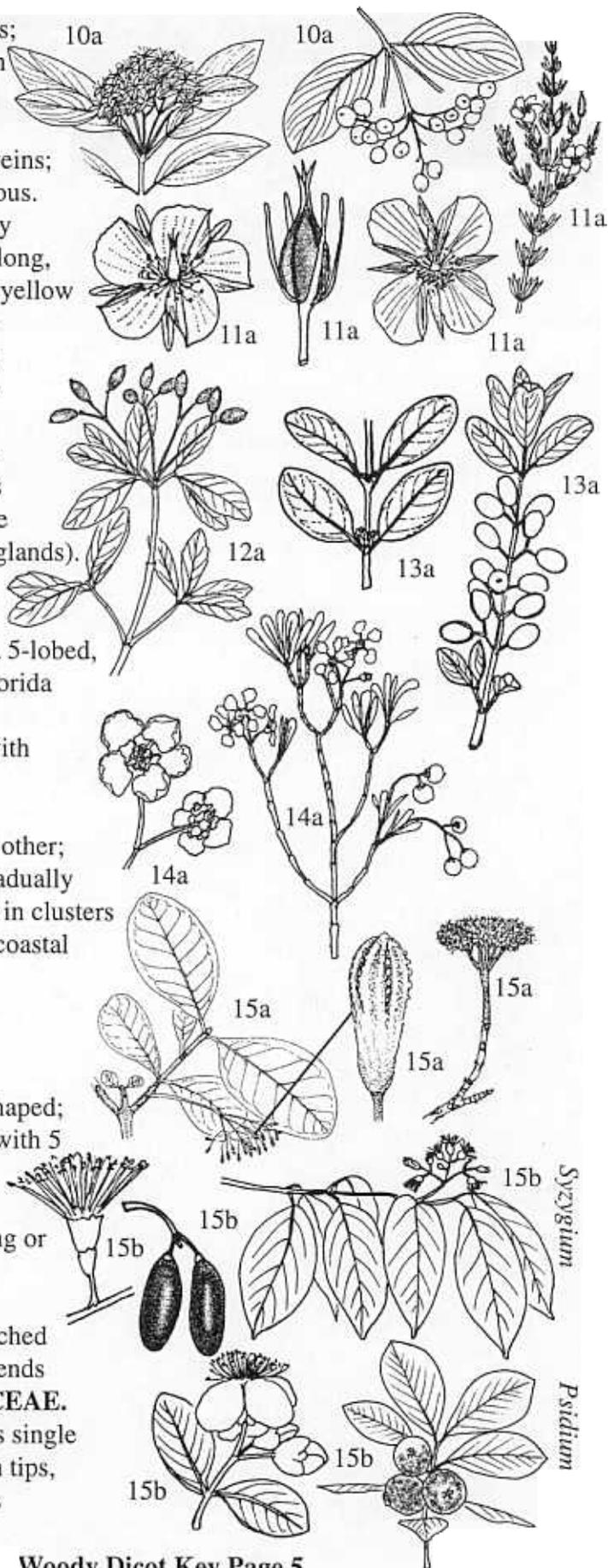
13b. Buds single in each leaf axil; leaves and flowers various; southern peninsula.

14a. Stems conspicuously jointed; leaves narrowly obovate, the bases swollen, cup-shaped; flowers in clusters at the ends of branches, with 5 stalked white to crimson petals **MALPIGHIACEAE** (*Byrsonima*).

14b. Stems not jointed; leaves broader, oblong or elliptic to obovate; leaf bases not swollen; flowers not as above.

15a. Leaves usually broadly rounded to notched at tip; flowers in branching clusters from ends of branches or leaf axils **NYCTAGINACEAE**.

15b. Leaves pointed or angled at tip; flowers single in leaf axils or in branched clusters at stem tips, with 4 or 5 white petals and many stamens **MYRTACEAE** (*Psidium*, *Syzygium*).



GROUP V Trees or shrubs with simple alternate leaves.

1a. Leaves toothed or lobed.

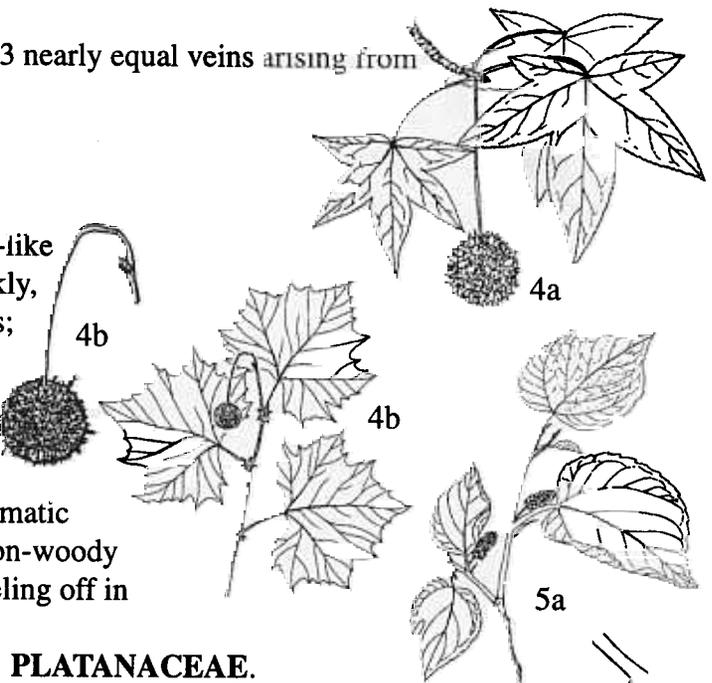
2a. Leaves palmately lobed or veined, with at least 3 nearly equal veins arising from the base of the blade.

3a. Leaves all palmately lobed.

4a. Leaves "half-star-shaped," deeply cut into usually 5 triangular lobes with many fine teeth on the margins, hairless, with a turpentine-like smell when crushed; fruits aggregated into prickly, woody balls; twigs sometimes with corky wings; bark gray, ridged and furrowed, not peeling

HAMAMELIDACEAE (*Liquidambar*).

4b. Leaves shallowly cut into 3 or 5 broad lobes with a few coarse teeth or smaller lobes on the margins, hairy at least on veins beneath, not aromatic when crushed; fruits aggregated into smooth, non-woody balls; twigs without corky wings; bark gray, peeling off in thin layers and revealing a smooth tan, white, or green inner bark, the stem appearing mottled



3b. Leaves palmately veined, unlobed or some leaves palmately lobed.

5a. Sap milky or at least cloudy; leaves sometimes palmately lobed or mitten-shaped; fruit cylindrical, blackberry-like

MORACEAE (*Morus*).

5b. Sap watery; leaves never lobed; fruit not as above.

6a. Leaf blades on long leafstalks

(1/2 to as long as the leaf blade), usually broadly ovate or triangular and abruptly tapering to a long point at the tip, with many teeth; bark gray, tan, or red-brown, furrowed or breaking into plates.

