REVIEW OF INVASIVE PLANT MANAGEMENT PROGRAMS

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Prepared for:
The Florida House of Representatives

by:
The Committee on Environmental Protection

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Summary

Florida's geographic location provides ideal environmental conditions for nonnative invasive plant species. Thousands of nonnative plants are intentionally and accidentally brought into Florida on an annual basis. In 1990 alone, over 333 million plants were brought through Miami International Airport. Nonnative plant species modify native plant communities and alter natural water flows, sunlight and displace natural vegetation and wildlife. In only a few weeks, some nonnative plant species form dense thickets and monocultures (a habitat consisting solely of nonnative plants) at the expense of our native species.

These nonnative plants have the ability to take over lakes, rivers and canals and impede flood control, block our navigational water ways, reduce property values and invade agriculture lands. As a result, the state and local governments spend millions of dollars every year controlling nonnative invasive plants.

The Department of Environmental Protection (DEP or department) has the primary responsibility for managing aquatic plants in inter-county public waters. The DEP's Bureau of Invasive Plant Management is the leading division which directs the control and regulation of aquatic weeds.

The Bureau is structurally divided into three sections: Permitting, Aquatic Plant Management, and the Upland Invasive Plant Program section. The *Permitting* section regulates Aquatic Plant Management Permits and possession and transportation of invasive aquatic plants.

The *Aquatic Plant Management Program* section administers the aquatic plant management program. This program distributes funding based upon a project's priority ranking. The three aquatic plants that are the most threatening to Florida include: water lettuce, water hyacinth and hydrilla. In 1999, CS/CS/SB 908 (Florida Forever Act) amended the documentary stamp tax revenue distribution to provide that 2.28 percent of these revenues (or approximately $20 - $22 million) is to be distributed annually to the department to help control aquatic weeds beginning in FY 2001. According to the department an estimated $18 million of this revenue may be appropriated toward the continuous maintenance of hydrilla.

The *Upland Invasive Plant Program* section administers the upland invasive plant program which originated as a pilot program in 1997. In 1999, the Florida Forever Act amended the documentary stamp tax revenue distribution and provided that a percentage of the revenues generating approximately $5 million is to be distributed annually to the department to help control upland invasives beginning in FY 2001. According to the department, this funding will be used to control Brazilian Pepper, Cogan Grass and Chinese Tallow, among other threatening upland invasive plants.

The local governments have the primary responsibility for managing intra county water bodies and certain public lands. This committee conducted a survey of all 67 counties to determine

whether the counties have an invasive plant program, and if so, the details of their program. Out of 32 responses, only 20 counties had an invasive aquatic plant program. Nine of these counties participated in the state's matching fund program: Brevard, Citrus, Highlands, Hillsborough, Lake, Orange, Palm Beach, Polk and Volusia. In addition, only 14 counties had some type of upland plant management program.

In addition to county programs, three out of the five water management districts have some sort of aquatic and/or upland program. During FY 1999-00, the state contributed about $5.5 million from various sources to the South Florida Water Management District to control aquatic and upland invasive plants. In that same year, St. John's and Southwest Florida's Water Management Districts received about $150,000 from state funds to control invasive plants within their district.

Despite the state and local governments mature invasive plant management programs, one issue still remains to be addressed: What incentives can be setforth, if any, that may encourage private landowners to actively and continuously participate in an invasive plant management program?

If a private landowner fails to control invasive plants on his/ her land, the plants may spread onto adjacent public lands. As a result, the state pays high maintenance fees every year in a continuous struggle to control this constant reinfestation. Recommendations to encourage the private landowner to become actively involved in eliminating invasive plants on his/ her lands include: a lower property tax; educational workshops; management agreements with state or local governments; in-kind contributions. In addition, counties may encourage private landowners to act through ordinances.

Overall, DEP's Bureau of Invasive Plant Management Program is administered efficiently and is currently being used by other states and countries as a model program.

Background

Florida and Hawaii are the top two states in the country with the highest number of nonnative exotic plant species. Many ecologists ask: Why Florida? Florida is predisposed to greater levels of infestations than other states due to its geographic region. Florida is comprised of residential lands, agricultural lands, forests, islands and wetlands. Florida is bound on three sides by water and a fourth by seasonal frost. In addition, Florida is 6% water and contains some 7800 lakes and 1700 rivers which provide an ecologically sound habitat for both aquatic and upland nonnative plant species. Nonnative species not only thrive in warmer temperatures but spread and achieve pest status. Due to their geographic similarities it is no coincidence that Florida and Hawaii are the two states with the most severe nonnative plant species problem.

In addition, Florida has become the core of tourism which facilitates spreading nonnative flora. Thousands of species are intentionally introduced into Florida for either ornamental, vegetative, or pharmaceutical purposes. In 1990 alone, roughly 333 million plants were brought into Florida through Miami International Airport.

Thousands of nonnative plants are accidentally brought into Florida as contaminants in agricultural seed, packing materials, shipping containers, or by vehicles, boats or trailers. Some nonnative plants are introduced into Florida for research but accidentally escape from the biologists, or researchers.

Not all nonnative plants are, however, invasive. Invasive plants are those which displace native species due to their rapid expansion and have widespread detrimental impacts on the surrounding environment. Such invasive plants initially add diversity to its surroundings, but they soon take over and form their own single habitat, known as a monoculture. Invasive plants modify entire communities and disrupt the natural process of water and sunlight. With little water and sunlight, these dense monocultures allow no room for native plants to grow and as such, virtually eliminate all other plant life. Due to the lack of vegetation animals have less food and soon become displaced. Stability in the ecosystem is lost and plant diversity is decreased up to 80%.

Unfortunately, these weeds impede flood control, block our navigational water ways and water use, reduce property values, invade agricultural land and increase brushfire risk. Therefore, the state and local governments combined spend millions of dollars each year controlling invasive nonnative plant species.

Methodology

In undertaking this interim project, staff has conducted several meetings and telephone interviews with DEP's Bureau of Invasive Plant Management, the five water management districts, representatives for the League of Cities and Association of Counties along with various private interest groups.

Staff gathered literature from all of the above entities which was used as a basis for this report. This staff also distributed a survey to all 67 counties and 5 water management districts gathering fiscal, administrative, and policy information on aquatic and upland plant programs. In addition, staff has participated in three field trips for this project to Jonathan Dickinson State Park, Lake Okeechobee and the Kissimmee Lakes Chain.

Findings

I. Findings: State Program

Under section 369.22, F.S., the Department of Environmental Protection (DEP or department) shall direct the control and regulation of noxious aquatic weeds. DEP's Bureau of Invasive Plant Management (Bureau) is the leading division which administers the department's aquatic and upland programs and regulates invasive aquatic plant permitting.

The Bureau, on behalf of the department, is authorized to: accept donations; contract with public and private entities; construct and maintain a facility; and enter onto private property for the purpose of making surveys or examinations. The department may disburse funds to any special district or other local entity charged with controlling aquatic plants, upon: receipt of proof that such entity has funds on hand to match the state funds on an equal basis; approval of the control techniques; and approval that the entity's program is in conformance with the state plan.

A. Bureau of Invasive Plant Management: Structure and Administration

The Bureau's philosophy in administering its aquatic plant program is to continuously control (not eradicate) the nonnative plants at a low level of infestation. "It is the intent of the Legislature that the control of nonindigenous aquatic plants be carried out primarily by means of maintenance programs, rather than eradication or complaint spray programs, for the purpose of achieving more effective control at a lower long range cost." Fla. Stat. §369.22(3).

Structurally, the Bureau of Invasive Plant Management (Bureau) is divided into three sections: 1) Permitting, 2)Aquatic Plant Management and the 3) Upland Invasive Plant Program section. (See attachment #1).

1. Permitting

Currently, this Permitting section is comprised of 14 biologists which are regionally located in eight offices throughout the state. According to the department, the regional biologists administer the following duties: locate new exotic plant infestations, assess plant levels in public waters, direct management activities, and conduct follow up inspections.

These biologists also interview applicants for *Aquatic Plant Management Permits* and *Aquatic Plant Importation, Transportation, Non-nursery, Cultivation, Possession and Collection Permits.* Under Florida law, no one is to control, remove, eradicate or alter any aquatic weeds or plants in sovereign waters unless they first obtain an *Aquatic Plant Management Permit.* There are exceptions, e.g., a riparian owner may physically or manually remove aquatic plants within 50 percent of the property owner's frontage or 50 feet, whichever is less, from the owner's

shoreline. Fla. Stat. §369.20(7) and (8). The department is to issue each permit so as to protect human health, safety and recreation and prevent injury to plants, animals and property. There are currently approximately 5,000 active aquatic plant permits.

An *Aquatic Plant Importation* permit is necessary to transport or import certain aquatic plants. This early permitting process is essential and acts as the gatekeeper which selectively allows certain nonnative plants into the state of Florida while keeping out other nonnative plants that may threaten Florida vegetation and wildlife.

2. Aquatic Plant Management Section

In 1971, the Legislature designated the Department of Environmental Protection as the lead agency for aquatic plant control. The Bureau's Aquatic Plant Management section was created to: coordinate management programs for aquatic plants; approve and distribute funding to priority ranked projects; and audit invoices to ensure compliance with work plans and contracts. Currently, the Aquatic Plant Management section consists of one administrative secretary; one biologist, one federal programs administrator; and one Environmental Administrator. Plants eligible for this program are listed on the Florida Exotic Pest Plant Control list. The Exotic Pest Plant Council, a nonprofit group, brought various public land managers together to focus on the adverse effect of exotic plants and developed a priority list based on extensive research.

In order to effectively implement the Bureau's aquatic plant management program, the Bureau has the authority to grant funding to local governments to maintain certain water bodies. In order for entities to be considered eligible for grants, the waters for which these funds are requested must meet the following eligibility criteria:

(a) The water body must be on sovereign lands;

(b) The water body must have access to the boating public by way of an established, improved boat ramp or a direct navigable connection to an eligible water body;

(c) There must be a sign at the boat ramp stating that it is a public boat ramp or use area. A ramp fee may be charged provided that the fee is not unreasonable (in keeping with ramp fees charged in the area);

(d) There must be at least one directional sign on the nearest paved roadway indicating the way to the public boat ramp; and

(e) The boat ramp must have sufficient space to safely turn a vehicle and trailer around and ample parking space within one quarter mile distance from the boat ramp.[1]

Invasive aquatic plants infest our waters and create monocultures where a diverse ecosystem once thrived. The invasive aquatics crowd out the native vegetation, displace animals, degrade water quality, restrict recreational activities, reduce property values and cost millions of dollars every year to control and maintain. Nonnative aquatic plants have invaded over 400 of Florida's 450 public lakes with boat ramps, an estimated 90% of Florida's public water bodies.

The Bureau implements a "continuous-maintenance" philosophy to control invasive plants. The Legislature requires that invasive plants are to be kept at their lowest levels through continuous maintenance which avoids such environmental damage and the high cost of regaining control. Continuous control of invasive non-native plants is necessary in order to sustain navigation, flood control, and recreation[2] as well as preserving plant and animal habitats. This continuous maintenance theory is administered through private independent contractors and cooperative agreements with other local governments.

Currently, the Bureau's highest management priorities in Florida are: hydrilla, water hyacinth and water lettuce. These species are the fastest growing plants which require continuous monitoring and maintenance. According to the department, these plants once covered more than 225,000 acres of public water bodies in Florida. As a result of aggressive treatment, and available funding, today these plants cover 50,000 acres.

Hydrilla

Hydrilla (*Hydrilla verticillata)* was once deemed the worst exotic plant in Florida. (See attachment #2). Hydrilla evolved from a nuisance in the 1980's to a statewide crises in the 1990's. In 1992, over 50,000 acres of hydrilla existed. Insufficient funding allowed hydrilla to double to 100,000 acres by 1994 and it became one of the most imminent threats in Florida's aquatic life. In 1994, hydrilla infested over 43 percent of Florida's water bodies. Between 1994 and 1998, the department spent millions of dollars containing hydrilla to about 40,000 acres in Florida. (See attachment #3).

Originally, it is thought that hydrilla was brought to Florida by an aquarium dealer in the early to mid-50's. It is believed that the aquarium dealer planted hydrilla in a canal behind his business. At that time, the aquarium dealer believed that the plant would not spread if there was no male hydrilla around to pollinate the female hydrilla. Four years later, hydrilla was found as far south as Miami. By the early 1970's, hydrilla spread to all drainage basins in the state through

[1] See 62C-54.0035, F.A.C., Waters Eligible and Eligibility Criteria for Aquatic Plant Management Funds.

[2] Fresh water fishing alone is valued at over $1.5 billion annually.

fragments and buds. It also spread among water bodies using trailers and boats as a means of transportation.

Hydrilla is a vine like plant that grows up to 35 feet tall and roots 12 inches deep into the soil. The end of the roots are called “tubers”. Tubers are produced in the fall, and germinate in the spring/summer. Millions of tubers are formed per acre. There is no effective control method for the tubers. Tubers can survive for several days outside of water, and for over 7 years in sediment, and can survive even after ingestion and regurgitation by waterfowl. In addition to being hard to kill, hydrilla is asexual and reproduces rapidly through fragmentation, budding and its tubers.

Hydrilla may grow up to one inch per day. About 80% of the mass grows in the upper two feet of the water column. Stems grow to the surface and then branch profusely along the surface forming dense canopies. These canopies grow to be so thick they virtually bring navigation to a halt, jam up against bridges, block sunlight from reaching our native plants and reduce the amount of oxygen in the water which starves fish and other wildlife. In time, the native plants die from lack of sunlight and add to the muck at the bottom of the waterway. This weed competitively displaces entire plant and animal communities.

Increased, but non-recurring funding, has allowed the Bureau to bring hydrilla to the verge of maintenance control. According to DEP, in 1998, hydrilla was recorded in only 185 water bodies (it has infested 262 different water bodies since 1992). Although, above the ground hydrilla covered 40,000 acres in 1998, the underground tubers still cover an estimated 140,000 acres.

Water hyacinth

Water hyacinth *(Eichhornia crassipes)*, a native to South America, was originally introduced to Florida by a horticulturist in the early 1880's. (See attachment #4). This plant spread throughout Florida by cattlemen who used the plant as a livestock food supplement. Today, it spreads throughout Florida on the back of boat trailers.

This plant grows at explosive rates and can double in its population every two weeks. Water hyacinth may grow at such a rate that it covers approximately 35 acres a day. One acre of water hyacinth contains more than 650,000 plants, weighs between 50-200 tons, deposits 17 million leaves per year and deposits 180-840 tons of sediments per year.

Like hydrilla, water hyacinth forms dense mats across the water which prevents the sunlight from reaching the native plants at the bottom, reduces the oxygen levels in the water, and alters the water temperature. The native plants die from lack of sunlight and fish die for lack of nutrients, leaving only a monoculture of hyacinth. This negative environmental outcome reduces property values, and tax revenues.

By the late 1950's water hyacinth occupied over 125,000 acres of water in Florida. An aggressive herbicide treatment and maintenance has reduced water hyacinth to about 1,200 acres in all. However, this treatment must continue in order to suppress its the potential danger. This plant is easy and inexpensive to control with herbicides. Water hyacinth is nearly impossible to eradicate because of its wide dispersal in lakes, rivers, and marshes; prolific production of seed which are viable for many years; and rapid growth rate to reproductive maturity.

Water Lettuce

Water lettuce *(Pistia stratiotes)* was first recorded in Florida around 1765 by early settlers. (See attachment #5). Today it infests central and southern Florida, and new infestations were recently discovered in northern Florida. Water lettuce is a floating plant and is currently inhabiting about 130 public waters. Water lettuce may reproduce sexually (via seed) or asexually (via budding). This species can double its mass in less than three weeks and is resilient in extreme temperatures like freezing or drought.

Water lettuce forms dense mats along the surface of the water. These mats shade the native vegetation which then die. Plant diversity is diluted as native plants are displaced. Water lettuce mats can block waterways, reduce oxygen levels underneath the mats, and prevent navigation.

Herbicides have proven to be the most effective means of controlling water lettuce. Frequent applications of small amounts of herbicides minimizes the decaying plant matter and restores the ecosystem.

According to DEP, the Bureau has administered approximately one million dollars annually on the maintenance control of water lettuce in sovereign waters.

3. Upland Invasive Plant Program Section

The Bureau of Invasive Plant Management implements their upland program through their Upland Invasive Plant Program section (UIPP). Upland invasive exotic plants are similar to aquatic invasives in that they grow at explosive rates, have few predators, and germinate hardily. In 1997, the Department of Environmental Protection created UIPP as a pilot program. In 1998, the department received a $1 million appropriation from the Legislature and $400,000 in matching funds from federal and local governments. This $1.4 million was used to fund the Bureau's UIPP section.

Like the Aquatics section, the UIPP section operates their program through the philosophy of using "continuous maintenance" programs. This philosophy is administered a "place-based" management theory. Under place-based management, the department created eleven regional working groups to design flexible, innovative strategies to address upland weed management issues. These eleven groups are: Panhandle, Northeast, Mosquito Coast, East Central, Treasure

Coast, Southeast, Florida Keys, Southwest, West Central, Suncoast, and the Withlacoochee group. (See attachment #6).

These eleven regional working groups are comprised of federal, state and local government interests as well as private interest groups who collaborate to address and rank their regional upland weed issues.[3] The duties of the regional working groups are to:

- ❒ assist with mapping plant infestations;
- ❒ develop management plans for controlling infestations;
- ❒ set priorities considering the potential threat to conservation lands; and
- ❒ improve the general public's awareness and create educational programs.

According to the department, each working group gets at least one appropriation of $50,000 from the state which is to be applied to their highest ranked project. The working groups use certain criteria to rank their upland proposals, such as:

- ❒ are cooperative cost-share/ matching funds available through the management steward;
- ❒ does the target invasive species have a high invasive potential;
- ❒ have current control technologies already been established for its control;
- ❒ will the project benefit an endangered species;
- ❒ does the site have relatively high restoration potential; and
- ❒ will public outreach programs further the awareness of the impact of invasive plants.

Once the working group has agreed upon a priority list, a liaison from the group presents the list at their annual meeting. Funding eligibility for the top priority ranked project is determined by three factors:

[3] Just a few of the 450 plus interests groups include entities such as: DEP -- Recreation and Parks; Marion County Parks and Recreation; University of South Florida; Southwest Florida Water Management District; U.S. Fish and Wildlife Service; Lake City Parks and Recreation; Avon Park Air Force Range; and Polk City Parks and Recreation.

❶ the project must be on public land managed for natural resource conservation purposes;

❷ follow up monitoring and maintenance of the site is available in perpetuity; and

❸ the plant species must be an upland species listed on the Florida Exotic Pest Plant Council's (EPPC) Category I or Category II priority list. (See attachment #7).

If, at the annual meeting, the project is chosen to receive funding, and if state funding is available, then DEP and the contractor enter into a cooperative agreement and the contractor is reimbursed for their work.

