

LAKEWATCH

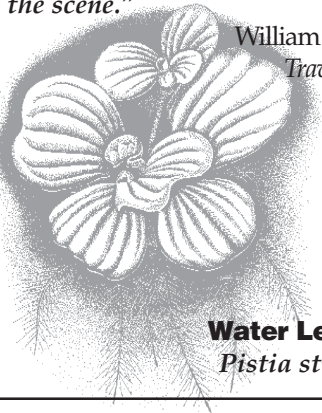
A Publication Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program Volume IX Spring 1997

"It being a fine cool morning and fair wind, I set sail early, and saw, this day, vast quantities of the Pistia stratiotes, a very singular aquatic plant. It associates in large communities of floating islands, some of them a quarter of a mile in extent, which are impelled to and fro, as the wind and current may direct. They are first produced on or close to the shore, in eddy water, where they gradually spread themselves into the river, forming most delightful green plains, several miles in length, and in some places a quarter of a mile in breadth...."

These islands present a very entertaining prospect; for although we behold an assemblage of the primary production of nature only, yet the imagination seems to remain in suspense and doubt; as in order to enliven the delusion and form a most picturesque appearance, we see not only flowery plants, clumps of shrubs, old weather-beaten trees, hoary and barbed, with the long moss waving from their snags, but we also see them completely inhabited, and alive, with crocodiles, serpents, frogs, otter, crows, herons, curlews, jackdaws, etc.

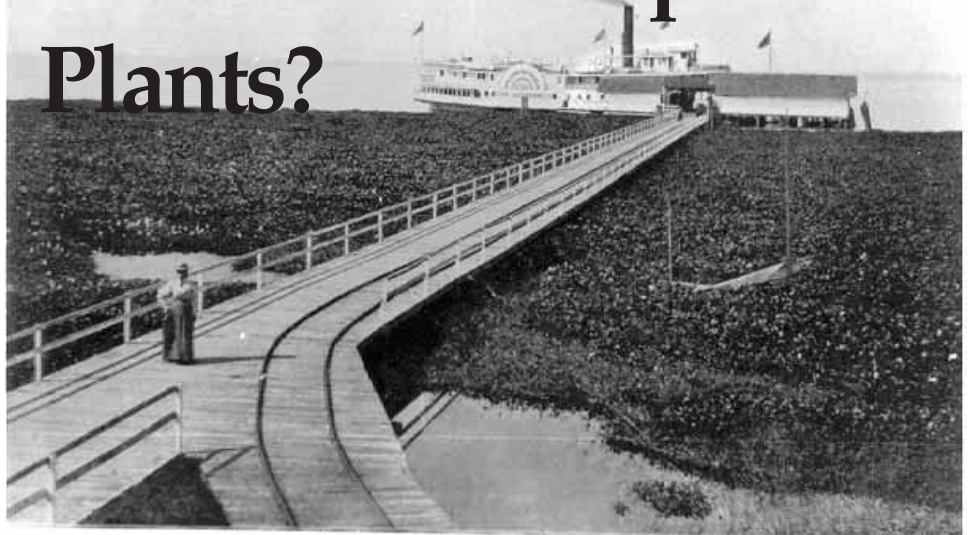
There seems, in short, nothing wanted but the appearance of a wigwam and a canoe to complete the scene."

William Bartram
Travels, 1774



Water Lettuce
Pistia stratiotes

What About Aquatic Plants?



"Islands" of aquatic plants on Florida (and Louisiana) waterways in the late 1800s led the US Congress to pass the River and Harbor Act of 1899, charging the US Army Corps of Engineers to find ways to control aquatic plants.

With an obvious sense of wonder, naturalist William Bartram recorded the previous passage during his exploration of the St. Johns River in 1774. More than two centuries later, his eloquent writings provide a valuable baseline of information on aquatic plant abundance in Florida—helping us to realize that the bounty of aquatic plant life we see today on many water bodies (and often attribute to contemporary influences) is not a recent phenomenon.

The St. John's River that Bartram wrote about in 1774 was so clogged with vast floating mats of water hyacinth in the 1890s that river travel became virtually impossible in some areas. Lake Okeechobee was covered with aquatic plants as well. Some cities were even shut off from the rest of the state due to extremely dense growth of aquatic vegetation. Things were so bad, in fact, that the United States Congress passed the River and Harbor Act of 1899 charging the Army Corps of Engineers to find a way to control aquatic plants. And so, in what was initially an attempt to keep navigational channels open, the evolving science of aquatic plant management began.

Over a hundred years later, aquatic plant management is still evolving and has become a complex state-wide endeavor involving many federal, state and county agencies, cities, citizens and lake management groups.

Granted, aquatic plants aren't the only aspect of lake management warranting attention, but they often provide a major source of controversy when it comes to lake use. With Florida's steadily increasing population, user conflicts are bound to arise as aquatic plants often hold different values for boaters, swimmers, bird watchers, anglers, and lake residents (to name a few).

By definition, an aquatic weed is a plant growing where someone doesn't want *(continued on page 2)*



**UNIVERSITY OF
FLORIDA**

Institute of Food and Agricultural Sciences
Department of Fisheries and Aquatic Sciences

What About Aquatic Plants?

(continued from page 1)

it. One person's plant "infestation" might be another's ideal fish or waterfowl habitat.