7a. Leafstalks about 1/2 the length of the leaf blade; leaf blades longer than broad, ovate or oblong but not triangular, not noisily flapping in breezes, the upper side green, the underside often silvery or blue-green or with felty hairs; buds not sticky; flowers and fruits in stalked clusters from a narrowly oblong entire bract; bark gray, furrowed; seeds without hairs

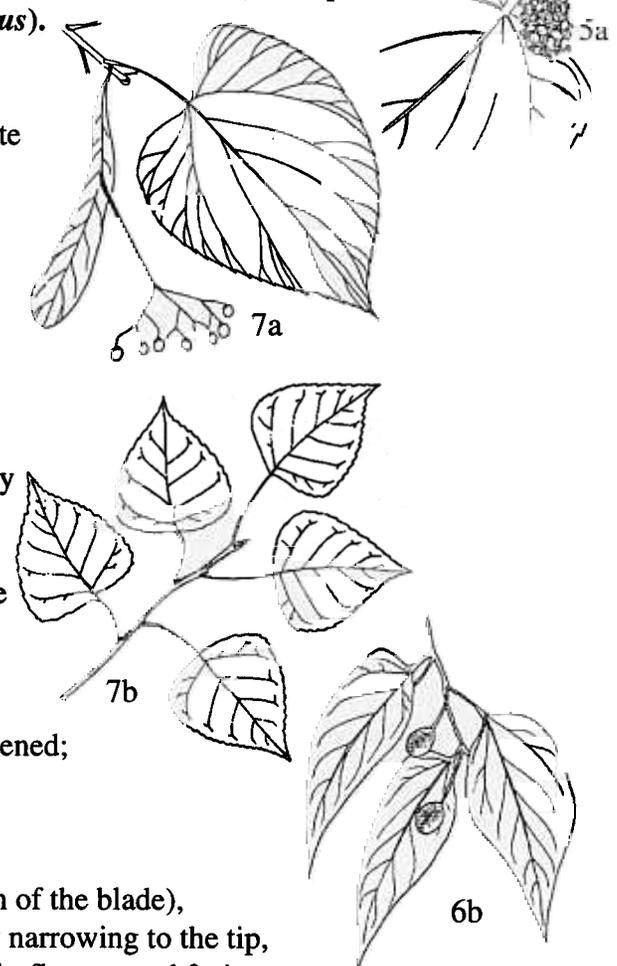
TILIACEAE.

7b. Leafstalks longer, as long as leaf blade; leaf blade usually as broad as or broader than long, triangular to ovate, flapping in breezes, the upper side dark green, the underside light green to gray-green, hairless or hairy; petioles distinctly flattened; buds sticky; flowers and fruits in long drooping clusters from leaf axils; seeds with long white silky hairs

SALICACEAE (*Populus*).

6b. Leaf blades on short leafstalks (less than the length of the blade), usually lanceolate, lopsided at the base and gradually narrowing to the tip, the underside not light-colored or felty, with few teeth; flowers and fruits solitary or clustered in the leaf axils; bark pale gray, smooth, usually with conspicuous warts

ULMACEAE (*Celtis*).



2b. Leaves pinnately lobed or veined, or veins other than the midrib not visible.

8a. Trees armed with spines; leaves tapered or truncate at base, unlobed, pinnately lobed, or sometimes palmately 3-lobed; flowers in flat-topped or rounded clusters, with five white petals and many stamens; fruit berry-like **ROSACEAE** (*Crataegus*).

8b. Trees or shrubs without spines; flowers and fruits various.

9a. Leaves pinnately lobed, the lobes rounded or with a bristle at the tip, often clustered at branch tips.

10a. Lobes 4 per leaf, broad and shallow; leaves almost as broad as long, with a squarish outline; stipules wrapping around stems and leaving a ring around the stem when they fall; flowers large, solitary at the ends of branches, tulip-like, with green petals marked with orange; fruits cone-like aggregations of winged seeds **MAGNOLIACEAE** (*Liriodendron*).

10b. Lobes more than 4 per leaf; leaves longer than broad, with a broadly oblong to obovate outline; stipules not leaving a ring around stem when they fall; flowers small, in clusters from the leaf axils; fruit a woody nut (acorn) with a tough scaly cap **FAGACEAE**.

9b. Leaves unlobed, usually not clustered at branch tips; fruit not an acorn or winged seed.

11a. Secondary veins running from the midrib straight toward the margin, hardly curving but often branching before reaching the margin.

12a. Secondary veins 3 to 5 on each side of the midrib; margins of upper half of leaves merely wavy or with low teeth; leaves broadly obovate, rare shrub in the panhandle **HAMAMELIDACEAE** (*Fothergilla*).

12b. Secondary veins more numerous; margins of leaf blades with sharp teeth; shrubs or trees.

13a. At least some leaf blades lopsided at base, oblong to ovate or obovate, doubly serrate (with smaller teeth on the edges of bigger teeth); fruits dry, flat, elliptic **ULMACEAE** (*Ulmus*).

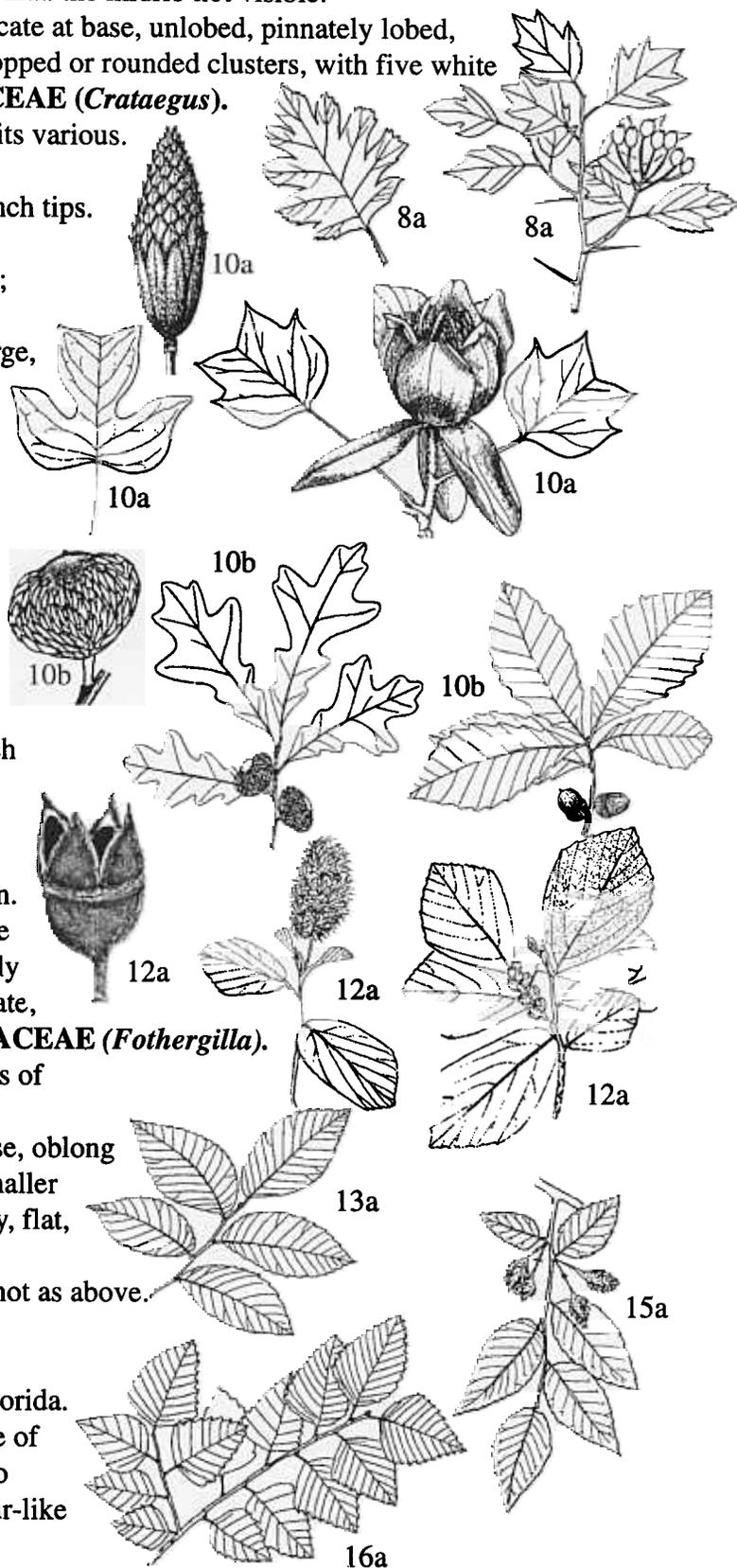
13b. Leaf blades not lopsided at base; fruits not as above.