The UIPP projects are aimed at various invasive upland plants, including:

Melalueca

Melaleuca *(Melaleuca quiquenervia)* was originally introduced into Florida for ornamental purposes around 1906 and later used for wind break and soil stabilizers. In fact, it was recommended as late as 1970 as "one of Florida's best landscape trees." However, the melaleuca tree soon became a threat to Florida due to its explosive growth rate and negative impacts on the ecosystem. The department indicated that by 1994, melaleuca infested nearly 450,000 acres in the Everglades, Big Cypress, and Loxahatchee Slough areas. (See attachment #8). This upland is found as far north as Hernando, Lake and Brevard counties.

The melaleuca tree thrives in brackish wetlands, swamps, saw grass marshes, and cypress swamps, as well as pristine wetlands. Melaleuca produces dense forests that prevent sunlight from piercing through the trees, and leaves little water and food for native plants and animals. As a result, melaleuca displaces native plants and diminishes animal life.

Each melaleuca tree is capable of producing up to 20 million seeds per tree per year. The melaleuca tree is capable of releasing all of its seeds at once when the tree is stressed. These seeds are viable for up to two years after their release and up to 10 years if the seeds remain encapsulated in their woody pods. A mature melaleuca tree also survives frost and fire damage and may resprout from stumps and roots making it very difficult to be controlled.

In 1990, the Legislature enacted a law prohibiting the sale, cultivation and transportation of melaleuca. In 1993, melaleuca was placed on the department's prohibited plant list. The Exotic Pest Plant Council, a nonprofit group, brought various public land managers together and developed a regional Melalueca Management Plan.

In 1994, the Legislature statutorily enacted that $1 million each year is to be appropriated to melaleuca control out of the Aquatic Plant Control Trust Fund. The South Florida Water

Management District matches an additional $1 million for melaleuca control in the Everglades. By 1997, the Melaleuca Management Plan eliminated approximately 60,000 acres of melaleuca, bringing the total melalueca infestation down to about 391,000 acres.

Brazilian Pepper

Brazilian Pepper (*Schinus Terebinthifolius*) was also introduced from South America into Florida in the 1840's as an ornamental shrub. (See attachment #9). This plant was originally raised in a nursery in 1926, and now infests over 700,000 acres in central and south Florida. Brazilian Pepper (also known as Christmas Berry and Florida Holly) invades most types of habitats including: hardwood forests, saw grass marshes, mangrove swamps, canal banks, farmlands and roadsides.

This shrub forms dense thickets of woody stems which shades out the native vegetation. These dense thickets block out sunlight, and displace native vegetation. This plant species also produces a chemical similar to that of poison ivy, which invades coastal dunes, pinelands, hardwood hammocks, marshes and mangrove islands. This chemical discourages the habitat that would otherwise be available to native animals.

Brazilian Pepper is more common in southern Florida since it is “freeze tolerant”. Seed viability can last up to 60 days and birds facilitate seed dispersal.

In 1990, the Florida Legislature enacted a law prohibiting the sale, cultivation and transportation of Brazilian Pepper. In 1993, this species was added to the department’s prohibited plant list. Since then, various volunteer groups have collaborated their efforts and removed thousands of pepper trees. The EPPC developed a statewide Brazilian Pepper management program which includes practices developed over the years by university professors and public land managers for removing Brazilian pepper trees.

Australian Pine

Australian pines *(Casuarina cunninghamana)* are native of Malaysia, Southern Asia and Australia. Australian pines were originally introduced into Miami and the Palm Beach area in the late 1800s as ornamental trees. This species was once commonly planted to form windbreaks around canals, fields, houses and roads. During the 1960's people turned to Australian pine to protect the shoreline after hurricanes destroyed vegetation along the shores. However, by 1993, Australian pine had grown at such an explosive rate, it infested over 372,000 acres from just north of Okeechobee to Florida Bay.

This species inhabits mangroves, rocky shorelines and beach dunes as well as inland sites. Australian pines are known to form dense monocultures and crowd out all other native vegetation. In addition, this species produces mats of litter with its pine needles which smother the natural vegetation below. (See attachment #10 and 11).

Australian pines have a shallow root system and have proven to be instable and topple over in high winds. Due to their shallow rooting, sea turtles and American crocodiles get injured during nesting on the beaches.

The most effective method of control is through herbicide application. Also prescribed burns can control areas in certain fire retardant communities.

Lygodium

The Old World Climbing Fern *(Lygodium microphyllum)*, a native of Africa, southern Asia and Australia, was first discovered in the Loxahatchee River Basin in the mid-1960's. By 1993, this fern infested 1,233 acres of the Jonathon Dickinson State Park, Loxahatchee National Wildlife Refuge and the Scenic River. (See attachment #12). Two years later, in 1995, the Old World Climbing Fern infested more than 17,000 acres of that same area.

This plant is aggressive and tolerant. It climbs over trees and native plants completely smothering the vegetation. This fern develops this ferny carpets several feet thick that cover cypress, pine and even spread into freshwater wetlands. This canopy forms an impenetrable mat that stops all other vegetation.

This ferny canopy also provides an avenue for fires to spread into what would normally be fire resistant wetlands. Clumps of burning fern fly away in the wind and spread the fire to adjacent fields. Also, this fern allows a fire, which should have been burning across the forest floor, to spread upward. As a result, this fern causes severe tree mortality in prescribed burns.

There is no easy answer how to control this aggressive fern. The Bureau is currently cooperating with South Florida Water Management District, Florida Power and Light and the University of Florida Center for Aquatic Plants to test different control methods, such as: flooding, burning, and different herbicides. Biological methods may be effective means of control, evaluations of insects are currently being performed by the USDA.

B. Bureau of Invasive Plant Management: Methods of Control

Without continuous maintenance, these weeds will severely impact navigation, recreation, flood control, public safety and fish and wildlife habitat. An attempt to regain control of water bodies or uplands after infestation is costly and time consuming. Therefore, the Legislature expressly set forth in s. 369.22(3), F.S., that the department is to control aquatic plants through a continuous maintenance program, rather than an eradication program. If the department continues to keep invasive aquatic plants at the lowest levels, there will be a reduction in:

- ❒ sedimentation;
- ❒ native plant damage;

- ❒ management costs; and

- ❒ navigational problems, transportation problems, flood control problems, loss of habitat, loss of recreation, loss of property values and use of herbicides.

There are four management options available that may be administered to control the growth of aquatic plants, they are: herbicides, mechanical, physical and biological methods.

1. Herbicides

Herbicides have proven to be the most effective and least expensive form of controlling aquatic invasive plants. Herbicides are applied directly to the plant or dispersed within the water column.

Aquatic plants, like hydrilla, are usually treated once in January - February when the native plants are not in full bloom. Several subsequent applications may be needed depending upon the concentration and weather. Fluridone herbicide controlled 25,000 acres of hydrilla on the 27,000 acre Lake Istokpoga. According to DEP, the cost averaged about $36 per acre of hydrilla controlled over the two year period. This herbicide selectively removed the hydrilla, despite the presence of native pondweed and eel-grass. About 200 harvesters would be needed to work seven days per week at about $500 per acre to reach the same level of control. A two-year cost to harvest the lake would be about $75 million whereas two applications of herbicides was $1.8 million, including labor. Herbicide application is cost efficient and is capable of controlled application. Another example of herbicide application is reflected in large scale hydrilla herbicide treatment that occurred on Lake Tohopekaliga in 1997. A photograph is attached to view the condition of Lake Toho before and after the herbicide treatments. (See attachment #13).

Opponents of herbicide contend that collateral damage occurs to innocent plants. Proponents of the use of herbicides state that there is actually an increase in native life. Proponents state that once the invasive plants are eliminated, native plants flurry back to life. For example, where a pretreated area was originally comprised of 60% native plants prior to the invasive plant takeover, it may be comprised of 80% native plants after herbicide treatment.

2. Mechanical

Machines have been used since the early 1900's to sheer, shred, press and remove aquatic plants from public waters. According to DEP, there are some advantages to this control method, such as; there are few water restrictions; it removes vegetation; removes unwanted sediment; and there is no oxygen sag if the plants are removed. DEP notes that there are also disadvantages, such as: limited access in shallow water; high operating costs; propensity to spread weeds through fragmentation; killing of non-target plants and animals and slow rate of control (controls 2-3 acres per day). As a result, mechanical means are only used in small areas or where other control methods are ineffective (e.g., rivers and springs).

To offset costs of harvesting through mechanical efforts, the department has tried to find economical uses for harvested materials. The department has attempted to make potting soil, mulch, animal feed supplements, paper and methane gas out of various types of plant waste, e.g., melalueca, Australian pine and hydrilla. However, the cost to harvest, dry and refine these plants far exceeds the benefit received from the price of their final products.

3. Physical

According to DEP, physical controls range from managing plants by hand, flooding, desiccation and prescribed burns. Hand removal is labor intensive and used to manage new infestations when other methods are ineffective or where immediate removal in necessary, e.g., boat ramps. Plants that break off at the ground will often resprout. Therefore, repeated hand pulling and follow up herbicidal treatments are often used in these situations.

4. Biological

As a biological control, insects are released as predators to feed on certain invasive plants. According to DEP, biological controls are not intended to eradicate the plant species, but only to provide enough stress on the plant which increases the effectiveness of herbicides and lessens its competitive advantage over native species.

Approximately thirteen different insects were released to control the following plants: alligatorweed, hydrilla, water hyacinth, water lettuce and melalueca. Alligatorweed is primarily controlled by moths and beetles. With the exception of alligatorweed, none of the other plants are successfully controlled by insects.

Grass carp is also used to control hydrilla, however, it was quickly discovered that this fish is not a selective feeder and eats native plants as well as nonnative plants. The carp also flows through the water system to other unintended water bodies. It is difficult to contain the carp within a selected water body. As a result, the carp is used in only about 60 small urban public water bodies.

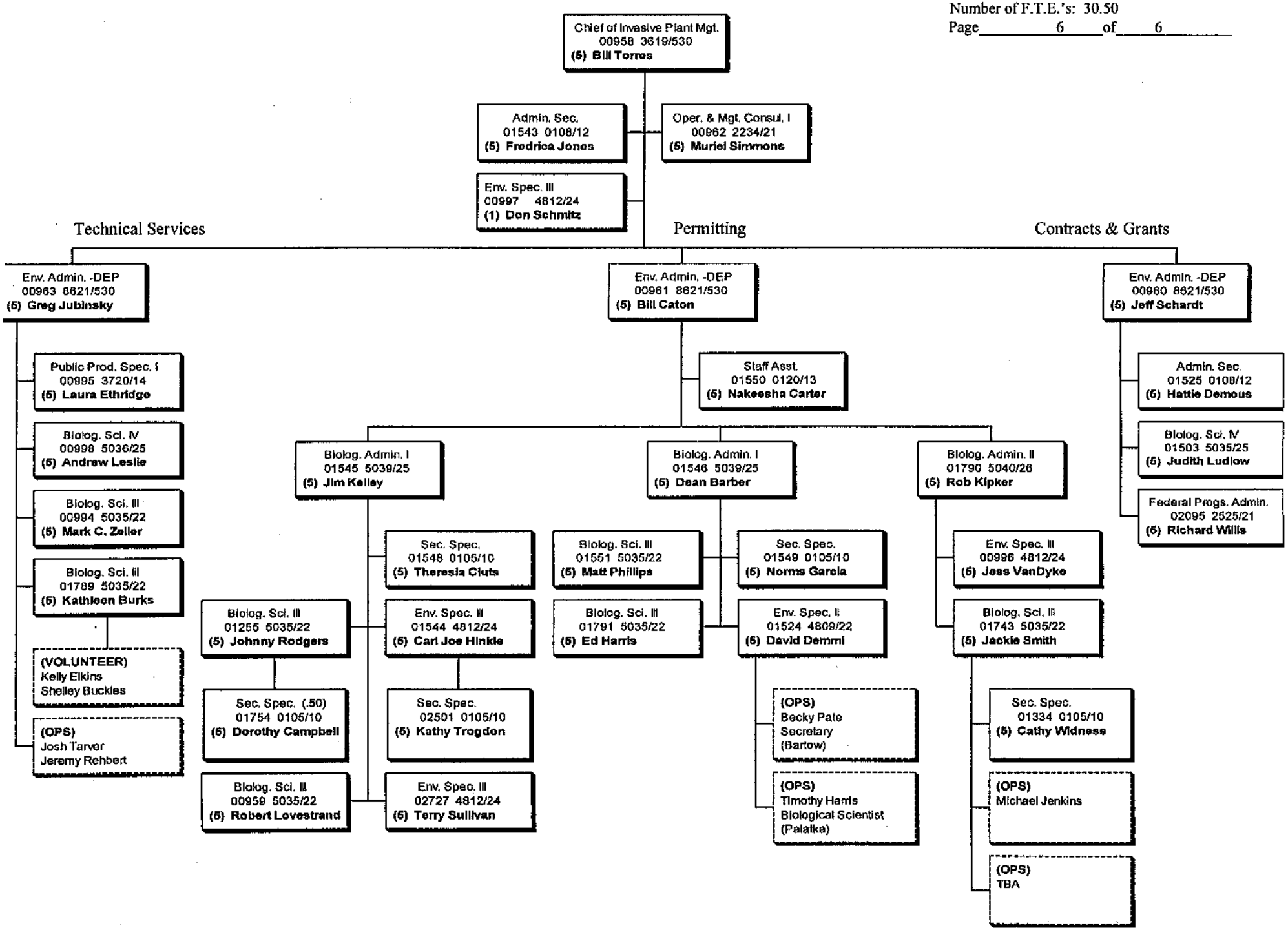
METHODS OF CONTROL

METHOD OF CONTROL	ADVANTAGES	DISADVANTAGES
Biological	Insects provide stress to plants which help increase effectiveness of herbicides; reduces vigor and seed production; grass carp are effective and control hydrilla in small urban public lakes; and is cost effective.	Insects cannot alone control the plants; difficult to contain fish in large water bodies; Grass carp may eat nonnative plants as well as native plants.
Chemical	Cost effective; can be selectively applied to invasive vegetation; may be applied directly to water; not toxic to wildlife; does not cause permanent damage to non-target native plants.	Treatment is only temporary; public perception is "poison" and difficulty in keeping concentrations up in flowing waters.
Mechanical	Removes muck and sediment; provides instant results for small areas.	Too costly and slow for large scale use; removes fish, amphibians, and reptiles along with plants; restricted use; spreads plants through fragmentation.
Physical	Hand pulling gives immediate removal and removes the plant from the root.	Labor intensive; drying lakes may stimulate seed germination; time consuming; spreads plants through fragmentation.

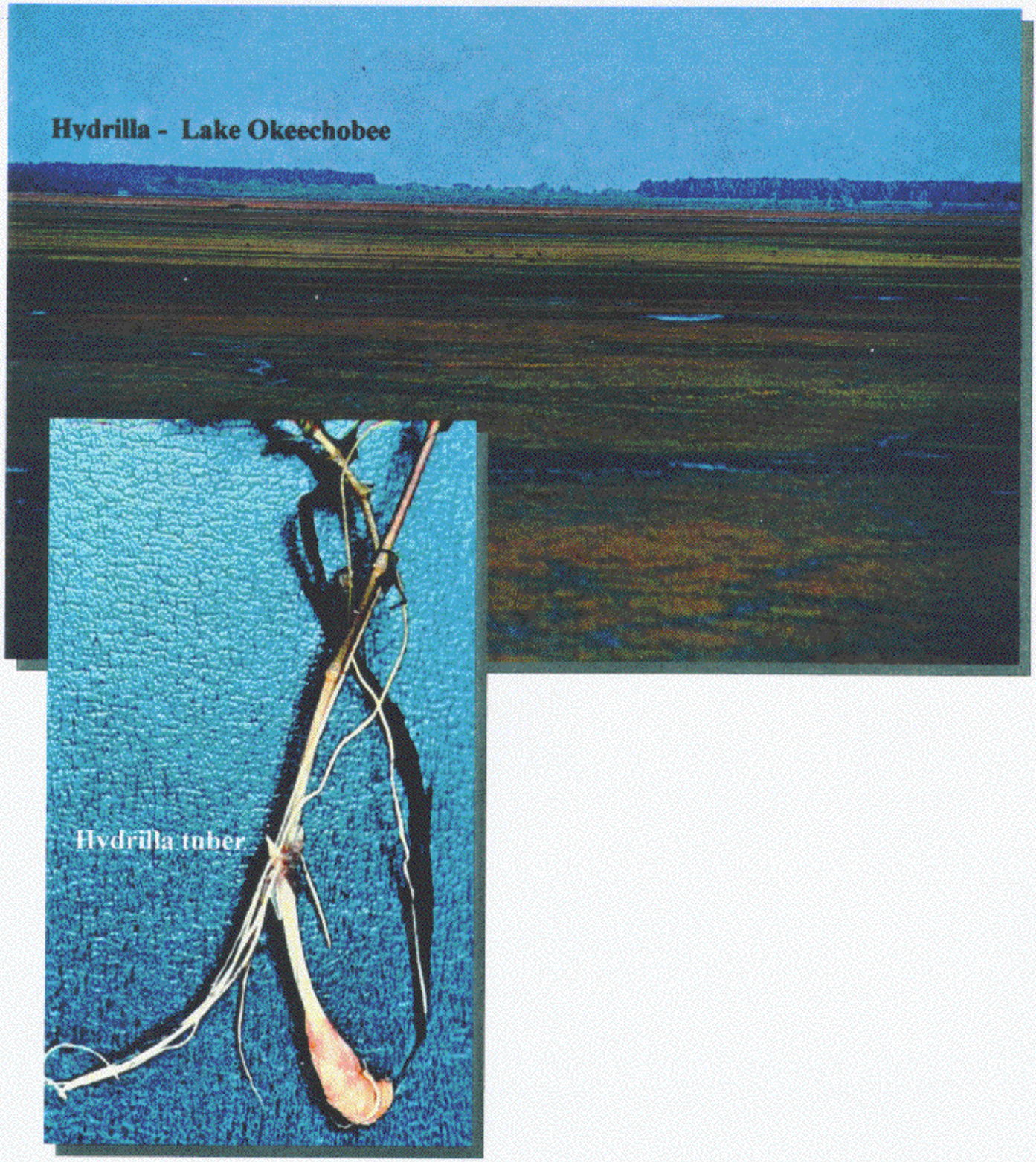
Department of Environmental Protection
Division of State Lands
Bureau of Invasive Plant Management

Approved By:_____
Effective Date: 6/15/99
Number of Positions: 31
Number of F.T.E.'s: 30.50

