

Common Native and Exotic Aquatic Plants in Texas



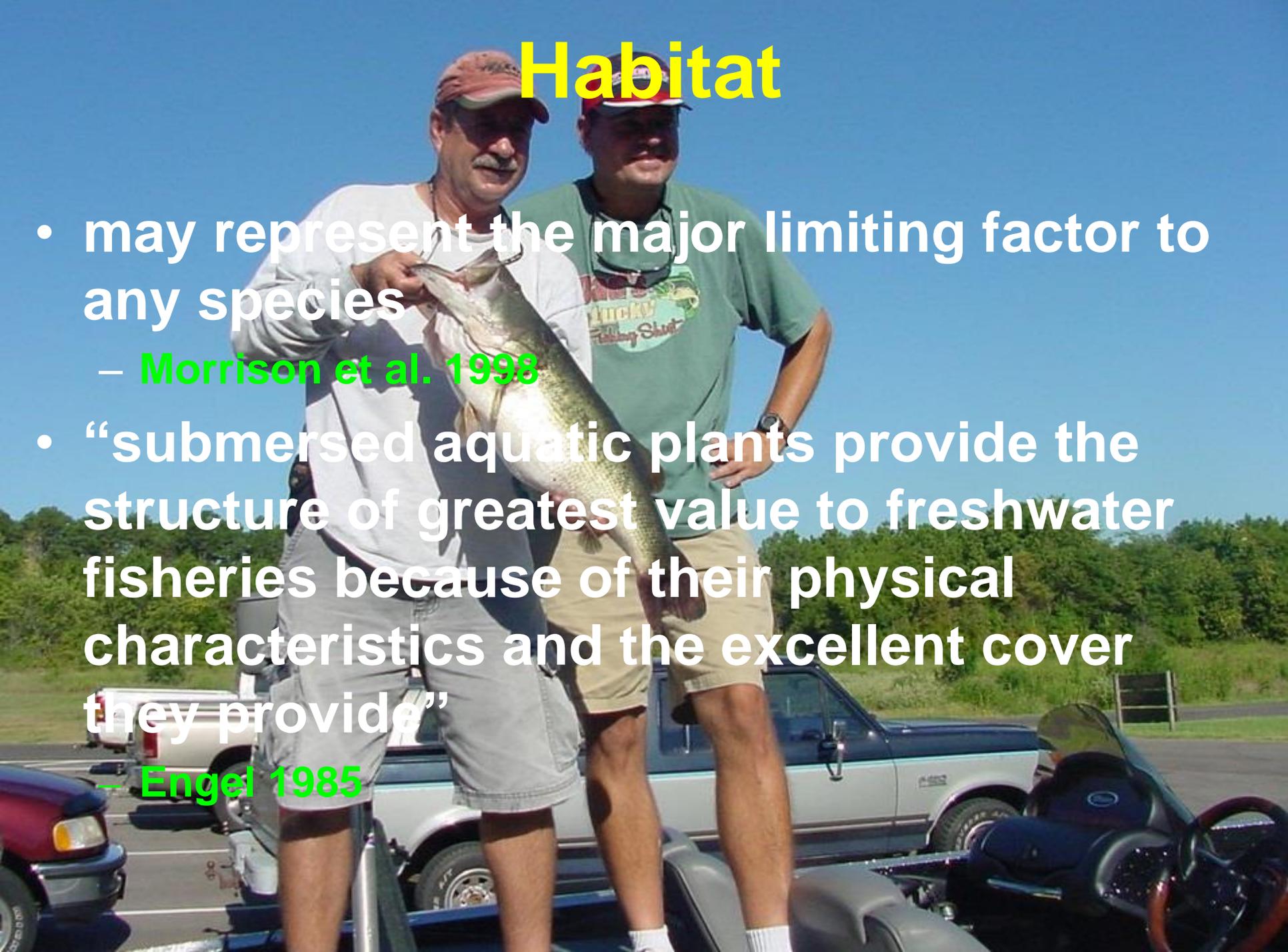
Richard Ott, PhD. & Mark Webb
Texas Parks & Wildlife Department

Ecological Impacts of Aquatic Plants

- light transmission
- water temperature, flow, and chemistry
- substrate changes
- oxygen production and consumption
- carbon flux (both organic and inorganic)
- nutrient flow & decomposition
 - Barko 1993, Carpenter and Lodge 1986

Habitat

- may represent the major limiting factor to any species
 - Morrison et al. 1998
- “submersed aquatic plants provide the structure of greatest value to freshwater fisheries because of their physical characteristics and the excellent cover they provide”
 - Engel 1985

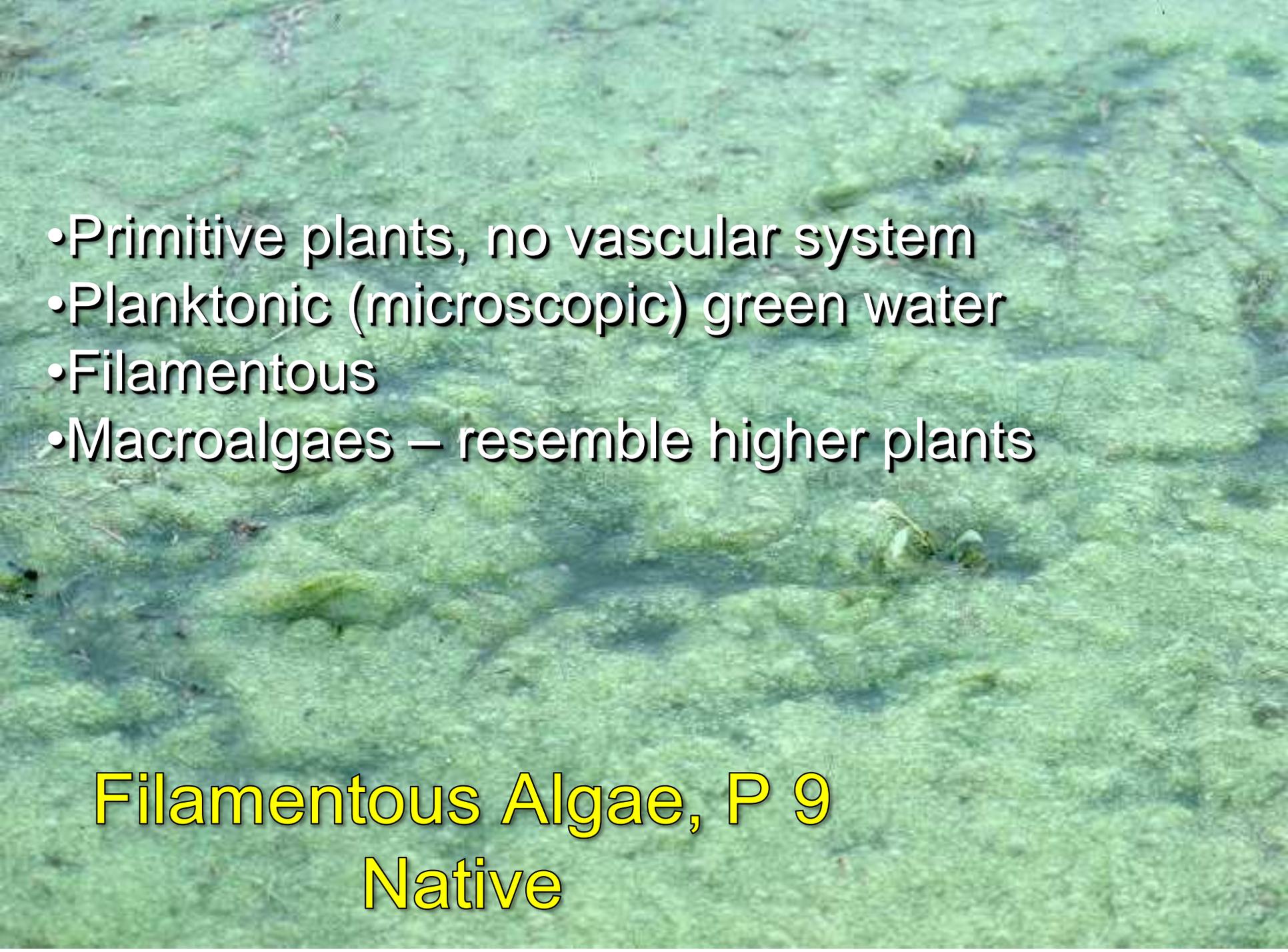


Exotic or Nuisance Aquatic Plant Species

- Reproduce rapidly
- Propagate vegetatively
- Opportunistic nature for obtaining nutrients
- Life histories that favor cool weather
- Mechanisms which benefit photosynthetic efficiency
- Multiple dispersal mechanisms
 - Nichols and Shaw 1986

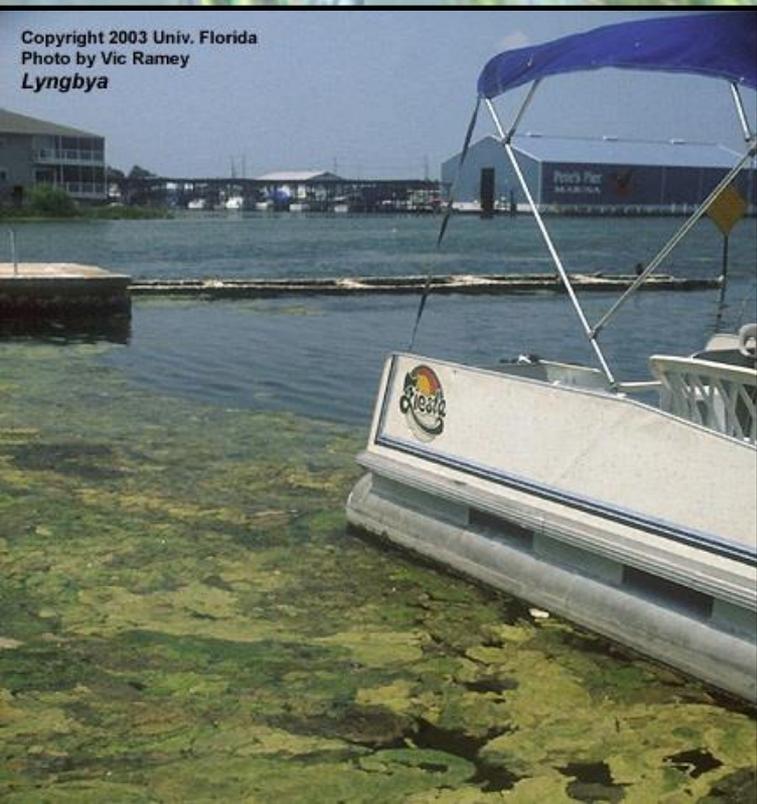
Texas Parks & Wildlife Dept.

