Upland Invasive Exotic Plant Management Program

Fiscal Year 2007-2008 Final Program Report

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Executive Summary

Over one-and-one-half million acres of Florida's public conservation lands have been invaded by alien (exotic, nonnative, nonindigenous) plants such as melaleuca, Brazilian pepper, Australian pine, and climbing ferns. However, invasive alien plants respect no boundaries and millions of acres of private land are also affected. This ongoing alien invasion has degraded and diminished what remains of Florida's natural areas, affected agricultural production, and reduced outdoor recreation and ecotourism opportunities.

The Bureau of Invasive Plant Management (BIPM) is the designated lead agency in Florida responsible for coordinating and funding the statewide control of invasive aquatic and upland plants in public waterways and on public conservation lands. Florida's aquatic plant management program is one of the oldest invasive species control programs in the world, with its beginnings dating back to the early 1900s. With the later addition of the upland invasive plant control program, BIPM oversees the largest and most successful invasive plant management effort of its kind in the United States.

The Upland Invasive Exotic Plant Management Program was established in 1997 to address the need for a statewide coordinated approach to the terrestrial (vs. aquatic) invasive exotic plant problem. The "Upland Weed" Program incorporates place-based management concepts, bringing together regionally diverse interests to develop flexible, innovative strategies to address weed management issues at the local level. The Upland Weed section of the bureau funds individual exotic plant removal projects on public conservation lands statewide. Projects are considered for funding based upon recommendations from eleven Regional Invasive Plant Working Groups.

The mission of the Upland Weed Program is to achieve maintenance control of invasive exotic plants like Australian pine (*Casuarina* spp.), melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), and Old World climbing fern (*Lygodium microphyllum*) on public conservation lands. These and over one hundred other alien plants have invaded at least 1.5 million acres of Florida's nearly 11 million acres of public conservation lands, affecting an ecotourism economy valued at $13 billion annually. Once invasive plants become established in native habitats, eradication is difficult, if not impossible to achieve; therefore, continuous maintenance of invasive nonnative plants is needed to sustain wildlife habitat and recreational opportunities while preserving native plant communities on public conservation lands.

Upland invasive weeds infested approximately fifteen percent of public conservation lands statewide in 2008. Thirty-seven percent (553,000 acres) of the affected area is currently under maintenance control. BIPM expended $12.5 million controlling upland weeds on 135 publicly managed areas with a total of approximately 240,000 acres of project area during fiscal year 2008. Cooperating agencies contributed another $4.25 million in cash, time and materials, or in-kind services as a match to BIPM funding. BIPM provided chemicals through its Herbicide Bank to assist public land managers with treatments ranging from one-half to nearly 40,000 acres of initial and maintenance treatment for a total of 86,916 acres and a cost of $595,260 (included in above annual totals).

NOTE: On July 1st of 2008, BIPM and its associated programs were transferred into the Florida Fish and Wildlife Conservation Commission. This annual report of the Uplands Program is the final report prepared for the Department of Environmental Protection.

Introduction

Introduction

Florida's Upland Invasive Exotic Plant Management Program

When our state was first named *La Florida*, its profusely blooming foliage was composed of a panoply of colorful native plants. Today, exotic species comprise roughly one-third of Florida's plant life. Many of these newer botanical residents support the economically important agricultural and horticultural industries; however, there are always a few bad apples in any barrel (tropical soda apple, for one). An estimated ten percent of the thousands of non-native plants in Florida are invasive, that is, plants that pose a threat to natural systems. Invasive exotic plant species, lacking control by their native diseases and predators, spread explosively and outcompete and replace vital native species on public and private land. The resulting infestations diminish wildlife habitat, decrease recreational resources, and negatively affect the natural health and economy of the state.

With its subtropical climate, an island-like topography, and the pressures of a rapidly expanding human population, Florida is especially vulnerable to invasion by non-native (introduced, exotic, alien) species. Florida is listed along with Hawaii, California, and Louisiana as one of the states with the highest number of non-native species, both plants and animals. The South Florida region alone is home to more introduced plants than any other region within other states. Thirty years ago, a Smithsonian publication described tropical Florida as a "biological cesspool of introduced life."

Florida lies in three climatic zones, tropical, sub-tropical, and temperate, and thus possesses a wide array of natural communities. Unfortunately, invasive exotic plants have found their way into every natural habitat from coastal beach dunes (above left) to interior pine flatwoods (below left). Fortunately, the Uplands Program can control invaders wherever they are found (above and below right).

While South Florida has been hardest hit by this invasion of alien species, the problem is statewide in scope. Compounding the problems caused by this ongoing invasion is a general lack of awareness about the invasiveness of non-native species introduced into the Florida environment. Florida covers 36 million surface acres, with nearly 11 million acres in public ownership for natural resource protection. Invasive exotic plants have invaded approximately fifteen percent of these public conservation lands, affecting an ecotourism economy valued at over $13 billion annually (counting only hunting, fishing, and wildlife viewing). [Total revenue for all types of tourism in 2007 was $65 billion.]

The lygodium moth, the first biological control agent for climbing ferns, was released in 2006 and 2007.

Some invaders change the composition, structure, and/or processes of native plant and animal communities. One easily observed example is when the invader forms a dense one-species stand (monoculture) where once there was a rich assembly of native species, resulting in a loss of biodiversity. A number of populations of Florida's rarest plants have been lost in this fashion. Other invaders modify habitat processes, for example, by changing water flow or by increasing fire frequency in habitats not adapted to fire. Once invasive plants become established in native habitats, eradication is difficult, if not impossible, to achieve; therefore, continuous maintenance is needed to sustain wildlife habitat and recreational opportunities while preserving native plant communities.

The melaleuca psyllid was the second biocontrol agent for melaleuca to be released in the Everglades.

The 1997 Legislature charged the Bureau of Invasive Plant Management (BIPM) with the task of creating a program to bring invasive exotic upland plant species under maintenance control. A maintenance control program, as defined in Section 369.22, Florida Statutes, is "a method for the control of exotic plants in which control techniques are utilized in a coordinated manner on a continuous basis in order to maintain the plant population at the lowest feasible level." The Upland Invasive Exotic Plant Management (Uplands) Program was established that same year. To implement its statewide cooperative strategy, the Uplands Program divided the state into Regional Invasive Plant Working Groups. The Uplands Program funds individual invasive exotic plant control projects on public conservation lands based upon recommendations from these working groups. The Uplands Program melds these regional priorities into an integrated process that provides the needed support infrastructure to conduct an efficient and cost-effective statewide control program.

Funding for the Uplands Program is provided through the Invasive Plant Management Trust Fund as set forth in Section 369.252(4), F.S., which reads: "use funds in the Invasive Plant Control Trust Fund as authorized by the Legislature for carrying out activities under this section on public lands. Twenty percent of the amount credited to the Invasive Plant Control Trust Fund pursuant to Section 201.15(6), F.S., shall be used for the purpose of controlling nonnative, upland, invasive plant species on public lands." The trust fund provided nearly $13 million to fund upland weed control projects for fiscal year 2008.

Florida's Ten Most UNWANTED Invasive Plants in 2008

Plant Treated	Acres Treated	% of All Acres
climbing ferns	19,578	47.2
Brazilian pepper	7,464	18.0
melaleuca	6,708	16.0
Chinese tallow	3,226	7.8
cogon grass	1,527	3.7
coral ardisia	725	1.7
Australian pines	646	1.6
lantana	635	1.5
camphor tree	538	1.3
mimosa tree	413	1.0

Florida's Top Ten Worst Plants

Based on control data provided by contractors, the species at left infested the most acres of land treated in fiscal year 2008. The list actually reflects a dirty dozen species, including two *Lygodium* spp. (climbing ferns), and two *Casuarina* spp. (Australian pines).

As stated in the DEP Agency Strategic Plan, the long-term program goal is to reduce infestations of upland invasive exotic plants on public lands by twenty-five percent by 2010, based on estimated 1995 levels of 1.5 million acres. The 2001 Upland Invasive Exotic Plant Management Program Strategic Plan set forth specific strategies to implement the program's long-term goal, including:

- Implement an integrated program that uses chemical, mechanical, and biocontrol technologies. Modify procedures as appropriate to assure the greatest protection for natural systems;
- Improve the general public's awareness of the threat to biodiversity from invasive plants by developing a comprehensive education and outreach program;
- Inventory and map with GIS the distribution of invasive exotic plant species by the year 2010; and,
- Research the use of biocontrol agents and provide procedures and facilities for their cultivation, dissemination, and evaluation including monitoring and field assessments by the year 2010.