However, the difficulty of aquatic plant management doesn't end simply with conflict resolution. Once conflicts are resolved, how does one go about planning and implementing management strategies? How does one begin to "manage" plants on a lake? And who does one call to obtain information about aquatic plants and their identification, removal, control, or re-vegetation? So much to know and so little time.

In an effort to empower citizens to evaluate and apply aquatic plant management options, we've dedicated this newsletter issue to highlighting resources available to the public in three segments:

- ◆ a listing of *Aquatic Plant Management Resources* and contacts (see page 3),
- ◆ *Who Are You Going to Call?* (pages 4 & 5) introduces readers to several of the states leading aquatic plant specialists, and includes their responses to a selection of your most frequently asked questions,
- ◆ and lastly, a listing of multi-media *Aquatic Plant Reference Materials* for identifying, managing, and locating aquatic plants (see page 6).

We hope this information is useful to you and that readers won't hesitate to call with questions or comments. **FLW**

Florida

LAKEWATCH

newsletter is generated by the Florida LAKEWATCH program, within the Department of Fisheries and Aquatic Sciences of the Institute of Food and Agricultural Sciences (IFAS) at the University of Florida (UF). Support for the LAKEWATCH program is provided by the Florida Legislature, grants and donations.

For more information about LAKEWATCH, to inquire about volunteer training sessions, or to submit materials for inclusion in this publication, write to:

Editor / Florida LAKEWATCH
7922 NW 71st Street
Gainesville, FL 32653-3071
or call 1-800-LAKEWATCH (525-3928)
352-392-9617 ext. 228

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Inclusion does not constitute endorsement, nor does exclusion represent censure of any item, organization, individual, or institution by the University of Florida or the Florida LAKEWATCH program.

Director Sandy Fisher
Chemist Mary Stonecipher
Editor Amy Richard

Whether it be cleaning out lake drainage overflows, gluing plaques to stormwater inlets, or developing a series of lake management incentives, citizens' public participation is occurring all over the state. Listed below are just a few examples of citizen involvement in Florida lake management.

Out Of Sight, Out Of Mind?

For several years, stenciling of stormwater inlets has been used in an attempt to deter dumping of wastes down them. Now there is one more technique being used to educate the public about stormwater runoff—plaques are being glued to concrete storm drain inlets as an alternative to stenciling. Some of our very own LAKEWATCH volunteers are using both techniques—two solutions for a common problem.

ORLANDO INSTALLS PLAQUES

"Stormwater plaques are a new wave form of stenciling" said Bruce Fallon, with the City of Orlando. The city's Stormwater Utility Bureau has recently implemented a citywide stormwater plaque program, in an effort to educate the public about stormwater runoff.

"First you have to clean the surface of the inlet with a steel-wire brush to remove grit, algae, grease or whatever. Then we use the glue to affix the plaque to the top of the stormwater inlet. We've been using a urethane-based marine epoxy in a caulking gun. The plaques are a little smaller than a license plate.

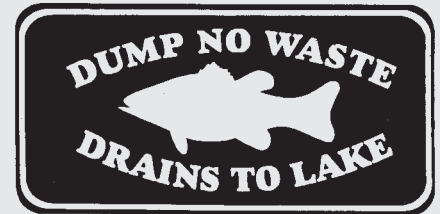
"The City of Orlando is providing the support and a state grant is pending from the St. John's River Management District to pay for the actual plaques. We're relying on volunteers to install the signs to the inlets.

"About 1500 plaques have been installed in the first three months of the project. We hope to ultimately install the signs to 5000 inlets. We're currently looking for additional volunteers to help with the installation of the plaques.

"We've had a wide variety of folks and organizations get involved in the plaque project: neighborhood associations are getting involved, the Boy Scouts of America, civic groups, as well as LAKEWATCH volunteers.

"We're hoping all awareness activities will affect public actions to some degree. We have been receiving more reports from folks complaining about neighbors dumping waste into stormwater drains, and when we talk to the folks doing the dumping they readily admit to using the drains. So we feel like the plaques are a good way to educate people about where the water goes."

For more information, contact Bruce Fallon with the City of Orlando at 407/246-2370.



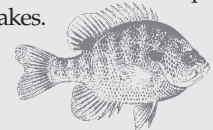
EDUCATIONAL GRAFFITI?

by Niva Colon and Missy Prelog
(EAGLE EYE UPDATE, March 1997)

Eagle Eye Incorporated (EEI) is a water quality monitoring project, organized by the 9th and 10th grade students at Walker Memorial Junior Academy. EEI is a part of the Florida LAKEWATCH network that is sponsored by the University of Florida. We believe it is very important to care for and preserve our lakes.

Everyday water empties through storm drains into lakes and carries pollutants such as street litter, plastic, fertilizers, pesticides, household waste and paint. The accumulation of such pollutants can be harmful to fish and the surrounding wildlife.

Part of the solution is stenciling storm drains. Storm drain stenciling is a process of where we spray paint a stencil on a storm drain with the words, "Dumping Here Pollutes Our Lakes." This reminds people not to dump pollutants into storm drains, parking lots, yards, driveways, and other places. This can prevent pollutants from running off driveways and into storm drains, that pour into our precious lakes.



Florida Lake Management Society (FLMS) now offers aluminum stormwater plaques that can be glued to stormwater inlets, outfalls, or other locations to educate and alert the public of the need to keep pollutants out of the stormwater system.

