

Aquatic (& Wetland) Plants Basics

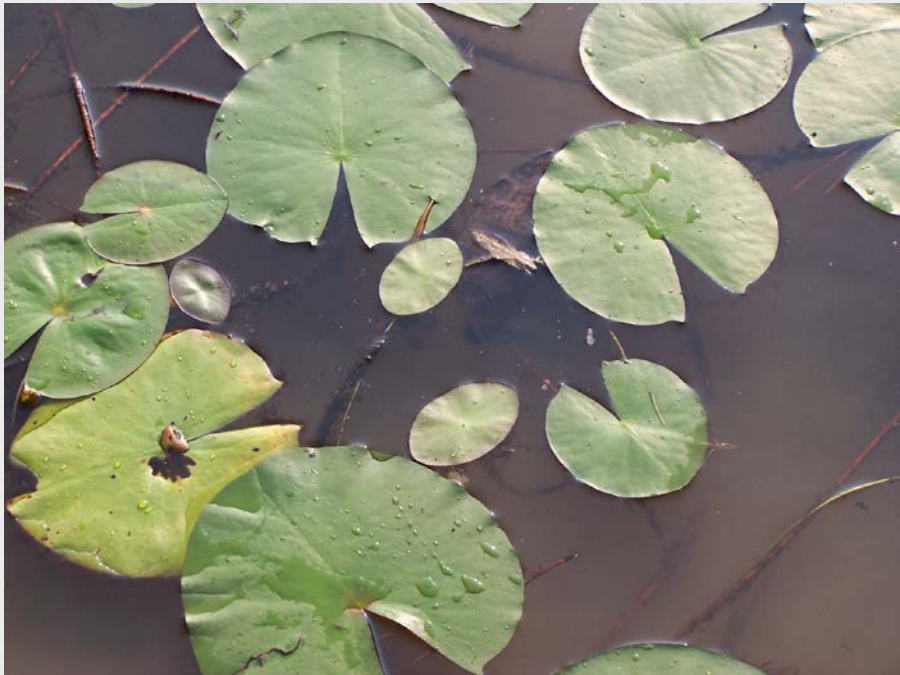
FLMS Workshop #2, June 2017
Nia Wellendorf
FDEP