Melaleuca and Brazilian pepper are two well known weeds in Florida, once covering more than one million acres of public conservation lands. The Florida Exotic Pest Plant Council (FLEPPC) lists 67 invasive plants found in the state as Category I pest plants and another 71 species as Category II. Category I species are those known to have damaged natural areas, while Category II species are not yet implicated in direct damage to ecosystems. Often, there may be a long lag time (years or decades) before an exotic species shows its true colors. Plants like Old World climbing fern (*Lygodium microphyllum*) and cogon grass (*Imperata cylindrica*) have expanded their range in recent years and are on the verge of overwhelming parks and forests across the state.

BIPM FY08 Uplands Project Acres and Dollars by Managing Agency

Agency	Acres	Funds
Bureau of Mine Reclamation	247	$22,230
Coastal and Aquatic Managed Areas	3,166	$318,144
Division of Forestry	17,493	$446,550
Division of Recreation & Parks	19,672	$1,744,212
Fish & Wildlife Conservation Commission	77,976	$1,154,488
Office of Greenways & Trails	11,612	$142,273
Water Management Districts[1]	42,328	$1,846,162
Department of Defense	800	$245,858
National Park Service	5,683	$297,958
US Forest Service	384	$71,689
US Fish & Wildlife Service	36,557	$2,846,931
Local government agencies	24,338	$2,713,202
TOTAL	**240,295**	**$11,851,023**

[1]Includes $1 million Melaleuca Program.

In fiscal year 2008, the Uplands Program expended nearly $12 million for control operations on over 240,000 acres. This table shows the distribution of funds to federal, state, and local agency projects.

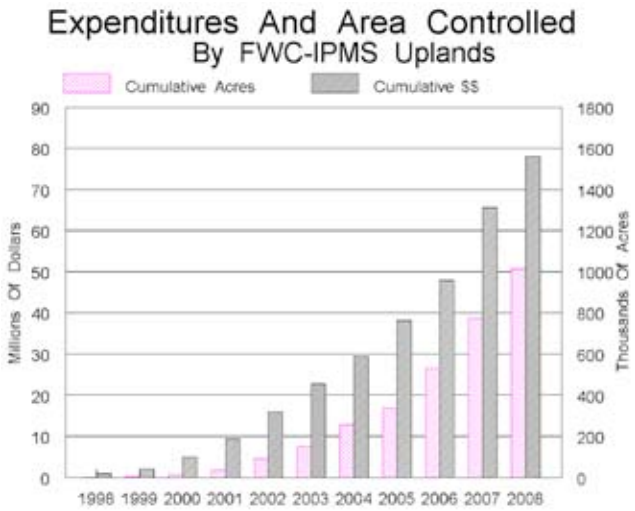
BIPM has spent over $78 million to treat invasive plants on over 990,000 acres since the inception of the Uplands Program. Cooperating agencies contributed nearly $31 million in matching funds and in-kind services towards projects funded by the program. In over ten years of operation, the program has assisted public land managers on 518 federal, state, and county managed natural areas located in Florida's 67 counties by funding 1,333 invasive plant control operations treating over 100 recognized weed species. The Uplands Program cooperated on projects with 5 federal, 6 state, and 4 regional land managing agencies, 26 counties, 21 cities, 3 universities, and 1 community college. At least 100 projects are expected to be funded during fiscal year 2009.

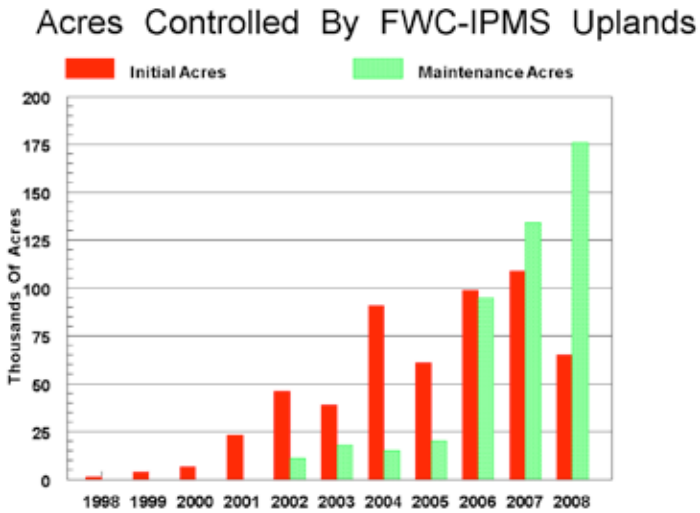
Public land managers are typically responsible for the continued maintenance control of areas originally treated with bureau funding; however, BIPM has funded a growing number of maintenance projects, particularly where the initial project covered thousands of acres. BIPM has further assisted land managers by providing herbicide for in-house maintenance control, at a cost of nearly $6.5 million since 2001.

BIPM directs significant staff and monetary resources into the control of invasive exotic plants on land managed by the state and other public agencies. In fiscal year 2008, the Uplands Program expended over $12 million for control operations on over 240,000 acres of public conservation land. The above table shows the distribution of funds to different agencies.

In 2007, the 10th year of Uplands Program, the total for initial control operations reached 487,620 acres, or 30% of the affected area. This exceeded the program goal of 25% to be reached by 2010. The Uplands Program has clearly met the need for a comprehensive plan that incorporates broad and consistent strategies, reduces agency inconsistencies, and takes into account differing agency mandates to achieve the goal of controlling invasive plant species in Florida. The program is not only applicable to and coordinated with state and federal efforts to manage invasive species, but has also been used as a model by other states and countries. Also in 2007, the Uplands Program was recognized by the U. S. Department of the Interior with its Cooperative Conservation Award.

Invasion by non-native plants is one problem that *can* be solved by "throwing a lot of money at it." As funding increases, more contractors can be hired, more herbicide purchased, and more acres treated. There must be a limit to this relationship, but it has yet to be reached by the Uplands Program.





The Uplands Program began as an initial treatment operation. However, as the number of acres treated has grown substantially over the years, increasing attention has been given to assisting land managers with large scale maintenance needs. Re-treatment costs can be significant, with some projects costing as much as $200,000.

Florida's Top Ten Worst Plants, Ever!

Each year, the amount of a specific species treated will vary. Based on control data, the ten plants at right have had the largest cumulative impact over the ten-year history of the Uplands Program (see table on p. 7 for comparison). Climbing ferns (*Lygodium* spp.), unlike melaleuca and Brazilian pepper, affect the entire state (and beyond). This invader has the potential to surpass all other species in its negative effect on Florida's environment.

Statewide Acres Treated 1997-2008		
Plant Treated	Acres Controlled	% of Total Treated Acres
melaleuca	215,869	53.0%
Brazilian pepper	77,610	19.1%
climbing ferns	74,509	18.3%
cogon grass	8,753	2.1%
Chinese tallow	8,356	2.1%
Australian pines	6,635	1.6%
Caesar's weed	4,844	1.2%
tropical soda apple	4,571	1.1%
coral ardisia	3,297	0.8%
air-potato	2,891	0.7%

Cooperative Weed Management Areas

An Old Idea = A New Approach in Florida

Cooperative Weed Management Areas (CWMAs) are local organizations that provide a mechanism for sharing invasive plant management resources across jurisdictional boundaries in order to achieve widespread invasive plant prevention and control in a broader geographic region. CWMAs have been common for years in the Western USA, where landowners and managers decided that a new approach was needed to collectively combat common invasive plant problems. Invasive species respect no boundaries, so managers had to learn how to work "across the fence" on both private and public lands. Even the most diligent, intensive control efforts of one land manager won't be successful in the long run, if invasive plants can re-infest the area from a neighboring property. So local citizens, landowners, and non-profit groups joined together with city, county, state, tribal, and federal officials under the common goal of managing invasive plants within a defined area. [Additional information about CWMAs in the West is available from the Center for Invasive Plant Management: www.weedcenter.org/weed_mgmt_areas/wma_overview.html]

Eastern states share many of the same types of invasive plant problems that are encountered in the West, although in the East there are some unique challenges. Western states have vast areas of land owned by the federal government, whereas in the East there are fewer federal holdings. In the East, land also tends to be divided into multiple smaller ownerships, unlike in the West where single owners often own large tracts of land. Another difference in the East is the much higher density of human population than most Western states have. Of particular significance—counties in Western states often have County Weed Supervisors who are active in local invasive plant control and help create and enforce county weed laws. In the East, very few counties have employees who are solely dedicated to invasive plant management and oversight, nor sufficient state or municipal weed laws to empower them.

So how could the CWMA idea help Florida? In general, CWMAs address many concerns, including prevention, education/awareness, early detection and rapid response, monitoring of existing species and success of management, and integrated pest management plans. A CWMA allows managers to expand efforts across the landscape, rather than being limited to a political or property boundary. By combining knowledge and experience, participants are able to develop, adopt, and utilize Best Management Practices, thus reducing risks and improving the results of control efforts. Most importantly, the CWMA public-private partnership can be used to secure, share, and coordinate outside funding, thereby reducing individual management costs.