14a. Leaf blades roughly triangular, diamond-shaped, or ovate in outline, widest below the middle; trees of north Florida.

15a. Leaf blades serrate, with a single size of tooth; bark gray, flaking in small strips to reveal reddish-brown inner bark; fruit bur-like **ULMACEAE** (*Planera*).

15b. Leaf blades doubly serrate (with smaller teeth on larger teeth).

16a. Bark pale gray to tan, prominently flaking in large curled strips to reveal a yellowish to pinkish inner bark; fruit aggregated into a woody, cylindrical catkin **BETULACEAE** (*Betula*).



16b. Bark gray, smooth, the trunk often fluted, giving it a muscular appearance; fruit a brown nutlet sitting on the base of a leafy, 3-lobed bract, the bracts in clusters **BETULACEAE** (*Carpinus*).

14b. Leaf blades oblong to obovate or oblanceolate, widest at or above the middle.

17a. Leaves either with teeth only on the upper halves or entire; secondary veins curving slightly; some hairs on leaves branched (stellate); flowers white, in long, dense, erect clusters at the ends of branches; fruits capsules opening into 3 parts **CLETHRACEAE**.

17b. Leaves with teeth along the whole margin; secondary veins straight; leaves without stellate hairs; flowers and fruits brownish, in drooping or erect cylindrical clusters (catkins); fruits aggregated into woody cylindrical cone-like structures **BETULACEAE** (*Alnus*).

11b. Secondary veins either not visible or curving toward the leaf tip before reaching the margins.

18a. Leaf margins with many regularly spaced teeth.

19a. Leaves narrowly lanceolate to broadly triangular, widest below the middle; buds either sticky or with a single cap-like scale; flowers without petals, in long clusters from the leaf axils; seeds with long silky hairs **SALICACEAE**.

19b. Leaves elliptic to obovate or oblanceolate, widest at or above the middle; buds not as above; flowers with white petals; seeds without long silky hairs.

20a. Trees with a single trunk; leaves elliptic, leathery, with inconspicuous low rounded teeth, often turning bright red individually before dropping; bark smooth on small plants, dark gray and deeply furrowed on large plants; flowers large (> 5 cm across), with 5 petals, single in leaf axils. **THEACEAE** (*Gordonia*).

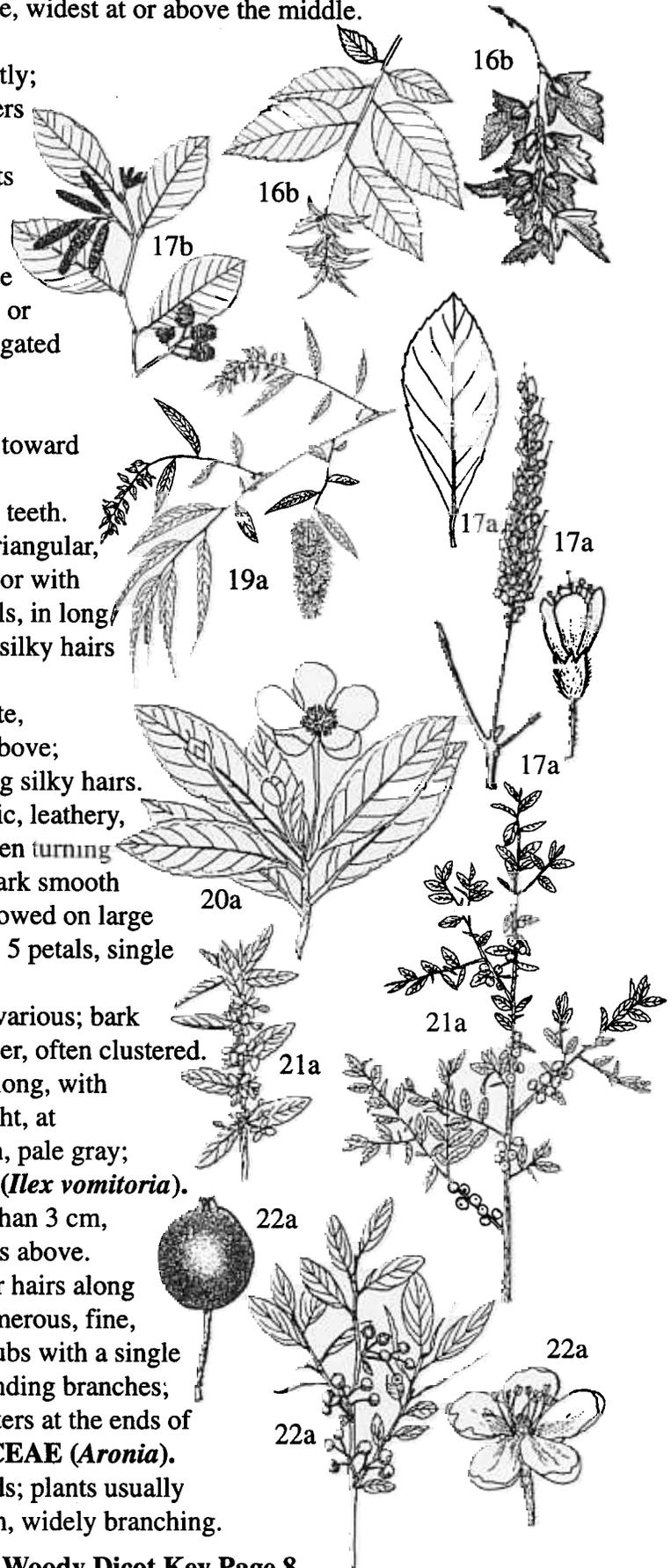
20b. Shrubs, often much-branched; leaves various; bark not dark gray and furrowed; flowers smaller, often clustered.

21a. Leaves leathery, evergreen, to 3 cm long, with low rounded teeth; branches stiff, straight, at right angles to main stems; bark smooth, pale gray; fruits red berries. **AQUIFOLIACEAE** (*Ilex vomitoria*).

21b. Leaves not leathery, usually longer than 3 cm, usually with sharp teeth; branches not as above.

22a. Leaf blades with tiny red glandular hairs along the midrib on the upper side; teeth numerous, fine, each tipped with a dark red gland; shrubs with a single stiffly erect main stem and a few ascending branches; flowers in flat-topped or rounded clusters at the ends of branches; fruit red, berry-like **ROSACEAE** (*Aronia*).