Aquatic/Wetland Plants

- Floating
- Emergent
- Submersed
- Shrubs

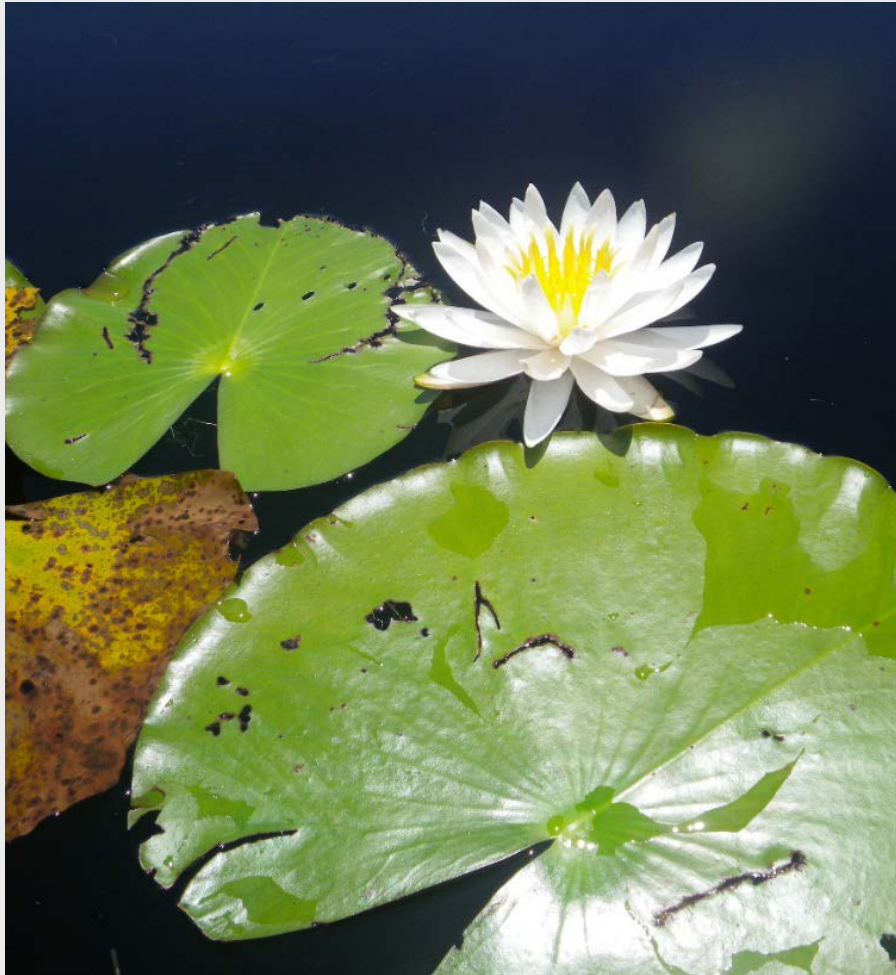


Floating-Leafed Plants



- *Nymphaea odorata*
- *Nuphar luteum*
- *Nelumbo lutea*
- *Nymphoides* spp
- *Brasenia schreberi*
- *Limnobium spongia*
- *Eichhornia crassipes*
- *Pistia stratiodes*

Nymphaea odorata



- Fragrant water lily
- Large white flower
- Leaves not peltate, with clear points
- Leaf undersides green or reddish
- Palmately veined

Nymphaea odorata



Nuphar luteum



- Cow-lily, spatter-dock
- Yellow bulbous flower
- Leaves pinnately-veined, with rounded edges, overlapping
- Leaf undersides green
- Leaves can protrude from water at low water levels



Nuphar luteum



Nymphaea* vs. *Nuphar



**Leaves palmately veined, typically
non-overlapping, right angles
white flower**



**Leaves pinnately veined, rounded,
Often overlapping
yellow bulbous flower**

Nelumbo lutea

- American lotus
- Large peltate leaves, floating or emergent
- Leaves water resistant
- Showy yellow flower, “showerhead” fruit



Nelumbo lutea



Nymphoides aquatica



- Floating heart
- Small white flowers
- Leaves rounded, palmately veined
- Leaf undersides rough, reddish
- Tuber-like organs under leaves

Nymphoides aquatica



Nymphaea odorata

Nymphoides aquatica

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Less Common *Nymphoides*

- *N. cordata* – native, Panhandle
- *N. indica* – exotic with fringed white flowers
- *N. grayana* -exotic – similar to *N. indica* but with yellow flowers
- *N. peltata* – exotic, yellow flowers



Brasenia schreberi



- Watershield, snotbonnet
- Small peltate leaves, football shaped
- Mucilaginous cover on stems and underside of leaves
- Small red flowers



Brasenia schreberi



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Limnobium spongia

- **Frog's bit**
- **Floating and emergent forms**
- **Floating leaves small and rounded, with spongy underside**
- **Can develop into mats (emergent)**