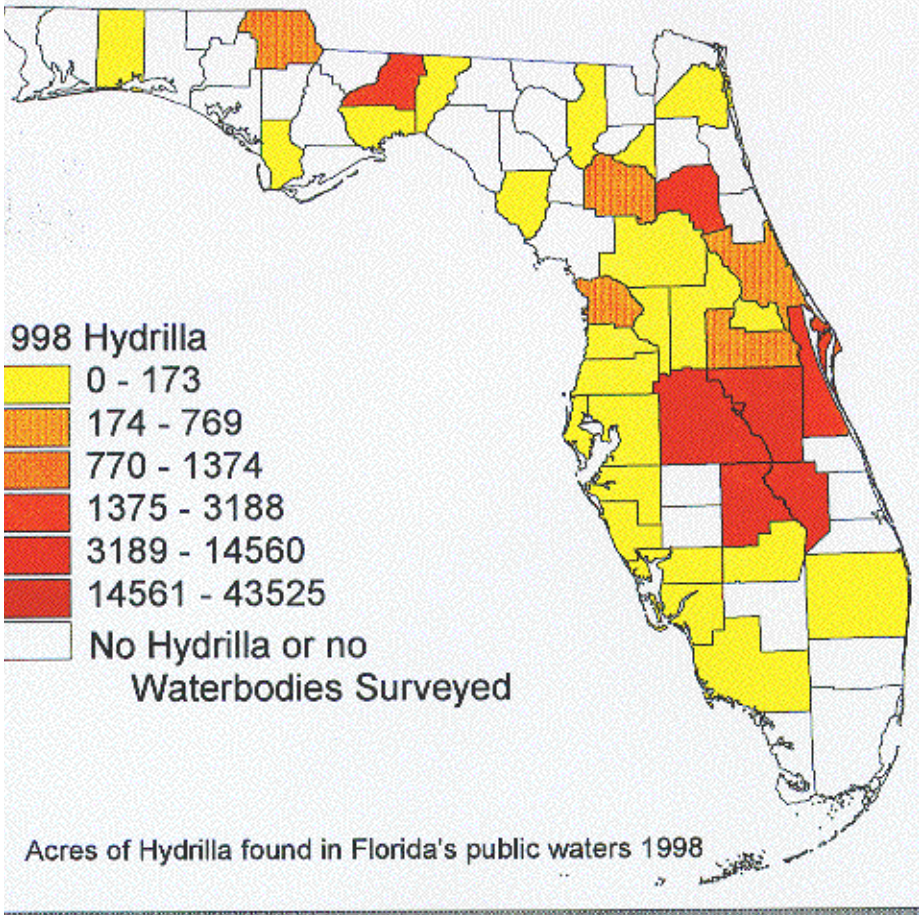
Attachment 1



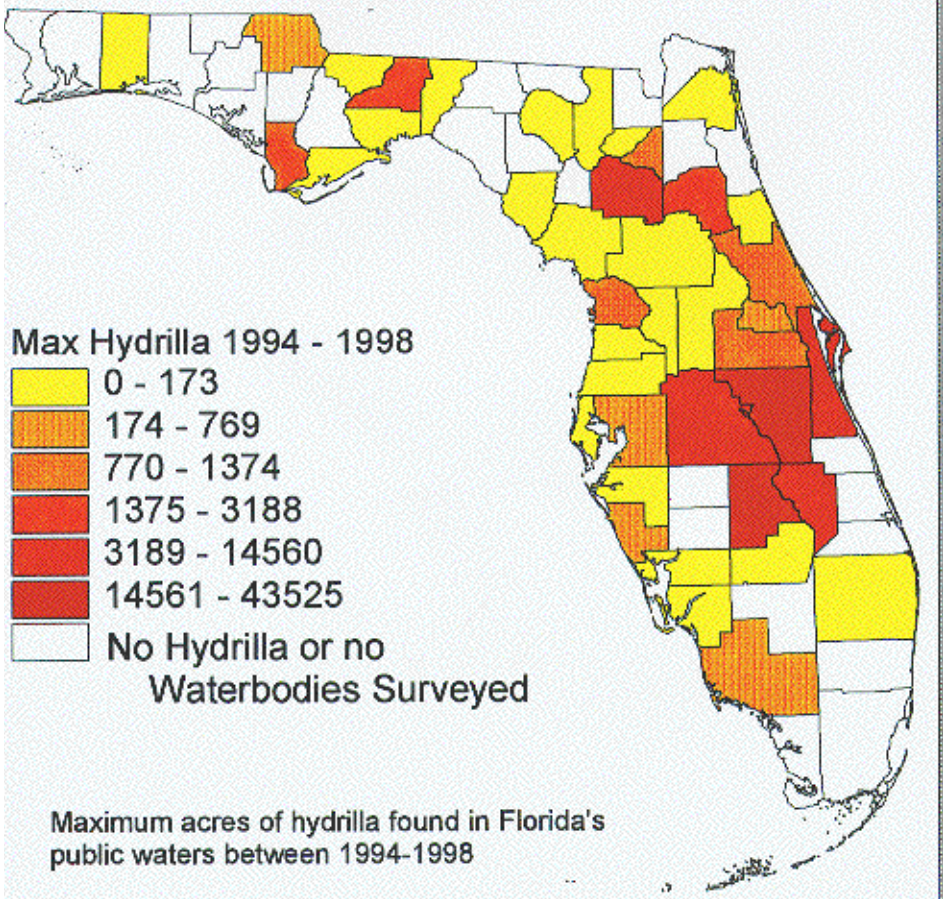
Hydrilla (*Hydrilla verticillata*)



Attachment 2



Acres of Hydrilla found in Florida's public waters 1998



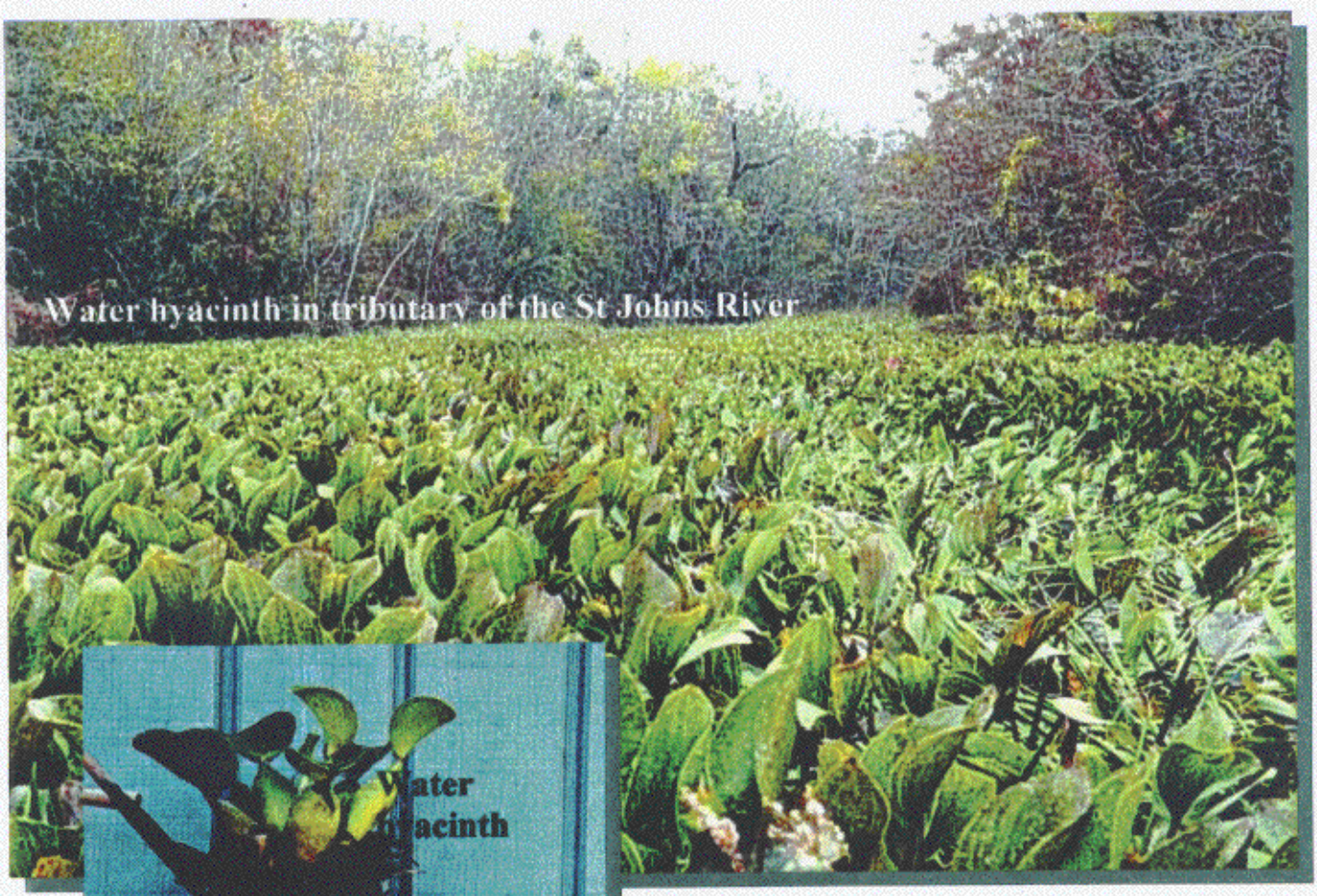
Maximum acres of hydrilla found in Florida's public waters between 1994-1998

Potential Increase in Hydrilla

County	Max Acreage 1994-1998	1998 Acreage	Potential Increase
ALACHUA	7502	740	6762
BAKER			0
BAY			0
BRADFORD	1374	9	1365
BREVARD	6659	2626	4033
BROWARD			0
CALHOUN			0
CHARLOTTE	0	0	0
CITRUS	1155	403	752
CLAY			0
COLLIER	525	150	375
COLUMBIA	113	35	78
DADE			0
DESOTO			0
DIXIE	8	1	7
DUVAL	5	0	5
ESCAMBIA			0
FLAGLER	0		0
FRANKLIN	1		1
GADSDEN	0		0
GILCHRIST			0
GLADES	150	95	55
GULF	2800	150	2650
HAMILTON			0
HARDEE			0
HENDRY			0
HERNANDO	35	5	30
HIGHLANDS	26919	6840	20079
HILLSBOROUGH	350	1	349
HOLMES			0
INDIAN RIVER			0
JACKSON	759	185	584
JEFFERSON	102	40	62
LAFAYETTE			0
LAKE	21	3	18
LEE	0	0	0
LEON	2729	1970	759
LEVY	0		0
LIBERTY			0
MADISON			0
MANATEE	14	0	14
MARION	59	37	22
MARTIN			0
MONROE			0
NASSAU			0
OKALOOSA	2	2	0
OKEECHOBEE	8000	4000	4000
ORANGE	912	768	144
OSCEOLA	43525	14339	29186
PALM BEACH	67	18	49
PASCO	0	0	0
PINELLAS	173	76	97
POLK	14560	4641	9919
PUTNAM	3188	2803	385
SANTA ROSA			0
SARASOTA	457	147	310
SEMINOLE	658	22	636
ST JOHNS	355	355	0
ST LUCIE			0
SUMTER	83	25	58
SUWANNEE	5		5
TAYLOR			0
UNION	1		1
VOLUSIA	859	370	489
WAKULLA	29	22	7
WALTON			0
WASHINGTON			0

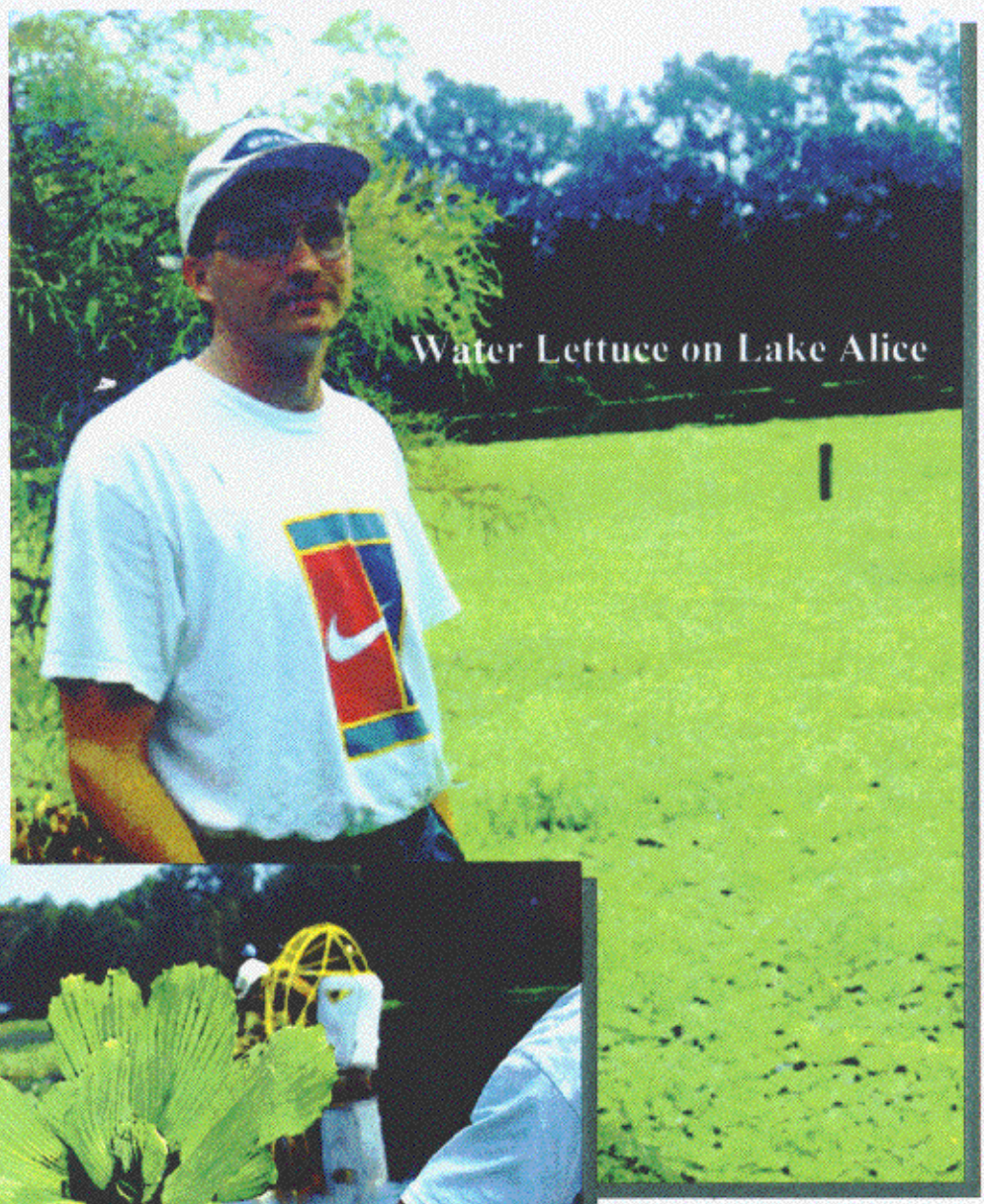
Attachment 3

Water hyacinth (Eichhornia crassipes)



Attachment 4

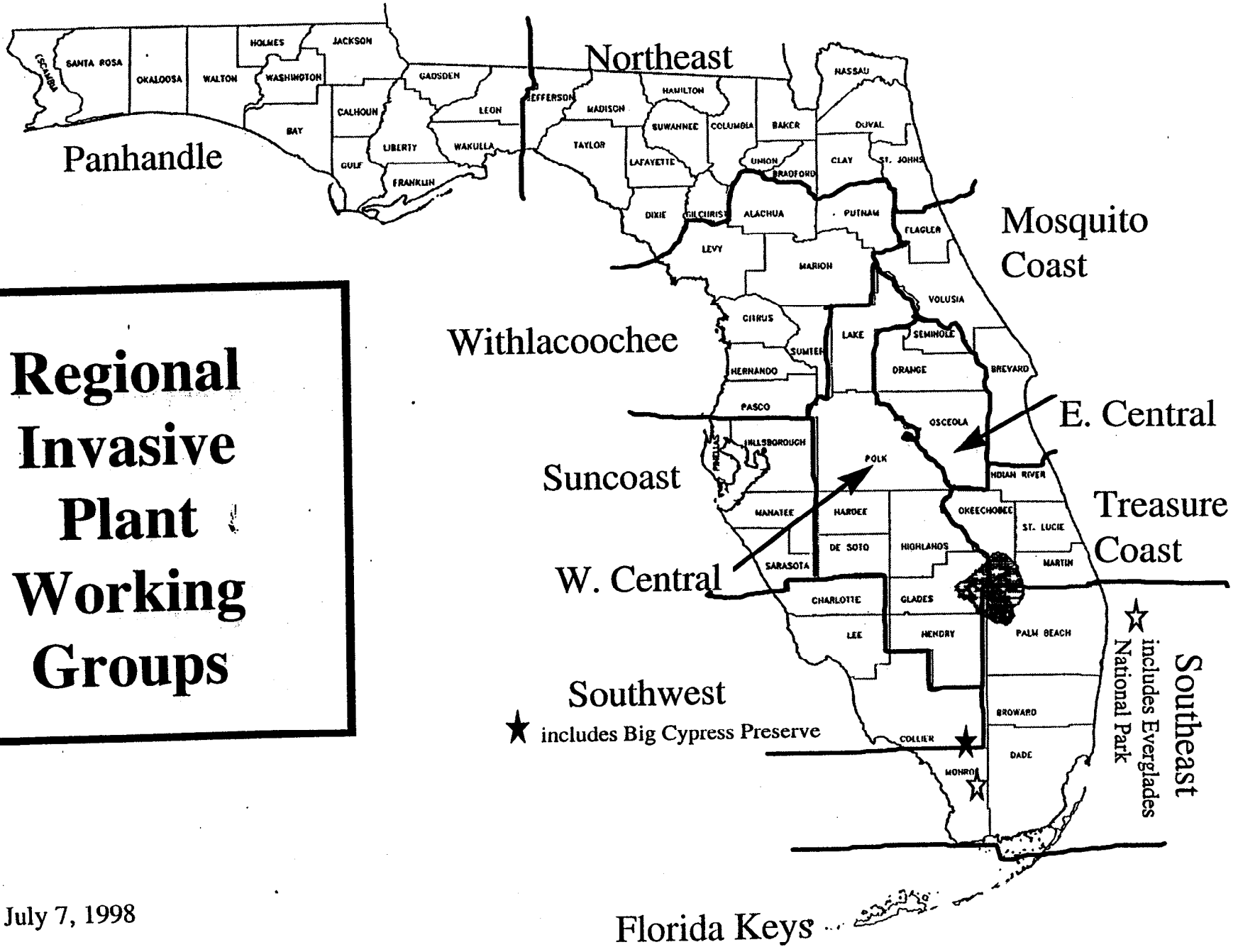
Water lettuce (*Pistia stratiotes*)



Photos courtesy of the University of Florida, APIRS, Center for Aquatic and Invasive Plants

Attachment 6

Regional Invasive Plant Working Groups



July 7, 1998

Appendix 1

Florida Exotic Pest Plant Council's 1997 List of Florida's Most Invasive Species

PURPOSE: To focus attention on:

1) the impacts exotic plants have on native biodiversity in Florida ecosystems;
2) the impact of exotic pest plants on the integrity of native plant community functions;
3) habitat losses due to exotic plant infestations;
4) the impacts of exotic plants on endangered species via habitat loss and alteration (e.g., Cape Sable seaside sparrow);
5) the need to prevent such losses by comprehensive management for exotic pest plants;
6) the socioeconomic impacts of exotic pest plants (e.g.,increased wildfires in *Melaleuca*);
7) changes in the seriousness of different exotic pest plants over time; and
8) the need to provide information that will help managers set priorities for management.