- In order to manage and conserve our natural resources, Texas Parks and Wildlife Department must protect our state waters against the introduction of non-native aquatic species. Fish, shellfish, and aquatic plants that are not native to Texas may compete with native animals and plants for food and space. The organisms listed on this page are legally classified as exotic, harmful, or potentially harmful. No person may import, possess, sell, or place them into water of this state except as authorized by rule or permit issued by the department. For more information, contact **Ron Smith**, (512) 389-8037.

- 
- Primitive plants, no vascular system
 - Planktonic (microscopic) green water
 - Filamentous
 - Macroalgae – resemble higher plants

Filamentous Algae, P 9
Native

Lyngbya native



Lyngbya
Photo by Christina Jett
Copyright 2003 Univ. Florida

Muskgrass

a.k.a. Chara, Nitella, P. 13
Native



- macroalgae
- “musky” or “onion” smell



Higher Plant Growth Forms

Emergent



Submersed



Hydrilla
Hydrilla verticillata
Photo by Vic Ramey
Copyright 1999 Univ. Florida

Floating



-Khaudipda

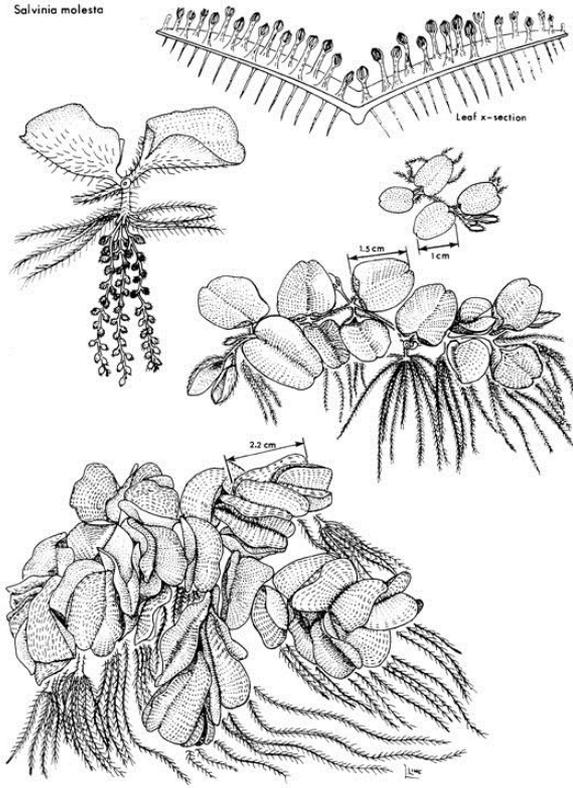
Floating plants

- Higher plants
- Not attached to bottom
- Capable of entirely covering surface
- Not limited by water clarity
- Move with wind action
- Limit sunlight & dissolved oxygen

A wide expanse of water is almost entirely covered by a thick, green mat of Salvinia, a floating aquatic plant. In the foreground on the left, a wooden dock extends into the water. On the right, a wooden building with a corrugated metal roof is partially visible. The background shows a distant shoreline with trees under a clear sky.

Salvinia (giant & common)
prohibited

Salvinia molesta

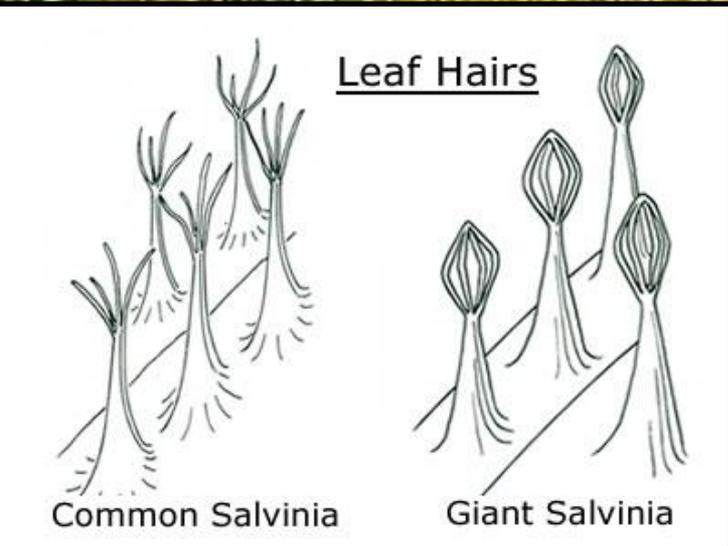


- hairs on leaf in “eggbeater” cluster
- green to brown
- book page growth form
- spoorocarps on root hairs

Giant Salvinia, P. 26
prohibited



- never over fingernail size
- open hairs on leaf
- green to brown



Common Salvinia, P. 24
prohibited

Azolla caroliniana
Azolla

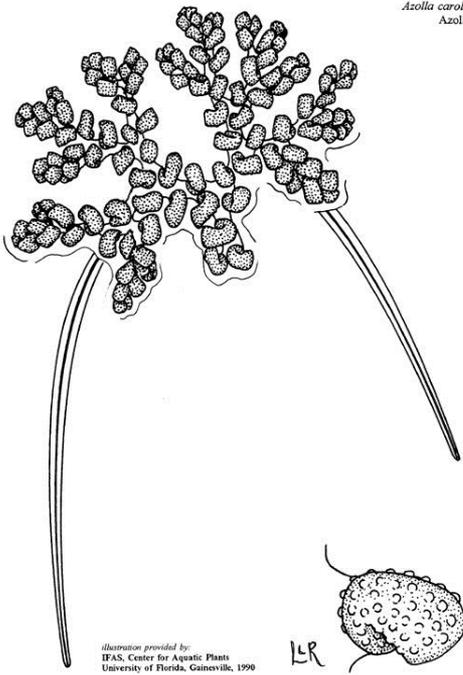


Illustration provided by
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

Mosquito Fern, P. 22 native

- rust red color
- very small
- irregular shape
- multiple leaves per stem
- presents in fall





Water Hyacinth, P. 28

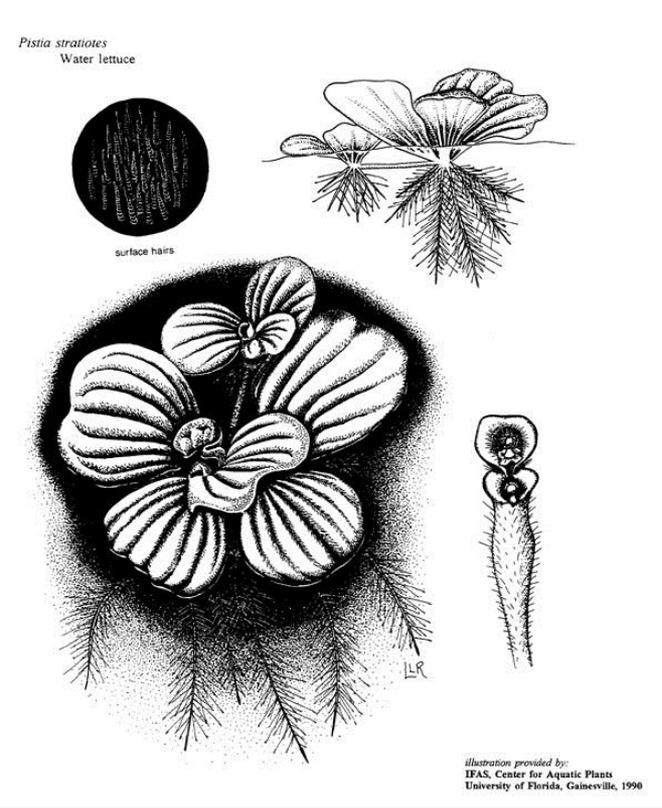
prohibited

- glossy round leaf
- gas-filled bladders
- purple flower

A wide-angle photograph showing a dense, continuous carpet of water lettuce plants covering a large body of water. The plants are green with small white flowers. In the background, a line of trees is visible under a clear sky.