22b. Leaf blades without dark red glands; plants usually without a single stiffly erect main stem, widely branching.



23a. Leaf blades usually elliptic or oblong, with many tiny outward-pointing sharp teeth; flowers and fruits in long cylindrical clusters at the ends of branches; fruits brown conical capsules, splitting in two; buds 2 in each leaf axil, one above the other; leaf scars with 3 bundle scars **SAXIFRAGACEAE** (*Itea*).

23b. Leaf blades elliptic, oblanceolate to obovate, with forward-pointing, rounded or pointed teeth; flowers and fruits in clusters from the leaf axils; fruits red berries; buds 1 per leaf axil; leaf scars with 1 bundle scar **AQUIFOLIACEAE** (*Ilex decidua*, *I. verticillata*).

18b. Leaf margins with fewer than 10 teeth per side, the teeth often irregularly spaced and usually in the upper half of the leaf.

24a. Leaves with a spicy smell when crushed, narrowly obovate to obovate with a few coarse teeth in the upper half; fruits small berries clustered along the stem, the berries with a white or bluish waxy coat; bark pale gray, smooth, with small corky bumps (lenticels) **MYRICACEAE**.

24b. Leaves without a spicy smell when crushed; fruits not as above.

25a. Much-branched shrubs with green branches; fruits small brown achenes topped by a ring of bright white hairs, the hairs making the plants seem to be covered in down; leaves obovate, tapering at base and with a few coarse teeth in the upper part; flowers in heads surrounded by overlapping green bracts **ASTERACEAE** (*Baccharis*).

25b. Trees or shrubs with branches other than green; fruits not crowned by white hairs; flowers not in heads surrounded by overlapping green bracts.

26a. Trees; leaves diamond-shaped to broadly obovate, clustered toward tips of stems, with a few bristle-tipped angles; flowers green or brown, without petals, the male in drooping clusters (catkins); fruits woody nuts with a tough scaly cap (acorns)

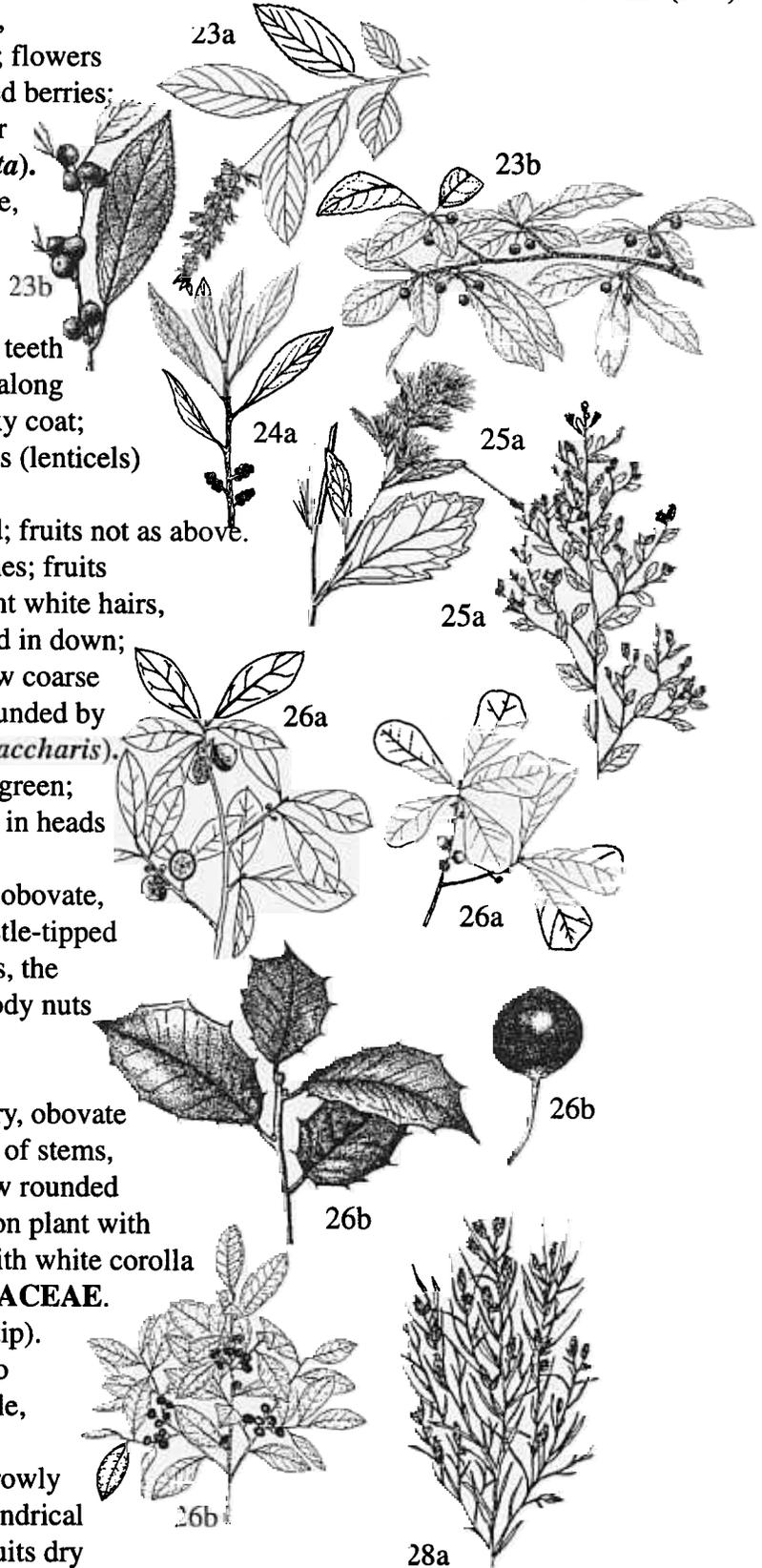
FAGACEAE (*Quercus laurifolia*, *Q. nigra*).

26b. Shrubs to small trees; leaves often leathery, obovate to elliptic or oblong, not clustered toward tips of stems, with a few strong spines, fine bristly teeth, low rounded teeth, or entire (but always with some leaves on plant with bristles); flowers clustered in the leaf axils, with white corolla lobes; fruits black or red berries **AQUIFOLIACEAE**.

1b. Leaves entire (some may have a bristle at the tip).

27a. Leaves much longer than broad, linear to narrowly oblanceolate, only the midrib visible, sometimes succulent or fleshy.

28a. Leaves neither fleshy nor leathery, narrowly linear; leafy branches green; flowers in cylindrical heads surrounded by overlapping bracts; fruits dry achenes with a crown of long white hairs, obvious from a distance when plant is in fruit; coastal **ASTERACEAE** (*Baccharis angustifolia*).



28b. Leaves either fleshy or leathery, thick and stiff, usually narrowly oblanceolate; leafy branches not green; flowers solitary in leaf axils, not in heads; fruits without long white hairs.

29a. Leaves fleshy; shrubs of salt marshes and other coastal habitats.

30a. Branches often thorn-tipped, pale tan or pale gray; plants hairless; leaves often in clusters on short side branches from leaf axils; flowers with a 4 or 5-lobed, pale blue or pink corolla; fruit a bright red berry; entire Florida coast **SOLANACEAE** (*Lycium*).