Limnobiium spongia

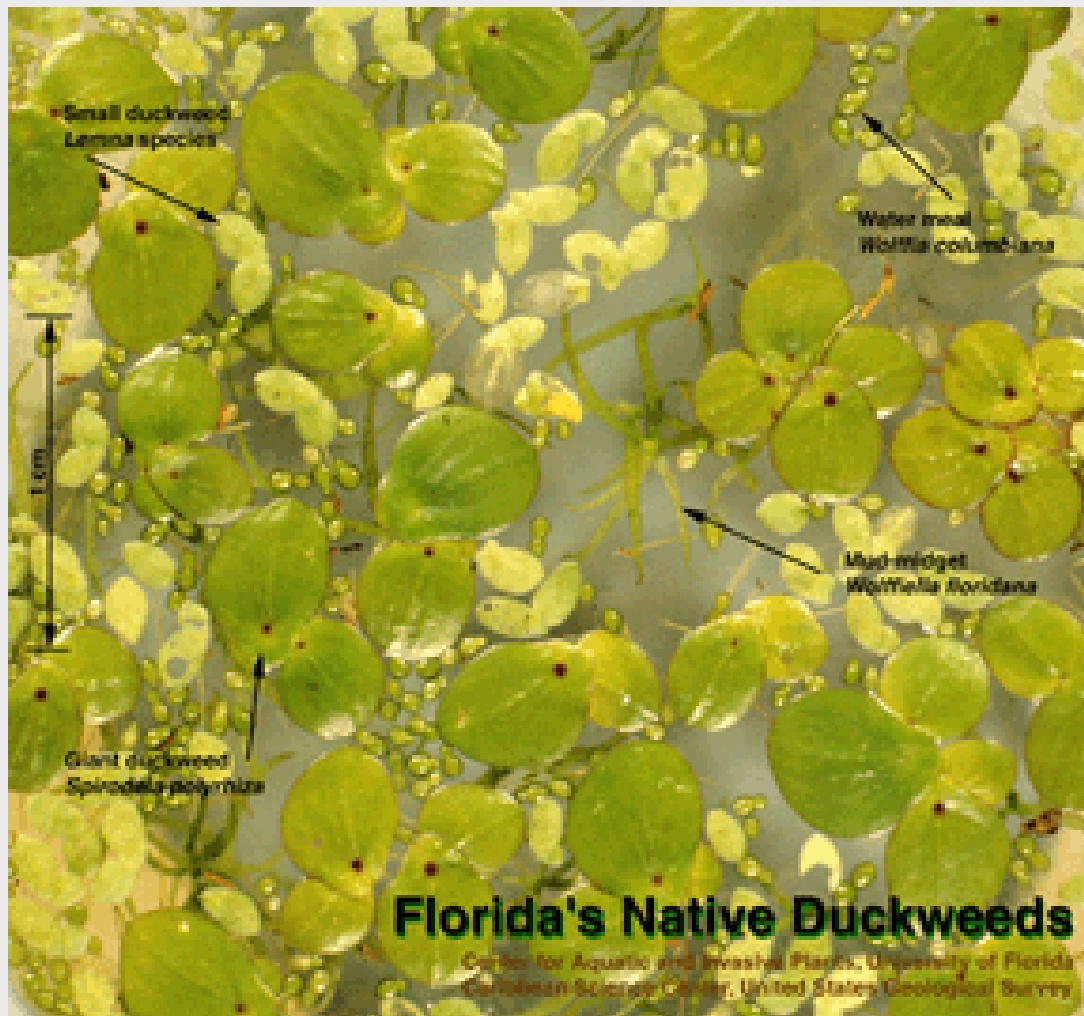


Limnobiium spongia



Small Floaters - Duckweeds

Pictured: *Spirodela polyrhiza*, *Lemna*, *Wolffiella*, *Wolffia*



Landoltia punctata – EXOTIC

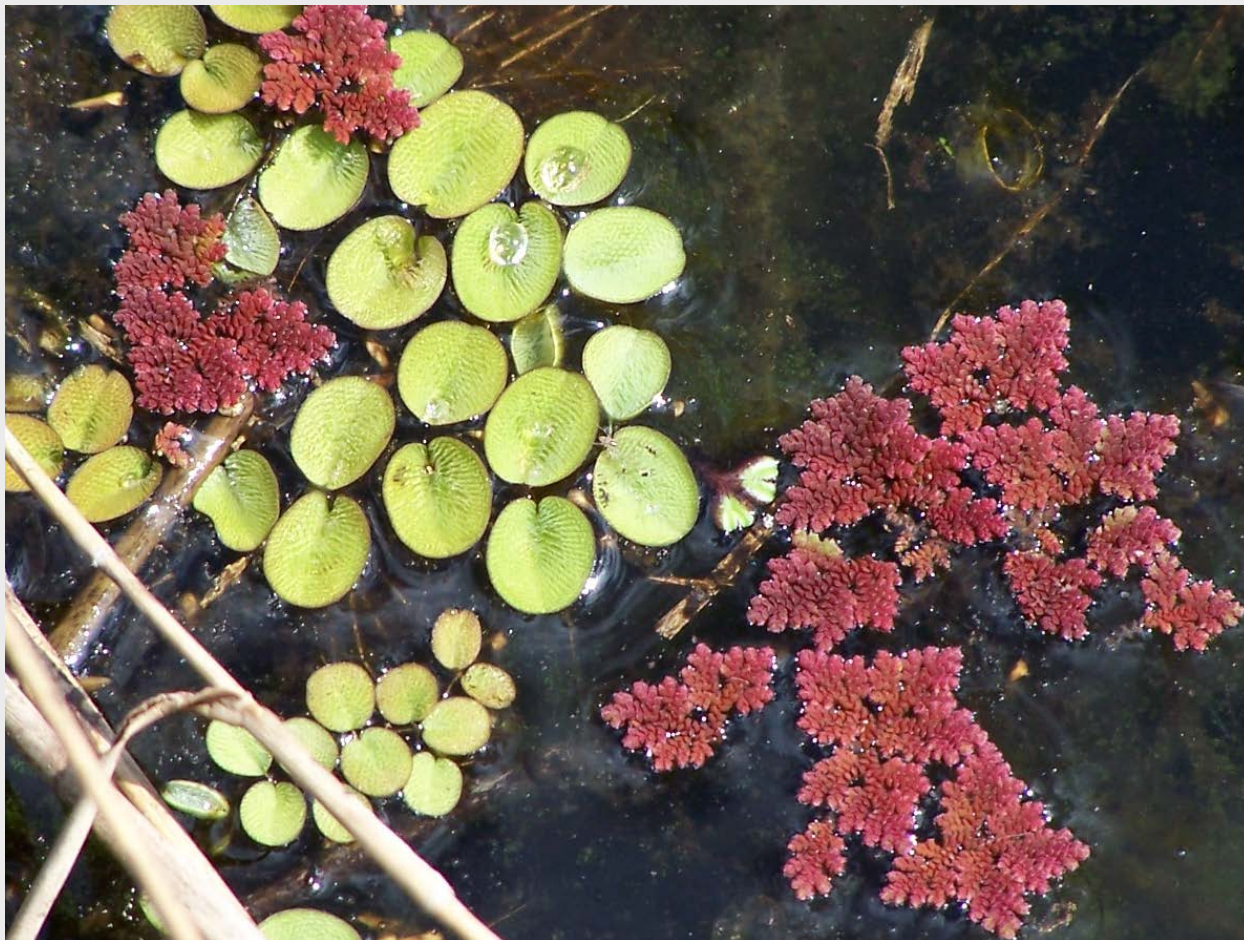
Small Floaters - Duckweeds



- *Lemna* – 1 root
- *Spirodela*,
Landoltia - >1 root
- *Wolffia*, *Wolffiella* –
no roots

Small Floaters - Ferns

- *Azolla filiculoides* (Carolina mosquito fern)
- *Salvinia minima* (FLEPPC; water spangles)



Small Floaters - Mixed



Landoltia

Wolffiella

Azolla

Lemna

Photo credit: Katie
Williams, DEP

Emergent Plants

- *Ludwigia* (covered in another segment)
- *Persicaria* (*Polygonum*; covered in another segment)