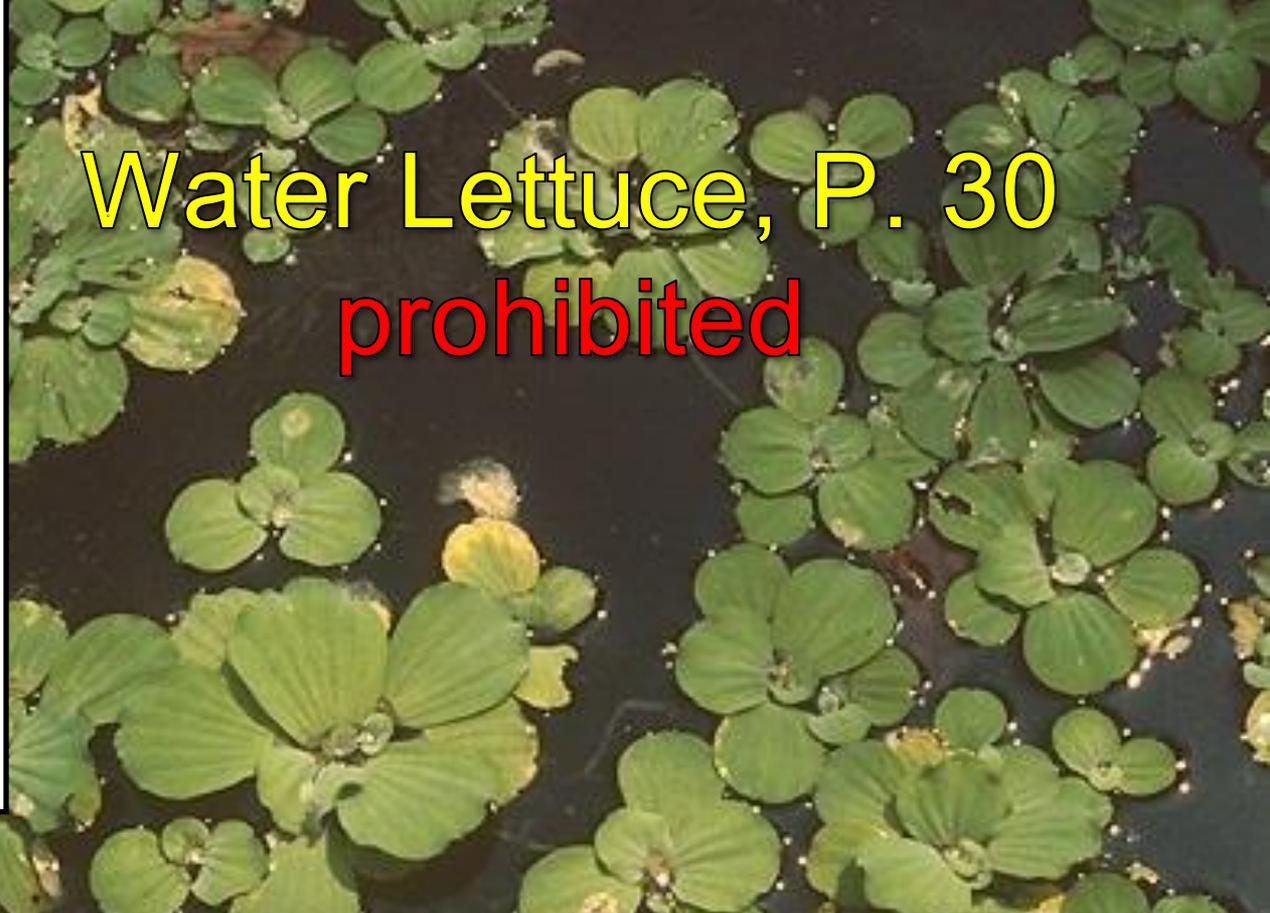
Water Lettuce, P. 30
prohibited

UGA0002016



Water Lettuce, P. 30

prohibited

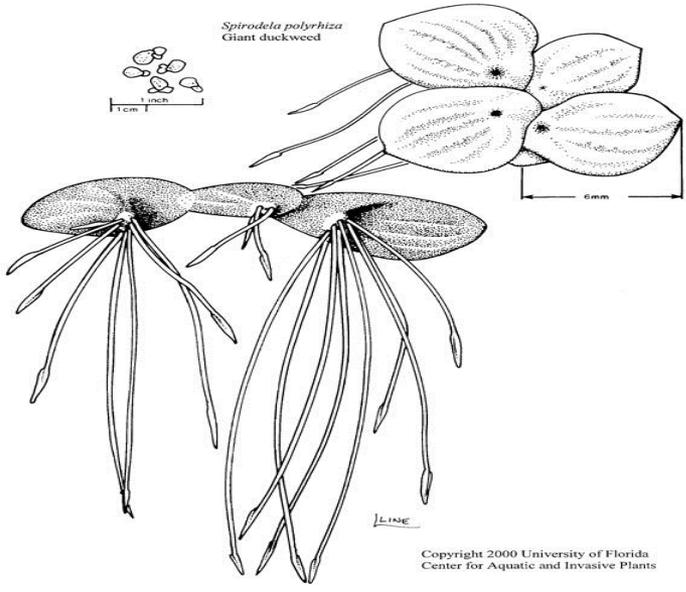


- velvety leaf surface
- daughter plants
- root hairs

Water lettuce
Pistia stratiotes
Photo by A. Murray
Copyright 2001 Univ. Florida

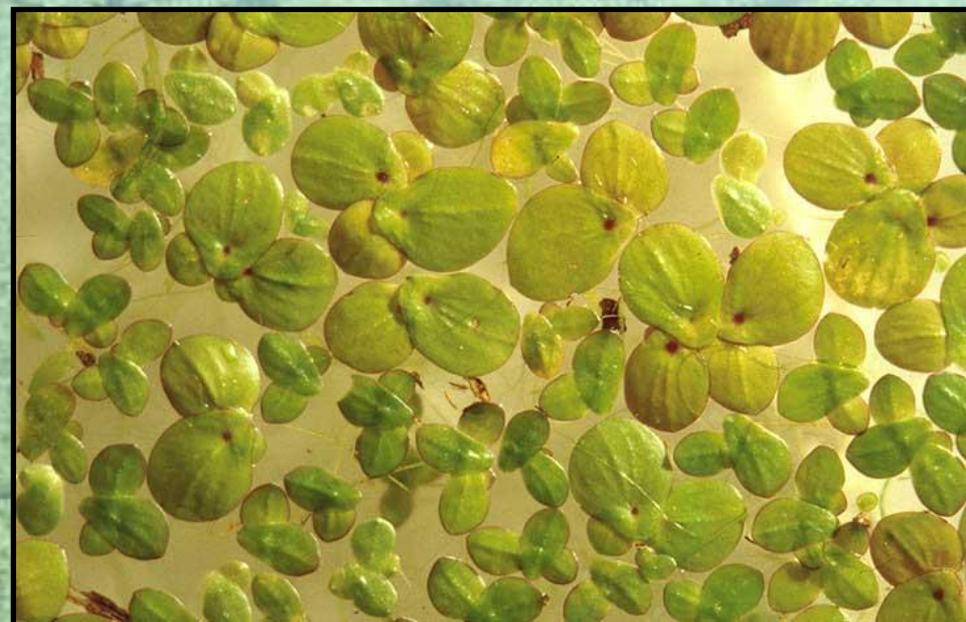


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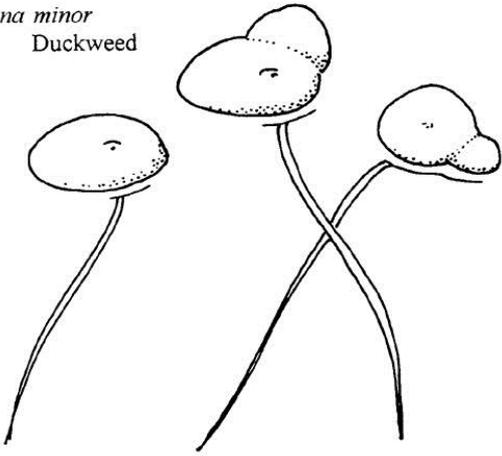


Giant Duckweed, P. 20 a.k.a. Dotted Duckweed prohibited

- 3-5 rootlets
- elongated shape
- red dot on leaf



Lemna minor
Duckweed



- one rootlet per leaf
- round shape
- no red dot
- ✓ smallest vascular plant

Common Duckweed, P. 18
native





- yellow flower in floating whorl
- net like roots with bladders below the surface



Bladderwort, P. 16
native



Submersed plants

- Higher plants
- Grow under water
- May form mats on the surface
- Attached to the bottom

Tyler Spring 2007 Hydrilla Survey

 Tyler East Hydrilla
(Approximately 1,120 acres)

Prepared 3 April 2007 by:
Patrick Beck, Inland Fisheries District 3-C
(903) 566-2161



Map Projection and Datum: N/A

Inland Fisheries Division

Texas Parks and Wildlife Department

NOTE: THIS MAP IS FOR REFERENCE ONLY

This report may be used for informational purposes and the user assumes responsibility for the appropriate use of the information with respect to possible errors, original map scale, collection methodology, currency of data, and other conditions specific to source data.