30b. Branches not thorn-tipped, brown; plants densely hairy with both simple and glandular hairs; leaves numerous along main branches, not clustered on short side branches; flowers with 5 separate yellow petals; fruit 4 or 5 green to brown nutlets surrounded by calyx; southern peninsular coast **SURIANACEAE**.

29b. Leaves leathery, stiff; shrubs or small trees of freshwater wetlands of north Florida.

31a. Leaves narrowly oblong or elliptic, with nearly parallel sides, dark green above; branches stiff, straight, often at right angles to branches from which they grow, the young stems not red; bark pale gray, with rough corky bumps; flowers in clusters from the leaf axils, with 4 white corolla lobes; fruits bright red berries; north Florida **AQUIFOLIACEAE** (*Ilex myrtifolia*).

31b. Leaves usually narrowly oblanceolate, broadening upward, often yellow-green; branches neither stiff and straight nor growing at right angles, the young stems often red; bark pale tan, without corky bumps; flowers in long narrow cylindrical clusters radiating from stems below the current year's leaves, with five white petals; fruits tiny yellowish to brown dry drupes; panhandle **CYRILLACEAE** (small-leaved form of *Cyrilla racemiflora*).

27b. Leaves broader, lanceolate to oblong, elliptic, or obovate.

32a. Leaves parallel-veined; south and central Florida.

33a. Leaves narrowly elliptic, aromatic when crushed; trees with white spongy bark; flowers white, bottle-brush-like; fruits stalkless woody capsules that remain on branches **MYRTACEAE** (*Melaleuca*).

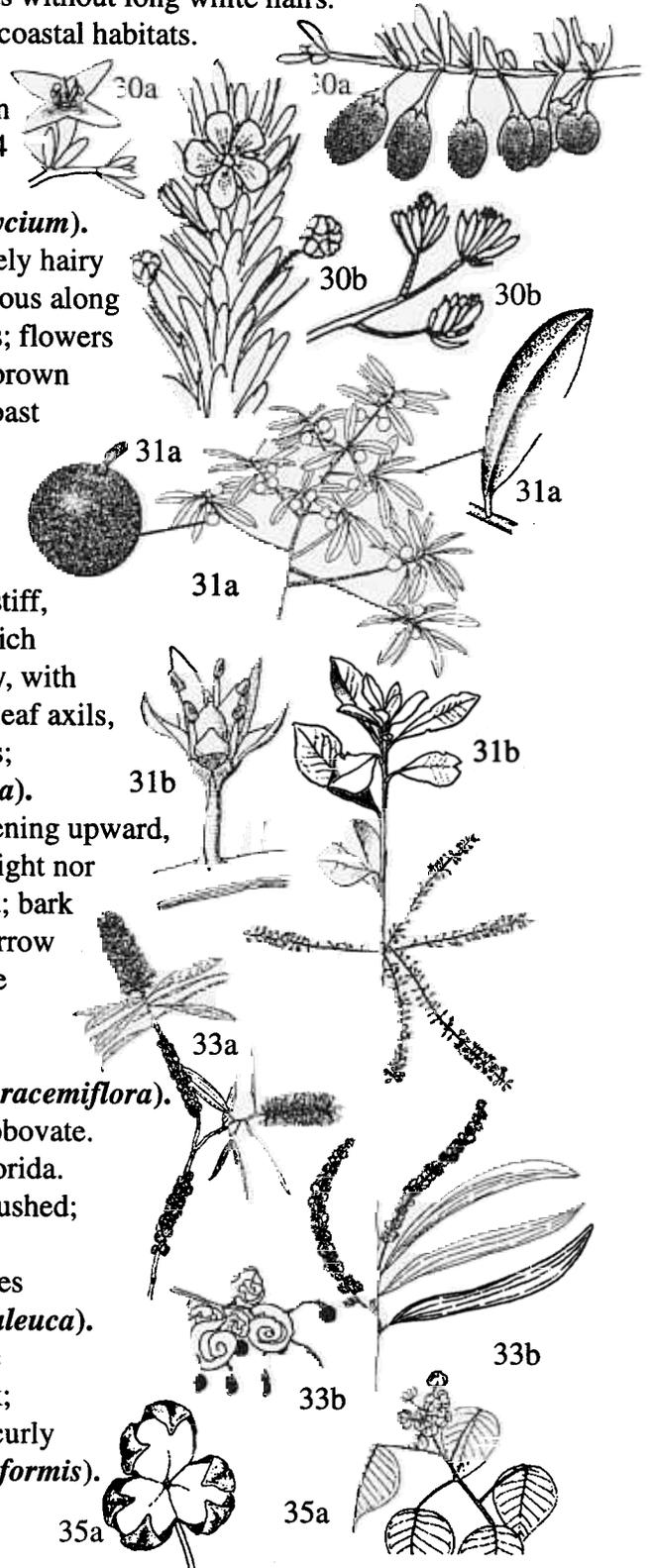
33b. Leaves curved, sickle-shaped, not aromatic when crushed; trees without white spongy bark; flowers yellow, in long clusters; fruits stalked curly pods (legumes) **FABACEAE** (*Acacia auriculiformis*).

32b. Leaves pinnately or palmately veined.

34a. Plants with milky sap.

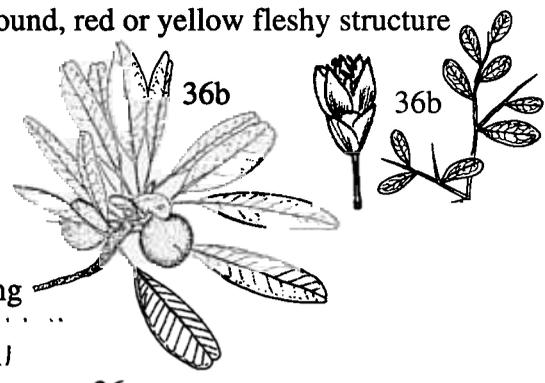
35a. Leaf blades broadly triangular, about as broad as or broader than long, thin-textured; leafstalk about as long as blade; flowers yellow-green, in clusters at the ends of branches; fruits 3-lobed capsules that open to reveal 3 white seeds **EUPHORBIACEAE** (*Sapium*).

35b. Leaf blades oblong, elliptic, or obovate, longer than broad, often leathery; leafstalk shorter than blade; flowers and fruits not as above.



36a. Plants often epiphytes, forming a network of trunks, branches, and aerial roots; bark smooth, gray; stem tips enclosed in a narrow cone formed by stipules, the cone leaving a ring around the stem when it falls; spines absent; leaves not clustered at stem tips, dark green, pointed at tip, hairless; flowers minute, hidden inside a nearly stalkless, round, red or yellow fleshy structure (fig) in leaf axils **MORACEAE** (*Ficus*).

36b. Much-branched shrubs not growing on other trees, without aerial roots; stem tips not covered with cone-shaped stipules, often modified into spines (*Bumelia*); bark gray, sometimes rough or blocky; leaves clustered at stem tips or on short side branches, pointed to notched at tip, sometimes hairy, at least below; flowers in drooping or erect clusters from leaf axils, with 5 or 6 white or yellow corolla lobes; fruits stalked berries



SAPOTACEAE.

34b. Plants with watery sap.