- *Sagittaria* and other “arrowheads”
- *Thalia*, *Canna*, *Typha*
- *Bacopa*
- *Bidens*
- *Cicuta mexicana*
- *Saururus cernuus*
- Graminoids
- Shrubs

Sagittaria lancifolia



- **Spatulate-shaped leaves**
- **Stalk of fruiting head ascending, not recurved**
- **Flowers on leafless stalks, 3 white petals**
- **Whitish roots (segmented) and leaf bases**

Sagittaria lancifolia



Sagittaria latifolia

- Sagittate (arrowhead) leaf with radiating veins
- Stalks of fruiting head ascending



Pontedaria cordata

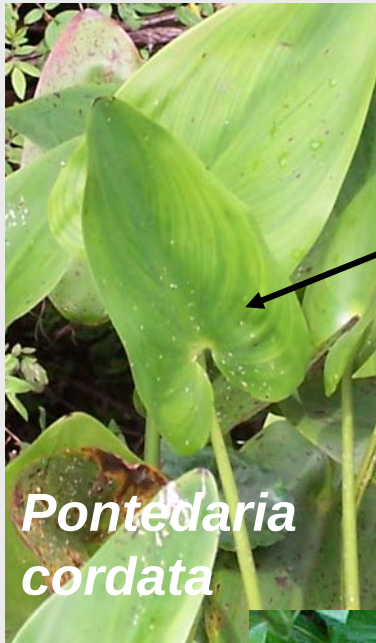
- Pickerelweed
- Showy spike of purple flowers
- Heart-lance shaped leaves with parallel veins
- Leaf shape narrower in south Florida than north.
- Fleshy stems