Hydrilla, P. 46
prohibited

Hydrilla verticillata
Hydrilla

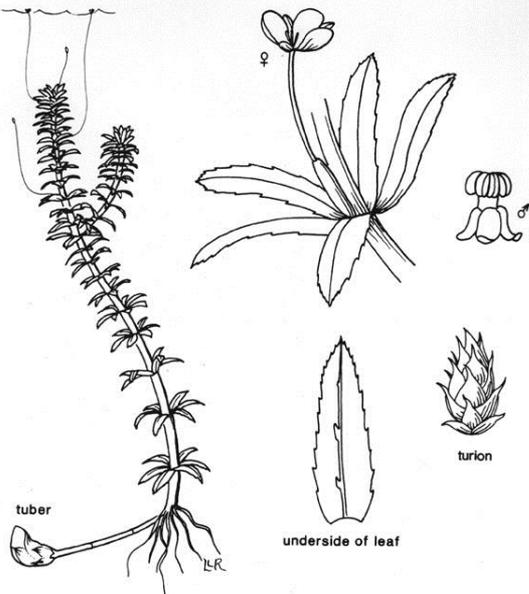


Illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

- 5 or more leaves in whorl
- teeth on mid-rib, rough feel
- fragments, tubers, turions
- dioecious – female only

Hydrilla, P. 46
prohibited

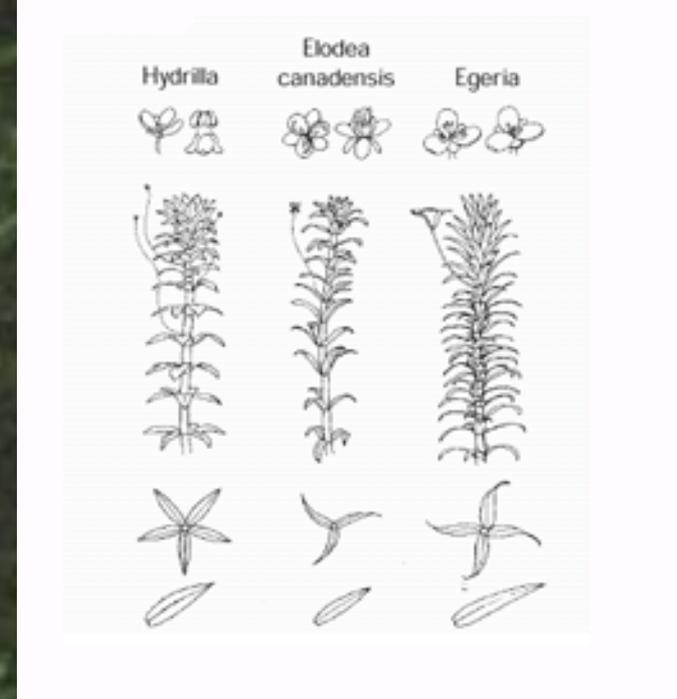




Elodea, P. 42 native

- 4 or less leaves in whorl
- slick feel

Egeria, P. 40 exotic



Ceratophyllum demersum
Coontail

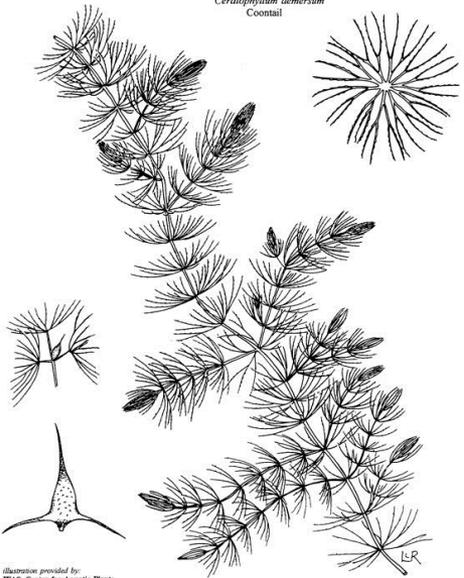
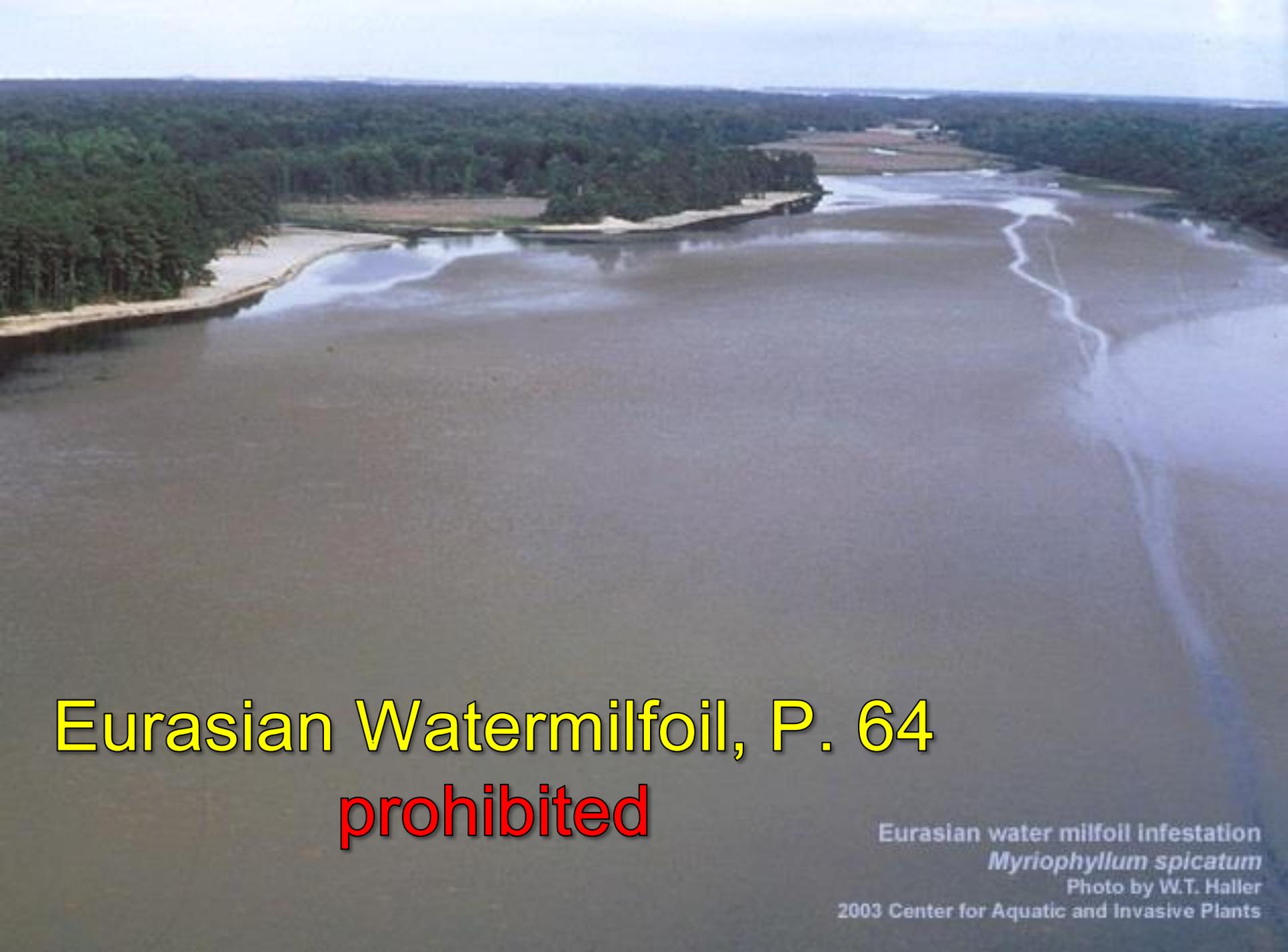


Illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990

- brittle feel
- multiple leaves around stem
- forked ends & “horns”

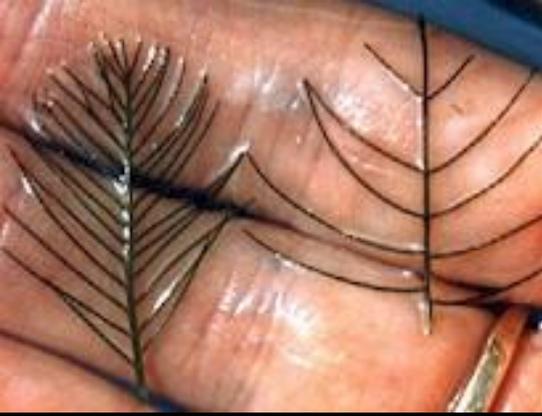


Coontail
a.k.a Hornwort, P. 36
native

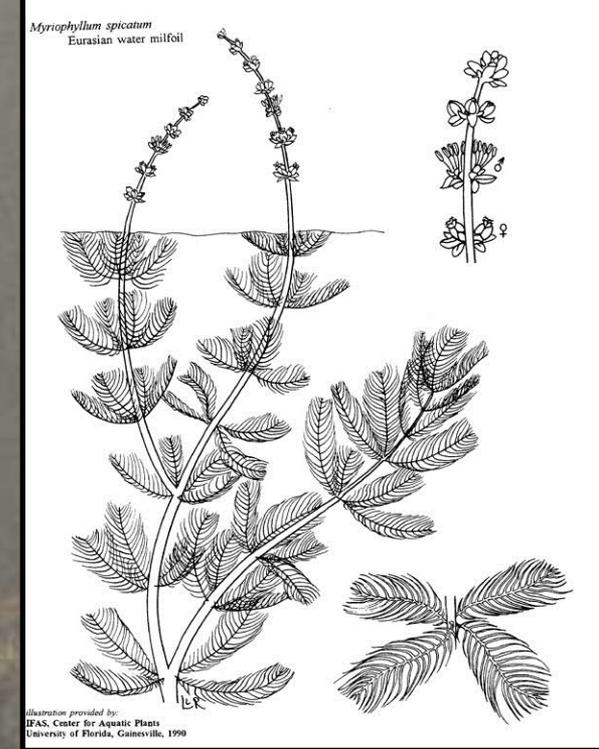


Eurasian Watermilfoil, P. 64
prohibited

Eurasian water milfoil infestation
Myriophyllum spicatum
Photo by W.T. Haller
2003 Center for Aquatic and Invasive Plants