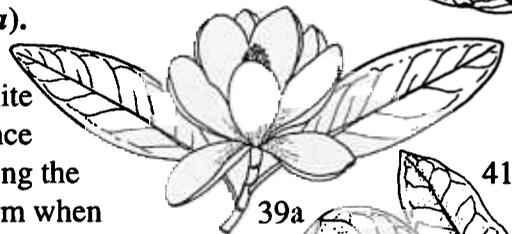
37a. Leaves with a spicy aroma when crushed.

38a. Leaves hairy below, at least on the veins; leaves elliptic or obovate, dark green and shining above, thick and stiff and often deformed by galls (*Persea*), or thinner-textured and gray-green below (*Lindera*) **LAURACEAE** (*Persea*, *Lindera*).



38b. Leaves hairless.

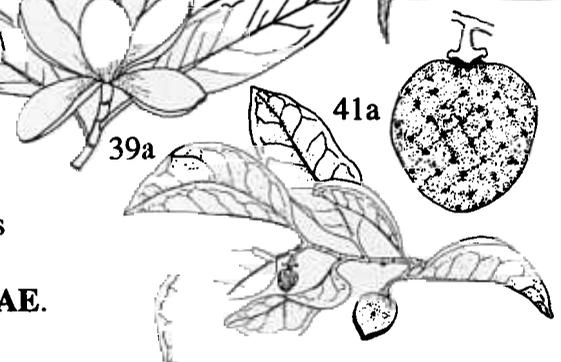
39a. Leaves pale gray-green to silvery white beneath (especially obvious from a distance when the wind blows); stipules surrounding the stem tip and leaving a ring around the stem when they fall; flowers large, many-petaled, fragrant, white or cream-colored; fruits cone-like aggregations of pods (follicles) with bright red seeds; trees with smooth gray bark and thick twigs **MAGNOLIACEAE.**



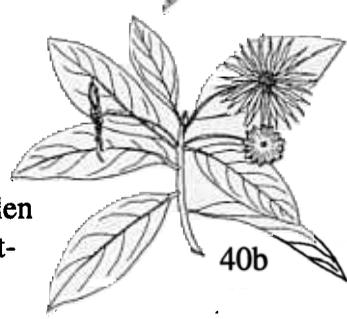
39b. Leaves not whitish beneath; stipules, flowers, and fruits not as above.

40a. Leaves leathery, thick-textured.

41a. Leaves 2-ranked, oblong, often folded at the midrib so that the leaf appears V-shaped when viewed from the tip; leafy branches shiny reddish brown, with prominent lenticels; trunk often swollen at base, with rough peeling bark; fruits large, heart-shaped, fleshy, solitary in leaf axils; trees of south Florida**ANNONACEAE.**



41b. Leaves spirally arranged, clustered toward branch tips, elliptic and gradually narrowed to pointed base and tip, not folded; leafy branches red or green at tip, without lenticels; bark smooth, gray-brown; flowers maroon or green, many-petaled, solitary in leaf axils; fruit a ring of dry pods (follicles); shrubs of north and central Florida **ILLICACEAE.**



40b. Leaves papery, thinner-textured.



42a. Leaves 3-15 cm long, narrowly obovate, tapering toward the base, with very tiny resin dots on one or both sides; small branches not clearly zigzagging; flowers without tepals, in tight clusters in leaf axils; fruits dark blue or black berry-like drupes covered with bluish wax; widespread shrubs or small trees **MYRICACEAE**.

42b. Leaves up to 3 cm long, elliptic to oblong, rounded at base, without resin dots; branches zigzagging; flowers in small clusters from bare stems before leaves emerge, with 6 yellow tepals; fruit a spherical red berry-like drupe; rare shrub of north Florida **LAURACEAE** (*Litsea*).

37b. Leaves not noticeably aromatic when crushed.

43a. Leaves palmately veined, with 3 or more main veins arising at the base of the blade (the upper part of the blade may be pinnately veined).

44a. Leaves not cordate at base but often lopsided, lanceolate, without branched (stellate) hairs; flowers inconspicuous, in clusters from the leaf axils, without petals; fruits stalked, reddish-purple berries; trees with smooth, pale gray bark marked by conspicuous warts; widespread **ULMACEAE** (*Celtis*).

44b. Leaves shallowly to deeply cordate at base, not lopsided, ovate to broadly ovate, with stellate hairs; flowers large, in clusters at ends of branches or solitary in leaf axils, with 5 greenish to yellow and purple petals and many stamens united into a column in the center of the flower; fruits leathery and berry-like or dry 5-parted capsules; trees or shrubs without warts on bark; coastal habitats in south Florida **MALVACEAE** (*Thespesia, Pavonia*).

43b. Leaves pinnately veined, or only the midrib visible.

45a. Leaves ovate to lanceolate, clearly broadest below the middle; shrub with arching to horizontal branches, pith of branches chambered, with horizontal diaphragms separated by hollows; flowers in clusters from the leaf axils, with a tubular, white, 5-lobed corolla; fruit a 5-parted brown capsule **ERICACEAE** (*Agarista*).

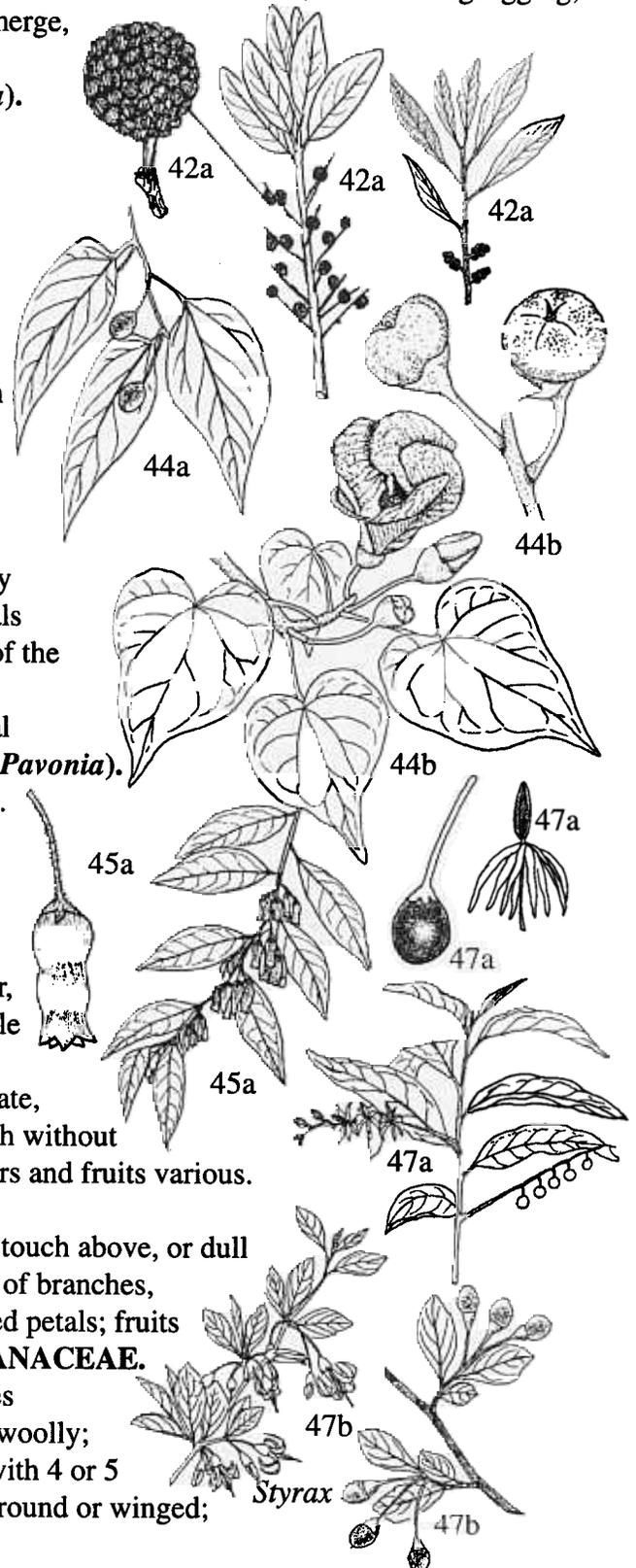
45b. Leaves elliptic or oblong to oblanceolate, obovate, or suborbicular, broadest at or above the middle; pith without diaphragms (except in *Diospyros* and *Nyssa*); flowers and fruits various.

