



Common and Problematic Emergents

**Nia Wellendorf, FDEP
Standards and Assessment Section
FAB Plant ID Workshop
December 9, 2008**

Tricky Groups and Look-Alikes (and some easy to key out!)

- *Ludwigia* spp.
- Arrow-leaved emergents
- Non-descript dicots
 - *Cephalanthus occidentalis*
 - *Bidens* spp.
- *Polygonum* spp.
- And those Grasses!

Generic *Ludwigia* features



Box-like capsules – various shapes



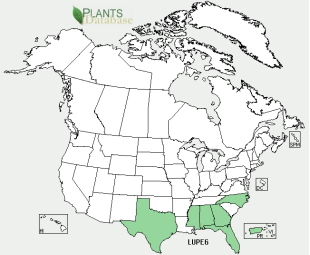
- Showy yellow flower (usually)
- Persistent calyx
- Lvs with entire margins and lovely venation

Many species have reddish tendencies

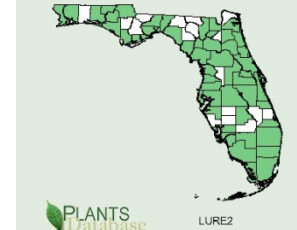
It is easy to key out most *Ludwigia* species, even in the field!!

- Leaves opposite or alternate
- # petals or sepals
- # stamens
- Capsule shape
- Flowers stalked/not





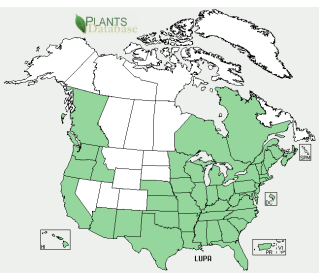
Ludwigia repens



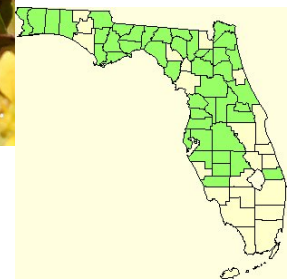
- Submersed/ floating plant
- Roundish lvs, undersides often red/reddish
- Leaves opposite
- Fruits/flowers sessile (no peduncle)
- Almost identical to *L. palustris* – look for fruits!



Ludwigia palustris



- Green bands on fruits
- Leaves not as round
- Glands sometimes on leaf margins



Dimorphism in *Ludwigia*

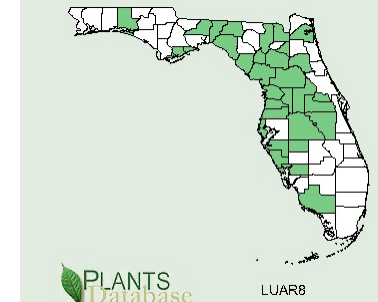


Several species can have underwater shoots. Look at leaf arrangement and connectivity.

JUST BECAUSE IT'S GROWING IN THE WATER DOESN'T MEAN IT'S *L. REPENS*!



Ludwigia arcuata



- **Narrow opposite leaves**
- **Flowers stalked and in four parts**
- **Grows like a ground cover in marshes and at lake margins**
- **Can grow submersed, looks very different!**





Ludwigia arcuata

Photo by Chelsie Vandaveer



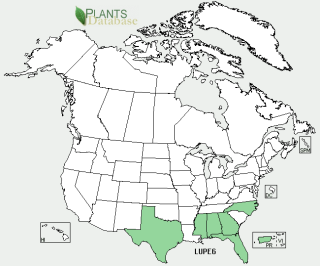
Piedmont primrose willow

Ludwigia arcuata

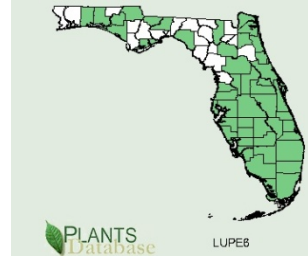
Photo by A. Murray

Copyright 2001 Univ. Florida

Submersed *L. arcuata*. Note reddish, opposite, linear leaves.