- feather shaped leaf
- 4-leaves in whorl
- emergent & submersed leaves
- broadleaf species, 2,4-D



Eurasian Watermilfoil, P. 64
prohibited



- feather shaped leaf
- mainly emergent leaves, blue-green
- 5-leaves in whorl
- cool weather dominant

Parrotfeather, P. 52
exotic



"Myriophyllum propium"
non-native plant for sale at your local store
Photo by A. Murray
Copyright 2001 Univ. Florida

Myriophyllum heterophyllum

Myriophyllum heterophyllum
Variable-leaf milfoil

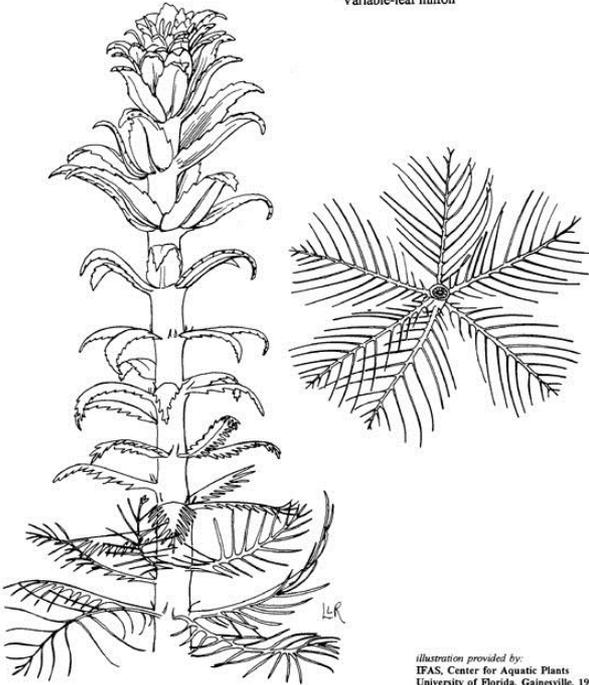


Illustration provided by:
IFAS, Center for Aquatic Plants
University of Florida, Gainesville, 1990



- emergent & submerged leaves
- “foxtail shape”
- 5-6 leaves in whorl

Variable-leaf Watermilfoil, P. 62
native



fanwort
Cabomba caroliniana
Photo by Vic Ramey
© 2000 University of Florida

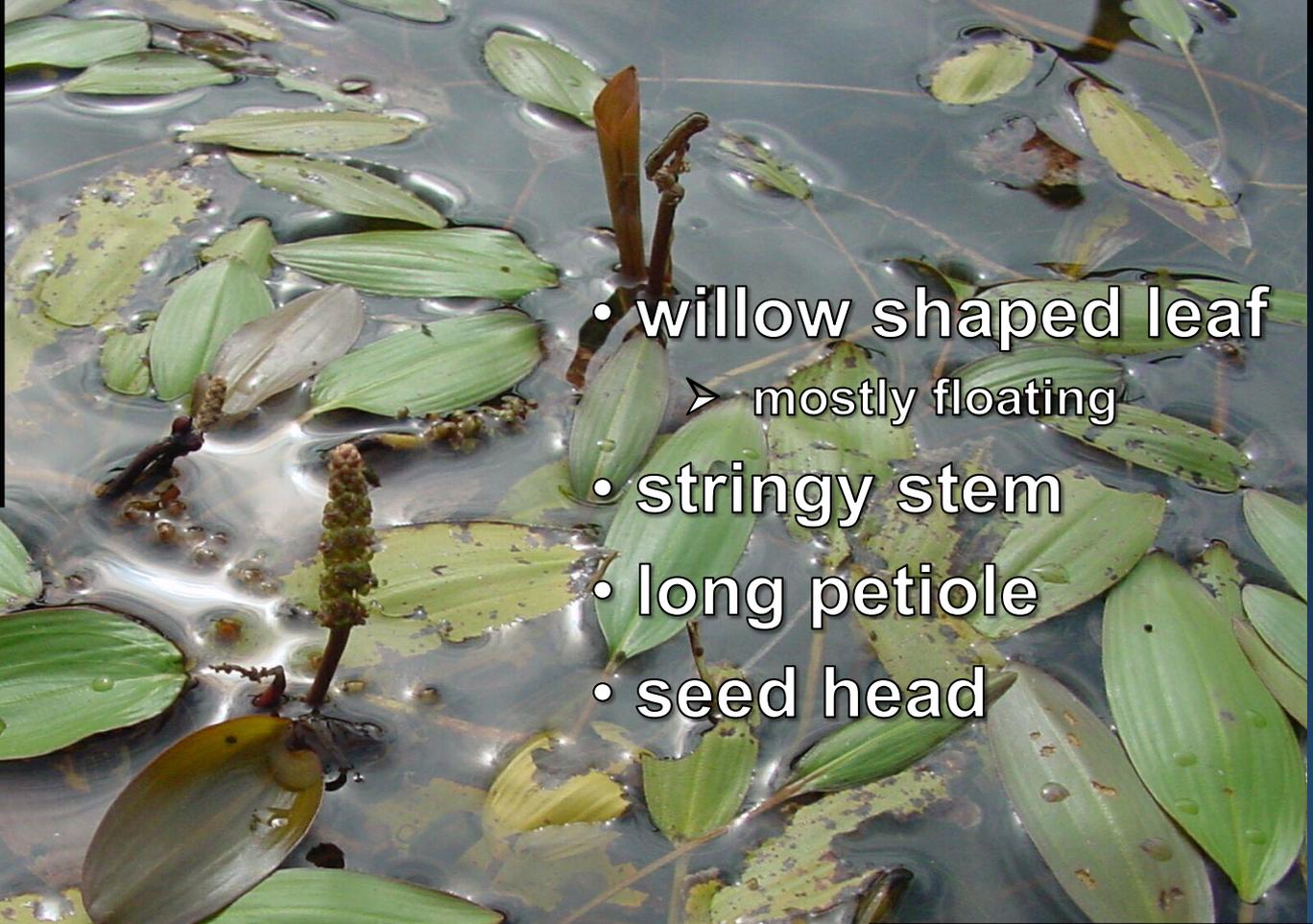
- fan shaped leaves
- 2-leaves in whorl
- showy flower
- purple stems & leaves

Fanwort

a.k.a. Cabomba, P. 44

native





- willow shaped leaf
 - mostly floating
- stringy stem
- long petiole
- seed head

American Pondweed, P. 54

native



- willow shaped leaf
 - mostly submersed
 - wrinkled
- short petiole
- stringy stem
- seed head

Illinois Pondweed, P. 58

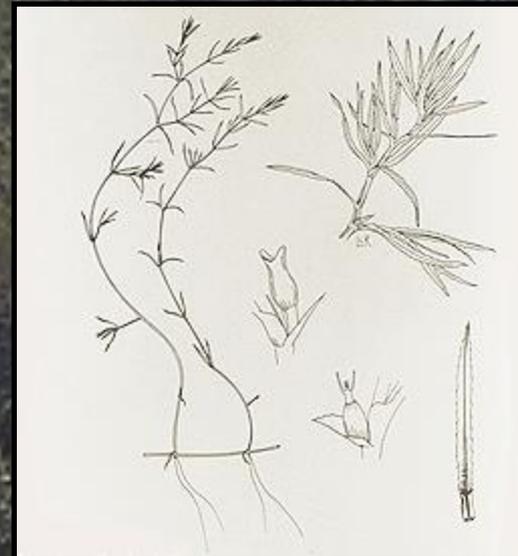
native





- thread-like leaf
- may form mats on surface
- prolific seed producer

Southern Naiad a.k.a.
Bushy Pondweed, P. 50
native



Vallisneria spiralis
Tapegrass

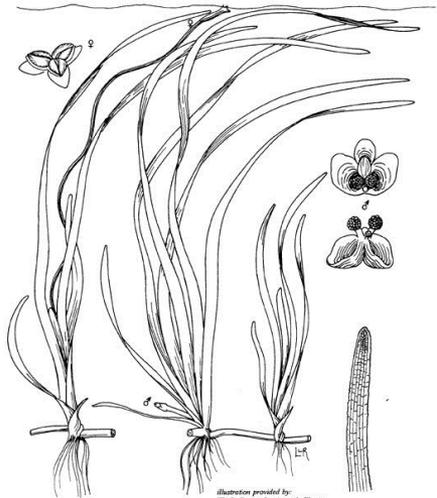


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Wild celery a.k.a
Eelgrass, P. 38

native

- ribbon shaped leaf
- basal root crown, stolons
- corkscrew flower stem



Waterstargrass, P. 68

native

- narrow leaf
- small yellow flower
- may form mats on surface
- can grow on shore