46a. Leaves with branched (stellate) hairs.

47a. Leaves elliptic, shiny green and rough to the touch above, or dull green and woolly; flowers in clusters at the ends of branches, with 5 or more lilac to white spreading to reflexed petals; fruits fleshy red to yellow berries; south Florida **SOLANACEAE**.

47b. Leaves broadly elliptic to obovate, sometimes with 1 or few teeth toward tip, neither rough nor woolly; flowers in drooping clusters from the leaf axils, with 4 or 5 erect to spreading white petals; fruits dry, brown, round or winged; **STYRACACEAE**.

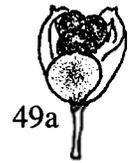
Halesia



46b. Leaves without stellate hairs.

48a. Leaves broadly rounded and often notched at tip, stiff and leathery or fleshy; south Florida.

49a. Leaves fleshy, pale green, obovate, flat, with hardly visible veins; flowers small, greenish, single or in clusters in the leaf axils, with 5 petals; fruits 3-lobed capsules opening to reveal 3 red seeds; shrubs with smooth pale gray bark; coastal scrub **CELASTRACEAE** (*Maytenus*).



49b. Leaves leathery, stiff, dark green or yellow-green above, sometimes rolled under at the margins, with at least the midrib easily visible; flowers and fruits various.

50a. Leaves 2-ranked, obovate to orbicular, usually dark green above, not rolled under at margins; flowers in clusters from the leaf axils.

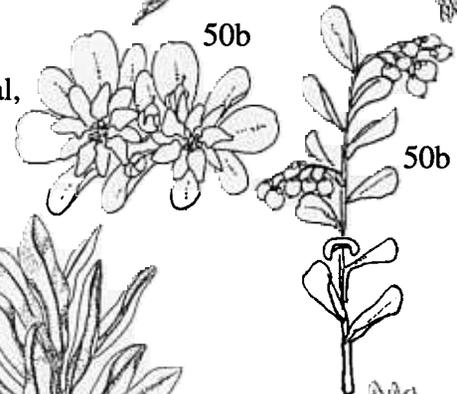
51a. Leaves broadly obovate to orbicular, held erect on arching or horizontal branches, the branches not zigzagging; flowers small, with 5 white petals and many stamens united into a hairy tube; fruit a purple, white, or red berry; erect, much-branched shrubs **CHRYSOBALANACEAE**.



51b. Leaves oblong to obovate, held horizontally on zigzag branches; flowers larger, with 4 inconspicuous petals and many long white stamens; fruits stalked slender pods up to 20 cm long, opening to reveal white seeds against a red inner wall; shrub often scrambling over other plants **CAPPARIDACEAE**.



50b. Leaves clustered toward the branch tips, oblong to obovate, but never orbicular, yellow-green, with margins rolled under; flowers in clusters at the ends of branches, fragrant, with 5 white sepals and 5 white petals; fruit spherical, hard, leathery berries; much-branched shrubs with smooth gray bark; coastal **THEOPHRASTACEAE** (*Jacquinia*).



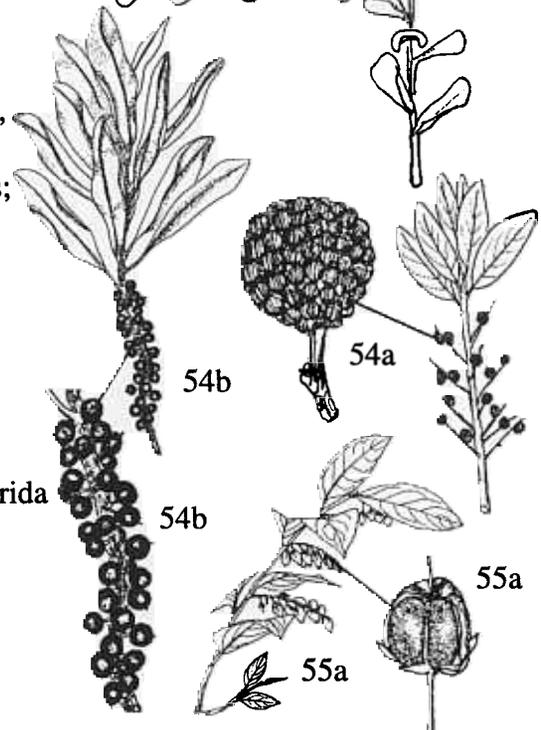
48b. Leaves pointed or bluntly angled at tip.

52a. Leaves leathery, thick and stiff.

53a. Leaves clustered at ends of branches, spirally arranged, elliptic to oblanceolate, dark green, often rolled under at the margins.

54a. Leaves with tiny resinous dots on both surfaces; fruits small dark brown or black ovoid berry-like drupes along stem below current year's leaves, at least partly covered by white wax; panhandle **MYRICACEAE** (*Myrica inodora*)

54b. Leaves without tiny resinous dots; fruits black, berry-like drupes borne either along stem below current year's leaves (*Myrsine*) or in branching clusters at the ends of branches (*Ardisia*); south Florida **MYRSINACEAE**.



55b. Leaves not clustered at ends of branches, evenly spaced and sometimes 2-ranked.

55a. Low shrubs, usually under 1 m tall, with arching stems and 2-ranked leaves; north Florida. **ERICACEAE** (*Leucothoe axillaris*).

55b. Erect shrubs, often over 1 m tall, with erect or ascending stems, or climbing vine-like under the bark of cypress trees.

56a. Leaves with a prominent vein just inside each margin, narrowly elliptic to almost orbicular; flowers in long clusters from the leaf axils, with a tubular pink 5-lobed corolla; fruits 5-parted brown capsules. **ERICACEAE** (*Lyonia lucida*).

56b. Leaves without a prominent vein just inside each margin; flowers or fruits not as above.

57a. Erect shrubs with long ascending branches; leaves oblong, shiny, somewhat waxy green with a pale midrib, often folded lengthwise; flowers in stalked, short clusters (umbels) from the leaf axils, fragrant, with a narrowly tubular white 5-lobed corolla; fruits dark blue berries; south Florida **SOLANACEAE** (*Cestrum diurnum*).