DEFINITIONS:

Exotic – a non-indigenous species, or one introduced to this state, either purposefully or accidentally; it then escaped into the wild in Florida where it reproduces on its own either sexually or asexually.

Native – a species already occurring in Florida at the time of European contact (1500).

Invasive – is a variable condition defined by the category to which the species is assigned.

Abbreviations used for "Government listed":

P = Prohibited by Florida Department of Environmental Protection,
N = Noxious weed as listed by Florida Department of Agriculture and Consumer Services and/or U.S. Department of Agriculture.

Attachment 7

Category I – Species that are invading and disrupting native plant communities in Florida. *This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.*

Scientific Name	Common Name	EPPC Rank	Gov't Listed
Abrus precatorius	rosary pea	I	
Acacia auriculiforms	earleaf acacia	I	
Albizia lebbeck	woman's tongue	I	
Ardisia crenata (=A. crenulata)	coral ardisia	I	
Ardisia elliptica (=A humilis)	shoebutton ardisia	I	
Asparagus densiflorus	asparagus fern	I	
Bauhinia variegata	orchid tree	I	
Bischofia javanica	bischofia	I	
Brachiaria mutica (=Urochloa mutica)	Pará grass	I	
Calophyllum antillanum (=*C. calaba; C. inophyllum*, often misapplied in cultivation)	santa maria (names "mast wood, Alexander laurel" used in cultivation)	I	
Casuarina equisetifolia	Australian pine	I	P
Casuarina glauca	suckering Australian pine	I	P
Cestrum diurnum	day jasmine	I	
Cinnamomum camphora	camphor-tree	I	
Colocasia esculenta	wild taro	I	
Colubrina asiatica	lather leaf	I	
Cupaniopsis anacardioides	carrotwood	I	
Dioscorea alata	winged yam	I	
Dioscorea bulbifera	air potato	I	
Eichhornia crassipes	waterhyacinth	I	P
Eugenia uniflora	Surinam cherry	I	
Ficus microcarpa (=*F. nitida; =F. retusa* var. *nitida)*	laurel fig	I	
Hydrilla verticillata	hydrilla	I	P, N
Hygrophila polysperma	green hygro	I	P, N
Hymenachne amplexicaulis	West Indian marsh grass	I	
Imperata cylindrica (=*Imperata brasiliensis)*	cogon grass	I	N
Ipomoea aquatica	water spinach	I	P, N
Jasminum dichotomum	Gold Coast jasmine	I	
Jasminum fluminense	jasmine	I	
Lantana camara	lantana	I	
Ligustrum sinense	Chinese privet, hedge privet	I	

Scientific Name	Common Name	EPPC Rank	Gov't Listed
Lonicera japonica	Japanese honeysuckle	I	
Lygodium japonicum	Japanese climbing fern	I	
Lygodium microphyllum	Old World climbing fern	I	
Macfadyena unguis-cati	claw vine	I	
Melaleuca quinquenervia	melaleuca, broad-leaf paper bark	I	P, N
Melia azedarach	Chinaberry	I	
Mimosa pigra	catclaw mimosa	I	P, N
Nandina domestica	nandina, heavenly bamboo	I	
Nephrolepis cordifolia	sword fern	I	
Neyraudia reynaudiana	Burma reed; cane grass		I
Paederia foetida	skunk vine	I	
Panicum repens	torpedo grass	I	
Pennisetum purpureum	Napier grass	I	
Pistia stratiotes	waterlettuce	I	P
Psidium cattleianum (=P. litorale)	strawberry guava	I	
Psidium guajava	guava	I	
Pueraria montana (=P. lobata)	kudzu	I	
Rhodomyrtus tomentosa	downy rose-myrtle	I	
Rhoeo spathacea (=R. discolor)	oyster plant	I	
Sapium sebiferum	popcorn tree, Chinese tallow tree	I	
Scaevola sericea (=Scaevola taccada var. *sericea, S. frutescens; S. sericea)*	scaevola, half-flower, beach naupaka	I	
Schefflera actinophylla (= Brassaia actinophylla)	schefflera	I	
Schinus terebinthifolius	Brazilian pepper	I	P, N
Senna pendula (=Cassia coluteoides)	Climbing cassia, Christmas Cassia Christmas senna	I	
Solanum tampicense (=S. houstonii)	aquatic soda apple	I	
Solanum torvum	turkey berry	I	N
Solanum viarum	tropical soda apple	I	N
Syzygium cumini	jambolan, Java plum	I	
Tectaria incisa	incised balberd fern	I	
Thespesia populnea	seaside mahoe	I	
Tradescantia fluminensis	white-flowered wandering jew	I	

Category II – Species that have shown a potential to disrupt native plant communities. *These species may become ranked as Category I, but have not yet demonstrated disruption of natural Florida communities.*

Scientific Name	Common Name	EPPC Rank	Gov't Listed
Adenanthera pavonina	red sandlewood	II	
Agave sisalana	sisal hemp	II	
Albizia julibrissin	mimosa	II	
Alcurites fordii	tung oil tree	II	
Alstonia macrophylla	devil-tree	II	
Alternanthera philoxeroides	alligator weed	II	P
Antigonon leptopus	coral vine	II	P
Aristolochia littoralis	calico flower	II	
Asystosia gangetica	Ganges primrose	II	
Broussonetia papyrifera	paper mulberry	II	
Callisia fragrans	inch plant, spironema	II	
Casuarina cunninghamiana	Australian pine	II	P
Cereus undatus	night-blooming cereus	II	
Clerodendron bungei	strong-scented glorybower	II	
Cryptostegia madagascariensis	rubber vine	II	
Cyperus alternifolius (=*C. involucratus*)	umbrella plant	II	
Cyperus prolifer	dwarf papyrus	II	
Dalbergia sissoo	Indian dalbergia, sissoo	II	
Enterolobium contortisliquum	ear-pod tree	II	
Epipremnum pinnatum cv. Aureum	pothos	II	
Ficus altissima	false banyan	II	
Ficus benjamina	weeping fig	II	
Ficus religiosa	bo tree	II	
Flacourtia indica	governor's plum	II	
Flueggea virosa	flueggea	II	
Hibiscus tiliaceus	mahoe	II	
Hiptage benghalensis	hyptage	II	
Jasminum sambac	Arabian jasmine	II	
Koelreuteria elegans	golden shower tree	II	
Leucaena leucocephala	lead tree	II	
Ligustrum japonicum	Japanese privet	II	
Ligustrum lucidum	Glossy privet	II	
Melinis minutiflora	molasses grass	II	
Merremia tuberosa	wood-rose	II	
Murraya paniculata	orange-jasmine	II	
Myriophyllum spicatum	Eurasian water-milfoil	II	P

Scientific Name	Common Name	EPPC Rank	Gov't Listed
Nephrolepis multiflora	Asian sword fern	II	
Ochrosia parviflora (=O. elliptica)	kopsia	II	
Oeceoclades maculata	ground orchid	II	
Paederia craddasiana	sewer vine, onion vine	II	
Passiflora foetida	stinking passion-flower	II	
Phoenix reclinata	reclining date palm	II	
Pittosporum pentandrum	pittosporum	II	
Pittosporum tobira	Japanese pittosporum	II	
Rhynchelytrum repens	Natal grass	II	
Sansevieria hyacinthoides (= S. trifasciata)	bowstring hemp	II	
Solanum diphyllum	twinleaf nightshade	II	
Solanum jamaicense	Jamaica nightshade	II	
Syngonium podophyllum	arrowhead vine	II	
Syzygium jambos	rose-apple	II	
Terminalia catappa	tropical almond	II	
Tribulus cistoides	puncture vine, burnut	II	
Triphasia trifoliata	lime berry	II	
Urena lobata	Caesar's weed	II	
Wedelia trilobata	wedelia	II	
Wisteria sinensis	Chinese wisteria	II	
Xanthosoma sagittifolium	melanga, elephant ear	II	

[1]List prepared by the EPPC Committee on Invasive Species (Chairman: *Daniel F. Austin*, Department of Biological Sciences, Florida Atlantic University, Boca Raton, Forida 33431; Members: *Kathy C. Burks*, FDEP, Bureau of Aquatic Plant Management, 3917 Commonwealth Boulevard, MS 710, Tallahassee, Florida 32399; *Nancy Coile*, Department of Agriculture and Consumer Services, Doyle Conner Building, Gainesville, Florida 32614; *James Duquesnel*, DEP, Division of Recreation and Parks, Key Largo Hammocks State Botanical Site, P.O. Box 487, Key Largo, Florida 33037; *David Hall*, Consulting botanist, 6241 N.W. 23rd Street, Gainesville, Florida 32653; *Theodore O. Hendrickson*, 1112 NE 2nd Street, Ft. Lauderdale, Florida 33301-1167; *Ronald Hofstetter*, Department of Biology, University of Miami, Coral Gables, Florida 33124-9118; *Suzanne Koptur*, Department of BiologicalSciences, Florida International University, University Park, Miami, Florida 33199, *Joe Maguire*, Dade County DERM, 111 NW First Street, Suite 1310, Miami, Florida 33128; *Mark McMahon*, P.O. Box 380726, Miami, Florida 33238-0726; *Robert Pemberton*, USDA, ARS, Aquatic Plant Control Lab, 2305 College Avenue, Ft. Lauderdale, Florida 33314; *Daniel R. Ward*, Department of Botany, 220 Bartram Hall, University of Florida, Gainesville, Florida 32611; *Richard P. Wunderlin*, Department of Biological Sciences, University of South Florida, Tampa, Florida 33620.

Attachment 8

Melaleuca trees
march into the distance
in the Everglades
Photo by Randall Stocker

Brazilian Pepper

Attachment 9

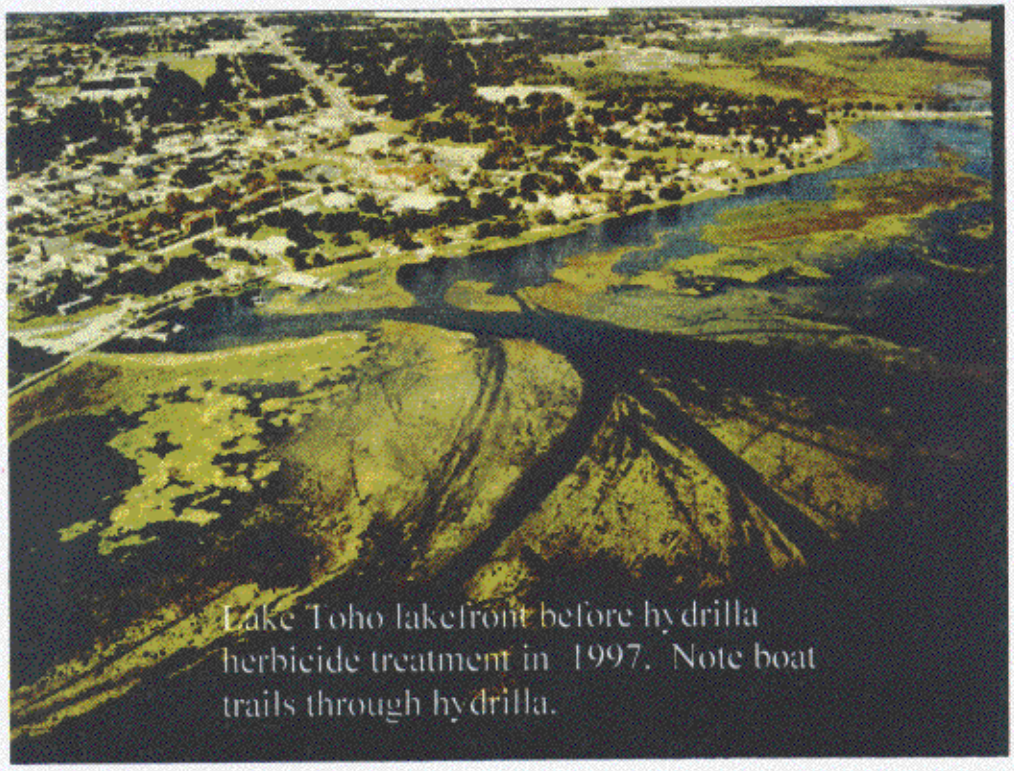
Attachment 10

Attachment 11

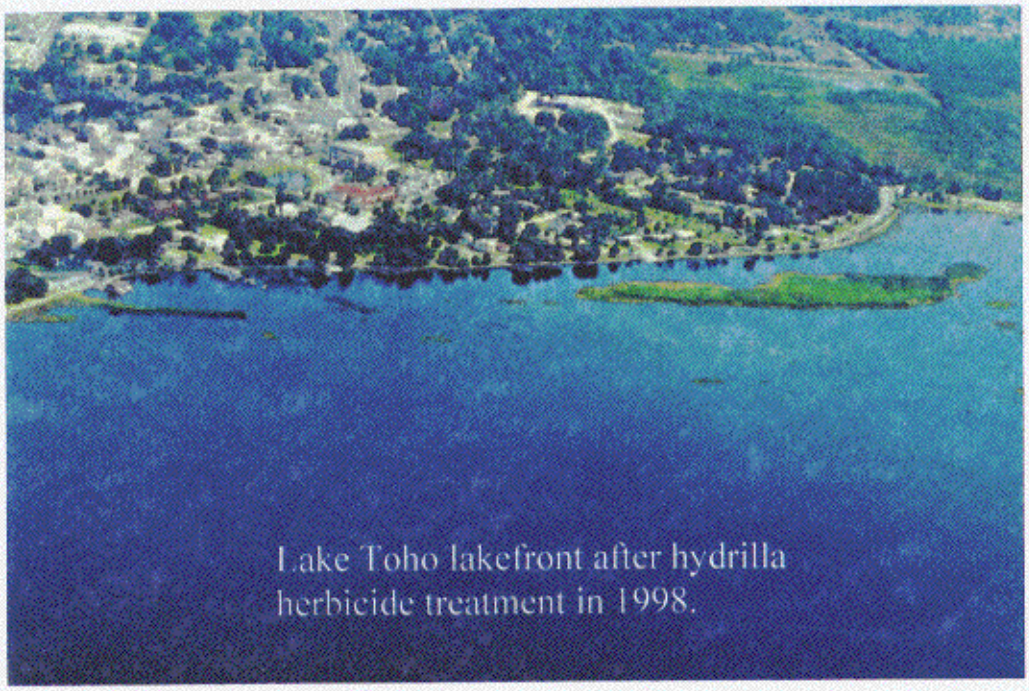
Attachment 12

Lake Tohopekaliga, Kissimmee, Florida

North end, showing lakefront boat ramp, before and after a large scale hydrilla herbicide treatment in FY 1997-1998.



Lake Toho lakefront before hydrilla herbicide treatment in 1997. Note boat trails through hydrilla.



Lake Toho lakefront after hydrilla herbicide treatment in 1998.

C. Bureau of Invasive Plant Management: Funding

Over the past several years funding for the state's invasive plant management program has been nonrecurring and inconsistent. Funding has ranged from $9 million in FY 1994-95 to $19 million in FY 1999-00. This sporadic funding has resulted in unpredictable and unreliable management techniques and results. Trends show, that when funding was high, levels of hydrilla and other invasive plants were shown to be low. (See attachment #14). Conversely, during low levels of funding, invasive plants grew at an explosive rate blanketing parts of the state and causing negative environmental impacts.

1. Pre-Documentary Stamp Tax Revenue

According to DEP, revenue sources for the state's invasive plant management program during FYs 1997-98 thru 2000-01 are as follows:

REVENUE SOURCES[4]	**FY 1997-98**	**FY 1998-99**	**FY 1999-00**	**FY 2000-01**[5]
Grants and donations (corps of engineers)	2,738,069	773,970	800,000	800,000
Interest on investments	568,715	500,000	452,000	452,000
Interest - contracts	9,568	27,012	0	0
Solid Waste Management Trust Fund	6,000,000	8,000,000	10,000,000	0
CARL Trust Fund -	1,000,000	0	0	10,000,000[6]
Boat Registration ($2/ pleasure boat)	1,258,610	1,284,306	1,284,306	1,284,306
Boat Registration (40% commercial boat)	332,823	351,000	351,000	351,000
Gas Tax	6,300,000	6,300,000	6,300,000	6,300,000
Misc. (fines, refunds, sales on goods)	356,116	568,688	0	0
Appropriated Revenues	18,563,901	17,804,976	19,187,306	19,187,306

Unlike the gas and boat registration tax, the Solid Waste Management and the CARL Trust Funds are nonrecurring funds and are requested on an annual basis. The Legislature appropriated $10 million dollars from the SWMTF to the APCTF for the 1999-00 FY. However, the CARL trust fund appropriation was recently requested for 2000-01 FY and has not been appropriated to date.

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[4] All revenue figures are derived from the department's *Aquatic Plant Control Trust Fund, Analysis of Fund Status and Activity -- Actual and Projected*. The 1997-98 FY figures are actual figures. The 1998-99 FY figures are actual through March 31, 1999 and projected from March 31, 1999 through June 30, 1999. The 1999-00 and 2000-01 FY figures are projected, not actual.

[5] These figures are based upon a preliminary budget request.

[6] This amount was recently requested from the Legislature to be distributed from the CARL Trust Fund to the APCTF for FY 2000-01.

According to DEP, administration of the Aquatic Plant Control Trust Fund revenues is as follows:

DISBURSEMENTS	**FY 1997-98**[7]	**FY 1998-99**[8]	**FY 1999-00**	**FY 2000-01**
Salaries and Benefits	1,348,916	1,420,665	1,372,217	1,389,437
Aid to Local Governments[9]	15,132,983	13,863,924	14,927,376	14,127,376
Expenses/ OPS	1,675,774	1,880,238	1,880,238	1,880,238
Operating Capital Outlay	410,730	18,606	500	500
Transfers to UF for research	25,000	25,000	25,000	25,000
Transfers to FGCC	880,000	880,000	880,000	880,000
Health Insurance TF	12,052	12,052	12,052	12,052
Control of Invasive Exotics[10]	967,879	1,000,000	2,000,000	2,000,000
Total Expenditures	20,453,334	19,100,485	21,097,383	20,314,603

2. Post-Documentary Stamp Tax Revenue

CS/CS/SB 908, provides a dedicated revenue source for the department's Bureau of Invasive Plant Management. Beginning July 1, 2001, a total of 2.28% of the documentary stamp tax collections will be distributed to the Aquatic Plant Control Trust Fund to carry out invasive aquatic plant control. Based on estimated documentary stamp tax collections, the revenues for the first three fiscal years eligible for this appropriation are projected to be: FY 2001-02, $25.9 million; FY 2002-03, $26.9 million; and FY 2003-04, $27.9 million.

Out of this funding, twenty percent or approximately $5-7 million is to be appropriated annually to the Upland Invasive Plant Program for upland control. This leaves an estimated $20 - 22 million per year for aquatic plant management, not including current revenues.