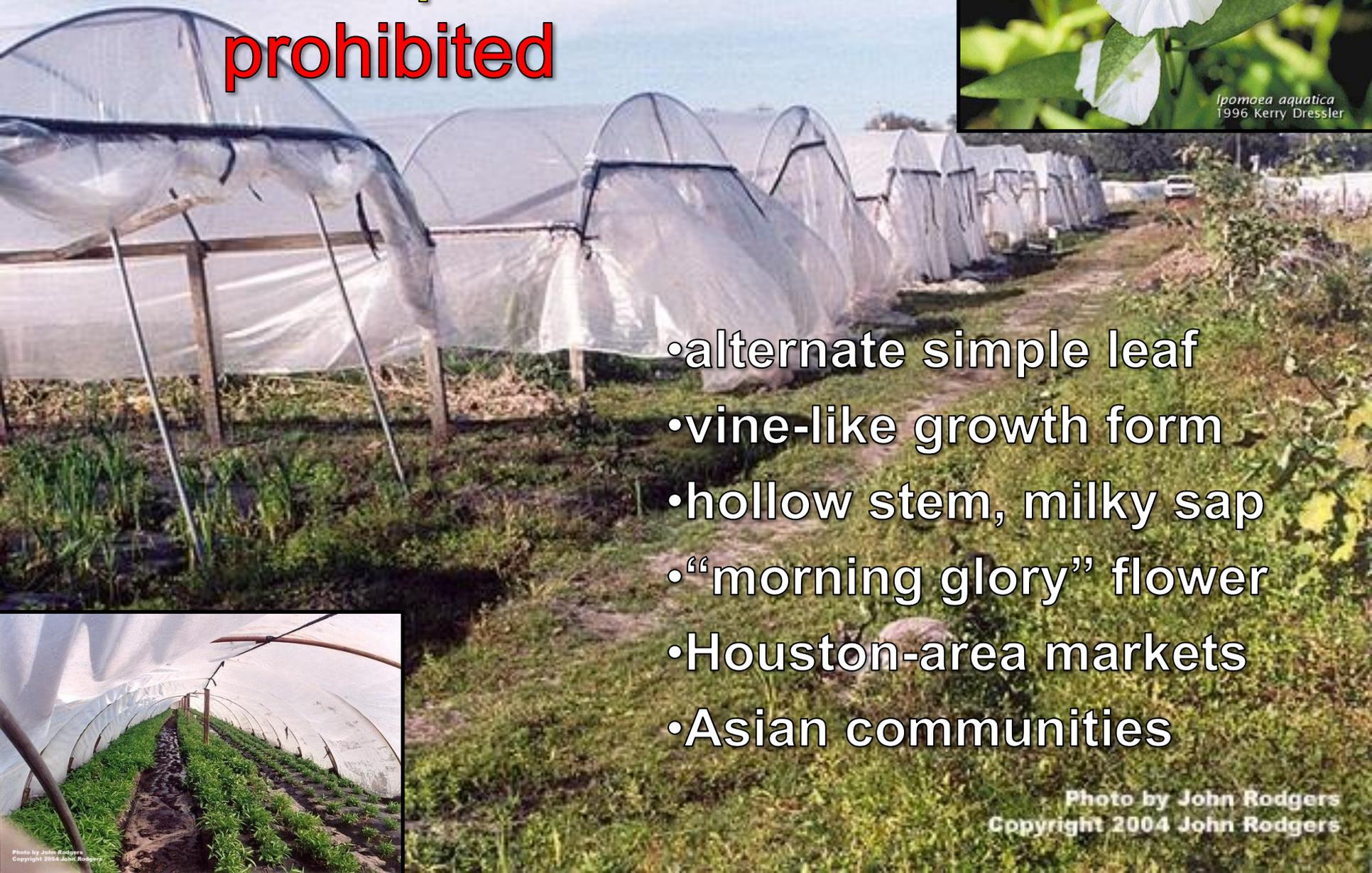
Emergent plants

- Higher plants
- Rooted in substrate
- Grow above water line

Water Spinach prohibited



Ipomoea aquatica
1996 Kerry Dressler



- alternate simple leaf
- vine-like growth form
- hollow stem, milky sap
- “morning glory” flower
- Houston-area markets
- Asian communities



Photo by John Rodgers
Copyright 2004 John Rodgers

Photo by John Rodgers
Copyright 2004 John Rodgers

Pickerelweed, P.98 native



- rooted, not floating
- no bladder
- spear-shaped leaf



Lizard's-tail, P. 94

native

- arrow leaf
- erect growth form
- distinctive flower
- hairy stem



Torpedograss, P. 110 prohibited

- clasping leaf, alternate
- sharp leaf edge
- hairy leaf sheath & surface
- torpedo-shaped rhizome



Torpedograss
Panicum repens
Photo by Ann Murray
© 2003 University of Florida

Torpedograss
Panicum repens
Photo by Ann Murray
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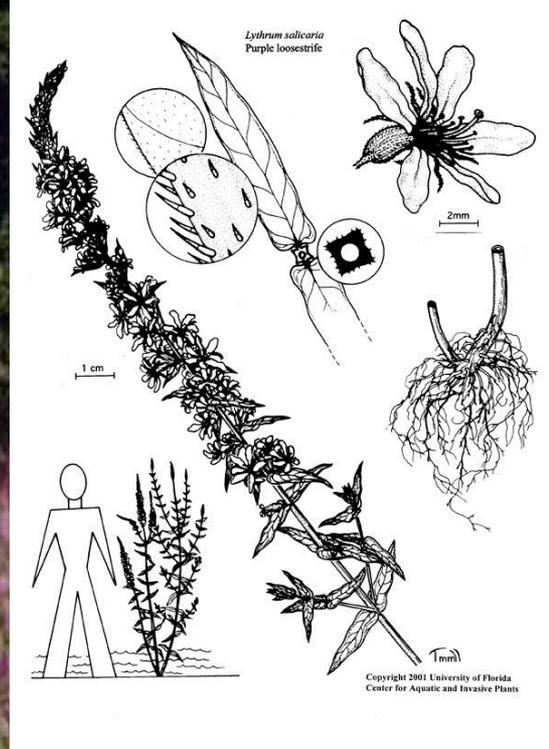




- broad long leaf
- leaf does not encircle stem
- no hairs on leaf surface
- edge not as sharp

Maidencane, P. 96
native





- leaves opposite
- square stem, rough
- purple flowers

Purple loosestrife
prohibited



- round stem
- leaves alternate
- roots at node

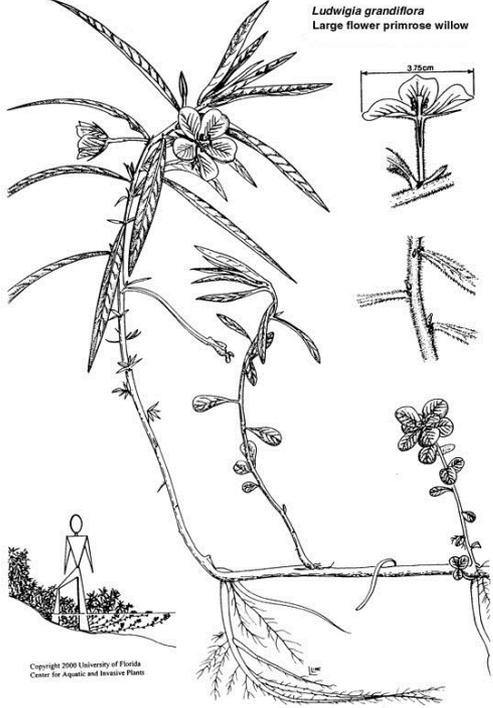
Smartweed, P. 106
native

- rooted to the bank
- can grow as terrestrial
- hollow stem, roots at nodes
- hairs at leaf insertion
- white “clover” flower
- waxy-surface elliptical leaf
smooth margins