Pontederia cordata

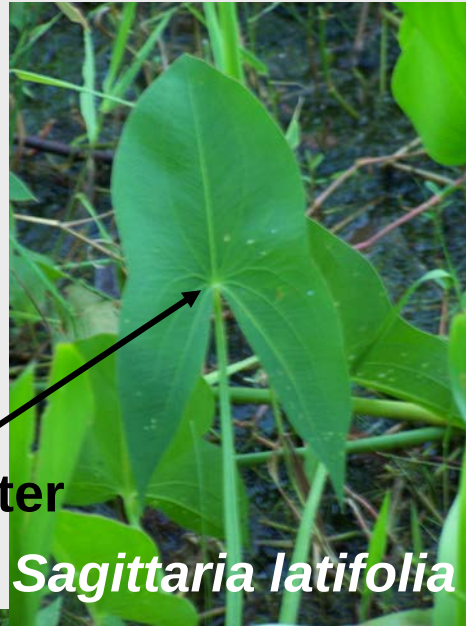


Arrow-leaved Emergents



Parallel

Radiate
From center



Also radiates, but
only at base



Bacopa* *caroliniana

- Lemon bacopa
- Opposite clasping lvs
- Pubescent stems
- Lemon smell when leaves crushed
- Purple-blue flowers when emergent



Bidens laevis



Bidens laevis
Photo by David Sutton

- Burmarigold
- Lvs opposite, simple, unlobed, toothed, sessile
- Young plants have purplish stems
- Mat-forming



Bidens mitis



- Marsh beggar-ticks
- Lvs opposite, simple, often dissected, not sessile
- Typically tall thin growth form

Saururus cernuus



- **Lizard's Tail**
- **Heart-shaped leaves on zig-zag stem**
- **Showy white inflorescence**
- **Common in shallow slow waters**

Cicuta maculata



- Water hemlock
- Showy umbel of white flowers
- Alternate compound leaves
- Typically in spring-fed systems
- Poisonous



Cladium jamaicense



- **Sawgrass**
- **Large gray-green sedge**
- **Midrib and edges of lvs serrate**
- **Stems to 3 m tall**

Submersed Plants

- **Whorled, dissected leaves**
- **Whorled, simple leaves**
- **Macroalgae**
- **Slender submersed**
- **Strap-leaf submersed**
- **Bladderworts**

Cabomba carolinana

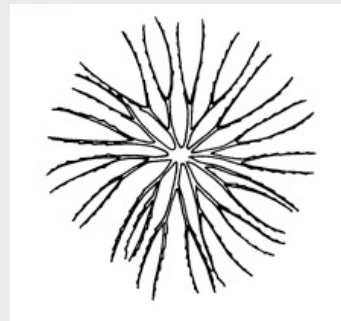
- Fanwort
- Stems and leaves submersed, flexible, purplish
- Leaves opposite or whorled, dissected, fanlike
- Tiny diamond-shaped floating leaf
- Small pink emergent flowers



Ceratophyllum demersum



- Coontail
- Submersed stems and leaves
- Leaves whorled and coarse
- Dichotomously branched



Whorled, forked

Myriophyllum aquaticum

Parrot feather

- Emerged plant
- Leaves pinnately dissected and feathery looking
- Leaves bright blue-green, arranged in whorls of 4-6
- Non-native



Native *Myriophyllum*



M. heterophyllum

- Reddish stems
- Rough stems
- Leaves in whorls of 3-6
- Includes *M. heterophyllum*, *M. pinnatum*, and *M. laxum*
- Leaves pinnately dissected with 12-28, 8-10, and 11-21 divisions (can't distinguish these without fruiting tips)
- Fruiting tips emergent, bracts subtending flowers



M. laxum

Mayaca fluviatilis

Photo by Fred Nation



Mayaca fluviatilis

- Stream bogmoss
- Lvs narrowly linear, spirally arranged, soft, not toothed or crisp
- Flexible stems
- Can form dense submersed stands or grow on sandy shores
- Small purple flowers common when growing on shore





Utricularia floridana

Utricularia sp.