[7] The figures for the 1997-98 FY were derived from the department's *Aquatic Plant Control Trust Fund -- Analysis of Fund Status and Activity -- Actual and Projected.*

[8] The figures for 1998-99, 1999-00 and 2000-01 FYs were derived from the *2000-01 Legislative Budget Request, Division of State Lands.*

[9] This funding source includes the $10 million revenues from the SWMTF received in FY 1999-00 and the $10 million revenues requested from the CARL Trust Fund for 2000-01 FY. This funding is dedicated toward controlling aquatic invasive plants and includes $1 million which is dedicated toward controlling Melalueca.

[10] This funding is derived from the CARL trust fund and is only dedicated toward controlling upland invasive plants.

The total post documentary stamp tax revenues to the Aquatic Plant Control Trust Fund during FY 2001-02 through 2003-04 will be approximately:

REVENUE SOURCES[11]	**FY 2001-02**	**FY 2002-03**	**FY 2003-04**
Florida Forever Act (aquatic control)	25,998,224	26,900,000	27,900,000
*Grants and donations (corps of engineers)	800,000	800,000	800,000
*SWMTF	0	0	0
*CARL	0	0	0
Interest on investments	452,000	452,000	452,000
Interest - contracts	N/A	N/A	N/A
Solid Waste Management Trust Fund	0	0	0
CARL Trust Fund -	0	0	0
Boat Registration ($2/ pleasure boat)	1,284,306	1,284,306	1,284,306
Boat Registration (40% commercial boat)	351,000	351,000	351,000
Gas Tax	6,300,000	6,300,000	6,300,000
Misc. (fines, refunds, sales on goods)	N/A	N/A	N/A
Appropriated Revenues	35,185,530	36,087,306	37,087,306
Less: Upland control:	(5,199,000)	(5,380,000)	(5,580,000)
Total Revenue	29,986,530	30,707,306	31,507,306

*The Solid Waste Management Trust Fund, the CARL Trust Fund are nonrecurring funding sources. The grants may or may not be recurring.

Approximately $24,926,600 will be available to be spent on aquatic plant control in 2001-02 ($20,799,224 from the Florida Forever revenues plus $4,127,376 of the previous revenues that were available for aquatic plant management). According to the Bureau, projected distribution for the aquatic plant control in FY 2001-02 may be as follows:

Aquatic Plant Mgt. Budget for FY 2001-02:

Hydrilla	$18,262,354
Floating Plants	$ 1,974,172
Other Plants	$ 4,754,145
Total Distribution	$24,990,671
Less: Revenues	$24,926,600
Total Need Remaining	$ 64,071

[11] All revenue figures are derived from the department's *Aquatic Plant Control Trust Fund, Analysis of Fund Status and Activity -- Actual and Projected*. The 1997-98 FY figures are actual figures. The 1998-99 FY figures are actual through March 31, 1999 and projected from March 31, 1999 through June 30, 1999. The 1999-00 and 2000-01 FY figures are projected, not actual.

The department indicated that the cost of hydrilla and "other plants" will be adjusted accordingly so that the total FY 2001-02 revenues will cover the department's total FY 2001-02 budget

In addition, the Bureau may receive aproximately $5,199,000 for upland plant control in 2001-02. The Bureau has projected a possible distribution of the 2001-02 revenues to be as follows:

Approx. Appropriation	$5,199,000

Upland Invasive Plant Program Budget FY 2001-02:

Brazilian Pepper	$2,500,000
Cogan Grass	$ 500,000
Chinese Tallow	$ 500,000
Climbing Fern	$1,000,000
Other Plants	$ 699,000
Total projected distribution	$5,199,000

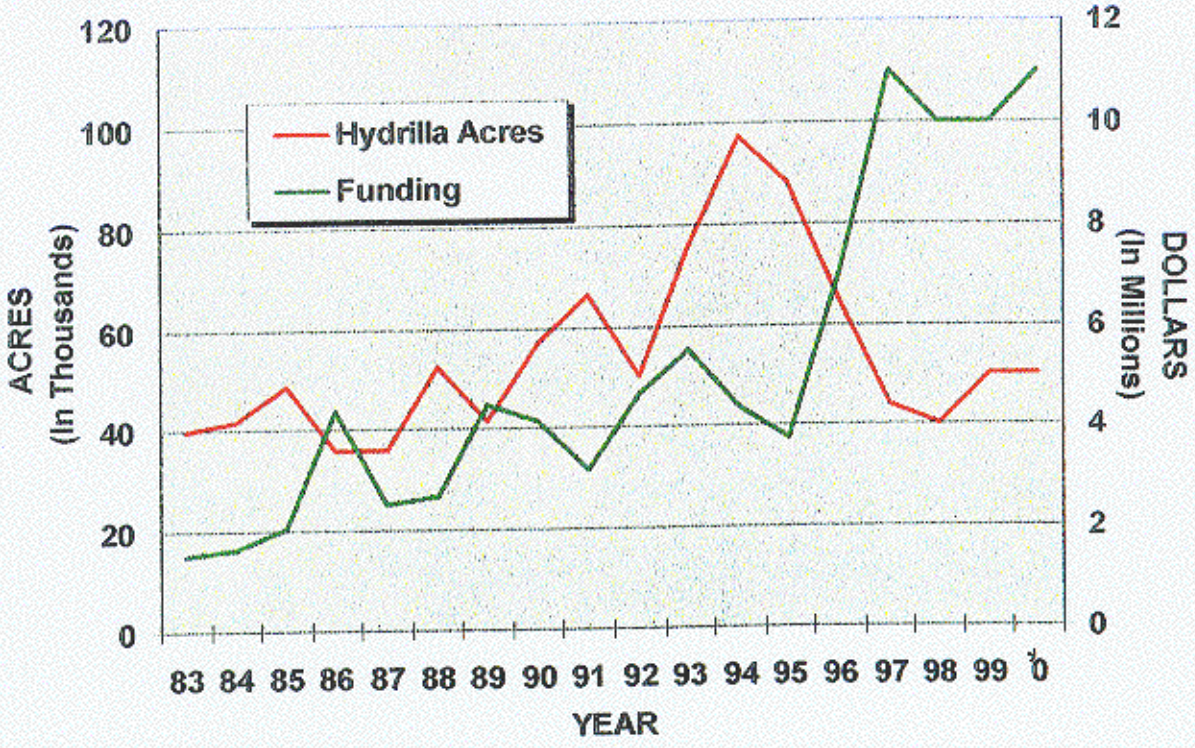
According to the department, this is only a projected breakdown of the funding projected to be appropriated for upland exotic plant control and is subject to change prior to receiving the FY 2001-02 funding.

In addition, the Bureau has indicated that it would like to direct the CARL trust fund appropriation of $2 million toward Melalueca, Australian Pine and Brazilian Pepper control.

If there are any additional funds remaining, the Bureau indicated that it would like to address plants that are becoming an issue in the future. For example, the department indicated that green hygro, West Indian marsh grass and lygodium are three that may become an issue in the near future. The current upland program will be able to effectively control these issues should funding be available.

Lastly, the Florida Forever Act appropriates about $4.5 million of the documentary stamp tax revenues to the Fish and Wildlife Conservation Commission to be used for restoration and dredging of certain sovereign water bodies in addition to acquisitions and inholding for conservation which may be used to address aquatic plant management upon acquisition of certain water bodies.

Hydrilla Acres vs. Funding Levels, 1983 – 2000*



(*Data for the year 1999 & 2000 are estimated)

II. Findings: County Programs

A. Structure, Administration, and Funding

When a new aquatic project arises on a public water body, the state approaches the district to determine if the district can fit the project into any of their current programs. If the district cannot maintain the water body, then the state approaches the counties. Several counties have developed their own aquatics and/or upland program depending upon their particular need. To view a county map, see attachment #15.

In regard to aquatics programs, the counties are only responsible for water bodies that lie solely within their boundaries. Section 369.22(3), F.S., states that it is the county's responsibility to control nonindigenous aquatic plants on all "intra-county" waters.[12] The department has the authority to contribute state dollars to the counties for management of their intra-county waters if the department receives satisfactory proof that the county has sufficient funds on hand to match the state funds by at least 50 percent. Fla. Stat. §369.20(5)(a). Under this program, the county contributes 50 percent of the costs and the state usually performs work in addition to contributing the other 50 percent of the management costs. There are some 68 intra county water bodies in the State of Florida. (See attachment #16, a list of all the intra and inter water bodies in each county).

If a water body is located between two or more counties, an "inter-county" water body, then it is the responsibility of the state. Fla. Stat. s. 369.22(3). As such, the counties do not contribute any funds toward maintenance of aquatic plants on inter-county waters. If counties do any work on inter-county water bodies, then the state reimburses the county 100 percent.

The counties may have also developed their own uplands program. Currently, the department does not have a mandatory upland matching program. Although, the state does request either in-kind or financial matching from counties if it is available.

Participating counties' goals are to maintain invasive plant management at its lowest levels. Some counties, however, delegate invasive plant management to cities or leave it up to the state to manage. This committee surveyed all 67 counties regarding invasive plant management programs. Out of the 32 counties that responded, 20 had some type of aquatic plant management program in place and 14 counties had some type of upland program. (See Chart, attachment #17).

[12] Intra county waters is defined under s. 369.22(i) to mean "any waters which lie wholly within the boundaries of one county as determined by the department."

Counties which participate in State's Aquatic Plant Matching Program

Although 20 plus counties in Florida have an aquatic plant management program, only 9 counties participate in the state's intra county matching funds program as set forth in s. 369.20(5)(a), F.S., wherein the counties and the state each contribute 50 percent of the maintenance costs on the counties' intra county waters. Those nine counties are: Brevard, Citrus, Highlands, Hillsborough, Lake, Orange, Palm Beach, Polk and Volusia. A review of their programs follow:[13]

Polk county currently has approximately 10 staff members in its Aquatic Weed Control section. This section manages water hyacinth, water lettuce and hydrilla on about 76 intra-county lakes. Polk county matches 50 percent of the maintenance costs with the department for these intra county lakes as a part of the department's matching funds program. In 1998-99, Polk county matched state dollars in the amount of $40,010 bringing their total budget for intra-county waters to approximately $80,020. In 1999-00, Polk county matched state dollars in the amount of $75,734 for a total budget of $151,468. Due to a recent hydrilla outbreak, it is estimated that by 2001-02 Polk county will match state dollars in the amount of $75,000 - $80,000 for invasive plant control on intra county water bodies.

Polk county is actively engaging in its own aquatic plant management program in addition to the state's matching fund program. Polk county's matching funds are only a portion of what the county spends on aquatic plant control. In 1998-99, Polk county spent an additional $655,279 for its own aquatic plant control on public waters without boat ramps. Polk county also spent approximately $2,591,240 on inter-county aquatic plant control and was reimbursed 100 percent from the department for this expense. All in all, Polk county spent over $3.2 million in aquatic plant control during 1998-99 FY.

Orange county currently maintains a three member staff in their Ecosystems Management Section. This section controls hydrilla, hyacinth and water lettuce on approximately 10 to 15 intra-county public lakes. In 1998-99 Orange county spent approximately $50,000 to match state funds in order to maintain their intra-county public lakes, bringing their total budget to approximately $100,000. In 1999-00, Orange county is anticipating that it will spend $109,000 to match state funds, and their total budget will be approximately $118,000 for intra-county public lakes.

In addition, in 1998-99 Orange county spent an additional $350,000 in its own aquatic plant management program. Orange county is also anticipating spending an additional $150,000 in its own aquatic plant program during 1999-00 FY. Currently, Orange County does not maintain

[13] With the exception of Hillsborough and Volusia counties which did not respond to the Committee's survey.

any inter-county lakes. Overall, Orange county spent approximately $400,000 in 1998-99 and $250,000 in 1999-00 for aquatic plant management.

Highlands county employs six persons to maintain their Invasive Plant Management Department. Highlands has two intra-county water bodies and contributes 50 percent of their maintenance costs, or about $2,500, each year. In addition, in 1998-99 Highlands maintained it's own water bodies without boat ramps and intercounty water bodies at a cost of $180,000, most of which was reimbursable from the state. Highlands mostly maintains their canal system to control hydrilla, hyacinth and water lettuce.

Although, Brevard, Citrus and Palm Beach counties are cooperators with the state, they do not participate in the state's aquatic matching funds program at this time. These counties, however, do have their own county programs. Brevard county has a centralized Aquatic Weed Control program which is operated through its Mosquito Control Program. Currently, Brevard county has four employees controlling the aquatic plants in thier county, e.g., water hyacinth and cattails. In 1998-99, Brevard county spent a total of $333,574 on aquatic weed control. Out of this amount, Brevard county indicated that $168,441 was a 100 percent reimbursement from the state for Brevard counties help in maintaining inter-county water bodies. Citrus county currently employs nine people in their Aquatic Services Division to assist in controlling aquatic plants in their county such as hydrilla and hyacinth. In 1998-99, Citrus county spent approximately $223,504 in the county programs and the state reimbursed Citrus in the amount of $843,098 for their assistance in maintaining inter-county (state) waters.

Palm Beach county does participate in the state intra county matching program, however, is currently not an active member. In 1998-99, Palm Beach county spent about $235,000 managing hydrilla, water hyacinth and water lettuce. After Palm Beach county performs the inter-county work, the state reimburses the county 100 precent. In 1999-00, Palm Beach is anticipating spending $300,000 on inter-county water bodies, which will be eligible for reimbursement.

Lake county, like other counties, contracts with cities and other local governments to control aquatic plants along lake shorelines. In 1998-99, Lake county spent roughly $225,000 maintaining aquatic invasive plants. A nominal amount (about $4,500) of this was used to match state funds. Approximately $70,000 was reimbursable from the state for work performed on inter-county water bodies. Lake county still has approximately 1600 acres of aquatic plants which are not currently being managed.

The state indicated that it would prefer to maintain the intra county waterbodies without contribution from the counties. By doing so, the state would provide a uniform method of maintenance and distribute funding accordingly. If the state retained control of the intra county waterbodies, then it would be responsible for the 50 percent funding that the counties once contributed. This amount may fluctuate yearly from approximately $97,000 to $250,000.

Counties which do not participate in State's Aquatic Matching Program

There are several counties that choose not to participate in the state's aquatic matching program for a variety of reasons: the county does not have any intra-county water bodies, the county chooses to do its own work, the county did not have available funds to participate in the program. Unfortunately, if a county does not maintain its intra county water, then the invasive plant problem explodes. The cost of regaining control of the water body after invasive plant infestation is higher than continuous maintenance at low levels. At the end of the day, this costs both the counties and the state more money.

Martin and Monroe counties choose not to participate in the State's aquatic matching program and therefore only receive state funding for upland control. In FY 1997-98 Martin county received $55,000 from the state to help control approximately 1,000 acres of state lands infested with the Old World Climbing Fern, Brazilian pepper and melaleuca, among others. However, this funding is nonrecurrent and in FY 1998-99 Martin county did not receive any state funding for upland control on state lands. Monroe county received $80,000 in FY 1998-99 from the state to help control 1,300 acres of sovereign lands infested with Brazilian pepper, Australian pine and lather leaf. This upland program is predominantly a collateral duty for the staff members and not an independent program. For example, the Public Works Department will conduct exotic plant control along the roadsides.

Miami-Dade county has the most extensive invasive plant management program in place without receiving any state funding for its invasive plant management program. Miami-Dade has both an aquatics and an uplands program. The program is divided among three Miami-Dade departments: Public Works Department which controls the removal of aquatic pest plants (e.g., hydrilla) from canals; the Natural Areas Management Section of the Parks & Recreation Department which controls the planning, supervision and removal (mechanical and manual) of exotic plants (e.g., melalueca); and the Natural Resources Division & Environmentally Endangered Lands Program of the Department of Environmental Resource Management which conducts surveys, makes recommendations, distributes funding, supervises and enforces field work and monitors and conducts research on invasive plant management.

Miami-Dade county's total budget appropriated for invasive plant management during FY 1997-98 was $9 million and in FY 1998-99, about $8 million.[14] Despite Miami-Dade's invasive plant management program, and the contribution from other federal and state entities, according to Miami-Dade about 75,000 acres infested with invasive plants remain *unmanaged*.

[14] Approximately $6.5 million and $6 million dollars were spent on invasive aquatic plants and $866,124 and $48,000 were spent on invasive upland plants in FY 97-98 and 98-99 respectively.

Counties' Upland Invasive Plant Management Programs

Most counties do not have a formal uplands program in place. For example, Orange county does not have an inventory of upland invasive plants in their county and no program to address this issue. Out of the 32 counties that responded to this committee's survey, only 14 had some type of uplands program.

Most counties with programs raise money their ad valorem taxation authority. In 1998-99 Palm Beach county spent over $1.5 million on staff, herbicides and equipment collectively in order to control the vast amount of melalueca, Australian pine and Brazilian pepper within the county. Like most counties, actual plant removal on public land is performed by various county employees throughout different departments, e.g., Parks and Recreation or Transportation. Palm Beach county governs invasive plant control on private lands through ordinances. For example, Palm Beach county has an ordinance that requires removal of all invasive exotic plants prior to issuing a building permit. Their county upland program regulates this permitting process and enforces permitting violations.

Although, upland programs are primarily funded through ad valorem taxation revenues, counties may submit their request for funding to the state's upland working groups and the state may provide funding to the counties depending upon the nature and priority of the project, and whether funding is available. (*See* Upland Plant Program Section discussed in an earlier portion of this report).