Ludwigia peruviana

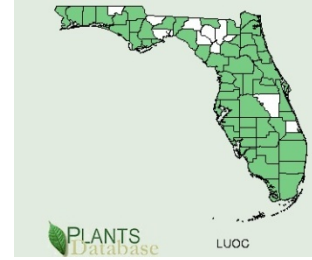


- Largest species, to 3 m tall
- **FLEPPC Exotic**
- Capsules pyramidal
- 4-5 petals, sepals
- Stem pubescent
- May form large thickets on lake shores, along roadsides

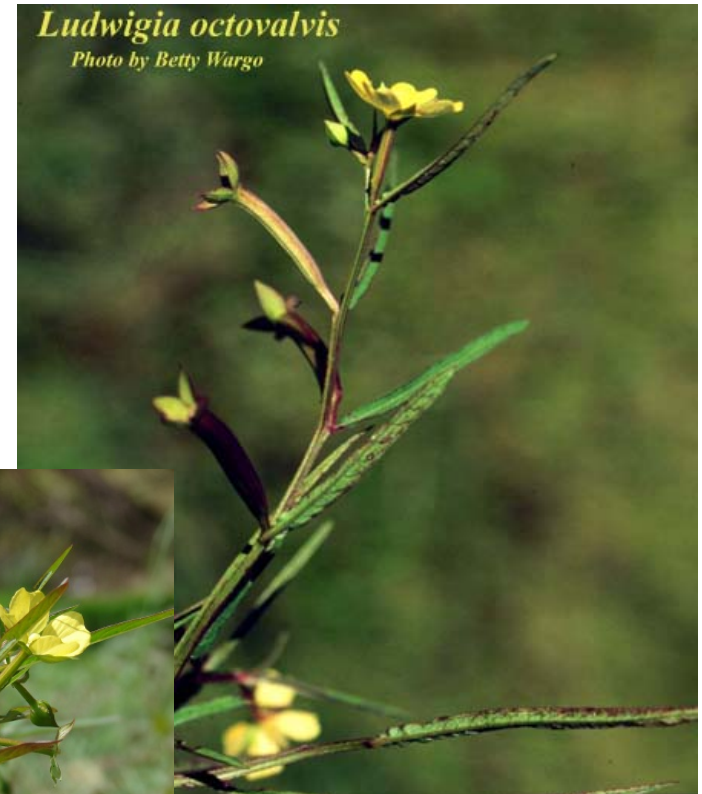


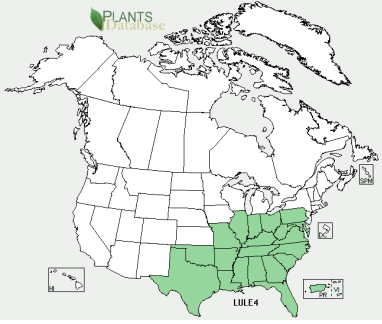


Ludwigia octovalvis

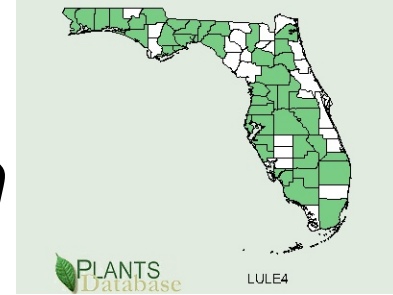


- Capsule long, cylindrical
- 4 petals, sepals
- Similar to *L. peruviana* but with cylindrical fruits and not usually in such large colonies
- Similar to *L. leptocarpa*, but flowers in 4 parts



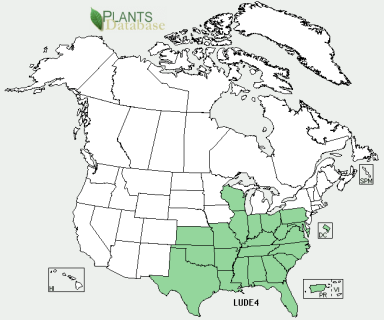


Ludwigia leptocarpa

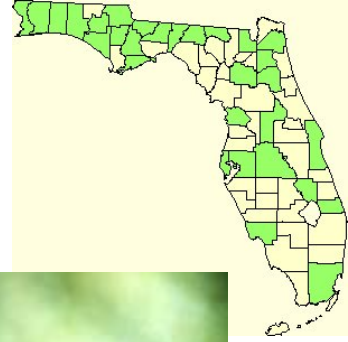


- Capsule long and cylindrical
- 5-6 petals, sepals
- Stem appears minorly angled, not winged