Plaques are 10 inches X 5 inches with rounded corners, and have the message: DUMP NO WASTE - DRAINS TO LAKE surrounding a bass silhouette. Alternative wording or phrasing is available. For more information on the plaques, contact:

Mr. Gene Medley
PO Box 92448
Lakeland, FL 33808
(941) 603-6307

AQUATIC PLANT MANAGEMENT RESOURCES

BUREAU OF AQUATIC PLANT MANAGEMENT (Florida Department of Environmental Protection)

REGIONAL OFFICES:
(counties indicated in italics)

Northwest Florida

Bay, Calhoun, Escambia, Franklin, Gulf, Gadsden, Holmes, Jackson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, Washington,
3917 Commonwealth Blvd.
Tallahassee, FL 32399
(904) 487-2600
Contact: Jess Van Dyke

Southwest Florida

Citrus, Hernando, Lake, Levy, Marion, Pasco, Sumter
6355 South Florida Avenue
Floral City, FL 34436
(352) 726-8622
Contact: Jim Kelley,
Robbie Lovestrand
Terry Sullivan

South Gulf

Charlotte, DeSoto, Hardee, Hillsborough, Manatee, Lee, Pinellas, Sarasota
Interstate Business Park
8302 Laurel Fair Circle, #140
Tampa, FL 33610
(813) 744-6163
Contact: John Rodgers

South Central

Glades, Hendry, Polk, Highlands
2001 Homeland-Garfield Road
Bartow, FL 33830
(941) 534-7074
Contact: David Demmi or Matt Phillips

Suwannee River

Alachua, Baker, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Jefferson, Lafayette, Madison, Suwannee, Taylor, Union
703 North Marion St.
Lake City, FL 32055
(904) 758-0464
Contact: Joe Hinkle

St. Johns River

Brevard, Flagler, Orange, Osceola, Putnam, Seminole, St. Johns, Volusia
5882 S. Semoran Blvd.
Orlando, FL 32822
(407) 275-4004
Contact: Dean G. Barber or Ed Harris

South Florida

Broward, Collier, Dade, Indian River, Martin, Monroe, Okeechobee, Palm Beach, St. Lucie
3111-B13 Fortune Way
Wellington, FL 33414
(561) 791-4720
Contact: Jacqueline Smith

FLORIDA'S WATER MANAGEMENT DISTRICTS:
(counties indicated in italics)

South Florida (SFWMD)

Broward, Collier, Dade, Glades, Hendry, Highlands, Lee, Martin, Okeechobee, Palm Beach, St. Lucie,
PO Box 24680
West Palm Beach, FL 33416
(954) 687-6201 ext 6866
Contact: Anita Bain

Southwest Florida (SWFWMD)

Charlotte, Citrus, Hardee, Hernando, Highlands, Hillsborough, Lake, Levy, Manatee, Marion, Pinellas, Polk, Sarasota, Sumter
2379 Broad Street
Brooksville, FL 34609-6899
(352) 796-7211 ext 4537
1-800-423-1476
Contact: Brian Nelson

St. Johns River (SJRWMD)

Baker, Brevard, Clay, Duval, Flagler, Indian River, Lake, Marion, Nassau, Putnam, Seminole, St. Johns, Volusia
PO Box 1429
Palatka, FL 32178-1429
(904) 329-4500
Contact: Wayne Corbin

Suwannee River (SRWMD)

Alachua, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Suwannee, Taylor, Union
9224 CR 49
Live Oak, FL 32060
(904) 362-1001 or 1-800-226-1066
Contact: Robert Mattson

Northwest Florida (NFWMD)

Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Leon, Liberty, Jackson, Okaloosa, Santa Rosa, Walton, Wakulla, Washington,
Rt. 1 Box 3100
Havana, FL 32333
(904) 539-5999
(no contact person)

UF ARMY CORPS OF ENGINEERS

PO Box 1317
Palatka, FL 32178
(904) 328-2737
Contact: Nancy Allen

CENTER FOR AQUATIC PLANTS

(UF/IFAS)
7922 NW 71st Street
Gainesville, FL 32653
(352) 392-9613
Contact: Dr. Ken Langeland

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES (FDACS)

Bureau of Compliance and Monitoring
3125 Conner Blvd. MD-1
Tallahassee, FL 32399-1650
(904) 488-3314
Contact: Mr. Kal Knickerbocker

FLORIDA GAME AND FRESH WATER FISH COMMISSION

Grass Carp Information

620 S. Meridian Street
Tallahassee, FL 32399-1600
(904) 488-4066
Contact: Mr. Dave Eggeman

REGIONAL OFFICES:

(counties indicated in italics)

Northwest Region

Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, Washington
701 W Nelson Ave
DeFuniak Springs, FL 32433
(904) 892-8000
Contact: Dale Jones

Northeast Region

Alachua, Baker, Bradford, Clay, Columbia, Dixie, Duval, Gilchrist, Hamilton, Lafayette, Levy, Madison, Nassau, Suwannee, Taylor, Union
Route 7, Box 440
Lake City, FL 32055
(904) 758-0530
Contact: Jerry Krummrich

Central Region

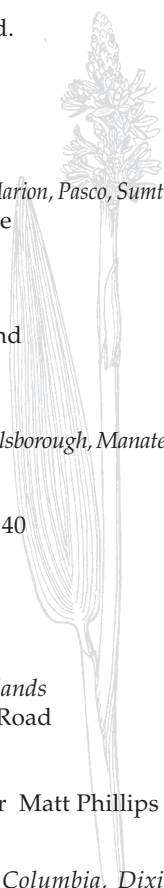
Brevard, Citrus, Flagler, Lake, Marion, Orange, Osceola, Putnam, Seminole, St. John's, Sumter, Volusia,
1239 SW 10th Street
Ocala, FL 34474-2797
(352) 732-1230
Contact: Sam McKinney