Attachment 15

Department of Environmental Protection, Bureau of Invasive Plant Management
Projected Aquatic Plant Management Funding Expenditures for FY 2001-2002

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Clark Lake	Brevard	320		4,827	4,124
Elbow Creek	Brevard	4		453	269
Fox Lake	Brevard	165	2,828	5,719	11,850
Lake Loughman	Brevard	600		3,934	7,884
Lake Winder	Brevard	1,496		13,753	4,927
Lk Poinsett	Brevard	4,334		30,345	11,045
Ruth Lake	Brevard	312		5,719	4,124
Salt Lake	Brevard	336	2,828	3,042	4,124
South Lake	Brevard	1,101	2,828	4,827	21,988
St. Johns River	Brevard		5,656	6,627	4,940
Chassahowitzka River	Citrus	1,000	2,400	975	6,800
Crystal River	Citrus	1,650	47,250	2,750	391,600
Halls River	Citrus	100	900	1,625	21,600
Homosassa River	Citrus	800	450	1,625	76,000
Tsala Apopka, Lake	Citrus	19,111			
Floral City Pool	Citrus		18,400	27,138	195,810
Hernando Pool	Citrus		153,320	13,036	155,912
Inverness Pool	Citrus		56,400	34,288	205,186
Alligator (Columbia)	Cutter	338			3,600
Deer Point Lake	Cutter	5000			5,000
Iamonia, Lake	Cutter	5757			15,710
Lochloosa, Lake	Cutter	5706			30,000
Miccosukee, Lake	Cutter	6276			4,930
Orange Lake	Cutter	12706			100,000
Sneads Smokehouse Lake	Cutter	110			10,000
Wacissa River	Cutter	250	1,360		
Carr Lake*	Dep-NW	400	2,100	3,000	
Dead Lakes	Dep-NW	3655		1,000	
Deer Point Lake	Dep-NW	5000			
Hall, Lake*	Dep-NW	172		500	
Iamonia, Lake	Dep-NW	5757	2,100	1,000	
Jackson, Lake*	Dep-NW	4000	70,000	2,000	
Martin Bayou	Dep-NW	240		500	
Merritt's Mill Pond	Dep-NW	202	56,000		
Miccosukee, Lake	Dep-NW	6276	2,800	300	
Munson, Lake*	Dep-NW	255		1,500	
Sneads Smk	Dep-NW	110	2,100	3,000	2,000
Talquin, Lake	Dep-NW	8850		10,000	
Wacissa River	Dep-NW	250		12,500	
Wakulla River	Dep-NW	285	25,000		
Bryant, Lake*	Dep-SJN	767	105	250	
Delancy, Lake	Dep-SJN	342		400	400
Disston, Lake	Dep-SJN	1884		1,625	200
Eaton, Lake	Dep-SJN	307	7,000	4,250	
Georges Lake	Dep-SJN	816		1,000	1,020
Guano wma	Dep-SJN	1800			20,000
Half Moon, Lk*	Dep-SJN	340	35	100	100
Holden's Pond	Dep-SJN	80	70	300	100
Johnson Lake*	Dep-SJN	52	88	550	10
Jumper, Lake	Dep-SJN	305	70	3,000	

Attachment 16

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Kerr, Lake(s)*	Dep-SJN	2830	1,750	1,250	1,000
Little Orange Lake	Dep-SJN	818	350	650	700
Lochloosa, Lake	Dep-SJN	5705	3,500	3,625	6,400
Mill Dam, Lake*	Dep-SJN		35	150	
Moss Lee Lake	Dep-SJN	129		200	200
Nassau River	Dep-SJN	5785		2,500	1,000
Newnans Lake	Dep-SJN	7427		500	
Orange Lake	Dep-SJN	12706	350,000	15,625	314,000
Rodman Res./ Okcla. River	Dep-SJN	9600	7,000	25,500	12,000
Silver River	Dep-SJN		210		
Stella, Lake*	Dep-SJN	308		650	100
Wauberg Lake	Dep-SJN	248		2,000	100
Weir, Lake*	Dep-SJN	5685	1,750	1,000	1100
Poinsett, Lake	Dep-SJS	4334	400,000	37,500	16,000
SJR(520-Grg)(H&H&Snk)	Dep-SJS			5,625	18,000
Wekiva River	Dep-SJS	234	14,000	1,250	26,000
Winder, Lake	Dep-SJS	1496	175,000	31,250	12,000
Alligator Lake*	Dep-SR	338	1,050	500	2,200
Alto, Lake	Dep-SR	540	210	600	
Bell Springs	Dep-SR	1.5			
Butler, Lake*	Dep-SR	420	70	600	3,700
Desoto Lake*	Dep-SR				500
Ichetucknee River	Dep-SR	100		2,000	
Montgomery*	Dep-SR	36	70	25	200
Mystic Lake*	Dep-SR	47			
Palestine Lake*	Dep-SR	911		150	
Peacock Lake*	Dep-SR	148	350	500	750
Rowell Lake	Dep-SR	364	3,500	2,000	400
Sampson Lake	Dep-SR	2042	3,500	2,500	5,000
Santa Fe Lake	Dep-SR	4721		2,000	5,300
Santa Fe River	Dep-SR	5000		1,750	100
Suwannee Lake*	Dep-SR	63		300	
Suwannee River	Dep-SR	12000	3,500	11,250	7,500
Townsend Lake*	Dep-SR	110			6,020
Watermellon Pond	Dep-SR	531	210	100	
Watertown Lake*	Dep-SR	46	70	10	20
Rousseau, Lake	Dep-SW	4000	280,000	38,500	22,400
Adalaide, Lake	Highlands	96			270
Arbuckle Creek	Highlands	120	3,500	13,500	5,000
Bonnet, Lake	Highlands	260		360	1,440
Carrie, Lake	Highlands	65		180	180
Catfish Crk & canals	Highlands	30		360	3,640
Clay Lake	Highlands	467	3,500	360	1,560
Damon, Lake*	Highlands	300	350	90	90
Dinner Lake	Highlands	379	700	180	80
Francis, Lake	Highlands	539	700	270	750
Glenada, Lake	Highlands	150	3,500	450	400
Henry, Lake	Highlands	64	700	90	560
Huntley, Lake	Highlands	500	700	720	630
Isabell, Lake*	Highlands	95		450	90
Istokpoga, Lake	Highlands	27692	2,515,000	108,000	38,100
Jack & Sterns Creek	Highlands	50		450	2,090
Jackson Creek	Highlands	50		900	13,200
Jackson, Lake	Highlands	3400		4,050	2,960

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Josephine Creek	Highlands	20	1,400	900	2,450
Josephine, Lake	Highlands	1236	700	4,500	1,540
June-In-Winter, Lake	Highlands	3504	700	900	250
Lelia, Lake	Highlands	165	700	90	400
Letta Lake	Highlands	478		180	430
Lotela, Lake	Highlands	802	7,000	90	740
Olivia, Lake*	Highlands	86	350		100
Pioneer Lake	Highlands	93	700		280
Placid, Lake	Highlands	3320		180	900
Red Beach, Lake	Highlands	335			170
Red Water, Lake	Highlands	66			1,750
Sebring, Lake	Highlands	468		900	540
Stearns Creek	Highlands	143			
Tulane, Lake	Highlands	89	3,500		6,000
Viola, Lake	Highlands	73	700		200
Alafia River	Hillsborough	371		875	
Hillsborough River	Hillsborough	443	800	20,968	1,461
Hills. Thonotosassa, Lk	Hillsborough	819	800	878	
Hills. Weeks, Lk	Hillsborough			263	
Little Manatee River	Hillsborough	150		700	1,286
Apopka-Beauclair Canal	Lake	49		960	500
Beauclair, Lake	Lake	1111		700	1,000
Bugg Springs	Lake	7		780	340
Carlton, Lake	Lake	382		160	500
Cherry, Lake	Lake	396	3,500	160	
Cook, Lake	Lake	20	700	80	
Crescent Lake	Lake	143	12,600	80	200
Dal Housie, Lake*	Lake	243		20	
David, Lake	Lake	49	175	40	
Dead River	Lake	148	700	340	100
Denham, Lake	Lake	269		240	160
Dora Canal	Lake	9	700	80	25
Dora, Lake	Lake	4475	350	160	1,400
Dorr, Lake*	Lake	1533		80	200
Ella, Lake*	Lake	467	1,750		
Emma, Lake	Lake	175	3,500	40	
Eustis, Lake	Lake	7806	2,100	1,240	100
Grasshopper Lake*	Lake	213	175	20	
Griffin, Lake	Lake	16505	4,900	5,100	3,100
Haines Creek	Lake	780	2,100	1,160	
Harris, Lake	Lake	13788	4,900	1,500	500
Helena Run	Lake	38	1,400	660	200
Hiawatha, Lake	Lake	48	1,400	740	200
Holly Lake*	Lake	98	350	20	
Johns Lake	Lake	2417	700	8,000	
Louisa Lake	Lake	3364		180	
Lucy, Lake	Lake	335	2,100	80	
Minnehaha, Lake	Lake	2261	700	180	
Minneola, Lake	Lake	1888	700	180	
Norris, Lake	Lake	1131		1,060	
Palatlakaha River-N	Lake	10	700	140	80
Palatlakaha River-S	Lake	750	1,400	440	
Palatlakaha, Lake	Lake	101		180	
Sellers Lake (Pond)*	Lake	1050	350	40	

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Susan, Lake	Lake	81		180	
Trout Lake	Lake	102	700	2,080	300
Umatilla, Lake*	Lake	161		20	
Wildcat Lake*	Lake	232	175	20	
Wilson, Lake	Lake	32	350	80	
Winona, Lake	Lake	75	350	180	
Yale, Lake	Lake	4042	2,100	1,000	100
Blanche, Lake*	Orange	121	750		
Butler, Lake*	Orange	1665	8,125	70	500
Chase, Lake*	Orange	135	1,100		
Conway, Lake*	Orange	1767	47,500	620	750
Down, Lake*	Orange	872	1,800		
Isleworth, Lake*	Orange	56	1,100		
Jessamine, Lake*	Orange	306	1,800	70	150
Lawne, Lake*	Orange	156		70	
Little Fish Lake*	Orange	23	700		
Louise, Lake*	Orange	145	2,150		
Pocket Lake*	Orange	126	3,700		
Sheen, Lake*	Orange	565	17,750		
Tibet, Lake*	Orange	1198	17,750	140	
Wauseon Bay*	Orange	138	1,050		
Clark Lake	Palm Beach	33	22,084	2,926	
Ida, Lake	Palm Beach	159	58,928	5,134	
Osborne, Lake	Palm Beach	356	174,802	16,608	
Pine Lake	Palm Beach	35	15,227	2,290	
Agnes, Lake*	Polk	386		450	
Alfred, Lake*	Polk	736		900	
Annie, Lake*	Polk	539		90	
Arbuckle, Lake	Polk	3828	210,000	27,000	130,000
Ariana, Lake	Polk	1026		900	
Banana Lake	Polk	342	7,000	4,500	
Blue Lake	Polk	118	700	180	
Bonny, Lake	Polk	354	3,500	1,350	
Buckeye Lake*	Polk	71		90	
Buffum, Lake*	Polk	1543	350	2,250	
Cannon Lake	Polk	336	49,000	450	
Carter Road Park	Polk	150	1,400	6,750	
Clinch, Lake*	Polk	1207		225	
Conine, Lake	Polk	236	28,000	450	
Crooked Lake*	Polk	5538	350	1,350	12,500
Daisy,Lake *	Polk	133		225	
Deer Lake*	Polk	125	700	90	
Deeson,Lake *	Polk	117	1,750	90	
Eagle Lake*	Polk	651	5,250	225	
Echo,Lake *	Polk	69	700	90	
Elbert, Lake*	Polk	173	1,050	90	
Eloise, Lake	Polk	1160	7,000	450	
Eva Lake*	Polk	176	15,750	225	
Fannie, Lake	Polk	829	52,500	2,250	
Ft. Meade Pits*	Polk	28	350	225	
Garfield, Lake	Polk	655	1,400	4,500	25,000
Gator, Lake*	Polk	114		450	
Gibson, Lake	Polk	474	1,400	2,250	
Haines, Lake	Polk	716	35,000	2,700	

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Hamilton, Lake	Polk	2126	1,400	4,500	
Hancock, Lake	Polk	4519	7,000	9,000	
Hartridge, Lake	Polk	434	172,500	450	
Hatchineha Canals	Polk	100	7,000	2,250	1,200
Hollingsworth, Lake	Polk	356			
Howard, Lake	Polk	628	70,000	450	
Idylwild, Lake	Polk	102	28,000	270	
Jessie, Lake	Polk	190	28,000	900	
Juliana, Lake*	Polk	926	700	225	
Kissimmee Canals	Polk	100	7,000	6,750	1,200
Lena, Lake	Polk	207		180	
Livingston, Lake	Polk	1203		1,350	12,500
Lulu, Lake	Polk	301	42,000	450	
Mariam, Lake*	Polk	199		225	
Marion, Lake	Polk	2990	485,000	4,500	
Martha, Lake*	Polk	85	7,000	90	
Mattie, Lake*	Polk	1078		450	
Maude, Lake*	Polk	55	1,750	90	
May, Lake	Polk	44	3,500	180	
McLeod, Lake*	Polk	512	700	450	
Menzi, Lake*	Polk	22	1,750	90	
Mirror, Lake	Polk	123	3,500	180	
Mud Lake*	Polk	133		450	6,550
Ned, Lake*	Polk	74	350	225	
Pansy,Lake *	Polk	50		90	
Parker, Lake	Polk	2272	35,000	2,250	
Pierce, Lake	Polk	3729	675,000	9,000	
Reedy, Lake	Polk	3486	1,400	180	
Rochelle, Lake	Polk	578		900	
Rosalie, Lake	Polk	4597	70,000	6,750	
Roy, Lake	Polk	78	1,400	180	
Saddle Creek Park	Polk	335	700	2,550	
Sanitary(Mariana)	Polk			180	
Sears,Lake *	Polk	82		90	
Shipp, Lake	Polk	283	35,000	450	
Smart Lake	Polk	275	700	180	
Spring, Lake	Polk	25	7,000	180	
Star Lake*	Polk	84	700	90	
Summit, Lake	Polk	67	28,000	180	
Surveyors, Lake*	Polk	293		675	
Swoope Lake*	Polk	112	350	90	
Tennessee, Lake*	Polk	112		90	
Tenoroc Pits*	Polk	1200	700	2,250	600
Thomas, Lake*	Polk	73		450	
Tiger, Lake	Polk	2200	3,500	9,000	2,400
Tracy, Lake	Polk	136	1,400	1,800	
Wales, Lake*	Polk	326	21,000	225	
Weohyakapka, Lake	Polk	7532	1,575,000	6,750	130,000
Winterset, Lake	Polk	590	70,000	180	
Wood Lake	Polk	150	700	2,250	
Alligator Lake	SFWMD	3406	7,300	1,000	500
Brick Lake	SFWMD	616		500	
C-35 Toho-Cypress	SFWMD	81		1,500	650
C-36 Cyprs-Hatch	SFWMD	40		2,000	

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
C-37 Hatch-Kiss	SFWMD	71		2,000	650
C-38 Kiss C& P B	SFWMD	2000		100,000	1,950
Center, Lake	SFWMD	410		1,500	500
Coon Lake	SFWMD	148		1,000	500
Cypress Lake	SFWMD	4097	698,950	40,000	71,500
East Lk Toho.	SFWMD	12546	219,000	30,000	14,000
Fish Lake	SFWMD	221	700	3,000	390
Fisheating Creek	SFWMD	150		10,000	9,000
Gentry, Lake	SFWMD	1791	21,900	4,000	500
Hart, Lake	SFWMD	1850	500	2,000	1,000
Hatchineha, Lake	SFWMD	6665	1,030,000	40,000	45,500
Jackson, Lake	SFWMD	1020	207,500	40,000	21,300
Kissimmee, Lake	SFWMD	34948	3,055,000	150,000	65,950
Russell, Lake	SFWMD	300		1,000	
Lizzie, Lake	SFWMD	792	1,460	500	500
Loxahatchee River	SFWMD	100		5,000	1,760
lwr Istokpoga Canal	SFWMD	50			
Marian, Lake	SFWMD	5739	18,250	30,000	3,250
Mary Jane, Lake	SFWMD	1158		2,000	
Upper Taylor Creek	SFWMD	35		3,000	
Okeechobee, Lake	SFWMD	448000			2,000,000
Old Kissimmee River	SFWMD	2340	1,600	60,000	8,650
Reedy Creek	SFWMD	100		2,000	5,750
Runnymede Lake	SFWMD	300	10,950	6,000	520
Savannahs St Park	SFWMD	2700		2,000	
Shingle Creek	SFWMD	10	3,650	1,000	
Trafford, Lake*	SFWMD	1494	140,000	4,000	11,300
West Lk Toho.	SFWMD	18810	3,000,000	140,000	78,500
Apopka, Lake	SJRWMD	30671	12,000	38,500	450
Blue Cypress Lake	SJRWMD	6555	350,600	20,600	
Econlockhatchee R.	SJRWMD	120		500	
Hellen-Blazes, Lake	SJRWMD	381		4,240	4,500
Orange-Loch	SJRWMD				
Poinsett, Lake	SJRWMD	4334			
Sawgrass, Lake	SJRWMD	407	15,000	13,000	3,000
Sawgrass, Litle Lake	SJRWMD	74		2,750	1,600
St. Johns River	SJRWMD	478	128,000	24,000	7,500
Washington, Lake	SJRWMD	4362	60,000	12,000	750
Winder, Lake	SJRWMD	1496			
Anclote River	SWFWMD	200		3,200	
Braden River	SWFWMD	220	5,000	22,500	700
Deaton, Lake*	SWFWMD	778	3,000		
Ed Medard Reservoir	SWFWMD	647	1,500	12,000	
Gant, Lake and Canal	SWFWMD	150	300	5,250	6,200
Hunter, Lake*	SWFWMD	302	1,500		7,700
Lindsey, Lake*	SWFWMD	137		1,500	11,200
Manatee River	SWFWMD	30		15,000	1,000
Miona, Lake*	SWFWMD	418	600		1,500
Mountain Lake*	SWFWMD	127	150	1,875	200
Myakka River & Lwr Myakka	SWFWMD	790		43,000	2,000
Okahumpka, Lake*	SWFWMD	670	14,000	1,800	1,000
Panasoffkee, Lake	SWFWMD	4460		24,000	55,000
Peace River	SWFWMD	150		18,000	15,500
Rainbow River	SWFWMD	150	36,000	4,500	

Water Body	Cooperator	Water Acres	Hydrilla	Floating Plants	Other Plants
Shell Creek	SWFWMD	48	500	37,500	400
Silver Lake	SWFWMD	120	20,000		
Tarpon, Lake	SWFWMD	2534	80,000	24,000	40,000
Upper Myakka Lake	SWFWMD	1020	120,000	52,500	3,000
Weeki Wachee River	SWFWMD	150	133,000	600	4,200
Withlacoochee River	SWFWMD	3600	350,000	135,000	31,000
Ashby, Lake	Volusia	1030	2,500	3,840	160
Blue Lake*	Volusia	55	3,250	1,440	1,700
Colby, Lake*	Volusia	40		1,600	2,000
Dias, Lake*	Volusia	711		1,960	250
Gemini Springs	Volusia	20		620	310
Gleason Lake*	Volusia	91	5,280	423	125
Lower Lake Louise*	Volusia	257	2,135	214	
Mcgarrity, Lake*	Volusia	107	900		600
Miller Lake*	Volusia	7		370	260
N. Lake Talmadge*	Volusia	121		1,700	210
S. Lake Talmadge*	Volusia	60	375		175

Summary	Hydrilla	Floating Plants	Other Plants
	$18,262,354	$1,974,172	$4,754,145

Total Estimated Expentitures for FY 2001 2002
$24,990,671

Legend

Water Body	Name of Public Water Body
Water Acres	Acres of the Water Body
Hydrilla	*Hydrilla verticillata*
Floating Plants	Water Hyacinth (*Eichhornia crassipes* and *Pistia stratiotes*)
Other Plants	Other native and non-native nuisance species (i.e.: Cattails, Torpedograss, etc)
Water Body Name*	* Indicates *Intra* county waters i.e.: waters wholly contained within the county
Cooperator	Contracting Entity
Brevard	Brevard County
Citrus	Citrus County
Cutter	DEP Mechanical Harvesting Contracts
DEP-NW	DEP Private Contract for NWFWMD Waters
DEP-SJN	DEP Private Contract for SJRWMD (north) Waters
DEP-SJS	DEP Private Contract for SJRWMD (south) Waters
DEP-SR	DEP Private Contract for SRWMD Waters
DEP-SW	DEP Private Contract for Lake Rousseau
Highlands	Highlands County
Hillsborough	Hillsborough County
Lake	Lake County
Orange	Orange County
Palm Beach	Palm Beach County
Polk	Polk County
SFWMD	South Florida Water Management District
SJRWMD	St Johns River Water Management District
SWFWMD	South West Florida Water Management District
Volusia	Volusia County