- Bladderworts
- Rooted or not
- Fls yellow or purple
- All species have small bladders that capture micro-organisms
- Can ID with one or combination of flowers, stems, leaves, bladders

Utricularia sp.



Utricularia gibba (biflora)



Najas guadelupensis

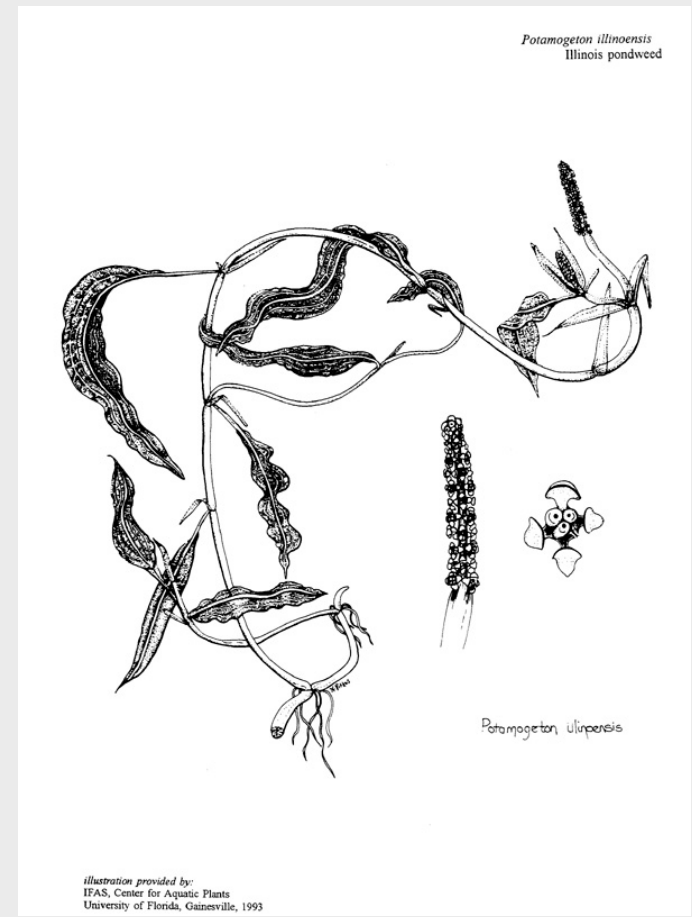


- Southern naiad
- Small opposite linear leaves
- Very small teeth on leaves, not apparent without magnification
- Common native, can be weedy

Potamogeton illinoensis

Illinois Pondweed

- Common and visible
- Leaves alternate, large, submersed or floating, all one style
- Flower: - greenish on spike
-1 to 3" long



Potamogeton illinoensis

Illinois Pondweed



Potamogeton diversifolius

Waterthread pondweed

- Small plant
- Leaves alternate, 2 styles
 - Small elliptic floating
 - Thin threadlike submersed
- Fruits on tight spike
- Grows in calm waters
- Typically grows in small populations



Potamogeton diversifolius



Submersed Plants – Strap-leaf style

Vallisneria vs. *Sagittaria*

Leaves:	Thick midsection	3-5 distinct ridges
Leaf tips:	Rounded	Pointed
	leaf size varies for both!	
Flowers:	Spiral peduncle, single thick unit	Several white flowers on straight peduncle
Roots:	Brown	White

Vallisneria americana
Photo by Shirley Denton



Vallisneria americana



Lake Barton, Orlando

Sagittaria filiformis*

***S. stagnorum* in Godfrey & Wooten**

- Can have phylloidial and spatulate floating lvs
- Phylloidia flat, 1-15 mm, may be 1-3 ridges
- Stalks of fruiting heads recurved, pedicels 1.5-6.5 cm



*Sagittaria isoetiformis**

Quillwort Arrowhead

- Stalks of fruiting heads **ascending**
- Bracts of inflorescence with minute free tips
- Phylloidal lvs 0.5-5 mm wide
- Can have longer phylloidal leaves in deep water
- **Does not produce small floating leaves**



Specimens



← *S. isoetiformis*

S. filiformis →



Shrubs



Cephalanthus occidentalis

Buttonbush



- Opposite or whorled deciduous leaves, simple, ovate, 7-15 cm long, often reddish petioles
- White flowers in globose heads on a long stalk.
- Shrub w/arching branches
- Small individuals common