South Region

Charlotte, De Soto, Glades, Hardee, Hernando, Highlands, Hillsborough, Lee, Manatee, Pasco, Pinellas, Polk, Sarasota,
3900 Drane Field Road
Lakeland, FL 33811-1299
(941) 648-3202
Contact: Tom Champeau

Everglades Region

Broward, Collier, Dade, Florida Keys, Hendry, Indian River, Martin, Monroe, Okeechobee, Palm Beach, St. Lucie
551 N Military Trail
W Palm Beach, FL 33406
(407) 640-6100
Contact: Frank Morello



Who Are You Going To Call?

With so much to know about aquatic plant management, it's a good idea to consult with as many experts as possible as you will find there can be many differing opinions on the subject. Lake management is an evolving science and citizens interested in making informed decisions would do well to try to hear as many viewpoints as possible.

Fortunately, there are several resources that can offer assistance to Florida citizens about aquatic plants and management techniques. In this segment, we're introducing these agencies and organizations, as well as a few of the state's leading aquatic plant specialists. For a complete listing of the agencies/contact persons, including addresses and phone numbers, see page 3.

Bureau of Aquatic Plant Management / Florida Department of Environmental Protection

is the lead agency for aquatic plant management. Regional biologists can make site visits to: identify plants, spot current or potential problems, recommend methods for removal or control, as well as provide lists of certified professional aquatic plant control specialists. They also issue permits to control aquatic plants (on both private and public waters) to provide access to open water.

The Bureau, working with other groups, is also responsible for allocating funds (from the Aquatic Plant Management Trust Fund) for aquatic plant control on public water bodies throughout the state.

Dean Barber, one of the Bureau's state regional biologists, is an ideal example of an aquatic plant manager and educator. Responsible for covering many miles and talking to dozens of people daily, Mr. Barber seems to have an endless supply of energy and enthusiasm for his work.

Because the bureau is the lead agency for aquatic plant management in the state, Mr. Barber will be answering many of the questions addressed here.

Center for Aquatic Plants

(University of Florida / Institute of Food and Agricultural Sciences) is a research/ education center dedicated primarily to studying aquatic weeds (problem aquatic plants) and techniques used to control them in natural water bodies.

For information regarding chemical, mechanical or manual removal of aquatic plants, Dr. Ken Langeland, with the Center for Aquatic Plants can be a valuable resource. Dr. Langeland is the Aquatic Weed Extension Specialist for the Center and is available to answer questions. He can also provide listings of licensed aquatic plant control specialists.

South Florida residents can contact Dr. Vernon Vandiver or Dr. David Sutton at the Center's extension office in Ft. Lauderdale.

In addition, the Center's Aquatic Plant Information Retrieval System (APIRS) has a database of more than 44,000 references, as well as a hard-copy collection, on the subject of aquatic and wetland plants. The database can be searched, at no charge, to produce bibliographies on any aquatic plant subject or keyword. APIRS is online at the Center's web site, providing a wealth of information on aquatic plants with links to dozens of aquatic plant-related sources. The website can be reached at: <http://aquat1.ifas.ufl.edu/>

Florida Water Management

Districts have jurisdiction over state waters and should be contacted if you're contemplating any dredge or fill activities (building a beach for instance). They can inform you whether or not it's in the DEP's or the WMD's jurisdiction. They can also provide lists of local certified professional aquatic plant control specialists.

Several of the districts have public information offices and have developed numerous educational materials concerning aquascaping, xeriscaping, and local water management practices.

However, the water management district spokespersons we talked with all stressed the same point—if folks need permits or site visits for aquatic plant problems, they should contact DEP's Bureau of Aquatic Plant Management. (See listing on page 3)

Florida Department of Agriculture and Consumer Services (DACS)

is responsible for certifying and licensing both commercial and non-commercial applicators for use of restricted pesticides, including herbicides.

US Army Corps of Engineers

is involved with aquatic plant management on federal navigable waters, through funding of the projects or actually administering the work.

Biologist Nancy Allen stressed that "Corps biologists can also give presentations, provide information or answer questions .

Florida Game and Fresh Water Fish Commission (GFC)

is challenged to maximize fish and wildlife populations in the state. However, they are also active in aquatic plant management as related to wildlife habitat. Their regional biologists often serve as consultants on aquatic plant management issues and are also involved in restoration of various water systems around the state by monitoring plant populations.

One of their responsibilities includes the use of triploid grass carp as a tool for control of aquatic vegetation. A permit is required from the Commission to stock grass carp in a lake and Mr. Dave Eggeman, a GFC Fisheries Biologist should be contacted regarding grass carp issues.

Florida LAKEWATCH (FLW)

(University of Florida / Institute of Food and Agricultural Sciences) is a citizen-based water monitoring program, currently monitoring over 600 water bodies in the state. FLW data can provide important clues for making lake management decisions. For instance, baseline data can help in evaluating which aquatic plant control options would be most effective. Aside from monitoring, FLW also acts as an educational resource for the public by helping folks:

- > identify aquatic plants,
- > research and implement lake management objectives and strategies, and
- > communicate more effectively with lake management agencies.