COUNTY INVASIVE PLANT MGT. PROGRAMS

Responses to Committee Survey

*Counties that participate in the State's matching fund program for intra county waters

COUNTY	TYPE OF PROGRAM	BUDGET FOR FY 1998-99	INVASIVE PLANT	STATE FUNDING RECEIVED 98-99 (Reimbursement for Inter county waters/contributed toward uplands).
*Highlands	Aquatics	$182,500 Aquatics $ 85,000 Uplands	Japanese climbing fern, melaleuca; hydrilla, hyacinth	$180,000 Aquatics
*Citrus	Aquatics	$1,526,341	Hydrilla, hyacinth, Brazilian pepper, cogon grass and skunk vine	$843,098 Aquatics
*Orange	Aquatics	$500,000	Hydrilla, hyacinth, water lettuce	$113,000 Aquatics
*Palm Beach	Aquatics Uplands	$1,812,600 $1,577,600	Australian pine, Brazilian pepper, melaleuca, old world climbing fern, hydrilla, hyacinth, water lettuce	$235,000 Aquatics $26,000 Uplands
*Brevard	Aquatics	$325,874	Water hyacinth, cattails, air potato, Brazilian pepper, Australian pine, Cogon grass, Soda Apple	$168,441 Aquatics $147,500 Uplands
*Polk	Aquatics Uplands	$3,286,529 $ 25,000	Cogon grass, air potato, downey rose myrtle, Brazilian pepper, Soda Apple	$2,591,240 Aquatics
*Lake	Aquatics Uplands	$224,306 $ 6,591	Hydrilla, water hyacinth, water lettuce, air potato, chinaberry, cogon grass, taro	$ 72,977 Aquatics
*Martin	Aquatics Uplands	$587,110	Lygodium, hydrilla, hyacinth	$ -0-

Attachment 17

*Monroe	Uplands	$350,000	Brazilian pepper, Australian pine and lather leaf	$ 80,000 Uplands
Collier	Aquatics Uplands	$1,365,500	hydrilla, melalueca, Brazilian pepper, Australian pine	N/A
Miami-Dade	Aquatics Uplands	$8,179,407	hydrilla, melaleuca, lygodium	$ -0-
Hernando	Aquatics	$150,000	hydrilla, cogon grass, brazilian pepper, soda apple	$55,825
Pinellas	Aquatics Uplands	$570,000 $72,000	Brazilian pepper, hydrilla, Chinese tallow, hyacinth, water lettuce and potato vine	N/A
Pasco	Aquatics Uplands	$34,475 $10,000	hydrilla, hyacinth, water lettuce, Brazilian pepper, cogon grass	$ -0-
Charlotte	Aquatics Uplands	FY 1997-98: $223,549 $17,625	Brazilian pepper, melaleuca, hydrilla	N/A
Broward	Aquatics Uplands	$791,000 $636,775	hydrilla, torpedo grass, water lettuce, Brazilian pepper, air potato	$ -0-

COUNTY'S WITH NO INVASIVE PLANT MGT. PROGRAM				COUNTY'S WITH NO INVASIVE PLANT MGT. PROGRAM
Marion	None	-0-	Cogon grass, Chinaberry, Air potato, hydrilla, hyacinth	-0-
Jackson	None	$100.00	hydrilla	$100.00 Aquatics
Liberty	None	-0-	N/A	-0-
Dixie	None	-0-	hydrilla, hyacinth	-0-
Nassau	None	N/A	N/A	N/A
Madison	None	N/A	N/A	N/A
Gadsden	None	-0-	hydrilla, hyacinth	-0-
Jefferson	None	-0-	N/A	-0-
Duval	None	-0-	Chinese tallow, air potato	-0-
Putnam	None	N/A	N/A	N/A
Manatee	None	$128,000	hyacinth, melaleuca, Brazilian pepper, cogon grass	N/A
Hardee	None	-0-	N/A	-0-
Hendry County	None	-0-	N/A	-0-

Columbia	None	$5,000	hyacinth, hydrilla, Chinese tallow	-0-

III. Findings: Water Management District Programs

A. Structure, Administration, and Funding

The goal of the water management districts' invasive exotic plant programs is also that of the state and the counties; to safely manage invasive plants at the lowest level possible which minimizes costs and negative impacts on habitats, recreation and navigation. The districts accomplish this goal through "continuous maintenance" programs. Independent contractors and government employees continuously maintain both aquatic and upland invasive plants beginning with an initial treatment and continuing with several follow up treatments. The plant issues vary from region to region depending upon the climate and development of that area. As a result, each district has its own unique program tailored to its needs.

Three districts have aquatic plant management programs: South Florida, South West Florida and St. John's water management districts. These districts control invasive aquatic plants on inter-county and intra-county waters, and flood control canals. The state reimburses the districts 100 percent of the maintenance costs out of the Aquatic Plant Control Trust Fund for most inter-county work and 50 percent of the costs for intra-county work. However, the districts use their ad valorem taxation revenue to fund aquatic plant control in flood control canals.

These three districts also have upland invasive plant management programs. Section 373.59, F.S., provides that public land held in trust by the district shall be managed in such a way as to preserve their natural state and condition. This includes controlling invasive upland plants on district lands. The Water Management Lands Trust Fund reimburses the districts 100 percent for invasive upland control on these district lands.

The South Florida Water Management District (SFWMD) currently has the most extensive invasive plant program. This program controls over 30,000 acres and is divided into three categories: aquatic plant management, exotic plant management, and environmental horticulture along district canals.

In 1998-99, the SFWMD spent $12,325,020 controlling invasive aquatic plants. Of this amount, $6,759,490 was paid by the department out of the APCTF for work performed on inter-county waters. In addition, $5,565,530 was paid out of the district's ad valorem taxation revenues to maintain canals and flood control structures. (See attachment #18).

In that same year, SFWMD spent a total of $4.1 million controlling invasive upland plants. The Water Management Lands Trust Fund reimbursed the district $639,000 of these costs and offsite mitigation revenues were contributed $300,000. The department contributed $1 million from the APCTF for melaleuca control. The remaining funds were raised through the district's ad valorem taxation.

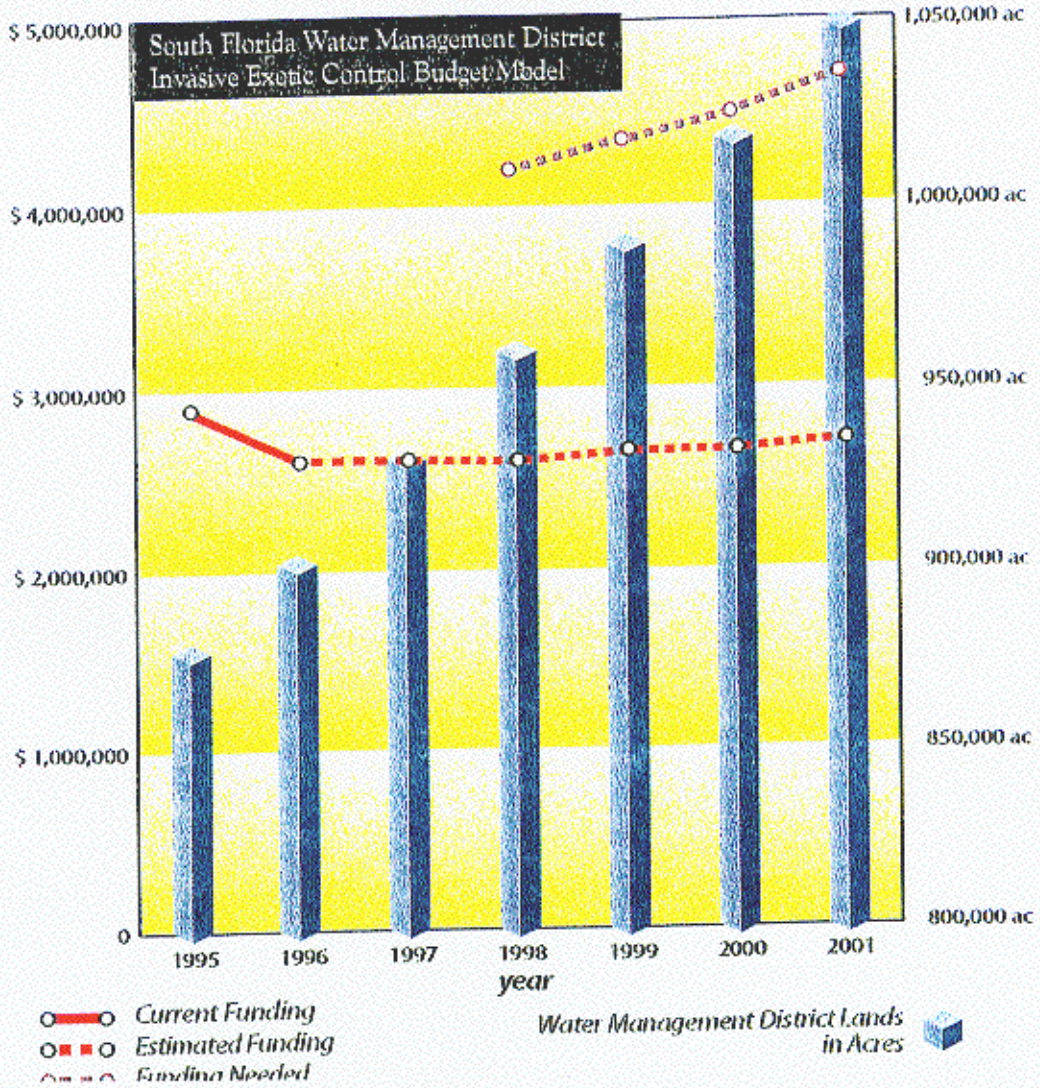
St. John's River Water Management District (St. John's) has a slightly different invasive plant program. It currently has ten staff members which apply herbicides to invasive plants; two supervisors of application and control and on program manager who coordinates with other agencies.

St. John's uses their taxing authority as their primary funding source. In 1998-99, St. John's spent $1.2 controlling invasive plants. Of this amount, approximately $150,000 was reimbursed from the department for inter-county work. The department raised approximately $480,000 through ad valorem taxation for additional aquatic control for canals and lakes with private access. (St. John's does not have intra-county lakes). Lastly, the WMLTF reimbursed St. John's $720,000 for its upland control. (See attachment #19).

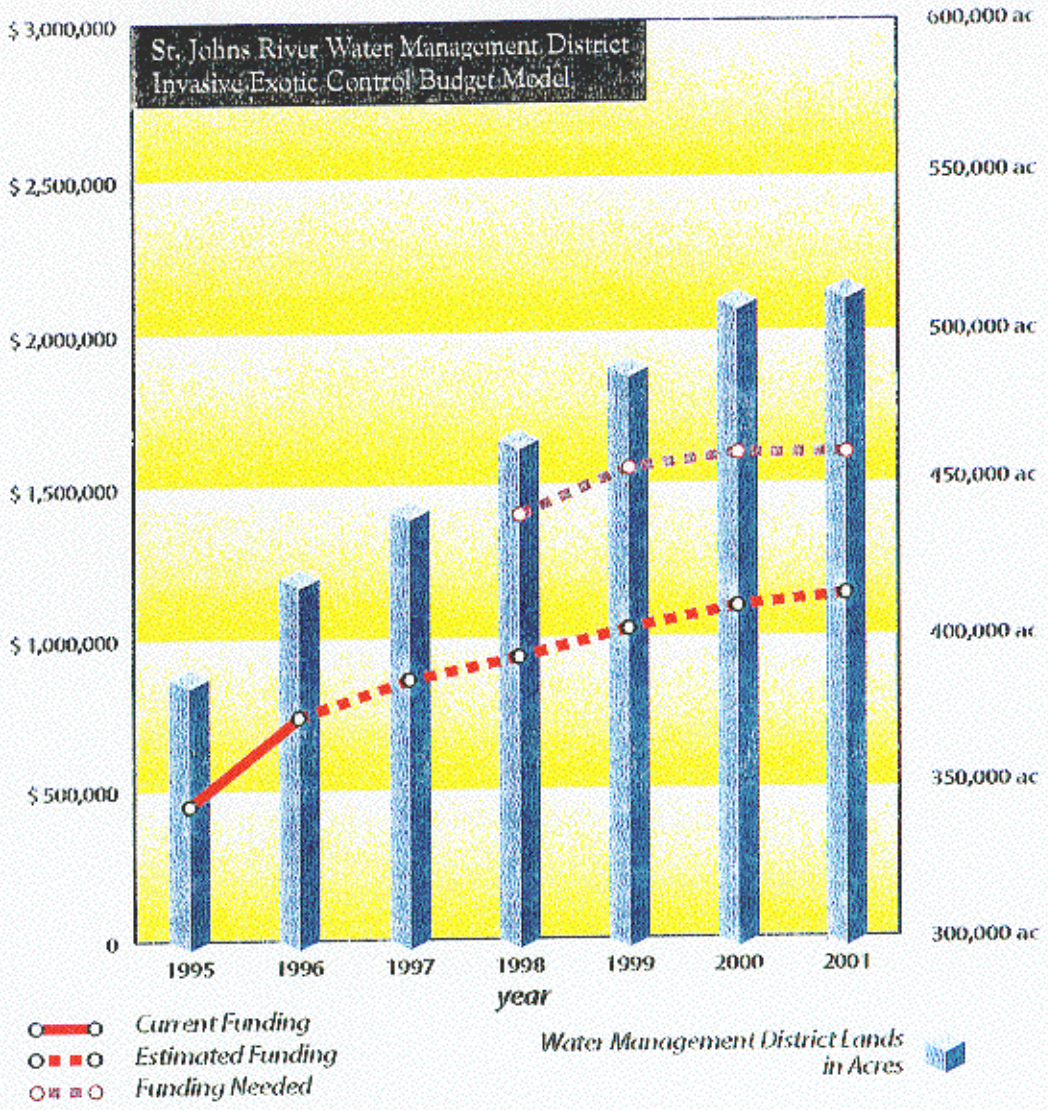
Southwest Florida Water Management District (SWFWMD) also has an aquatics and uplands management program. In 1998-99, SWFWMD spent about $1.5 million controlling invasive exotic plants. Approximately $1.2 million was applied toward aquatic plant control and the state reimbursed the district $950,000 of this expense for work performed on inter-county waters.

The SWFWMD spent approximately $240,000 to control upland invasive plants on public lands. The Water Management Lands Trust Fund reimbursed the district $50,000 of this expense. The district used $190,000 of their ad valorem taxation revenues to pay for invasive plant control on flood control canals. (See attachment #20).

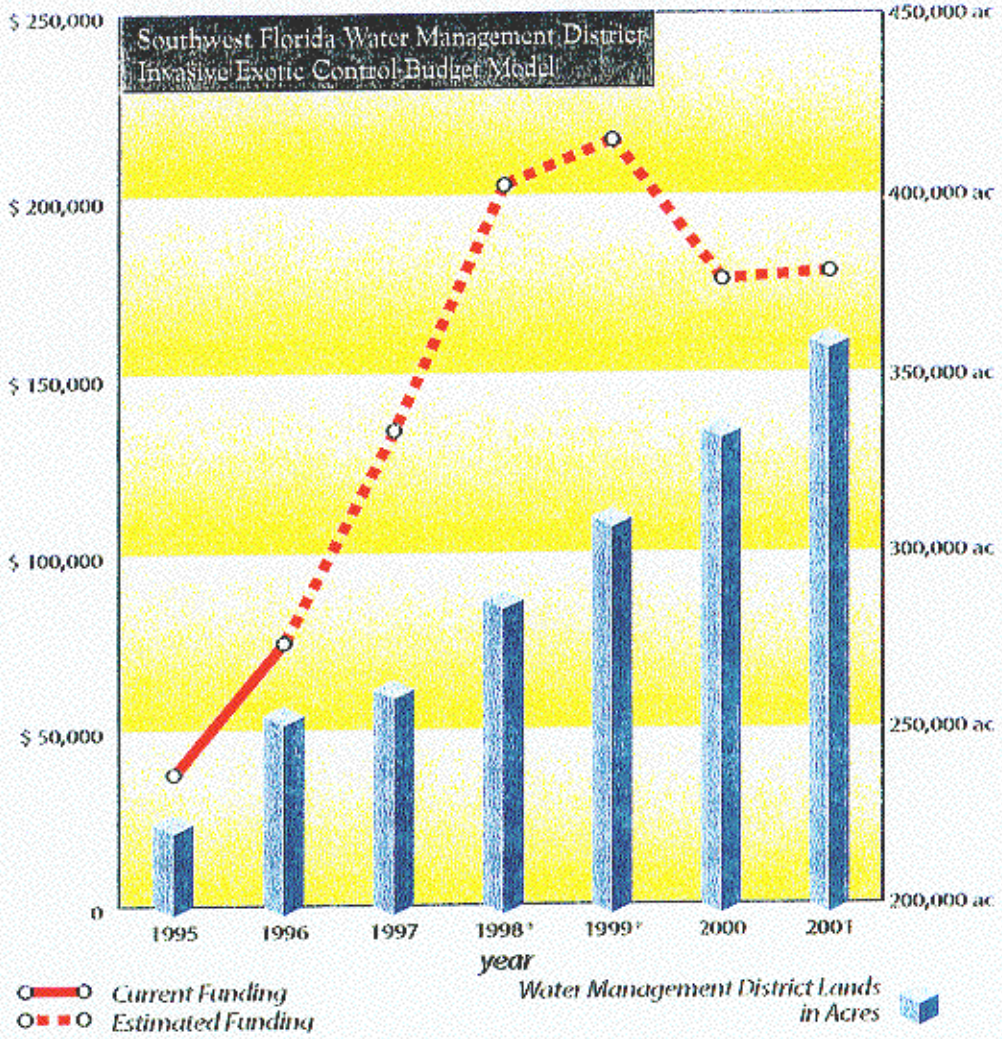
Northwest Florida and Suwannee River Water Management Districts do not have exotic plant programs. For aquatic plants, the counties or basins step into the shoes of these two districts and contribute 50 percent of the maintenance costs and then the state contributes the other 50 percent. According to the department, the districts do not contribute as they do not have the available funding. The state projected the total budget for Northwest for FY 1999-2000 to be about $70 - $80,000 and Suwannee River to be about $48,000 - $52,000 for invasive plant management. (See attachments #21 and #22).