Ludwigia decurrens



- **Winged capsules and stems**
- **Alternate leaves**
- **4 petals, sepals**

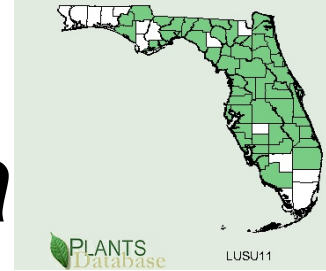


Ludwigia decurrens

Photo by Betty Wargo



Ludwigia suffruticosa

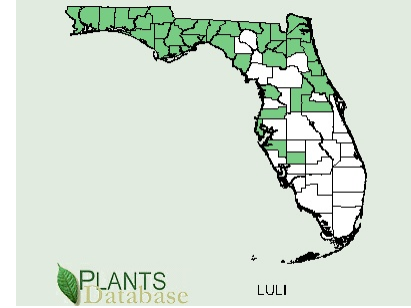


- Small squarish, sessile capsules
- Capsules in crowded terminal cluster
- Smaller plant (to 0.8 m), occurs along shores or in shallow water
- Sepals whitish with reddish centers





Ludwigia linearis



- 4 petals, sepals
- Small in stature, only up to 0.7 m tall
- Leaves narrow, alternate
- Submersed portion of stem spongy



Polygonum spp. - Smartweeds



- Fairly easy to key out
 - Ocreae with or without bristles
 - Stems with hairs, barbs, or neither
 - Sepals and petals with or without glands





Polygonum glabrum
Photo by Paul L. Redfearn, Jr.

(*P. densiflorum*)

**Various sizes, thin ones
or large ones many look
alike in field. Bring back
to key out.**

Polygonum hydropiperoides
Photo by Dan Tenaglia



Punctate Glands - *Polygonum* spp.



Glands visible with 10x hand lens. Can appear yellowish on older plants.

Half-time Fun

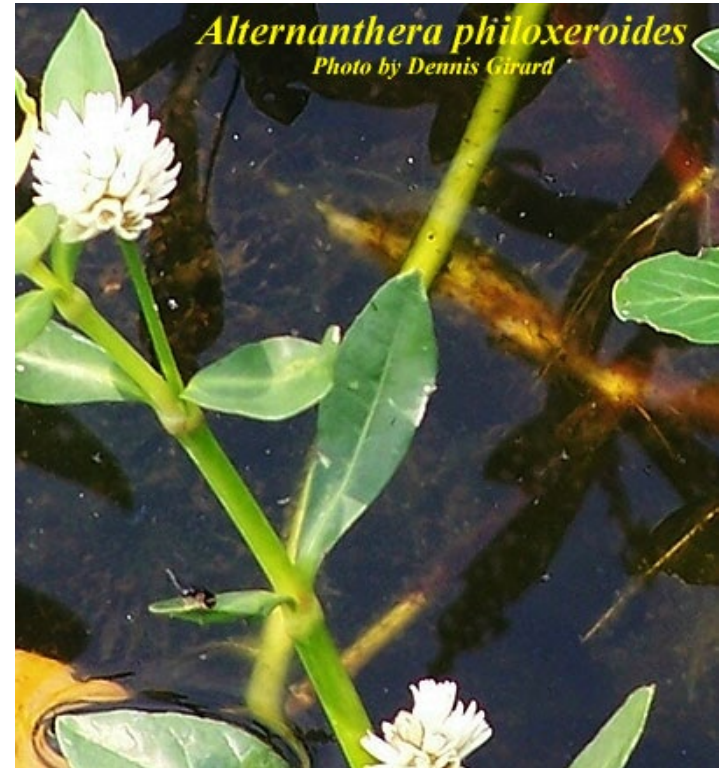


What is this plant?