All CWMAs share five basic characteristics. These are (1) a defined geographic area, (2) the involvement or representation of the majority of landowners and natural resource managers in that defined area, (3) a formal steering committee, (4) a written commitment to cooperation (MOU/MOA), and (5) a comprehensive weed management plan. CWMAs may use different approaches and have different projects, but they all benefit from the formal partnership structure. A "CWMA Cookbook" and many other valuable resources for forming a CWMA in Florida, or anywhere in the East, can be obtained from the Midwest Invasive Plant Network (www.mipn.org/cwma.html).

At present, there are several CWMAs operating or forming in Florida. These include the Marion County Invasive Species Management Council, the Florida Keys Invasive Exotic Task Force, and—the first and largest—Everglades Cooperative Invasive Species Management Area, which includes management plans for both invasive plants and animals (*see* www.evergladescisma.org/ *for more information*).

Methods of Invasive Plant Control

Herbicides, biological controls, manual (hand-pulling), mechanical, and physical controls are used separately or in combination to slow the spread of invasive plants. Herbicides are pesticides designed to kill plants. They are a vital component of most control programs and are used extensively for invasive exotic plant management in Florida. Herbicides are target-specific and are much safer in use than pesticides intended for insects or other animals. Herbicide application methods include:

Foliar. Herbicide is applied to the plant with aerial or ground based equipment. Foliar applications can be either directed or broadcast. Broadcast applications are used when damage to non-target vegetation is a minimal concern or when a selective herbicide is used.

Basal bark. Herbicide is applied directly to the bark around the circumference of the tree up to fifteen inches above the ground. The herbicide is absorbed through the bark.

Girdle (or "hack-and-squirt"). Cuts are made into the cambium around the circumference of the tree. Herbicide is then applied to each cut.

Cut stump. After cutting and removing large trees or brush, herbicide is sprayed or painted onto the cut surface. The herbicide is usually concentrated on the cambium layer on large stumps.

basal bark application

girdle treatment

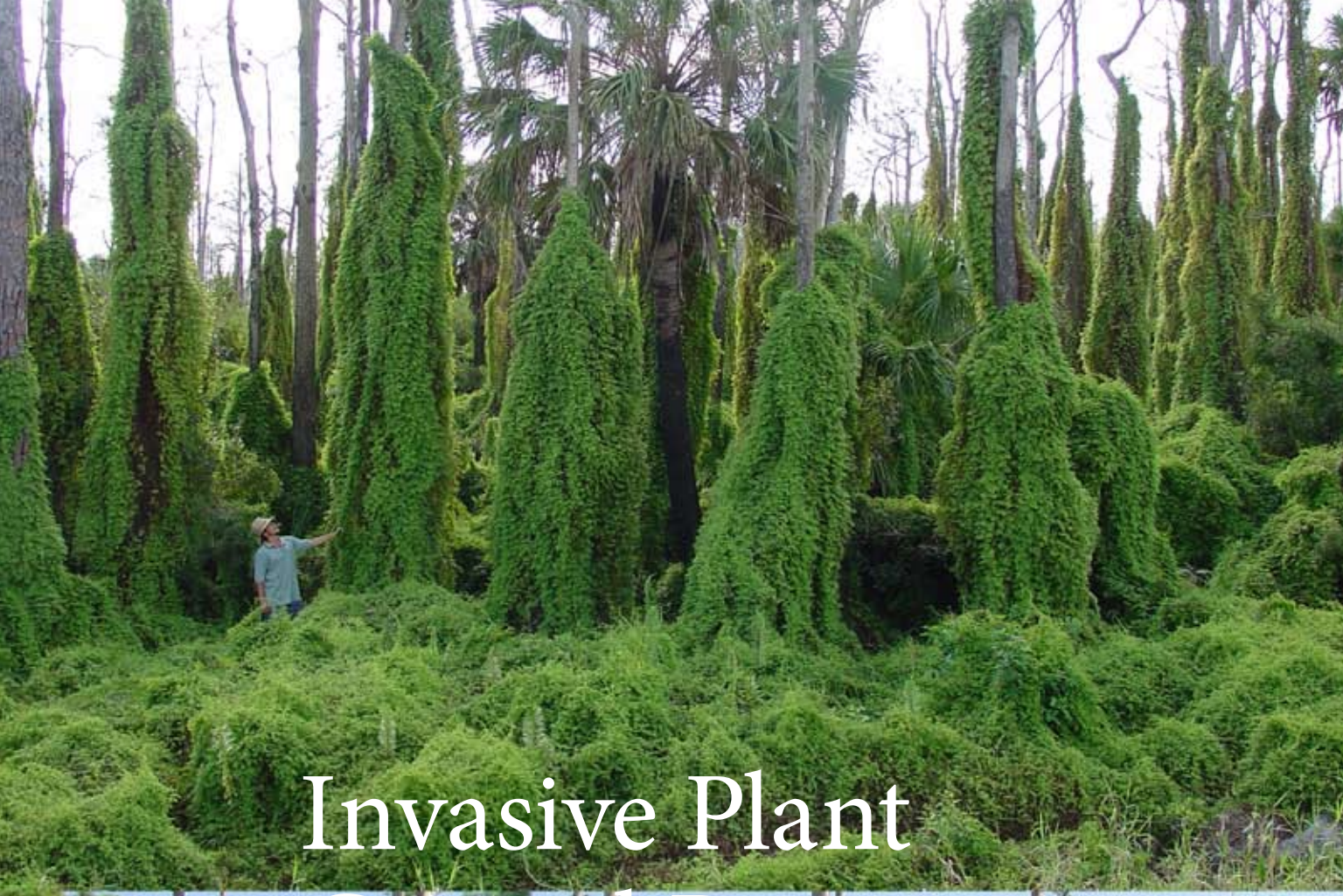
Brontosaurus mower

melaleuca weevil

Mechanical removal involves the use of a bulldozer, Brontosaurus mower, Hydroaxe, or other specialized logging equipment to remove woody plants. Intense follow up with other control methods is essential after the use of heavy equipment because disturbance of the soil creates favorable conditions for regrowth from seeds and root fragments, and re-colonization by other invasive non-native plants. Mechanical removal may not be appropriate in natural areas because of disturbance to soils and non-target vegetation. However, it is the only effective way to quickly remove dense monocultures of species such as Brazilian pepper and Australian pine.

Many plants are prevented from becoming serious weeds in their native range by a complex assortment of diseases, insects, and other herbivorous organisms. When a plant is brought into a new environment with favorable growing conditions, the absence of these regulating species may allow non-native plants to become serious weeds. "Classical" biological control seeks to locate insects from a plant's native range and import host-specific species to attack and control the plant in regions where it has become a weed. This approach has a proven safety record and has been effective in controlling a number of weeds around the world.

Prescribed burning and water level manipulation are cultural practices that are used in management of pastures, rangeland, and commercial forests, and, in some situations, may be appropriate for vegetation management on natural areas. Some species, such as melaleuca and cogon grass, respond positively to fire, so prescribed burning, if used, must be coupled with another control method.



Invasive Plant Control Projects

Invasive Plant Control Projects

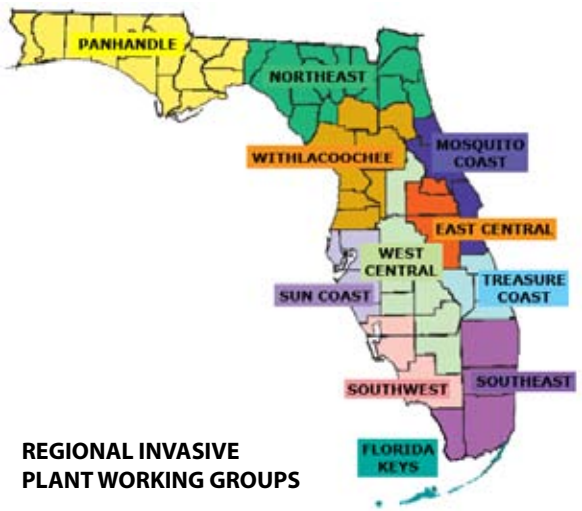
Upland Invasive Exotic Plant Control Projects

Fiscal Year 2007-2008

The Regional Invasive Plant Working Group brings together stakeholders in a geographic area for the purpose of combining expertise, energy, and resources to deal with common weed problems. The Bureau relies on the local knowledge within each working group to set regional control priorities based upon severity and potential threat to existing public conservation lands. The working group reviews and ranks proposals from land managers for state-funded control operations. The ranked lists of projects then form the basis for the state program's annual work plan.

The eleven working groups are made up of over 500 members representing federal, state, and local government public conservation land managers, non-governmental organizations, and private landowners across the state. Program liaisons have been designated for each working group to facilitate proposal review and coordination with the state program staff.