FLW Director Sandy Fisher, and her staff can also provide a sounding board for folks that don't know where to start in their efforts to manage aquatic plant issues.

Note: Plants being sent for identification should be sent to the attention of Amy Richard.

Q and A

We've asked a few of the state's aquatic plant specialists to respond to some of your most frequently asked questions. Here's what they had to say:

Who do I call if I want to remove nuisance aquatic plants from my lake?

DEP's Bureau of Aquatic Plant Management is the lead agency for aquatic plant management in the state. Dean Barber sums up the Bureau's role:

"The average homeowner may have considerable experience in landscaping their yards, but it can get confusing when it comes to aquatic plant management. We'd like the public to know that first and foremost we're here to serve as

educators, not enforcers or regulators. We encourage folks to call us with any questions regarding waterfront plant management.

"We are also trying to educate the public to be conservative about plant removal, especially native plant species. We want people to be mindful that aquatic plants are very important to lakes by absorbing wave action, helping reduce erosion of the shoreline, provide wildlife habitat and nutrient assimilation. Native plants can also be very helpful in preventing invasive plants from getting established in a lake. This significantly reduces the amount of management needed on waterfronts."

Do I need a permit to clear plants from my lake, even if it's from around my dock?

Unless your lake falls under the exemptions listed by DEP's Bureau of Aquatic Plant Management (see below), the rule is you do need a permit to clear plants from your lake, even around your dock. A permit is also required, even if removing plants by hand.

The good news is the permit is free and the application process is simple. Exemptions from this rule include:

- > waters wholly owned by one person, other than the state. (Homeowner associations can be considered a single owner.)*
- > Class IV waters or artificially created waters used exclusively for agricultural purposes.*
- > Electrical power plant cooling ponds, reservoirs, or canals unless used as or connected to waters designated by the department as manatee aggregation sites.
- > Waters of 10 surface acres or less.*
- > In that specific area of a waterbody where dredge and fill activity is permitted by the Florida DEP, and aquatic plants are removed as a part of the permitted activity.

If in doubt, Dean Barber reminds us that the safest bet is to call one of the Bureau's regional biologists and describe your aquatic plant situation. "Your local DEP biologist will have first-hand knowledge of the water bodies in your area and know enough about the watershed to direct your questions to the right person or agency. They will also be able to help identify plant species, and issue permits."

On the subject of plant removal for access corridors to open water, Mr. Barber says "there is a possibility that citizens will once again be allowed to remove plants to create an access corridor to open water on their lakes (without a permit). Details such as corridor length, and how they can be maintained (mechanical or hand removal vs. herbicides) are currently being discussed."

** Provided there is no connection to Waters of Special Concern. Waters of Special Concern include Class I and II waters, Outstanding Florida Waters, and waters designated by rule as a fish management area by the GFC.*

Once I've got a permit to remove nuisance aquatic plants, what do I do next?

Depending on how you are permitted to remove the plants, there are several directions you can go. For mechanical or manual (hand) removal of plants, Dr. Langeland and his associates at the Center can offer helpful advice.

If a permit has been issued for use of herbicides in removing aquatic plants, DACS is the agency to talk to about licensed professional herbicide applicators. Dr. Langeland points out that "even though aquatic herbicides aren't in the restricted use category, it's best to hire a licensed applicator to do the work.

"A second alternative would be to obtain the training manual or videos available to become a licensed applicator yourself.* Most people aren't going to be willing to go to that amount of trouble, but it is feasible." He adds, "even if a commercial applicator has been hired to apply herbicide, it's still a good idea for folks to acquaint themselves with the Aquatic Pest Control Applicator Training Manual so they can be more intelligent consumers."

**Training manual and videos can be obtained by contacting your local county extension agent or purchased for a minimal cost through UF/IFAS Publications office. (See Aquatic Plant Reference Materials on page 6.)*

Is there anyone I should contact before re-vegetating my shoreline?

"A DEP regional biologist should be notified before attempting to re-vegetate aquatic plants in a lake" says Dean Barber. "We want folks to re-vegetate their waterfront; we encourage them to do so. However, many people can't identify what they've got so it's a good idea to get more information first. If they're importing exotic plants from one lake to another, it could be a violation. (A permit is required for the transportation, import or possession of any exotic aquatic plant species.)

"We can provide a lot of information to people who want to re-vegetate with native plants. If we're notified in advance, we can allow for both removal and re-vegetation on the same permit."

Where can I find aquatic plants for re-vegetating?

The Bureau of Aquatic Plant Management can provide a listing of contractors and nurseries where plants can be obtained. DACS and UF/IFAS' Center for Aquatic Plants can also provide you with these listings.

** The Bureau's regional biologist can sometimes provide tips on where you can harvest plants for free from lakes where native species are being thinned out. However, a permit may be required and extreme care must be taken so that nuisance plants are not transplanted inadvertently. Accidental transplanting has become a multi-million dollar problem in Florida.*

What are the best plants to use to re-vegetate my shoreline?

Dr. Langeland recommends that folks "spend a few minutes watching the aquatic plant videos* (particularly the emergent plant videos) to familiarize themselves with the plants. The videos can also help generate questions to ask commercial vendors/contractors, if they choose to go that route."