Half-time Fun



***Bidens* sp.**



(also can have reddish stems)

Cephalanthus occidentalis



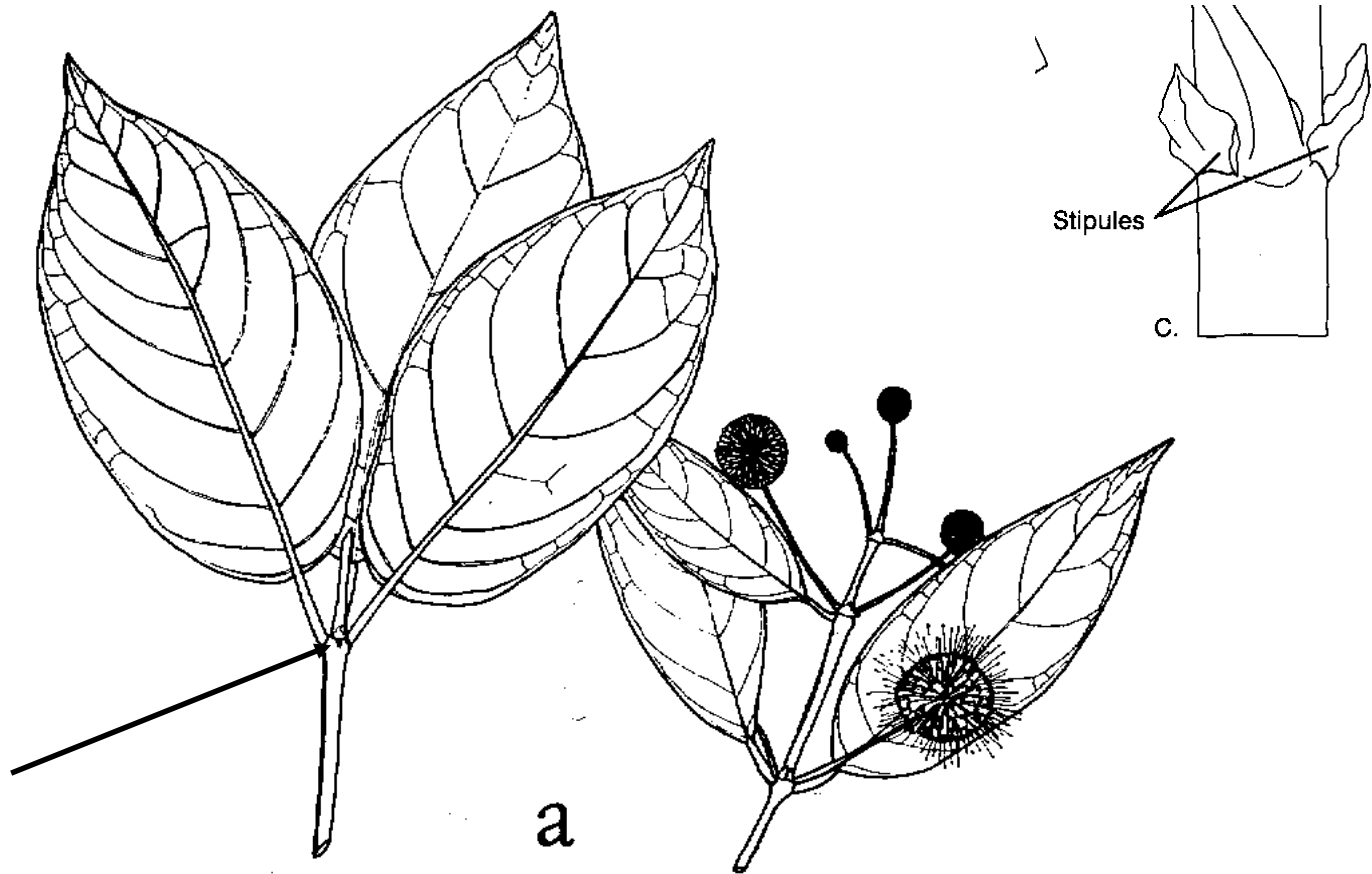
Spring

What if flowers/fruits not present?