The following sections report on projects completed this year and are arranged alphabetically by Working Group (EC-WR). Each report references the public conservation land where the work occurred, a file tracking number, the size of the project area, and total Bureau funds expended. When funding from another agency was provided, the amount is noted in the body of the report. Most projects are solely funded by the Bureau. Control data are derived from daily progress reports submitted by the contractor performing the work. The type of control is agreed upon by the site manager, contractor, and program staff before work begins.



The Bureau divided the state into eleven Regional Invasive Plant Working Groups, which generally follow watershed boundaries. Projects pass through the working groups for review and ranking before being accepted by the Bureau.

Each project description also contains a table indicating the species of plant treated, a species rank, the type of control method used, and the herbicides used. In this table, "rank" refers to the designation as a Category I or Category II invasive species by the Florida Exotic Pest Plant Council (see www.fleppc.org for more information).

"Herbicide" indicates the type of chemical used (see below for abbreviations used). Contractors use various mixtures, depending upon factors such as site/soil conditions, plant densities, proximity to water bodies, or personal experience. When two herbicides are mixed together this is indicated with a "+" symbol; e.g., "GLY+MET." When two different herbicide mixes are used to control the same plant on a project, for example Garlon 4 (triclopyr) is used on the adult plant and Rodeo (glyphosate) is used on the saplings, this is indicated with a "/" symbol; e.g., "TRIE/GLY." For this example, the "Type" of control would show BB/FL, as well. There is no one "right" mix for any plant under all conditions. The mention of a brand or trade name is not an endorsement for that product.

ABBREVIATIONS

PCL:	public conservation land
TYPE (METHOD) OF CONTROL:	
BB	basal bark
CS	cut stump
FL	foliar
HS	frill and girdle (or "hack-and-squirt")
PC	poodle cut (foliar, vines only)
AR	aerial broadcast by helicopter
MC	mechanical
HERBICIDES:	
GLY	glyphosate (e.g., Roundup)
TRIE	triclopyr ester (e.g., Garlon 4)
TRIA	triclopyr amine (e.g., Tahoe 3A)
IMZ	imazapyr (e.g., Arsenal)
IMP	imazapic (e.g., Plateau)
MET	metsulfuron-methyl (e.g., Escort)
2,4-D	2,4-D amine

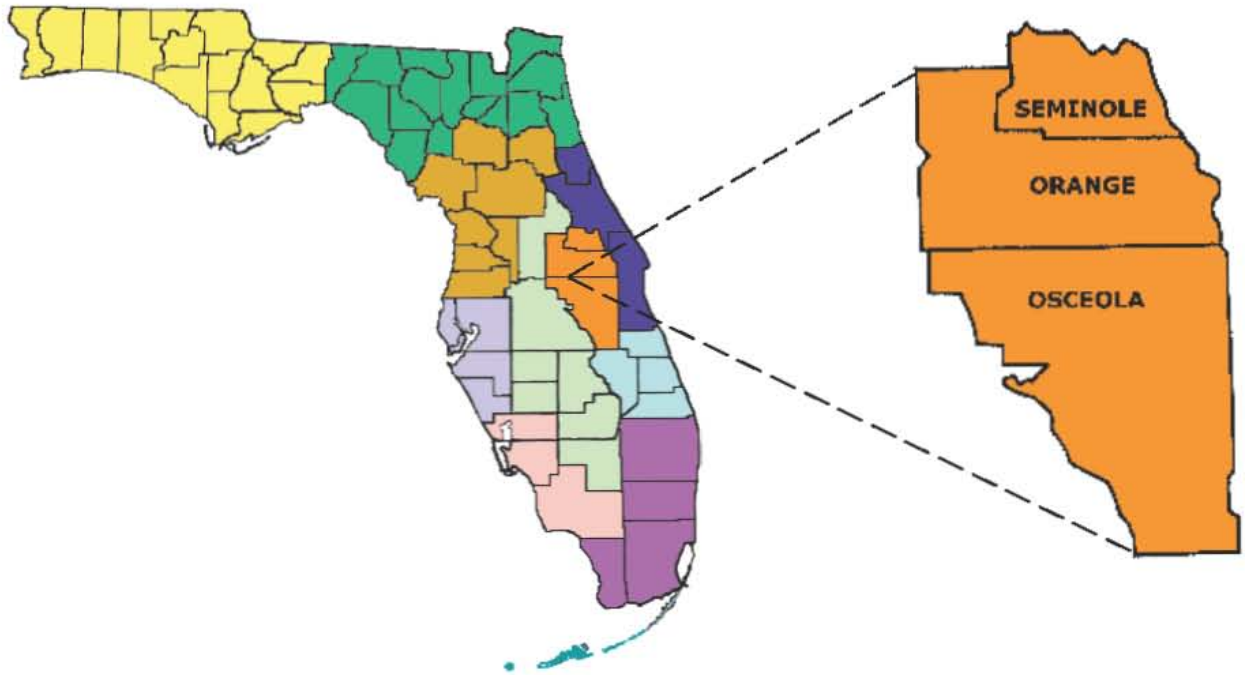
Most contractual work is performed by ground crews. A typical crew consists of one supervisor and eight workers.

Herbicide is mixed on site and poured into backpack sprayers that workers will use for a basal bark or cut stump application.

When a thick monoculture dominates a site, mechanical control with heavy equipment becomes a cost-effective alternative to using ground crews.

Some counties have their own invasive plant control program. BIPM works directly with these county programs, rather than going through a private contractor.

East Central Working Group Projects



Three Lakes Wildlife Management Area

County: Osceola
PCL Size: 61,845 acres
Project ID: EC-051 188 acres $22,800

Project Manager: Florida Fish & Wildlife Conservation Commission
Tina Hannon, Biological Scientist II
1231 Prairie Lakes Road, Kenansville, Florida 34739
Phone: 407-436-1818, Fax: 407-436-1137
E-mail: tina.hannon@myfwc.com

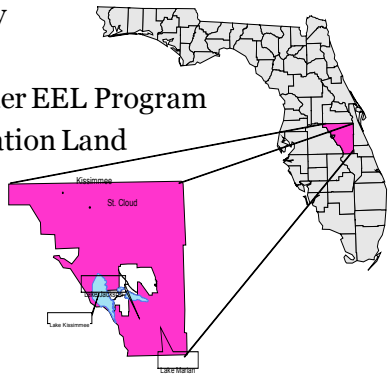
Three Lakes Wildlife Management Area is located in southern Osceola County along the eastern shore of Lake Kissimmee, and surrounding portions of Lakes Marian and Jackson. The WMA contains significant acreage of contiguous longleaf pine flatwoods, oak hammocks, cypress strands, and grassy wetlands, as well as over 12,000 acres of the globally imperiled dry prairie natural community. The property also supports one of peninsular Florida's largest red-cockaded woodpecker (*Picoides borealis*) populations, and a large population of Florida grasshopper sparrows (*Ammodramus savannarum floridanus*). Smaller numbers of Florida scrub jay (*Aphelocoma coerulescens*), Audubon's crested caracara (*Caracara plancus audubonii*), wood stork (*Mycteria americana*), and other species occur throughout the year. Several protected plants occur on the property, including the state threatened *Pteroglossapsis ecristata* and the state endangered *Calopogon multiflorus*.

This project targeted tropical soda apple along the border of Lake Jackson. TSA became established as a result of cattle encroachment and had the potential to infest the mesic hammocks and basin marshes surrounding the lake.

Species Treated	Common Name	Rank	Type	Herbicide
Solanum viarum	tropical soda apple	I	FL	Milestone

Location

- Osceola County
- 61,810 acres
- Purchased under EEL Program
- FNAI Conservation Land



Three Lakes WMA

Natural Resource Conservation Parcel

County: Orange
PCL Size: 409 acres
Project ID: EC-057 156 acres $15,385

Project Manager: Orange County Environmental Protection Division
Beth Jackson, Program Manager
800 Mercy Drive, Suite 4, Orlando, Florida 32808
Phone: 407-836-1400, Fax: 407-836-1499
E-mail: Beth.Jackson@ocfl.net

The NRC Parcel is adjacent to the Hal Scott Preserve and Long Branch Park and located within a mostly rural area in east Orange County. The St. Johns River Water Management District manages the property on behalf of Orange County through an Interagency Agreement. The site contains a diversity of natural systems, including hardwood forested wetlands, oak hammock, pine flatwoods, freshwater marshes, and cypress domes, as well as a portion of the Long Branch Tributary, a named tributary of the Econlockhatchee River. The Econ River is listed as an Outstanding Florida Waterway (OFW).