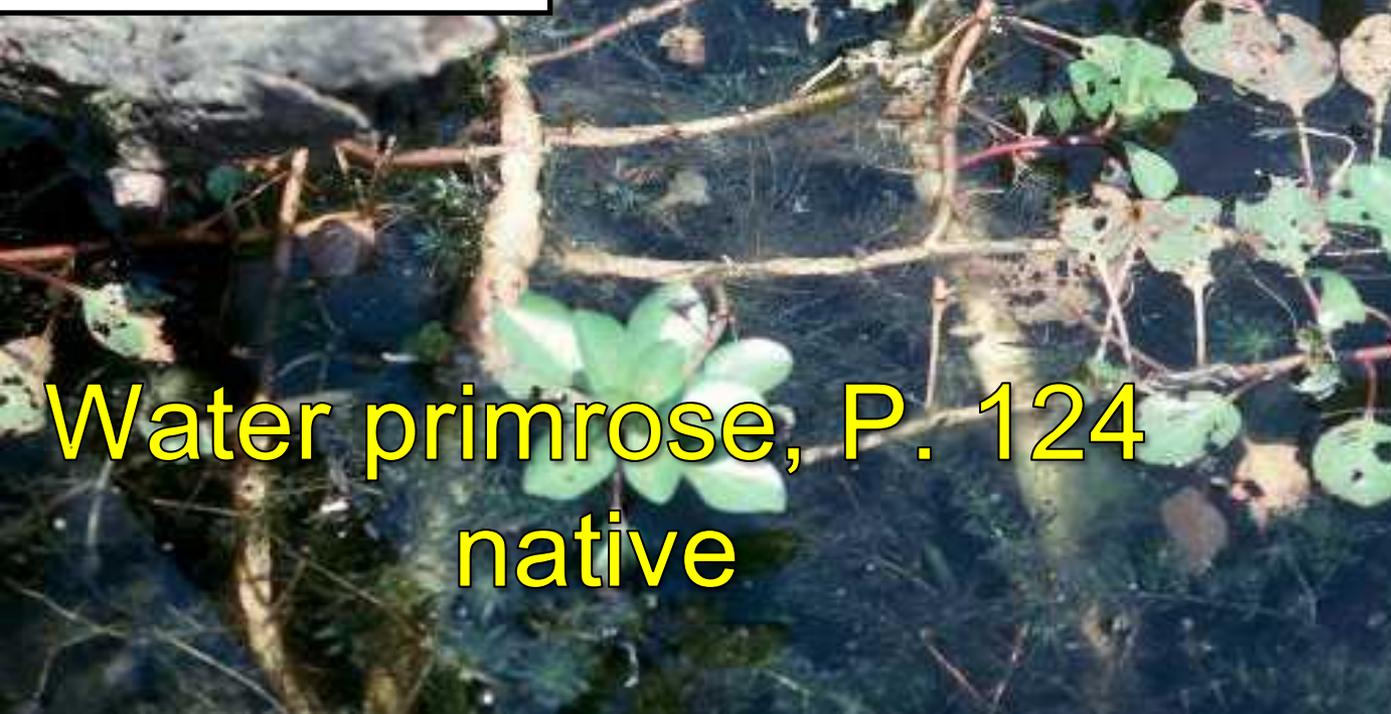
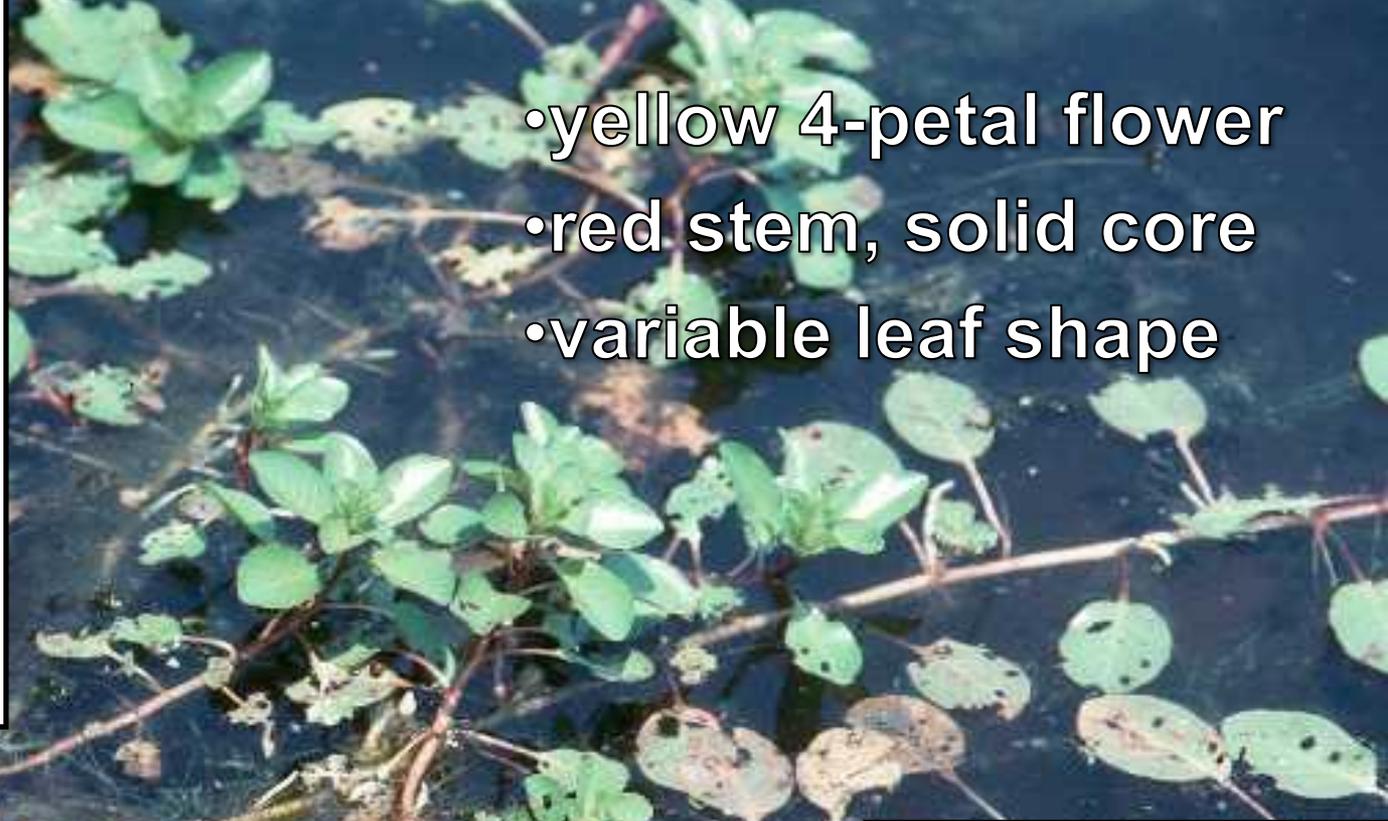


Alligatorweed, P. 72
prohibited

Ludwigia grandiflora
Large flower primrose willow



- yellow 4-petal flower
- red stem, solid core
- variable leaf shape

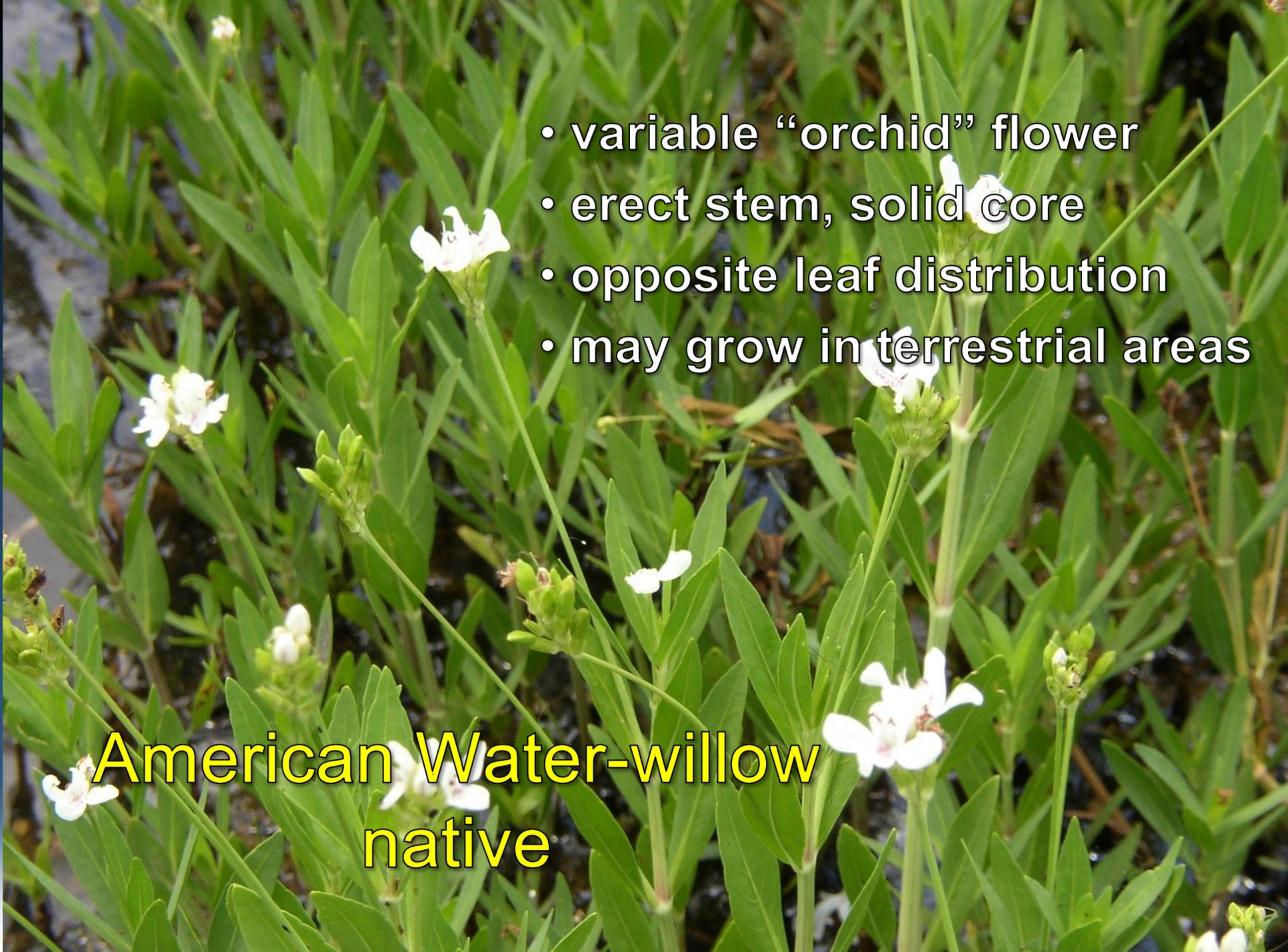


Water primrose, P. 124
native



- 
- narrow fleshy leaf
 - hotdog flower head
 - may grow in terrestrial area

Cattail, P. 84
native

- 
- The image shows a dense cluster of American Water-willow plants. The stems are upright and green, with opposite, lanceolate leaves. Small, white, five-petaled flowers are scattered throughout the foliage. The background is a dark, wet surface, likely a stream or pond.
- variable “orchid” flower
 - erect stem, solid core
 - opposite leaf distribution
 - may grow in terrestrial areas