Fall



Look for stipules (small “leaves” between opposite leaves)



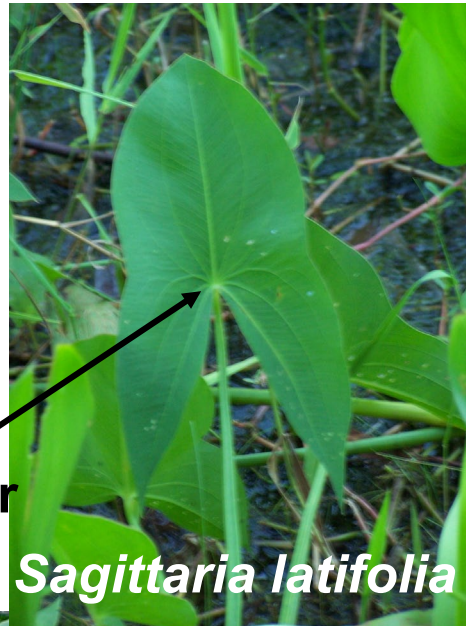
From Godfrey & Wooten

Arrow-leaved Emergents



Parallel

*Pontederia
cordata*



Radiate
from center
like spider

Sagittaria latifolia

Also radiates, but only
at base. Veins follow
edges of leaves.



Peltandra virginica

Photo by Guy Anglin

Peltandra virginica



Purple dot
Wavy leaf

Colocasia esculenta

Colocasia esculenta

Photo by Asit K. Ghosh

Cyperaceae (Sedges)	Poaceae (Grasses)	Juncaceae (Rushes)
Stems usually 3-angled (or round, 4-angled, lenticular)	Stems round (terete)	Stems round (terete)
Stems usually with solid pith	Stems with solid nodes and hollow internodes	Stems with solid pith
Leaf sheaths closed	Leaf sheaths open	Leaf sheaths open
Leaves 3-ranked or spiral	Leaves 2-ranked	Leaves 2-ranked
Fruit an achene with bristles, bracts, may have tubercle	Fruit a grain with papery palea, lemma, and glumes	Fruit a capsule with tiny dust-like seeds

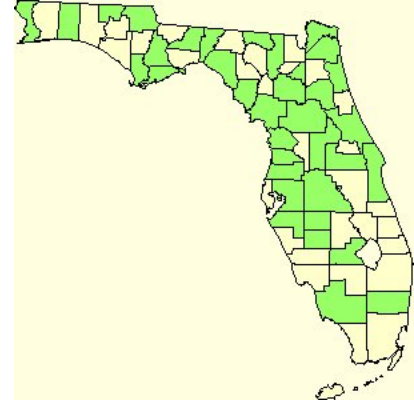
Common Grasses in lake or fringe

- Submersed/Floating
 - *Luziola fluitans*
- Emergent – Low
 - *Leersia hexandra*
 - *Panicum repens**
 - *Paspalum repens*
- Emergent - Mid
 - *Panicum hemitomon*
 - *Sacciolepis striata*
 - *Paspalidium geminatum*
 - *Urochloa (Brachiaria) mutica**
 - *Hymenachne amplexicaulis**
 - *Luziola subintegra**

*Invasive exotic

Luziola fluitans – Water Grass

- Slender grass growing in shallow water
- Leaves float



Paspalum repens

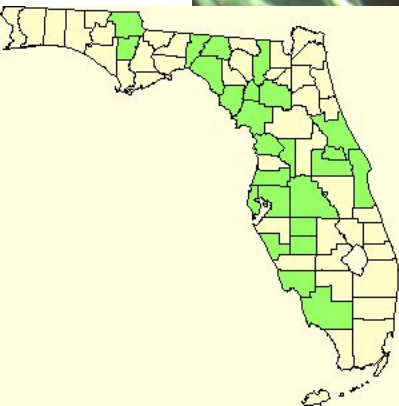
Water Paspalum

- Fruits on “leaves” (winged rachis)
- Sprawling and floating
- Purple spots on sheaths
- Stems spongy, roots dark



Paspalum repens

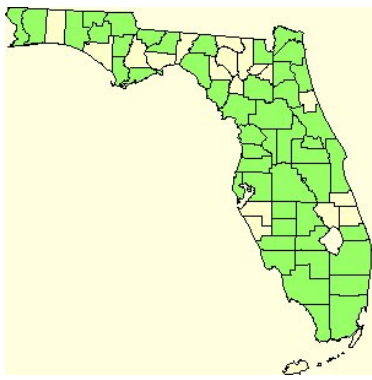
Paspalum repens
Water paspalum
Photo by Ann Murray
1999 University of Florida