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Psidium guajava	guava	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE

Wekiwa Springs State Park

County: Lake, Orange, Seminole
PCL Size: 7,737 acres
Project ID: EC-058 24 acres $7,288

Project Manager: Florida Park Service (DEP)
Rick Owen, Park Biologist
1800 Wekiwa Circle, Apopka, Florida 32712
Phone: 407-884-2006, Fax: 407-884-2039
E-mail: richard.owen@dep.state.fl.us

The McCall tract is a 40-acre parcel located on the southwest boundary of Wekiwa Springs State Park. Natural communities found on the McCall tract include an overgrown but still intact sandhill, mesic flatwoods, a small disturbed isolated wetland, and two ephemeral blackwater stream that enter the property via two distinct drainages. These streams converge and discharge into Lake Prevatt, and Outstanding Florida Water. Over ninety-five percent of the lake lies within Wekiwa Springs State Park. The offsite drainage basins of these two streams are the primary conduit for continued exotic seed dispersal into park property. This project continued maintenance control on the McCall tract.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Ardisia crenata	coral ardisia	I	FL/BB	TRIA
Cinnamomum camphora	camphor tree	I	FL/BB	TRIA
Colocasia esculenta	wild taro	I	FL	GLY
Dioscorea bulbifera	air-potato	I	FL	TRIA
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Macfadyena unguis-cati	cat's claw vine	I	FL	GLY
Nephrolepis species	sword ferns	I	FL	GLY
Solanum viarum	tropical soda apple	I	FL	TRIA
Triadica sebifera	Chinese tallow	I	FL/BB	TRIA
Epipremnum pinnatum	pothos	II	FL	TRIA
Melia azedarach	Chinaberry	II	FL/BB	TRIA
Melinis repens	Natal grass	II	FL	GLY
Urena lobata	Caesar's weed	II	FL	GLY
Xanthosoma sagittifolium	elephant ear	II	FL	TRIA
Sorghum halepense	Johnson grass	n/a	FL	GLY

Top left: Contractors scope out the extent of the problem before bidding on the job.

Top right: Wreathed with air-potato vines (*Dioscorea bulbifera*), this creek could soon disappear from sight.

Bottom: Project map for McCall Tract maintenance.

Little Big Econ State Forest

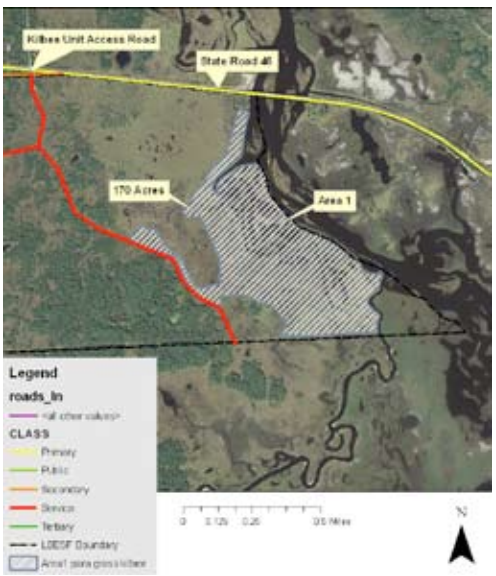
County: Seminole
PCL Size: 5,049 acres
Project ID: EC-059 272 acres $28,251

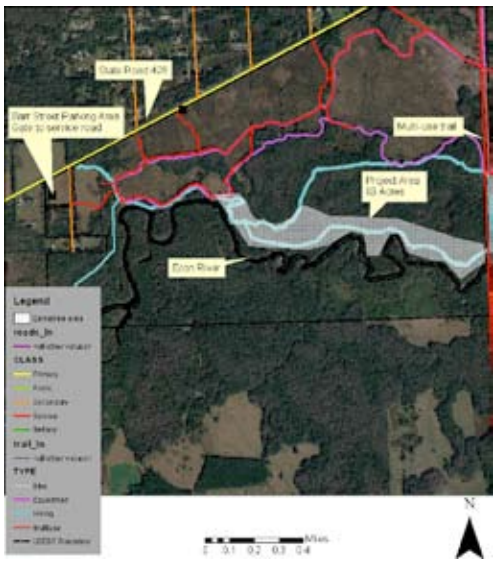
Project Manager: Division of Forestry
Stephen Stipkovits, Forester
1350 Snowhill Road, Geneva, Florida 32732
Phone: 407-971-3503, Fax: 407-971-3504
E-mail: stipkos@doacs.state.fl.us

The predominant habitat in the project area is river floodplain marsh associated with the St. Johns River. The river floodplain is often dry or moist most of the year, with flooding only occurring once a year, if at all, during the wet season. This community type is composed of scattered cabbage palms (*Sabal palmetto*), wax myrtle (*Myrica cerifa*), groundsel tree (*Baccharis halimifolia*), sand cordgrass (*Spartina bakeri*), and numerous salt marsh plant species including saltmeadow cordgrass (*Spartina patens*), sea oxeye (*Borrichia frutescens*), perennial glasswort (*Salicornia perennis*), and Christmasberry (*Lycium carolinianum*). This community is unique due to the fact that it has salt marsh plant species in such an inland location. In the southeast corner of the Kilbee Unit, the Econlockhatchee (Econ) River empties into the St. Johns River. The Econ River is listed as an Outstanding Florida Waterway (OFW).

The project comprises two treatment areas. Area 1 is a 170-acre infestation of Pará grass with nearly one hundred percent coverage. It is located east of the access road on the eastern side of the Kilbee tract. Area 2 is an 83-acre infestation of cogon grass located north of the Econ River in the southern part of the Demetree tract. This area lies along both sides of the Florida Scenic Trail. The DOF Forest Health Section provided $20,000 in matching funds and $602 as an in-kind match of time and materials for this project.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY
Urochloa mutica	Pará grass	I	FL	GLY+IMZ





Split Oak Forest/Lake Hart

County: Orange
Split Oak Forest: 1,689 acres
Lake Hart Parcel: 232 acres
Project ID: EC-060 300 acres $55,750

Project Managers:

Split Oak Forest WEA
Florida Fish and Wildlife Conservation Commission
Shane Belson, BS IV
1601 Scotty's Road, Kissimmee, FL 34744
Phone: 407.846.5300, Fax: 407.846.5310
E-mail: shane.belson@myfwc.com

Lake Hart Parcel
Orange County Environmental Protection Division
Beth Jackson, Program Manager
800 Mercy Drive, Suite 4, Orlando, Florida 32808
Phone: 407.836.1400, Fax: 407.836.1499
E-mail: beth.jackson@ocfl.net

A number of natural communities occur at Split Oak Forest (SOF) including scrubby flatwoods, pineland, xeric oak scrub, hardwood hammock, freshwater marsh, cypress swamp, hardwood swamp, shrub swamp, open water, and grassland. The Lake Hart parcel (LHP) contains a diversity of natural systems such as freshwater marsh, cypress swamp, mesic oak hammock, and pine flatwoods. The primary infestation occurred in a 100-acre area in the northwest corner of the park, along the common boundary between SOF and LHP.

Chinese tallow occurred in wetland areas along Lake Hart, both within SOF and LHP, and in isolated wetlands and shallow ditches within LHP. Tallow comprised a significant component of the canopy on about 15 acres at LHP with moderate to high coverage and many large trees. Tallow on SOF occurred at a low density over about 60 acres. Strawberry guava occurred in the forested wetlands on the fringe of Lake Hart. The species was moderately dense on 10 acres within the Chinese tallow infestation.

Tropical soda apple was found primarily in pasture areas on LHP with moderate to high coverage on 200 acres. At SOF, infestations occurred along the property boundary. Camphor tree occupied about 5 acres in the northwest corner of the project area at a low density of mostly young individuals. Cogon grass occurred in patches on about 2 acres of a spoil mound from a dredged pond on the southeast portion of the project area.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Cinnamomum camphora	camphor tree	I	CS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Psidium cattleianum	strawberry guava	I	CS	TRIE
Solanum viarum	tropical soda apple	I	FL	TRIE
Triadica sebifera	Chinese tallow	I	CS	TRIE

Split Oak/Lake Hart

Geneva Wilderness Area

County: Seminole
PCL Size: 175 acres
Project ID: EC-061 43 acres $13,940

Project Manager: Seminole County Natural Lands Program
Jim Duby, Division Manager
1101 East First Street, Sanford, Florida 32771-1468
Phone: 407-665-7466, Fax: 407-665-7367
E-mail: JDuby@seminolecountyfl.gov

The Geneva Wilderness Area contained a variety of exotic invaders. The most pervasive invasive was coral ardisia, which occurred throughout the swamp on the east side of the property. This Phase I project concentrated on the north and east portions of the property. The largest infestation was in the swamp and covered approximately 25 acres. The eight-acre pasture contained tropical soda apple scattered throughout. The remaining infestations were small, with a combined total of approximately two acres.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Ardisia crenata	coral ardisia	I	CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY+MET
Nephrolepis cordifolia	sword fern	I	FL	TRIA
Lantana camara	lantana	I	CS	TRIE
Solanum viarum	tropical soda apple	I	FL	GLY
Urochloa mutica	Pará grass	I	FL	GLY