According to Langeland, "When re-vegetating a lake shoreline, it usually boils down to planting bulrush, duck potato or pickerel weed. Knot grass or maidencane are also good plants and are quite popular. Bulrush makes excellent songbird habitat and is great for privacy, but because it can grow to be very tall, it can also become a problem by blocking your view of the lake. Maidencane or knot grass are better for allowing a good view of the lake but can grow to be very dense and become a navigation problem. Any of these plants require maintenance and like any garden, lack of management can result in an unsightly area or even a health hazard."

** See Aquatic Plant Reference Materials, pg 6.*

Are grass carp a viable form of aquatic plant control?

Grass carp are the main biological control used to manage hydrilla in Florida lakes. However, it's not always the perfect solution. If too many carp are introduced into a lake, they can eat most of the aquatic vegetation. (They've even been known to wriggle up on lawns to eat the grass!)

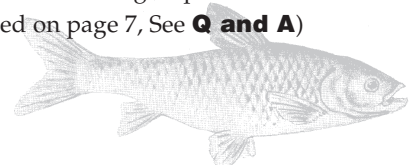
In addition, it can be difficult to estimate the number of carp needed to control plants in a lake. The stocking process is often a matter of trial and error; lake residents/associations need to be aware that a possible consequence of stocking grass carp can be the loss of nearly all their aquatic plants.

Removal of aquatic plants can cause lake water to become murky and result in erosion of the shoreline. Bottom sediments are more readily stirred up without plants to stabilize the bottom of the lake, and loss of aquatic plants may also alter the habitats of some types of waterfowl and fish.

Once grass carp are stocked, it's almost impossible to get them out. (Ever try catching a vegetarian fish on hook and line?) Studies are being done on the feasibility of training carp to respond to (swim toward) sound frequencies for purposes of caging them and moving them on to other lakes. We'll keep you posted on the progress of this project.

The Florida Game and Fresh Water Fish Commission (GFC) should be called for more information concerning carp.

(Continued on page 7, See **Q and A**)



Aquatic Plant Reference Materials

All UF/IFAS reference materials listed here are available through University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) publications. Call or write for their complete resource catalog.

IFAS Publications
University of Florida
PO Box 110011
Gainesville, FL 32611-0011
1-800-226-1764 or (352) 392-1764

Editor's Note: Many of the videos listed here are available for loan from your local county extension office.

IDENTIFYING AQUATIC PLANTS:

AQUATIC PLANT ID CHART

Florida Aquatic Plant Management Society has published an aquatic plant identification chart depicting the more common aquatic plants found in Florida. Plants illustrations are depicted in color, with brief descriptions accompanying each image. Laminated 8 1/2" X 11" charts include measuring scale (in inches). Cost: \$2

US Corps of Engineers
PO Box 1317
Palatka, FL 32178
904/328-2737

AQUATIC PLANT IDENTIFICATION SERIES

A seven-part series featuring 111 of the most common or important aquatic and wetland plants in Florida. Plants are described so that non-botanists can learn to easily identify them. Plants are indexed alphabetically by common name. Recommended for aquatic plant managers, field personnel, students, and the general public. Refer to: SV 361, SV 369, SV 360, SV 363, SV 371, SV 362, SV 370 (UF/IFAS) \$ 15 each

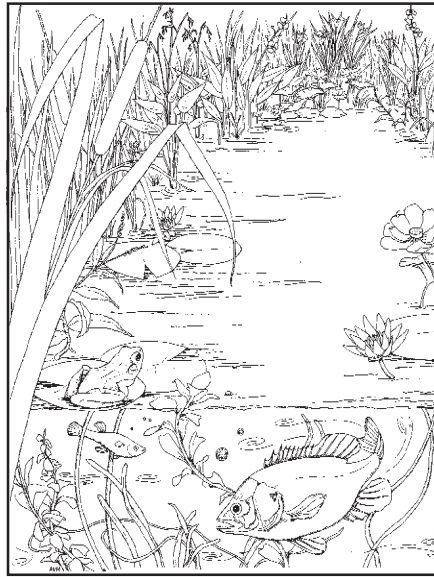
AQUATIC PLANT IDENTIFICATION DECK

Identify Florida's aquatic and wetland plants. Seventy-two full-color laminated cards, with photographs on one side and identification on the back. Makes plant ID easy and convenient. Durable finish creates an ideal field companion. For anyone interested in Florida's aquatic ecosystems. Cards are alphabetized, bound by grommet. (UF/IFAS) Refer to SM 50 \$15

AQUATIC PLANTS IN PEN & INK

Line drawing sets, produced by the UF/IFAS' Center for Aquatic Plants come with full copyright permission. A valuable resource for publication purposes and as an aid for identifying aquatic plants.

This loose-leaf collection depicts 115 aquatic and wetland species, including common, rare and exotic species, and two freshwater scenics. Set delivered in a see-through expanding plastic envelope. 8 1/2" X 11" 70-pound paper. (UF/IFAS) SP 233 \$ 35.00 (See example below)



With permission from UF/IFAS Center for Aquatic Plants

MANAGING AQUATIC PLANTS

FLORIDA'S AQUATIC PLANT STORY

Produced for the general public, this program describes the benefits of native aquatic plants, recounts problems caused by some exotic "aquatic weeds," and introduces the major methods of aquatic plant management. (Video: 24 minutes) (UF/IFAS) # VT-315 \$15

Florida LAKEWATCH

An introduction to Florida LAKEWATCH, an organization of citizen volunteers who monitor the quality of lakes, rivers and bays. Recommended for the general public and management agencies. (Video: 12 minutes) (UF/IFAS) # VT 438 \$15

WHAT MAKES A QUALITY LAKE?