Water paspalum
Photo by Ann Murray
1999 University of Florida



Paspalum repens
Photo by Shirley Denton



Leersia hexandra

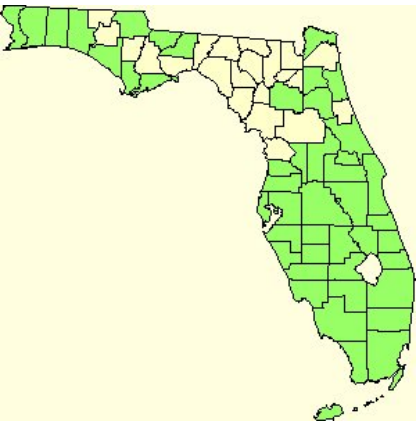
Southern Cut Grass

- Forms mats on water surface
- Even leaf heights, “hair cut” grass
- “stiffly ascending leaves < 9 mm wide”
- Leaf blades scabrous
- Fruits flattened, peach-colored (good photo in FL Wetland book)



Panicum repens - Torpedograss **Exotic**

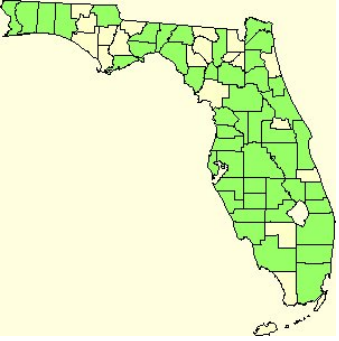
- Floating mats
- Bluish-green color
- Flowers purple and orange
- Rhizome tip pointed and white (torpedo-like)
- Sits fairly low to the water, but not regular like *Leersia*



Panicum hemitomon Maidencane

- Flowers/fruits appressed to stem
- Stems and nodes sometimes hairy
- Can create large stands of varying thickness
- Plants come higher out of the water than *P. repens*
- Ligule of long hairs, more obvious than in *Sacciolepis striata*





Sacciolepis striata

American cupscale

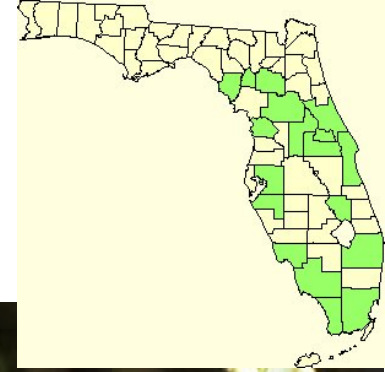
- Can form dense stands
- Conspicuous nerves on leaves
- Short hairs on sheath
- Short ligule
- Spikelets not close against central axis of inflorescence



Paspalidium geminatum

Egyptian paspalidium, Kissimmeeegrass

- Leaf blades can be involute or folded, appearing thin
- Tufted stems, long leaves
- Seeds on one side of rachis
- Sheaths longer than internodes
- Ligule a fringe of short hairs



Paspalidium geminatum

Photo by Shirley Denton



Paspalidium geminatum

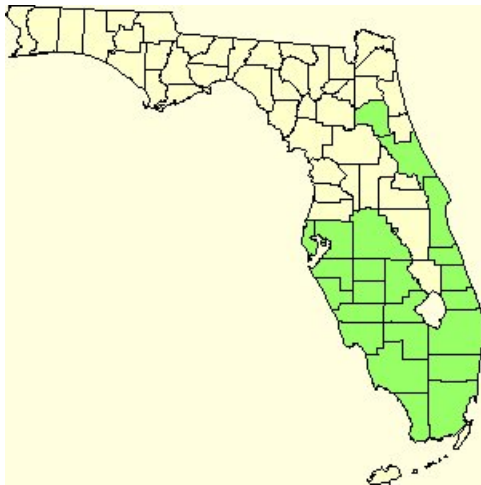
Photo by Shirley Denton

Urochloa (Brachiaria) mutica

Pará grass

Exotic

- Sprawling, medium-height, mat-forming grass
- Swollen nodes with *dense* hairs
- Sheaths loose, overlapping
- Inflorescence and open panicle, 8-20 alternate branches
- Spikelets purplish



A photograph of a field of Urochloa mutica grass. The grass is green and dense, filling the foreground and middle ground. In the background, there are several tall, thin trees with green foliage. The sky is blue with some white clouds. The text "Urochloa mutica" is written in a large, bold, yellow font, and "Photo by Shirley Denton" is written in a smaller, yellow font below it, both on a black rectangular background in the upper right corner.