Christmas Creek Preserve

County: Orange
PCL Size: 1,109 acres
Project ID: EC-062 93 acres $20,598

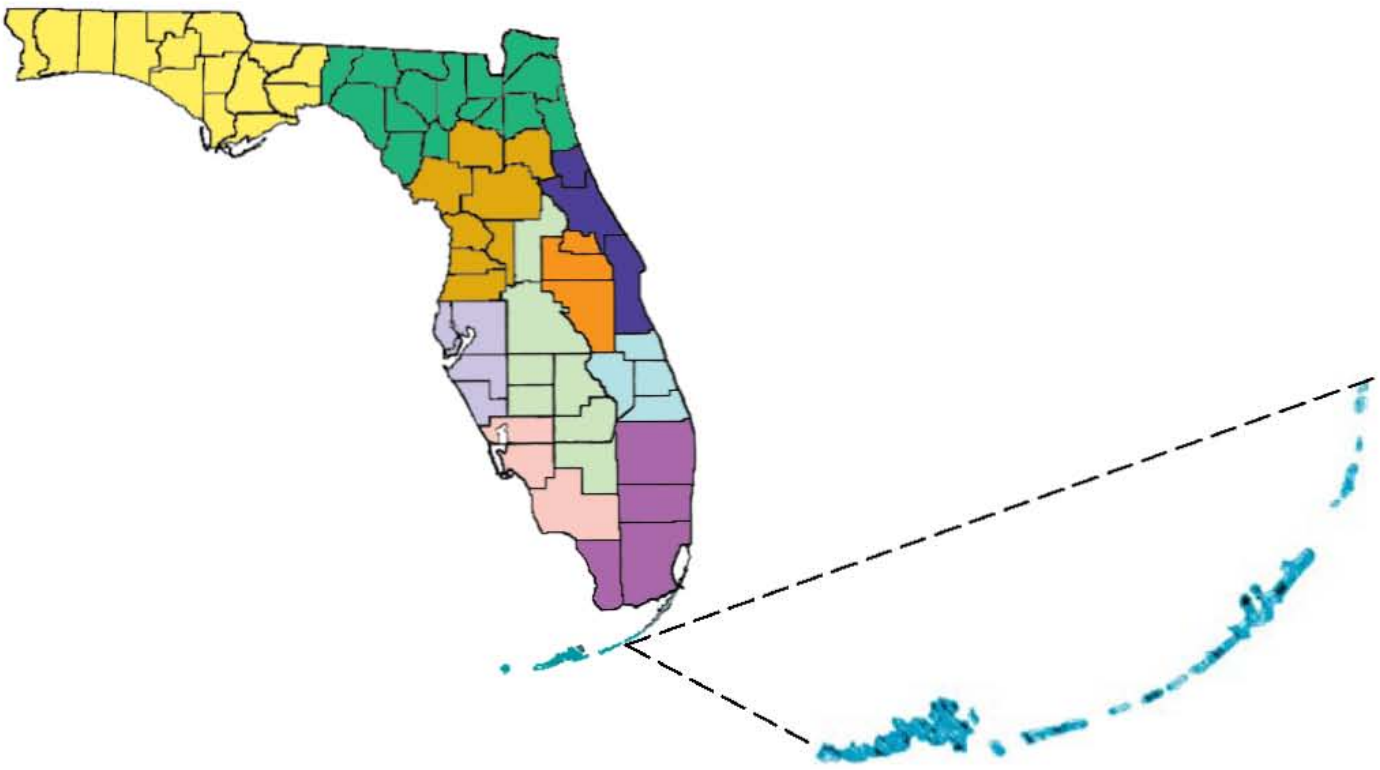
Project Manager: Orange County Environmental Protection Division
Beth Jackson, Program Manager
800 Mercy Drive, Suite 4, Orlando, Florida 32808
Phone: 407.836.1400, Fax: 407.836.1499
E-mail: beth.jackson@ocfl.net

The Christmas Creek Preserve is located within a mostly rural area in eastern Orange County. The county purchased the property in 1999 through the Florida Communities Trust program. The site contains a diversity of natural systems, including sandhills, mesic pine flatwoods, oak hammock, shrub-scrub, freshwater marsh, cypress dome, cypress slough, hardwood forested wetlands, and the headwaters of three tributaries that flow into Christmas Creek. At least two listed plant species occur on the property, pine lily (*Lilium catesbaei*) and a flag (*Thalia*) species. The County contributed $20,000 in cost-sharing and in-kind cooperative services toward this project.

Species Treated	Common Name	Rank	Type	Herbicide
Ardisia crenata	coral ardisia	I	HS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+MET
Triadica sebifera	Chinese tallow	I	HS	TRIE
Urena lobata	Caesar's weed	II	FL	GLY+MET

Oak hammocks are common in Florida. Where previous land use has disturbed the ground level plant community, invasive plants are quick to move in (above). This requires selective treatment to kill the exotics, without harming natives (below). Chinese tallow (left) is an opportunistic invader in many communities. Individual trees are easy to kill, but tallow can form dense monocultures if left untreated.

Florida Keys Working Group Projects



Florida Keys Invasive Exotic Plant Control Technicians

County: Monroe
PCL: *various*
Project ID: FK-074 450 acres $90,680

Project Manager: The Nature Conservancy
Alison Higgins
PO Box 420230, Summerland Key, FL 33042
Phone: 305.745.8402 x111
E-mail: ahiggins@tnc.org

National Wildlife Refuges (NWR) in the Florida Keys include Key Deer (9,368 acres), Great White Heron (192,788 acres), Key West (208,308 acres), and Crocodile Lake (6,688 acres). The Florida Keys Wildlife and Environmental Area (WEA) includes 2,344 acres of land on Key Largo, Big Pine Key, No Name Key, the backcountry islands of the Great White Heron NWR, and several other keys in the Lower Florida Keys. Natural communities within the NWR/WEA include tropical hardwood hammock, pine rocklands, freshwater wetlands, and mangrove swamp. These lands are home to a number of rare plants and animals, five of which occur nowhere else in the world. Public conservation lands extend throughout the Keys and include individual lots ranging from 5000 sq. ft. to parcels several hundred acres in size. These properties are owned by the US Department of the Interior, the State of Florida, the South Florida Water Management District, and Monroe County. All lands are publicly owned and managed by the NWR/WEA for conservation of rare plant and animal species, including the Key deer.

Rapidly expanding populations of Brazilian pepper, Australian pine, and lather leaf infest the native habitats of the NWR/WEA. This project targeted these three species and other invasive plants on Key Largo, Big Pine, No Name, Big and Little Torch, Summerland, Cudjoe, Sugarloaf, and Boca Chica Keys, and the backcountry islands of the Lower Keys. The project involved using up to six exotic plant control technicians to control invasive exotic plants on the Refuges/FKWEA during the FY08 fiscal year. The exotic plant control technicians worked closely with the biological staff of the Refuges and FWC on priority exotics sites, and kept a daily record of all exotics control activities. The exotic plant control technicians were employees of The Nature Conservancy (TNC) for this period and TNC provided all of necessary hiring, training, equipment, supervisory and administrative support for an in-kind contribution of $15,500. FWC provided some needed materials that equaled an in-kind match of $2,000.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Albizia lebbeck	woman's tongue	I	BB	TRIE
Asparagus aethiopicus	asparagus-fern	I	FL	GLY
Casuarina equisetifolia	Australian pine	I	BB	TRIE
Colubrina asiatica	lather leaf	I	CS	TRIE
Lantana camara	lantana	I	BB	TRIE
Manilkara zapota	sapodilla	I	BB	TRIE
Neyraudia reynaudiana	Burma reed	I	FL	GLY
Pennisetum purpureum	Napier grass	I	FL	GLY

Florida Keys Techs

Species Treated	Common Name	Rank	Type	Herbicide
Rhynchelytrum repens	Natal grass	I	FL	GLY
Scaevola taccada	beach naupaka	I	CS	TRIE
Schefflera actinophylla	umbrella tree	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE
Syngonium podophyllum	arrowhead vine	I	CS	TRIE
Thespesia populnea	seaside mahoe	I	CS	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Agave sisalana	sisal hemp	II	CS	TRIE
Cryptostegia madagascariensis	rubber vine	II	BB	TRIE
Epipremnum pinnatum	pothos	II	BB	TRIE
Kalanchoe pinnata	life plant	II	CS	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE
Merremia tuberosa	wood-rose	II	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Phoenix reclinata	Senegal date palm	II	CS	TRIE
Ricinus communis	castor bean	II	CS	TRIE
Sansevieria hyacinthoides	bowstring hemp	II	FL	GLY
Sesbania punicea	purple sesban	II	CS	TRIE
Terminalia catappa	tropical-almond	II	CS	TRIE
Tradescantia spathacea	oyster plant	II	BB	TRIE
Tribulus cistoides	Jamaican feverplant	II	CS	TRIE
Xanthosoma sagittifolium	elephant ear	II	FL	GLY
Carica papaya	papaya	n/a*	CS	TRIE
Catharanthus roseus	Madagascar periwinkle	n/a	FL	GLY
Cocos nucifera	coconut palm	n/a	BB	TRIE
Hylocereus undatus	night-blooming cactus	n/a	HP	n/a
Macroptilium lathyroides	wild bushbean	n/a	FL	GLY
Swietenia mahagoni	West Indian mahogany	n/a	BB	TRIE
Tamarindus indica	tamarind	n/a	BB	TRIE
Turnera ulmifolia	ramgoat dashalong	n/a	BB	TRIE

*A number of other unlisted incidental plants were treated by the technicians. Natural areas in the Keys are prone to an influx of garden escapees and dumping of yard waste.