American Water-willow
native

Water Pennywort, P.122 native



- scalloped leaf edges
- smooth leaf surface
- forms surface mats but rooted to shore



- 
- spear-shape leaf
 - white flower
 - rooted to shore

Bull Tongue, P. 76
native

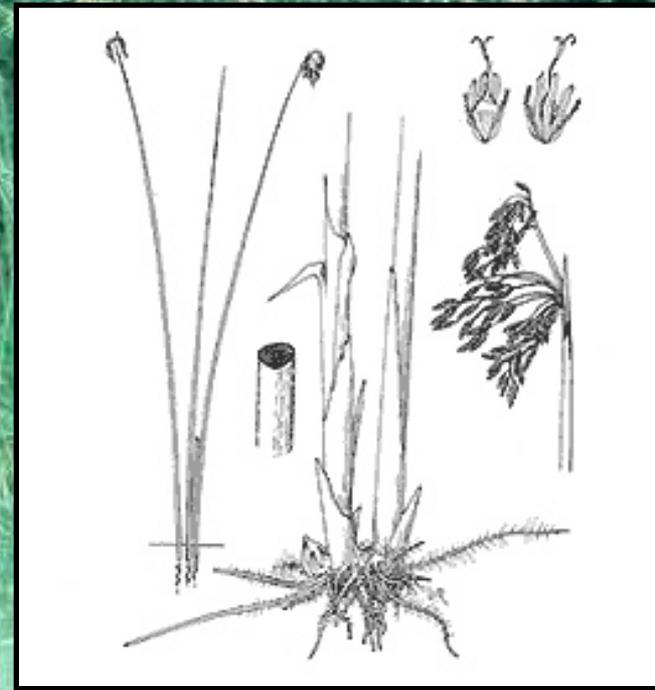


- arrow-shape leaf
 - points up
- white flower
- rooted to shore

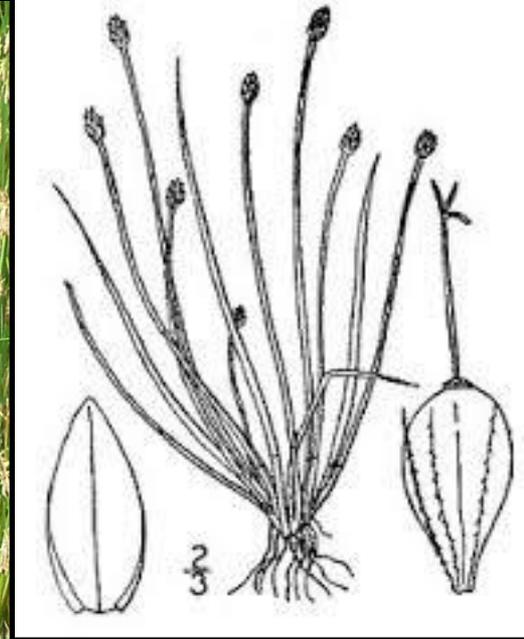
Arrowhead, P. 76
native

- cylindrical stem, 4-8'
- leaves wrap around
- small flower head
- shallow water

Giant Bulrush, P. 80
native



- flattened stem, 1-2'
- no obvious leaves
- small flower head
- shallow water



Flat-stem Spikerush, P. 102 native



- yellow flower
- erect stem, solid core
- heart-shaped leaf
- rhizome

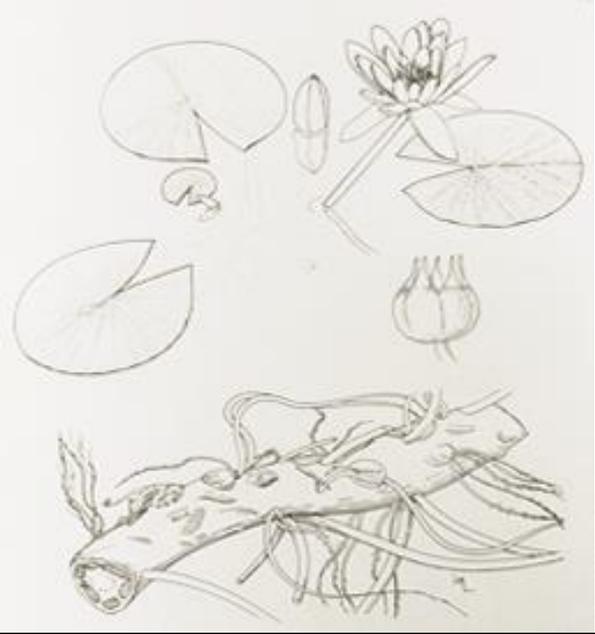


Spatterdock

a.k.a., Cow Lily, P. 116

native





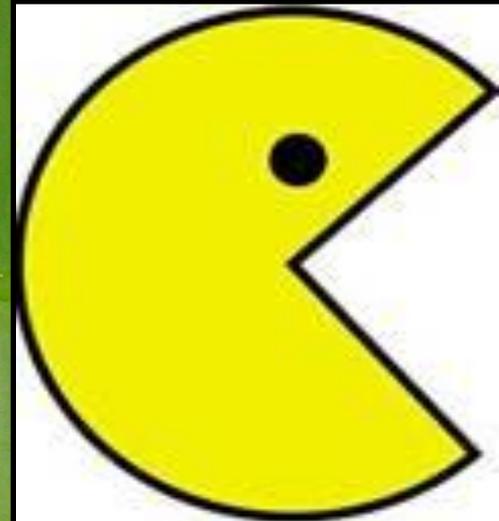
- White flower, smells nice
- erect stem, solid core
- PacMan leaf
- rhizome



White Water-lily

a.k.a., Fragrant W-I, P. 118

native





- small pad
- slimy stem

Water shield
Brasenia schreberi
Photo by Vic Ramey
Copyright 1999 Univ. Florida

Water shield. P. 126

native



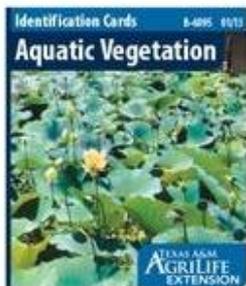
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FAQ



B-6095: Aquatic Vegetation Identification Cards



Our Price: \$12.00

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+ LARGER PHOTO



Description

Correct identification of aquatic vegetation is critical to its management. This palm-sized flip deck features photographs and line drawings of 61 aquatic plants commonly found in Texas. Nonnative plants, which can cause extensive ecological and economic damage, are identified. (132 pp., 61 color photos, 61 drawings) By: Michael P. Masser

Related Items

SP-337: Rare Plants of Texas

Our Price: **\$35.00**



B-6208: Brush and Weeds of Texas Rangelands

Our Price: **\$25.00**



HT-013S: Manejo de paisajes Earth-Kind

Our Price: **\$19.99**



SP-342: Exotic Animal Field Guide

Our Price: **\$23.00**





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A POND MANAGER DIAGNOSTICS TOOL

Plant Identification

Management Options

Other Links

Return To Wild Things

FAQ's



This web site was designed to help pond owners and their advisors in the identification and management of aquatic vegetation. Aquatic vegetation management can be a perplexing problem. The first part of that problem is proper identification. Management of most aquatic plant species depends on properly identifying the desirable or nuisance plant. If you need assistance with identification then proceed to [Plant Identification](#).

If you already know the aquatic plant that needs management, then you want to proceed to [Management Options](#).

For additional assistance with aquatic vegetation management contact your County Extension Office.

	<h1>Center for Aquatic and Invasive Plants</h1>	
University of Florida	 UNIVERSITY OF FLORIDA	Institute of Food and Agricultural Sciences

Since 1979. On the web since 1995. Welcome to the University of Florida Center for Aquatic and Invasive Plants and to the Aquatic, Wetland and Invasive Plant Information Retrieval System (APIRS), the world's largest information resource of its kind. We provide a variety of services and products. [Make this home page look better on your screen.](#)

K-12 Teachers

It's time to order your *Free* photo-murals:

Invasive Non-Native Plants - This photo-mural is now available!



Native Freshwater Plants - This photo-mural available in June 2001

● [The Great Air Potato Roundup!](#)

APIRS DATABASE Online

- [Database for Aquatic, Wetland and Invasive Plants](#)
- [More Than 53,000 References!](#)

AQUAPHYTE Newsletter

- [Aquaphyte Online--Winter 2000](#)

Meetings and Books

- [Be There, Do That](#)
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Mixed Messages Department

It's up to us

A.
ALY

WARNING

**GIANT SALVINIA PRESENT IN LAKE PALESTINE RESERVOIR
PLEASE INSPECT BOATS AND TRAILERS BEFORE LEAVING AREA**







STATUS: Giant salvinia is a floating aquatic plant prohibited in the United States by Federal Law. First documented in Toledo Bend in 1998, this plant is now widespread throughout the reservoir. Giant salvinia grows rapidly and forms thick mats which crowd out other vegetation, degrade water quality, and impede recreational access. Giant salvinia now poses a serious threat to all water bodies in East Texas.

IT IS ILLEGAL TO POSSESS OR TRANSPORT GIANT SALVINIA

PREVENTION: Giant salvinia is easily transported to other water bodies via boats, propellers, and trailers. Even small plant fragments can create new infestations. Help prevent unwanted introductions.

ALL BOATERS SHOULD INSPECT AND CLEAN THEIR BOATS AND TRAILERS BEFORE LEAVING LAUNCH AREAS

**RAMP
CLOSED**

Thanks!!