57b. Vine-like shrubs growing under the bark of cypress trees, or low and weakly ascending; leaves dark green above, not waxy or shiny, flat; flowers in long clusters (racemes) from the leaf axils, with a broadly urn-shaped white 5-lobed corolla; fruits dry brown 5-parted capsules; north Florida **ERICACEAE** (*Pieris*).

58b. Leaves thinner, if somewhat leathery then not particularly stiff.

58a. Leaves clustered at the tips of branches, spirally arranged.

59a. Shrubs with whorled branches; leaves thin-textured, obovate to oblanceolate, with short bristly hairs along the margins; flowers large, fragrant, in clusters from the base of the new growth, with a tubular, white to pink, 5-lobed corolla covered with stalked glands; fruits narrowly conical capsules with glandular hairs **ERICACEAE** (*Rhododendron*).

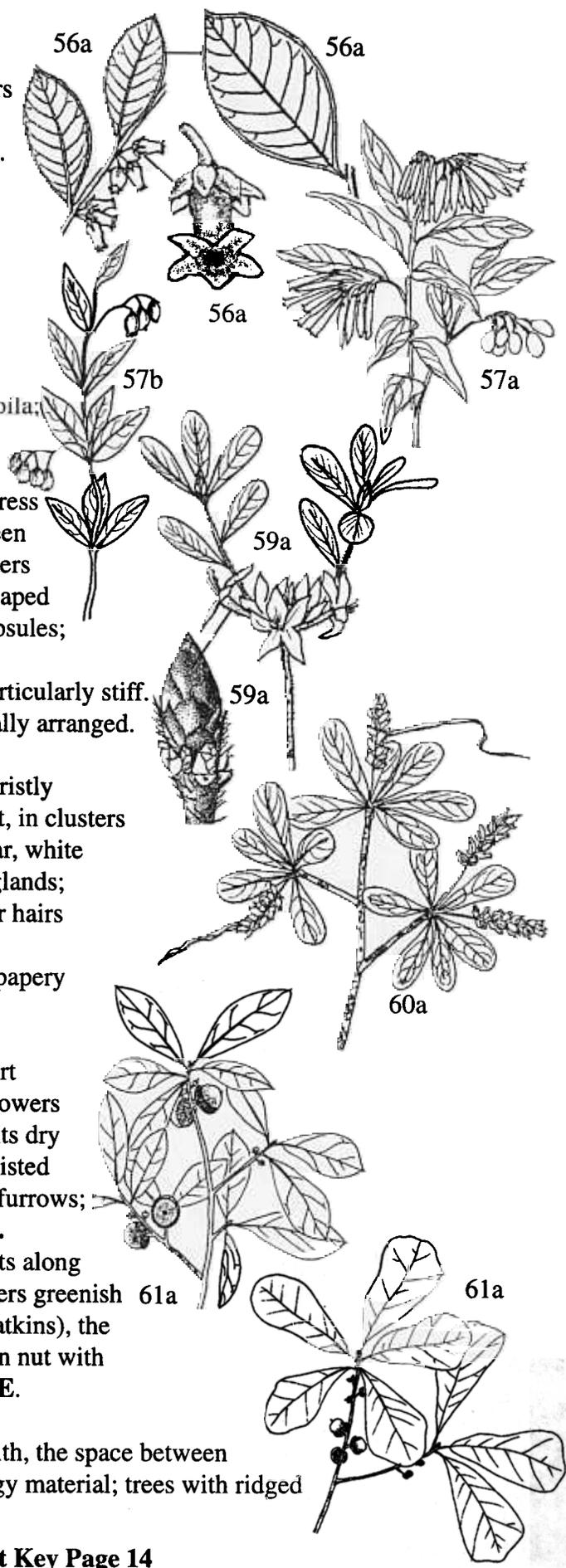
59b. Trees with alternate branches; leaves thick-papery to leathery in texture; flowers small, without a corolla; fruit not as above.

60a. Leaves in tight clusters at tips of erect short shoots along horizontal branches, leathery; flowers pale yellow, in spikes from the leaf axils; fruits dry and hard, often deformed into 10-cm-long twisted galls; bark gray, divided into blocks by deep furrows; south Florida **COMBRETACEAE** (*Bucida*).

60b. Leaves not tightly clustered on short shoots along horizontal branches, papery to leathery; flowers greenish or brownish, the male in dangling clusters (catkins), the female stalkless in the leaf axils; fruit a brown nut with a scaly cap (acorn); widespread **FAGACEAE**.

58b. Leaves not clustered at the tips of branches.

61a. Branches with diaphragms across the pith, the space between the diaphragms hollow or filled with spongy material; trees with ridged and furrowed gray to dark brown bark.



62a. Pith hollow between diaphragms; leaves broadly elliptic to oblong, often marked with black spots, especially late in the season; upper side of leafstalk often with tiny stalkless glands; flowers solitary or in small clusters in the leaf axils, with a tubular, greenish, 4- or 5-lobed corolla; fruit a large, tasty yellow-orange berry. **EBENACEAE** (*Diospyros*)

62b. Pith spongy between diaphragms; leaves often obovate but also elliptic or oblong, without glands or black spots; flowers tiny, green, in stalked clusters from the leaf axils, with or without 5 petals; fruit a red or dark blue berry-like drupe **NYSSACEAE**.

61b. Branches not diaphragmed, pith uniform in texture; trees or shrubs.

63a. Leaves hairless.

64a. Leaves somewhat thick-textured, becoming almost leathery, narrowly diamond-shaped to obovate; flowers in conspicuous clusters at the ends of branches (*Cliftonia*) or radiating from the branch below the branch tip (*Cyrilla*), with a white or pink corolla with 5 spreading lobes; fruits waxy yellow and winged (*Cliftonia*) or tiny, dry and brown (*Cyrilla*); much-branched shrubs or small trees, often forming thickets; north Florida **CYRILLACEAE**.

64b. Leaves thin-textured or sometimes leathery, elliptic; flowers in clusters from the leaf axils, with a tubular white or pink corolla with 5 tiny lobes; fruit a blue to black berry-like drupe or a dry 5-parted capsule; low to tall shrubs **ERICACEAE** (*Vaccinium*, *Gaylussacia*, *Lyonia*).

63b. Leaves hairy, at least at the junction of secondary veins and midrib below.

65a. Leaves large, to 17 cm long, elliptic, thin-textured, with silky hairs below; plants often with single erect stems; flowers small, brownish, borne in erect clusters (catkins) on stems before leaves emerge; bark smooth, red-brown with light-colored lenticels; fruit a brownish drupe; coastal habitats of north Florida **LEITNERIACEAE**.

65b. Leaves less than 10 cm long; branched shrubs or trees; widespread

66a. Low to tall branching shrubs; leaves thin-textured or sometimes leathery, elliptic, with simple hairs, amber dots, or stalked glandular hairs beneath; flowers in clusters from the leaf axils, with a tubular white or pink corolla with 5 tiny lobes; fruit a blue to black berry-like drupe or a dry 5-parted capsule **ERICACEAE** (*Vaccinium*, *Gaylussacia*, *Lyonia*).

66b. Branching trees; leaves thick-papery in texture, narrowly elliptic to spatulate, hairless except for tufts of hairs beneath where secondary veins join the midrib; flowers small, greenish or brownish, the male in dangling clusters (catkins), the female stalkless in the leaf axils; fruit a woody nut with a scaly cap (acorn) **FAGACEAE**.