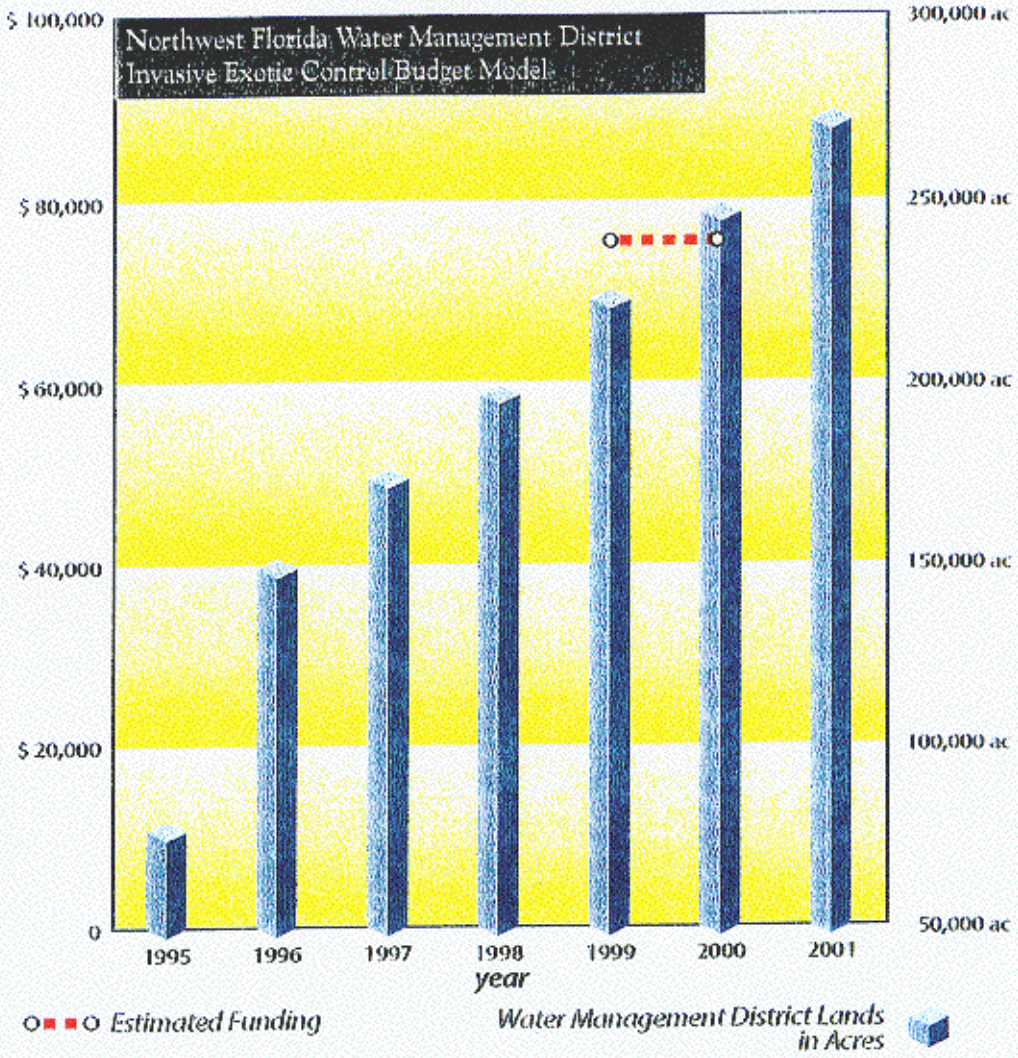
Attachment 18



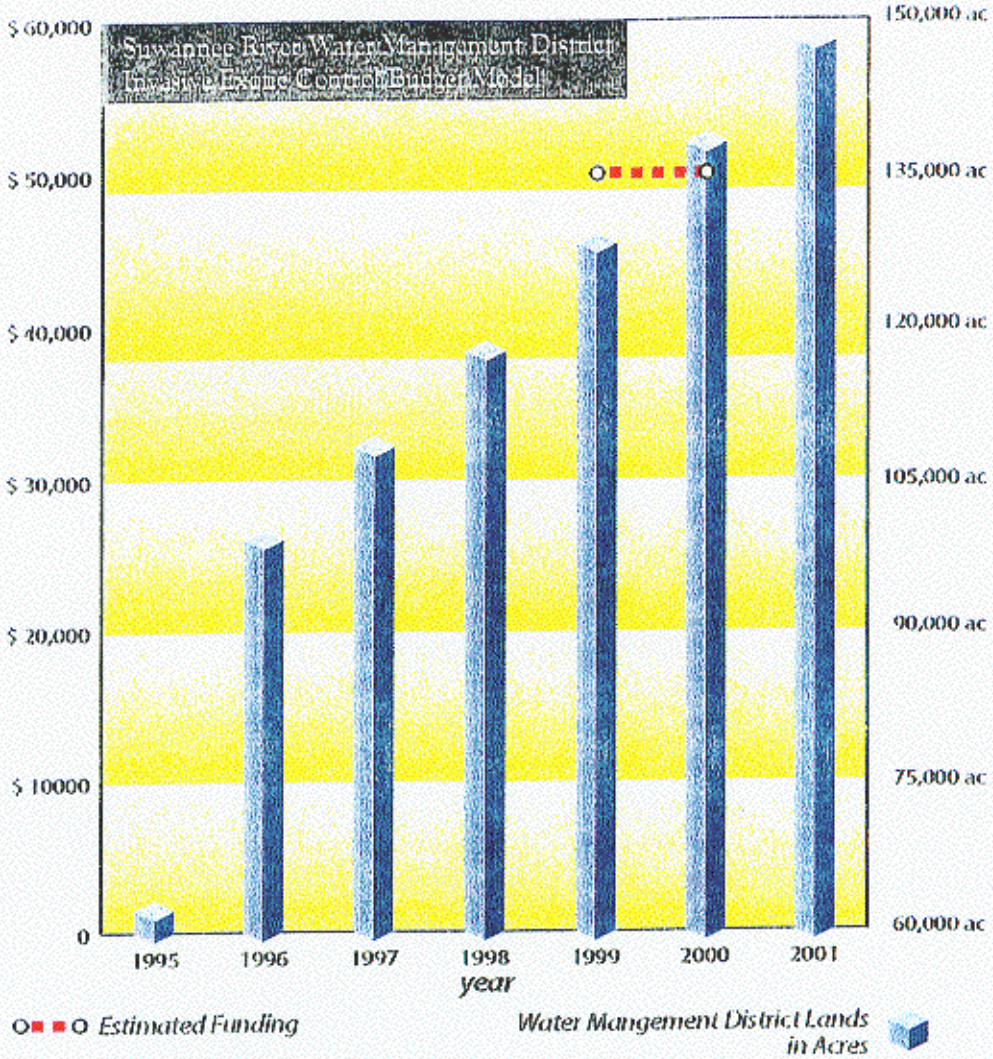
All SJRWMD invasive exotic control funding from ad valorem taxes as of May 1997



Attachment 20



Attachment 21



Attachment 22

Other Programs

There are many other aquatic and upland plant programs in place. Florida's cities, basins and special districts spend millions of dollars each year on aquatic and upland plant control within their region. These programs are too numerous to list.

The Fish and Wildlife Conservation Commission was the lead agency in aquatic plant control prior to the creation of the Bureau. Currently, the Commission is authorized pursuant to s. 369.22, F.S., to manage aquatic plants control programs as delegated by the Bureau. It also regulates the use of fish and other biocontrol agents. Over the past several years, the commission budgeted about $880,000 each year on biocontrol. This is mainly directed at stocking and monitoring carp fish for hydrilla management.

In addition, the U.S. Army Corps of Engineers contributes about $700,000 - $800,000 per year to the state for aquatic plant management in federal waterways, including Lake Okeechobee. There are two separate grant programs available under this funding. The Removal of Aquatic Growth Project, where any removal of aquatic plants in federal waterways is reimbursed 100 percent by the federal government, and the Aquatic Plant Control Program where federal dollars are matched with state dollars to fund aquatic plant control on navigable, intercounty waterways with public access. Local funds are also matched for maintenance of intra county waterways.

Options

The Bureau of Invasive Plant Management is a model program for other states and countries throughout the world. The counties, water management districts and other local governments are effectively working together to contribute to invasive plant management within their region. The counties and water management districts spend millions of dollars each year independently of the state's program. Within the state program, it appears that local governments are matching funds according to their equitable share. With a dedicated source of funding provided from the documentary stamp tax revenue, it is anticipated that the state will be in a financial position to adequately address issues that may arise in the future. The department has projected and demonstrated that its documentary stamp tax revenues will be well spent.

Despite the advanced programs throughout the state, several issues remain to be addressed:

1. Private Lands

A long time question remains: What can the state do, if anything, to encourage private landowners to control invasive plants on their land before they spread onto neighboring public lands? Soda Apple is a concern for some farmers in west central area of the state. Where farmers do not regularly control this invasive plant, it resprouts onto public lands, becoming a public concern. Infestation on public lands increases the government's long term maintenance costs. There are several options that may encourage private landowners to control invasive plants on their lands before they spread onto adjacent property:

- ❒ Provide a *financial* incentive to the private landowner to remove invasive plants off of their property;

  Miami-Dade county provides a 30 to 90 percent property tax break to private land owners who actively manage their "natural areas".[15] According to Miami-Dade's Environmental Resource Program Supervisor, a private landowner who is seeking this tax break, may fill out the necessary application along with a ten year management plan and submit them to the parks department.

  The county's parks department then inspects the land and determines whether the particular property is eligible under the county's program. Certain criteria is used to determine the lands eligibility, including: is the land subdivisable, how is the land zoned and is it within the urban development line. If the property is eligible

[15] "Natural areas" are defined by Miami-Dade County Code 25-B, Article II, and include pinewood and hardwood hammocks.

for this tax break, the application is sent to the county commission for approval. If approved, the private landowner will receive 30% - 90% off of their property taxes beginning the follow tax year and continuing for a ten year period. The county offers technical assistance to the landowner to help effectively control invasive plants and inspects the land on an annual or biannual basis to determine if the landowner is in compliance with their 10 year maintenance plan.

The county contends that it currently has approximately 40 sites in this program. Not all sites are eligible since there are development restrictions.

Some counties contend that this incentive lowers the county's tax revenue and increase its costs since it may require additional employees in order to inspect properties for compliance throughout the county.

- ❒ Encourage more local governments to establish *educational workshops* to teach landowners the techniques needed to successfully identify invasive plants and determine the most effective method of removal. For example, Miami-Dade county offered a workshop to private landowners which identified the plants, taught the methods of control, described the types of herbicides and their application techniques. (See attached Miami-Dade Workshop brochure and agenda, attachment #23). Currently, the state's regional biologists will teach an educational workshop to any homeowner who seeks a permit or simply requests a workshop.

- ❒ Provide the state or local governments with the authority to enter into *management agreements* with the private landowners to remove invasive plants on private lands. The governmental entity could provide labor, herbicides, or technical assistance to the landowner in exchange for a service fee. This up-front time and labor may save the governmental entities high maintenance costs in the long run on adjacent public lands.

  Orange county has a program where landowners who live on a lake without a boat ramp may pay a fee and in exchange the county provides labor and herbicides to keep the invasive plants on the lake under control. This works well for urban locations since there would be more people to contribute to the maintenance costs.

  However, some governmental entities contend that they do not have the financial resources, time, labor or materials necessary to extend their services to private landowners. In addition, entering on private lands raises the issue of liability should anyone get injured and there is a risk of liability with the use of any herbicide;

- ❒ Provide the private property owners with *in-kind contributions*. The governmental entity may provide time, labor, materials or technical assistance to the private landowner up-front which would save the governmental entities high maintenance costs in the long run on adjacent public lands, however, as mentioned above, governmental entities may not have the necessary resources to extend to private landowners;

- ❒ Encourage the counties to enact an *ordinance* which requires removal of invasive plants from property prior to development and requires the private property owner to maintain the land free of invasive plants. Some counties that have ordinances which govern invasive plants on private lands include:[16]

    - Martin County which prohibits planting melaleuca, Brazilian pepper and Australian pine. If the plant already exists, then Martin county requires its removal before developing of the land.

    - Monroe county, takes their regulations one step farther and requires that the land is to be maintained free of invasive plants to avoid the introduction of such plants again in the future.

    - Miami-Dade county provides tax breaks to eligible landowners who actively manage their natural areas. Miami-Dade also has a prohibited plant species list which states that certain exotics may not be sold, propagated or planted anywhere in Dade County pursuant to the master plan. If present on a site, the plants shall be removed prior to development.

Polk county does not have an ordinance controlling invasive exotic plants, however, the county established an aquatic weed policy which states that the county will manage water hyacinth, water lettuce and hydrilla, and control of all other nuisance plants are left up to the individual property owner.

2. One Centralized Agency for Intra county Waters

An ongoing policy decision is whether the state should become the centralized agency for aquatic plant management.

Currently, the department is "responsible for the control of such plants in all *inter-county* waters. but that control of such plants in *intra county* waters be the designated responsibility of the

[16] This list does not include city ordinances and only includes the counties which responded to our survey.

appropriate unit of local or county government, special district, authority or other public body." Fla. Stat.§369.22(3).

"*Inter-county"* waters lie in more than one county or form any part of the boundary between two or more counties. "*intra county"* waters are any waters which lie wholly within the boundaries of one county.

This issue often arises when counties do not have appropriate funding or staff to address the needs of the invasive plants infesting their intra county water bodies. The infestations grow at an explosive rate and virtually eliminate public recreation, fishing and navigation. The counties request 50% the maintenance costs from the state to control the infestation. However, according to DEP, it is more costly to maintain a water body after an infestation has spread than it is to treat a water body on a long term continuous basis keeping invasive plants at low levels.

The department recommends new legislation providing that the department have statutory authority to maintain invasive plants on all *intra county* water bodies in addition to *inter-county* waterways. This would allow uniform management of the intra-county water bodies and open up a steady flow of funding to maintain the lakes which may be less costly to the state in the long run.

Currently, there are about 68 intra-county water bodies that would fall under the department's maintenance control program should new legislation be enacted. Under this legislation, the state would be responsible for the portion of the expenses that the counties once contributed. As a result, the state would pick up roughly $125,000 in costs, however, the intra-county water bodies would be subject to continuous maintenance, a unified system of maintenance, statewide distribution of funds and this program will help avoid duplication or oversight.

According to the department, advantages in centralizing the invasive plant management program would be to:

- ❒ establish a statewide consistent management plan aimed at controlling invasive plants;
- ❒ ensure statewide distribution of available funds;
- ❒ reduce administration;
- ❒ coordinate management operation with water managers and users;
- ❒ avoid overlap, duplication and oversight; and
- ❒ ensure consistency in policy, goals, administration and control methods.

This centralized philosophy is directed only toward intra-county waters. Under this philosophy, the counties would retain their county programs for water bodies without boat ramps and uplands. The counties collectively spend several million dollars each year in their own invasive and upland plant management programs.

3. Whether a Matching Pprogram Should Exist for Upland Plant Control

The Bureau of Invasive Plant Management currently has a matching program for aquatic plants wherein if a county or local government, who is a participant in the program, performs invasive plant management on intra-county waters, then the state will reimburse the county or local government 50% of all maintenance costs. There is not a comparable matching program for upland plant control. If a county or local government participates in one of the state's working groups, and if their project is ranked, and if funding is available, the entity may receive $50,000 for reimbursement of maintenance costs. However, funding is limited both in amount and distributed among 11 working groups. This new program would apply to all lands that are not eligible for reimbursement by the WMLTF.

Attachment 23

Who should attend?

This workshop is designed to teach land owners the techniques they need to successfully identify and control exotic vegetation. Anyone interested in this topic is invited to attend.

What should I bring?

You may want to bring a notepad so you can write down information for a later date.

Do I need to register?

Yes. There is no charge for this workshop, but we need to know how many people will be attending. Please use the enclosed registration form.

Will I get CEUs to renew my pesticide license?

Yes. This workshop has been approved for 3 Private Applicator and 3 Right-of-Way CEUs.

Who should I contact if I have a question?

Call:
Joy Klein (305) 372-6586 - about the workshop **or**
Mary Lamberts (305) 248-3311 Ext. 234 - about CEUs

Sponsored by:

Miami-Dade County Department of Environmental Resources Management

University of Florida Miami-Dade County Cooperative Extension Service

Florida Department of Agriculture & Consumer Services, Division of Forestry

Monsanto

Controlling Exotic Vegetation

a workshop for land owners

Saturday, September 26, 1998
9:00 a.m. - 12:00 p.m.
Miami-Dade Ag Center
18710 SW 288th Street
Homestead, Florida

Controlling Exotic Vegetation - II

Saturday, September 26, 1998

Location:	Miami-Dade Ag Center, 18710 SW 288th Street, Homestead, Florida
Time:	9:00 a.m. - 12:00 p.m.
Trainers:	Joy Klein, Miami-Dade Department of Environmental Resources Management & Mary Lamberts, University of Florida Miami-Dade County Cooperative Extension Service
9:00	Introduction - Video of Invasion of Non-native Plants - Joy Klein
9:10	Types of Control - Joy Klein
9:25	Using Herbicides Safely - Mary Lamberts
9:45	Using Garlon™ or Roundup™ for Exotic Control - Mary Lamberts
10:00	Environmental Factors Affecting Application - Mary Lamberts
10:20	Application Techniques - Joy Klein
10:40	Break
10:55	Treating Specific Exotics & Hands on Plant Identification - Joy Klein
11:45	Application Equipment - Joy Klein & Mary Lamberts
12:00	Adjourn & CEUs

We have applied for 3 Private Applicator or Right-of-Way CEUs

Sources

1. *Strangers in Paradise* (Daniel Simberloff, Don C. Schmitz and Tom C. Brown, eds., 1997).

2. The Department of Environmental Protection, *1998-99 Upland Invasive Exotic Plant Management Program* (1999).

3. Judy Ludlow, photographs and charts, *Hydrilla*, review of Kissimmee Valley Lakes Chain (August 1999).

4. The Department of Environmental Protection, *Status of the Aquatic Plant Maintenance Program in Florida Public Waters* (1997).

5. Mike Bodle, *Are We Doomed to In*Fern*al Damnation?*, Wildland Weeds (Winter 1997).

6. Press Information, The Florida Department of Environmental Protection.

7. The Florida Legislature, Legislative Committee on Intergovernmental Relations, Local Government Fascimile Network Survey, providing information on counties, cities and water management districts.

8. Solid Waste Management Trust Fund Review Commission, *Final Report* (January 1998).

9. University of Florida, Institute of Food and Agricultural Sciences, *Control of Non-native Plants in Natural Areas of Florida* (1997).

10. *Identification & Biology of Non-native Plants in Florida's Natural Areas,* (K.A. Langeland and K. Craddock Burks eds., 1998).

11. The Department of Environmental Protection, *Aquatic Plant Control Trust Fund -- Analysis of Fund Status and Activity -- Actual and Projected* (1997-2001).

12. The Department of Environmental Protection, *2000-01 Legislative Budget Request, Division of State Lands* (1999).

Committee involved in report: Committee on Environmental Protection, 402 S. Monroe St., Tall., Fl 32399

Member oversight by Representative Paula Dockery.