Viewers learn about natural and human factors that help determine a lake's "productivity," as well as differences between lake types in terms of water clarity, algae, plants and fish. Recommended for general public. (Video: 24 minutes) (UF/IFAS) SV398 \$15

MAINTENANCE CONTROL OF AQUATIC WEEDS — WHAT IT IS NOT!

Explains why regular management of aquatic weeds is the most environmentally sound and economical method of aquatic plant management. (Video: 12 minutes) (UF/IFAS) #VT 439 \$15

FROM WASTEWATER TO WATER GARDENS

Reclaimed city wastewater is used to create an aesthetically pleasing water garden, simulating a "spring to sink" system complete with waterfalls and ponds. Follow the path from wastewater to water garden. (Video: 10 minutes) (UF/IFAS) #VT 1121 \$15

AQUASCAPING: PLANTING AND MAINTENANCE

Includes information on site selection and preparation, obtaining plants, maintenance, regulations as well as recommended plant species. This publication is currently being reprinted. In the interim, and time permitting, FLW staff can provide photo copies upon request. Contact FLW at address/phone listed on page 3. (UF/IFAS) Circular 912 Free

AQUATIC WEED MANAGEMENT GUIDE

General principles of aquatic weed control in Florida. Includes weed-herbicides, registrants, and amount of live ingredients; maintenance, care and cleaning of equipment and glossary of terms. (UF/IFAS) SP 55 \$10

LOCATING AQUATIC PLANTS

PLANT AND SERVICE DIRECTORY

Published by the Association Of Florida Native Nurseries (AFNN), this booklet is an instrumental tool used by landscape contractors, landscape architects, land planners, environmental consultants and homeowners to locate native plant materials for their projects. Contact: AFNN

PO Box 434
Melrose, FL 32666
(352) 475-5413 or 1-800-293-5413

AQUATIC PLANT LOCATOR

Strives to be a true plant locator by listing over 500 plants and 250 Florida businesses that supply aquatic plants. The *Locator* is organized into plant, service and business sections. Contact: Florida Department of Agriculture & Consumer Services (DACS) Bureau of Seafood and Aquaculture Attn: Kal Knickerbocker 2051 East Dirac Drive Tallahassee, FL 32310-3760 904/488-4033

(continued **Q and A** from page 5)

Who can help me identify this plant?

There is a great deal of information available concerning aquatic plant identification. (See Aquatic Plant Reference Material on page 6.)

However, if a plant has you completely stumped, you can always send a sample to one of the Bureau of Aquatic Plant Management's regional biologists, the Center for Aquatic Plants, or the FLW office for identification. Take your pick, but remember to call ahead to make arrangements for identification of a plant. Be sure to harvest the plant sample with all its parts (stem, leaves, roots and flowers), if possible.

Possible hydrilla samples should be shown to a professional for identification, as it looks very much like another species. (Hydrilla was initially mistaken for another species here in Florida, until it was too late).

Dr. Langeland says the best way to mail plant samples is to "get as much water out of the plant as possible and seal it into a plastic bag with as much air as possible." (He suggests actually blowing into the bag before sealing it). A paper towel in the bag also helps.

Glossary:

Emergent: aquatic plants whose upper part are held above the water, with roots in the water. (Ex. bulrush or cattails)

Submersed: aquatic plants growing underwater (Ex. hydrilla or pondweed)

Floating-Leaved: plants whose roots are attached to the bottom, yet leaves are on surface of the water. (Ex. waterlilies)

Floating:: Plants that are freely floating on the water surface. (Ex. water hyacinth or duckweed)

Why are Florida lakes so productive?

When a lake has an abundance of aquatic plant life, it is often called a "productive" lake. Why are Florida lakes so productive?

The same nutrient-rich soils and sub-tropical climate that attracted farmers to this state many years ago are also responsible for its productive water bodies. Therefore, it should be no surprise that when a lake happens to be situated on fertile soils, which are constantly enriching the water, an end result is often an abundance of aquatic plants.

This is especially important to consider when evaluating strategies for lake management. In most cases, trying to attain crystal clear water in a lake situated on fertile soils is unrealistic and can be expensive, requiring intense maintenance.

When assessing the quality of a lake, it's important to remember that Florida's more productive lakes can also provide excellent fish and wildlife habitat.

VOLUNTEER BULLETIN BOARD

LAKEWATCH Volunteers Be Watching for your invitation to your Annual Volunteer Appreciation Regional Meeting. Meetings will be held all over the state through the rest of the year. So please be watching and plan to attend if at all possible. We have lots of good things in store for you including:

- > educational displays
- > discussion of data packets
- > aquatic plant identification
- > sneak preview of EPA's Florida Lake Regions Project
- > t-shirt silk-screening and more!

WANTED: PICKERELWEED SITES

Suitable sites are needed for a research project that will study the growth and herbivory of pickerelweed in Florida. Requirements include:

- > At least one acre dominated by pickerelweed (any shape area),
- > Minimal (less than one foot of water) or predictable water level changes,
- > Frequent access possible from shore or by boat,
- > High probability that plants, PVC poles, and cages will be left undisturbed.

If you know of sites that fit all, or most of these requirements in which research could be conducted over the next three years, please contact: Alison Fox, University of Florida, (352/392-1808) or e-mail: amfox@gnv.ifas.ufl.edu.