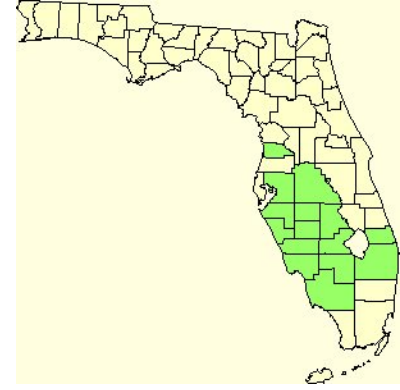
Urochloa mutica
Photo by Shirley Denton

Hymenachne amplexicaulis

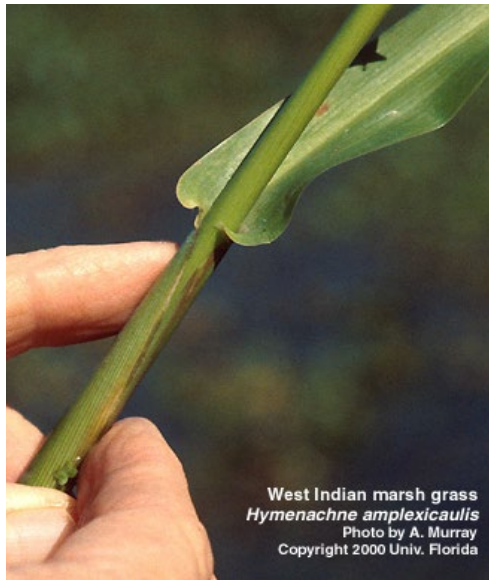
West Indian Marsh Grass

Trompetilla

Exotic



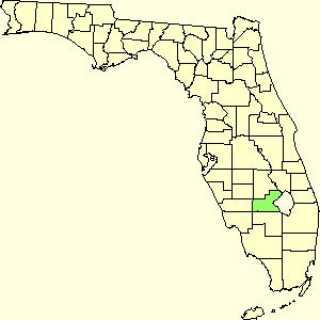
- 1-2.5 m high
- Perennial, stoloniferous
- Leaf blades up to 4 cm wide, cordate at the base
- Stems glabrous, white pith
- Panicles narrow, pressed against axis, VERY DENSE



West Indian marsh grass
Hymenachne amplexicaulis
Photo by A. Murray
Copyright 2000 Univ. Florida



West Indian marsh grass
Hymenachne amplexicaulis
Photo by A. Murray
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Luziola subintegra

- New aggressive exotic
- Robust emergent grass
- Thick spongy leaf sheaths
- Leaves > 7 mm wide, ligules 1-4 cm long
- Occurs in Fisheating Bay



From Kunzer & Bodle, 2008
J. Bot. Res. Inst. Texas 2(1)

Luziola subintegra

Photo by John Kunzer



A photograph of a pond with many lily pads floating on the water. In the background, there is a dense line of trees, including several tall pine trees. The sky is clear and blue. The text "Thank you." is overlaid in the center of the image.

Thank you.

Questions?

Echinochloa* *walteri* and *crus-galli



- **No ligule**
- **Long awns**
- ***E. walteri* has 2 awns/spikelet, *E. crusgalli* has 1**
- **Edges of leaves scabrous, hairs on edges of sheath**

Echinochloa crusgalli
Barnyard Grass

Flora of Florida

Specimen # 231

Echinochloa crusgalli (L.) Beauv.

Gadsden County, Lake Tallavanna

Saccharum giganteum

Sugarcane plumegrass

- Common grass, often in roadside ditches
- Large silky inflorescence
- Not very leafy
- Formerly *Erianthus giganteus*



Big Grasses



Flora of Florida

Erianthus giganteus (Walt.) Muhl.