Monroe County Conservation Lands

County: Monroe
PCL (*see below*)
PCL Size (*see below*)

Project ID: FK-075	2,500 acres	$88,602
Project ID: FK-079	13 acres	$80,000

Project Manager: Monroe County Growth Management Division
Elizabeth Bergh, Monroe County Land Steward
2798 Overseas Highway, Marathon, Florida 33050-2227
Phone: 305-289-2511
E-mail: bergh-beth@monroecounty-fl.gov

Monroe County owns nearly 2,000 acres of scattered conservation lands throughout the Florida Keys. Natural communities within the Keys include tropical hardwood hammocks, pine rocklands, buttonwood wetlands, coastal beaches, and mangrove swamp. These lands are home to a number of rare plants, some of which occur nowhere else in the world, including the endangered Blodgett's wild mercury (*Argythamnia blodgettii*), locustberry (*Byrsonima lucida*), silver palm (*Coccothrinax argentata*), and Garber's spurge (*Chamaesyce garberi*). Rapidly expanding populations of Brazilian pepper, Australian pine, and lather leaf infested the native habitats of the county's lands.

One project targeted county owned or managed parcels located on twenty-two of the Upper, Middle, and Lower Keys. Most individual parcels are only 0.1 acre in size, but many are contiguous and combine to form much larger management units. A team of two plant control technicians funded by BIPM performed maintenance and spot control work. Monroe County provided an in-kind match of $51,088 in time and materials. A second project covered the same lands, but allowed the county to hire contractors for larger scale or mechanical jobs, such as removing Australian pines.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Albizia lebbeck	woman's tongue	I	BB/CS	TRIE
Asparagus aethiopicus	asparagus-fern	I	FL	GLY
Calophyllum antillanum	santa maria	I	BB	TRIE
Casuarina species	Australian pine	I	CS	TRIA
Colubrina asiatica	lather leaf	I	CS	TRIA
Cupaniopsis anacardioides	carrotwood	I	BB	TRIE
Eugenia uniflora	Surinam cherry	I	BB	TRIE
Jasminum fluminense	Brazilian jasmine	I	FL	GLY
Lantana camara	lantana	I	BB	TRIE
Manilkara zapota	sapodilla	I	BB	TRIE
Ruellia tweediana	Mexican petunia	I	FL	GLY
Scaevola taccada	beach naupaka	I	BB/CS	TRIE
Schefflera actinophylla	umbrella tree	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE
Senna pendula var. *glabrata*	Christmas cassia	I	HP	n/a
Syngonium podophyllum	arrowhead vine	I	CS	TRIE

Monroe County Conservation Lands

Species Treated	Common Name	Rank	Type	Herbicide
Thespesia populnea	seaside mahoe	I	BB	TRIE
Adenanthera pavonina	red sandalwood	II	BB	TRIE
Agave sisalana	sisal hemp	II	CS	TRIE
Cryptostegia madagascariensis	rubber vine	II	BB	TRIE
Hibiscus tiliaceus	mahoe	II	CS	TRIE
Kalanchoe pinnata	life plant	II	HP	n/a
Koelreuteria elegans	flamegold tree	II	BB	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Pteris vittata	Chinese brake fern	II	FL	GLY
Ricinus communis	castor bean	II	CS	TRIE
Sansevieria hyacinthoides	bowstring hemp	II	FL/MC	GLY
Sesbania punicea	purple sesban	II	CS	TRIE
Sphagneticola trilobata	wedelia	II	BB	TRIE
Terminalia catappa	tropical-almond	II	CS	TRIE
Tradescantia spathacea	oyster plant	II	BB	TRIE
Washingtonia robusta	Washington fan palm	II	CS	TRIE
Carica papaya	papaya	n/a	CS	TRIE
Cocos nucifera	coconut palm	n/a	BB	TRIE
Dactyloctenium aegyptium	crow's foot	n/a	FL	GLY
Delonix regia	royal poinciana	n/a	CS	TRIE
Furcraea cabuya	cabuya	n/a	FL	GLY
Hylocereus undatus	night-blooming cactus	n/a	HP	n/a
Macroptilium lathyroides	wild bushbean	n/a	FL	GLY
Nerium oleander	oleander	n/a	BB	TRIE
Pandanus species	screwpine	n/a	CS	TRIE
Phellodendron species	cork-tree	n/a	BB	TRIE
Stachytarpheta urticifolia	nettleleaf velvetberry	n/a	FL	GLY
Tabebuia heterophylla	white cedar	n/a	BB	TRIE
Turnera pumilea	yellow alder	n/a	HP	n/a
Vinca minor	common periwinkle	n/a	FL	GLY

Key West Naval Air Station

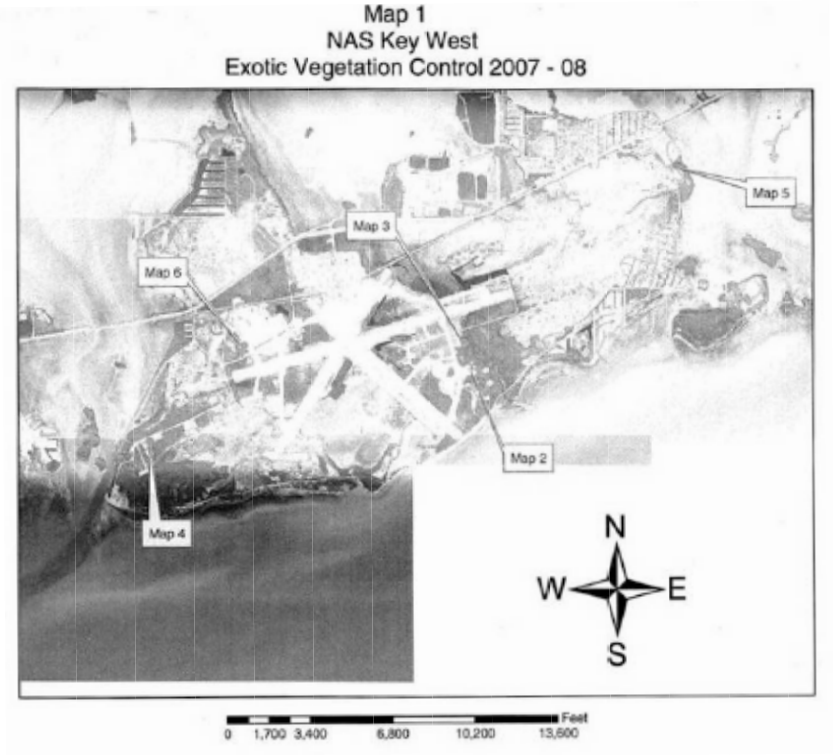
County: Monroe
PCL Size: 6,387
Project ID: FK-076 36 acres $142,178

Project Manager: U.S. Navy
Edward Barham, Natural Resources Manager
Post Office Box 9007, Key West, Florida 33040-9007
Phone: 305-293-2911, Fax: 305-293-2542
E-mail: barhamed@naskw.navy.mil

This project provided maintenance control for fourteen sites located on Boca Chica and Geiger Keys, particularly for those areas that provide habitat for the endangered Lower Keys marsh rabbit (*Sylvilagus palustris hefneri*).