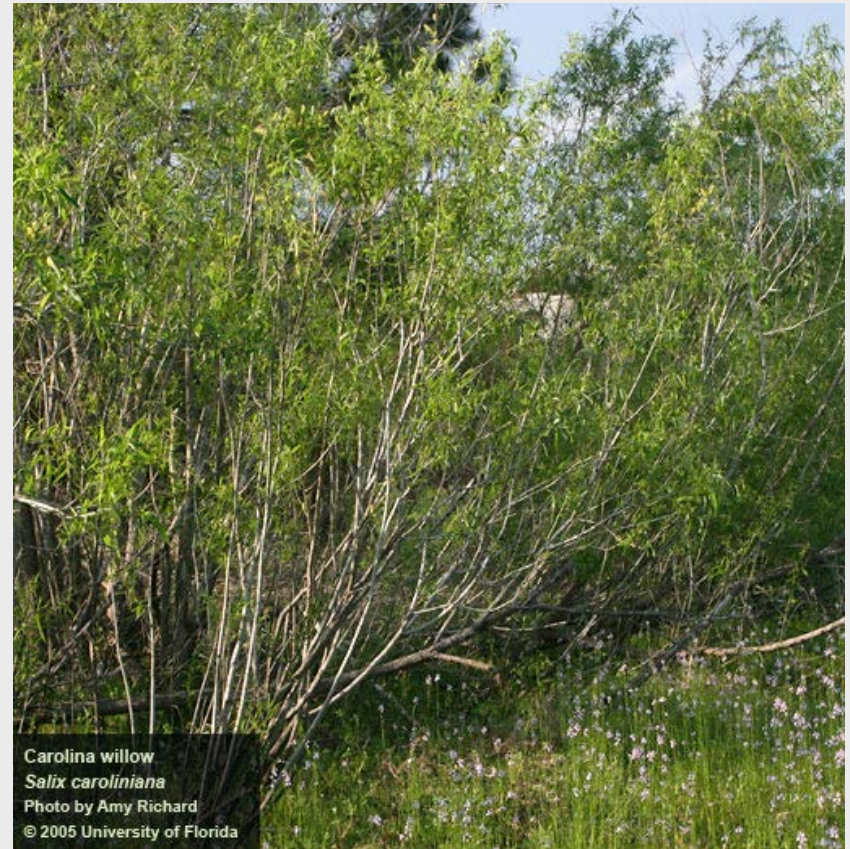
Cephalanthus occidentalis



Salix caroliniana

Carolina willow

- Tree or shrub, often in dense thickets.
- Leaves green on top surface, lighter (silvery) green undersides w/o hair
- Flowers unisex, male and female on separate plants, in dense catkins; fruit a small capsule, minute seeds with each w/cluster of cottony white hair
- *S. nigra* (both sides lvs same green color), *S. floridana* (undersides lvs with fuzz on midvein)



Salix caroliniana (Carolina willow)



Cyrilla racemiflora

Titi

- Shrub or small tree, often densely colonial, esp. in fire suppressed areas
- Alternate simple lvs, semi-evergreen to deciduous, veins conspicuous on both sides
- Ends of stems flattened
- Flowers white, in racemes, radiate from previous season's stem; frt a small, dry, brown capsule, fruiting stalks persist much of year



Cyrilla racemiflora

Titi



Myrica cerifera

wax myrtle, bayberry

- Evergreen shrub to small tree, to 12 m tall, usually multi-stemmed and colonial
- Lvs evergreen, thin, alternate, lance to elliptic, margins with a few teeth toward tips, glandular dotted on both sides, very aromatic when crushed
- Flwrs unisex, on separate plants; frt a knobby drupe covered in whitish gray wax, clustered on branchlets.



Myrica cerifera
wax myrtle, bayberry



Sambucus nigra subsp. *canadensis* elderberry

- Soft stemmed med. to large shrub, to 4 m, clonal and in thickets in wet and disturbed areas. *Cicuta maculata* (alternate leaves, herbaceous)
- Lvs. opp, pinnately compound (some lower bi-pinnately), to 25 cm long, lance shaped, margins serrate, stinky when crushed
- Flowers small white, 5 petals, in flat topped, terminal cymes; frt fleshy, purple-black drupe.





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