County: S. Florida

Specimen

Saccharum (Erianthus) giganteus
Sugarcane Plumegrass

Andropogon glomeratus
Bushy Broom Grass

Echinochloa walteri
Coast Cockspur-grass

Phragmites australis

Common reed

- Large grass of fresh and brackish water
- Large silky inflorescence
- Leaves alternate along stem
- Fringe-like ligule of short bristles



Zizania aquatica

Wild rice

- Large clumping grass, often in flowing waters
- Basal leaves
- Male and female separate on inflorescence
- Stem of inflorescence round and spongy



Zizaniopsis miliacea

Giant cutgrass

- Large clumping grass, usually in quiet waters
- Basal leaves
- Leaves smooth on surfaces, sharp margins
- Large inflorescence, all drooping
- Base of inflorescence stem flat



Dichanthelium vs. *Panicum*

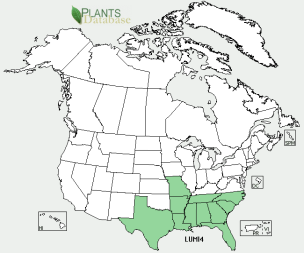
- Until recently, *Dichanthelium* was a genus within *Panicum*
- Most species of *Dichanthelium* have short shoots from leaf axes (spring and summer)



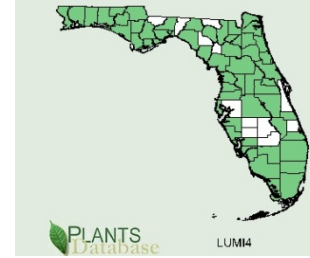
Flora of Florida

Dichanthelium scabrisculum (Ell.) Gould and Clark
Walton County: NW4-SL-2056 Lakeshore

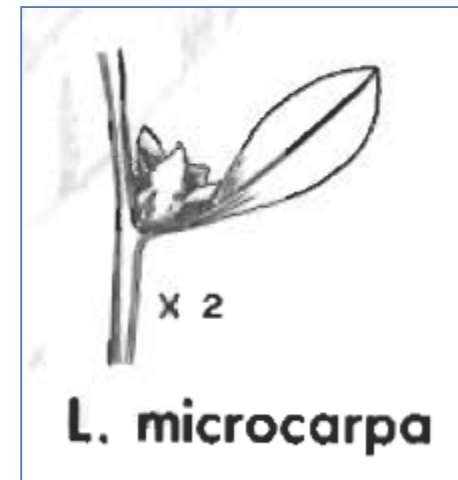
Latitude: 30° 48' 50.32" Longitude: 86° 0' 7.34"



Ludwigia microcarpa

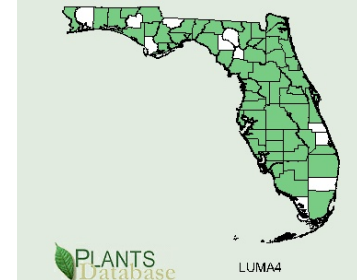


- small herbaceous wetland plant occurring in marshes and ditches
- capsule NOT 4-angled or winged (just round)

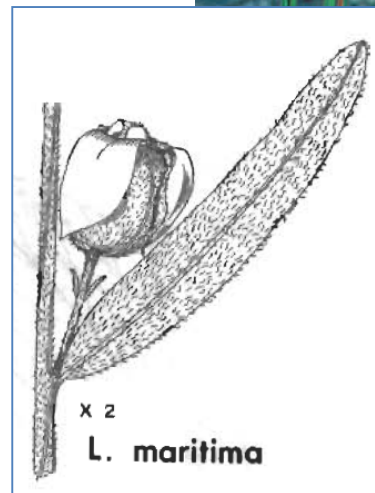




Ludwigia maritima

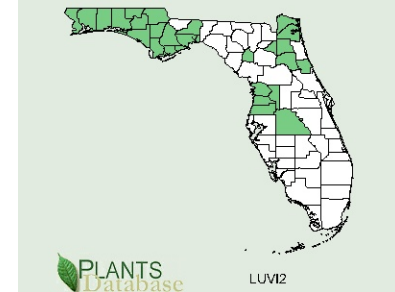


- long leggy plant of wetlands and ditches
- yellow flowers in four parts
- lower (mature) leaves pubescent
- calyx lobes reflexed (peeled down like a banana skin)





Ludwigia virgata



- herbaceous wetland plant
- yellow flowers in four parts
- lower leaves **not** pubescent
- calyx lobes reflexed (peeled down like a banana skin)