* Alison will also be looking for native herbivores (plant eaters) of pickerelweed, so please let her know if during 1997 you observe any clumps/areas of these plants being damaged by insects.

Are you a member of a Homeowner or Lake Association?

LAKEWATCH is interested in learning about homeowner and lake management associations in Florida. If you are a member of such a group, or know someone that is, please call us (1-800-525-3928). We'll look forward to hearing from you.

Aquatic Plant Management Society 37th Annual Meeting July 13-16

Sanibel Harbour Resort and Spa / Fort Myers, FL
Contact: Alison Fox
(352) 392-1808

Florida Aquatic Plant Management Society 1997 Annual Meeting: October 7-9

West Palm Beach, Sheraton
Contact Mike Hulon, Program chair at 407/846-5300

LAKEWATCH has a new number!

1-800-LAKEWATCH
(1-800-525-3928)

Volunteers, please make a note of our new number.
P.S. All 1-800-LAKEWATCH calls are charged by the minute, so we do ask that callers anticipating lengthy calls please leave a message and we'll call you right back.

Also, LAKEWATCH still has the original number (352) 392-9617 ext 228.
Thank you!



Students from Eagle Eye Inc. display their stencil used to educate the public about stormwater runoff. See story on page 2.

Dear Friend of Your Lake,

Do you have a concern about your lake and an interest in its future? You deserve help in your efforts to learn about and manage your lake's precious ecosystem. If you have access to any type of boat, can spend two hours each month on your lake, and are willing to monitor for at least a year, you might be eligible for the Florida LAKEWATCH volunteer program.

Florida LAKEWATCH is currently the only research program gathering monthly data to study such a large number and a wide variety of Florida's lakes. However, without the help of volunteers, it would not be possible. We need you! In return for your participation in the Florida LAKEWATCH program, you will receive:

- * a newsletter subscription
- * supplies & use of sampling equipment
- * training in monitoring procedures
- * periodic reports on your monthly data, including an annual report
- * access to lake experts (limnologists)
- * invitations to LAKEWATCH seminars

For more information about how you can become a LAKEWATCH volunteer, contact:

Florida LAKEWATCH

7922 NW 71st Street

Gainesville, FL 32653

1-800-LAKEWATCH (1-800-525-3928) or call (352) 392-9617 ext. 228

MORE ABOUT LAKE ASSOCIATIONS

The following is a continuation of our series of articles/information concerning lake associations. We thought it would be useful to talk with FLW volunteers that are involved in a lake association, to gain their perspective. Here's what they had to say:

Pam Martin is a member of the Lake Hickory Nut Homeowners Association. She's lived on Hickory Nut for 15 years. Her reasons for becoming involved in a lake association?

"I became very involved in trying to do something about the changes our lake was going through. A couple of other neighbors wanted to start a home owners association, and I was trying to find out, from the county, what was wrong with the lake. It seemed the home owners association would be a good way to keep neighbors informed of lake management issues. Our lake had changed so drastically that everyone got involved, including the Orange County Environmental Protection Agency (EPA). We all sat down and discussed the situation.

"Lake Hickory Nut is located in amongst orange groves, with very little land development. However, Conserve II was using reclaimed water (treated waste water) to spray the orange groves. This reclaimed water was directly affecting the water level of the lake. After a lot of discussion it was agreed that they are now only allowed to run so much water through one

filtration tank. That's how we got started—to deal with this issue. We were getting large amounts of algae in the lake, and I don't know about anyone else, but I don't like to put my foot where I can't see it."

"We've also had a landfill move in and we proved that the landfill runoff would end up in the lake, so in permitting they were denied the ability to collect hazardous material.

"We have a pretty tight-knit and active group. We always have the most members show up at the FLW regional meetings. We have breakfast after lake sampling each month. We also try to have lunch together once a month (with as many as 28 people). It's like a big family.

"I think it's important to get involved. We want our kids to learn that people can make a difference. I've always learned that when you give, you usually receive something in return. Also, I think people should understand how valuable LAKEWATCH is. Water is the most important thing in Florida, in my opinion. We need it for fishing, boating and for everything else including bathing and drinking! We're sitting on top of the aquifer and if we don't start protecting it, we're going to be in trouble."

Mr. Dub Murphree is a resident of Kingsley Lake in Clay county. "Our association (the Kingsley Lake Property Owners Association) started at least 10 years ago to address homeowner issues. Once the association was formed, lake issues ultimately became part of its ongoing agenda including the push to get

Kingsley designated as an Outstanding Florida Waterway.

"Our association even purchased a building; we lease the property back to the county to be used as a civic center. The county handles the maintenance of tennis courts, and playgrounds, etc.

"We currently have a huge project staring us in the face—the possible addition of a sewer system coordinated with the renovation of the waste water utilities at Camp Blanding (Florida National Guard base). We've been talking to them about hooking up to their sewer system, as opposed to our current septic system. LAKEWATCH data has shown us that algae levels spike in the summer. Our association thinks it's because the septic tanks are getting older.

"There are some pretty major issues to deal with when it comes to taking care of a lake, ranging from water conditions to safety.

"For example, we recently had a Law Enforcement Appreciation Dinner/Meeting. The law enforcement officers talked about what they do, along with discussion of new boating safety laws. (We're currently looking very seriously at water safety.)

"We've decided to attack the jet ski problem head on. There are too many reckless people out there, and we're afraid that somebody's going to get hurt. We're encouraging people to report violations, as well as trying to educate all our members, and lake residents, about boating safety laws."