A marsh without invading trees and shrubs—just right for a marsh rabbit.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	CS	TRIE
Colubrina asiatica	lather leaf	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Agave sisalana	sisal hemp	II	CS	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE/Milestone
Sansevieria hyacinthoides	bowstring hemp	II	CS	TRIE
Carica papaya	papaya	n/a	CS	TRIE



Florida Keys State Park

County: Monroe
PCL Size: *various*
Project ID: FK-077 633 acres $195,250

Project Manager: Florida Park Service (DEP)
Pat Wells, Park Manager
P.O. Box 487, Mile Marker 102.5 Overseas Highway, Key Largo, Florida 33037
Phone: 305-451-1202, Fax: 305-853-3555
E-mail: pat.wells@dep.state.fl.us

Dagny Johnson Key Largo Hammocks Botanical State Park and John Pennekamp Coral Reef State Park comprised the primary project area, but work was also conducted at Windley Key Fossil Reef Geologic State Park, Curry Hammock State Park, and Bahia Honda State Park. Many rare plants, including jumping cactus (*Opuntia triacantha*), yellow hibiscus (*Cienfuegosia yucatanensis*), and Cape Sable thoroughwort (*Chromolaena frustrata*), as well as rare plant communities, occur in these parks.

In addition to thorough maintenance work, the project also addressed the relatively thin but widespread population of sapodilla (*Manilkara zapota*) on Key Largo. Sapodilla occurred throughout nearly 2,000 acres of Key Largo Hammocks and Coral Reef State Parks. Treated sites within Key Largo Hammocks included Dynamite Trail, Port Bougainville, Shrimp Farm, Key Largo Beach and Tennis Club, Totem Trail, and Madeira Village.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Asparagus aethiopicus	asparagus-fern	I	HP	n/a
Colubrina asiatica	lather leaf	I	BB/CS	TRIE
Ficus microcarpa	laurel fig	I	BB	TRIE
Lantana camara	lantana	I	BB	TRIE
Manilkara zapota	sapodilla	I	BB/CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE
Senna pendula var. *glabrata*	Christmas cassia	I	HP	n/a
Syngonium podophyllum	arrowhead vine	I	HP	n/a
Thespesia populnea	seaside mahoe	I	BB/CS	TRIE
Adenanthera pavonina	red sandalwood	II	HP	n/a
Agave sisalana	sisal hemp	II	HP	n/a
Cryptostegia madagascariensis	rubber vine	II	BB	TRIE
Hibiscus tiliaceus	mahoe	II	CS	TRIE
Jasminum sambac	Arabian jasmine	II	CS	TRIE
Kalanchoe pinnata	life plant	II	HP	n/a
Leucaena leucocephala	lead tree	II	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Sansevieria hyacinthoides	bowstring hemp	II	HP	n/a
Sphagneticola trilobata	wedelia	II	FL	GLY
Terminalia catappa	tropical-almond	II	HP	n/a

Florida Keys State Park

Species Treated	Common Name	Rank	Type	Herbicide
Tradescantia spathacea	oyster plant	II	HP	n/a
Tribulus cistoides	Jamaican feverplant	II	FL	GLY
Annona squamosa	sugar apple	n/a	BB	TRIE
Carica papaya	papaya	n/a	BB/CS	TRIE
Cocos nucifera	coconut palm	n/a	BB/CS	TRIE
Dactyloctenium aegyptium	crow's foot	n/a	FL	GLY
Delonix regia	royal poinciana	n/a	CS	TRIE
Ficus benjimina	weeping fig	n/a	BB	TRIE
Jacquinia arborea	braceletwood	n/a	CS	TRIE
Merremia dissecta	noyau vine	n/a	HP	n/a
Tecoma stans	yellow trumpetbush	n/a	BB/CS	TRIE
Turnera pumilea	yellow alder	n/a	HP	n/a

Long Key State Park

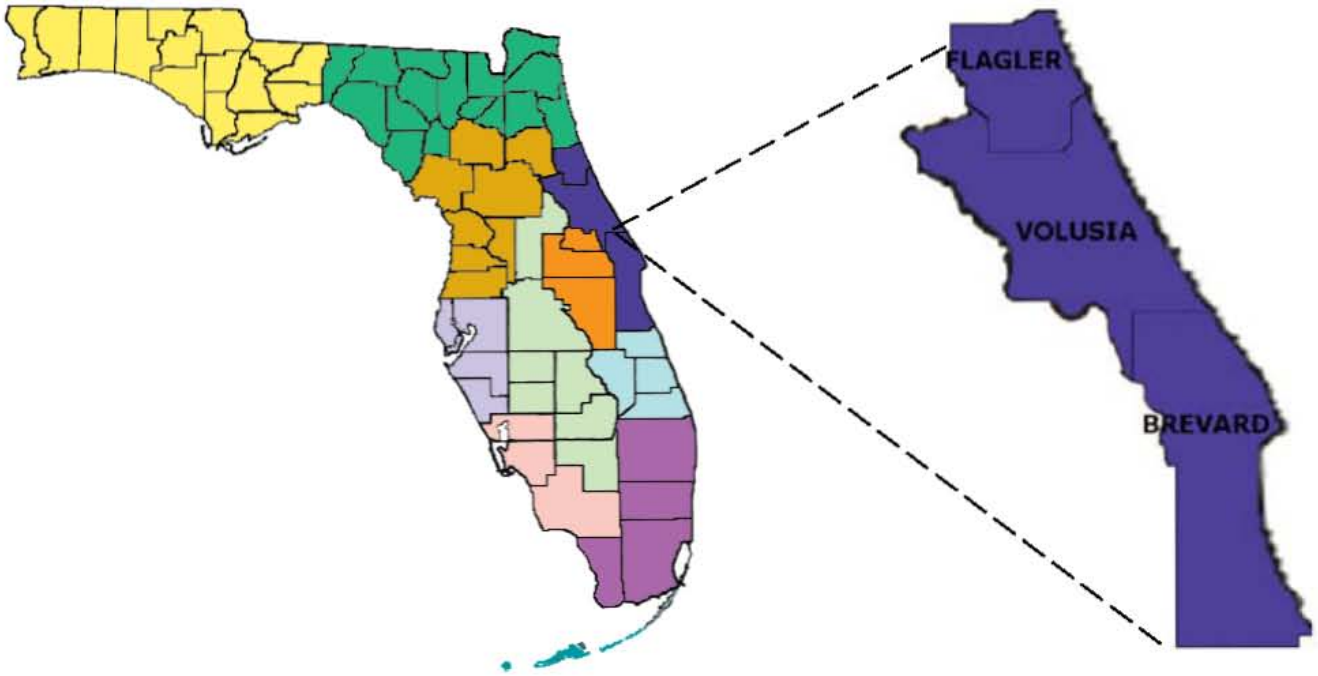
County: Monroe
PCL Size: 911 acres
Project ID: FK-078 10 acres $68,973

Project Manager: Florida Park Service (DEP)
Catherine Close, Park Manager
P. O. Box 776, Long Key, Florida 33001
Phone: 305-664-4815, Fax: 305-664-2629
E-mail: catherine.close@dep.state.fl.us

The project area was the campground and day use area at the southwest end of Long Key State Park. This 60-site campground is located in a beach/dune community that also provides important habitat for numerous species of shorebirds, as well as nesting sea turtles. Past projects removed most of the Australian pine at the park. The campground contained the last concentration of this invasive species. The project consisted of mechanically removing all of the approximately 200 remaining Australian pine trees. The trees were cut and chipped on site. Stumps were pulled out or ground below the surface.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	MC	n/a

Mosquito Coast Working Group Projects



Pine Island Conservation Area

County: Brevard
PCL Size: 929 acres
Project ID: MC-069 100 acres $72,000
Project ID: MC-091 96 acres $31,785

Project Manager: Brevard County Parks & Recreation
Steve McGuffey, Assistant Land Manager
5560 North US Highway 1, Melbourne, Florida 32940
Phone: 321-255-4466, Fax: 321-255-4499
E-mail: smcguffey@brevardparks.com

The mesic pine flatwoods "island" for which this conservation land is historically named is regionally unique in that large areas grade directly into the Indian River Lagoon and other areas exhibit rapid transitions to isolated freshwater marshes and impounded estuarine marsh and mangrove forest habitats that fringe the Lagoon. Development activities on Pine Island during the 1960s in support of sand mining and mosquito control operations significantly altered the hydrologic regime and structural integrity of the expansive estuarine marsh system historically characterizing this property. Invasive exotic pest plants, primarily Brazilian pepper, exploited the conditions provided by these land disturbances.

Phase 1 of this comprehensive invasive exotic plant removal project was completed in 2001. This first phase effectively treated 42± acres of Brazilian pepper from within approximately 100 acres of mesic pine flatwoods and fringing wetland habitats located in the northwest quadrant of the conservation site. Phase II, which targeted 65± acres infested by approximately 35 acres of Brazilian pepper and 0.25 acres with melaleuca was completed in September 2002. Phase III continued the exotic species removal effort on 127 acres and was completed in May 2004. Phase IV treated 170 acres in 2005 and Phase V treated 24.5 acres in 2006.

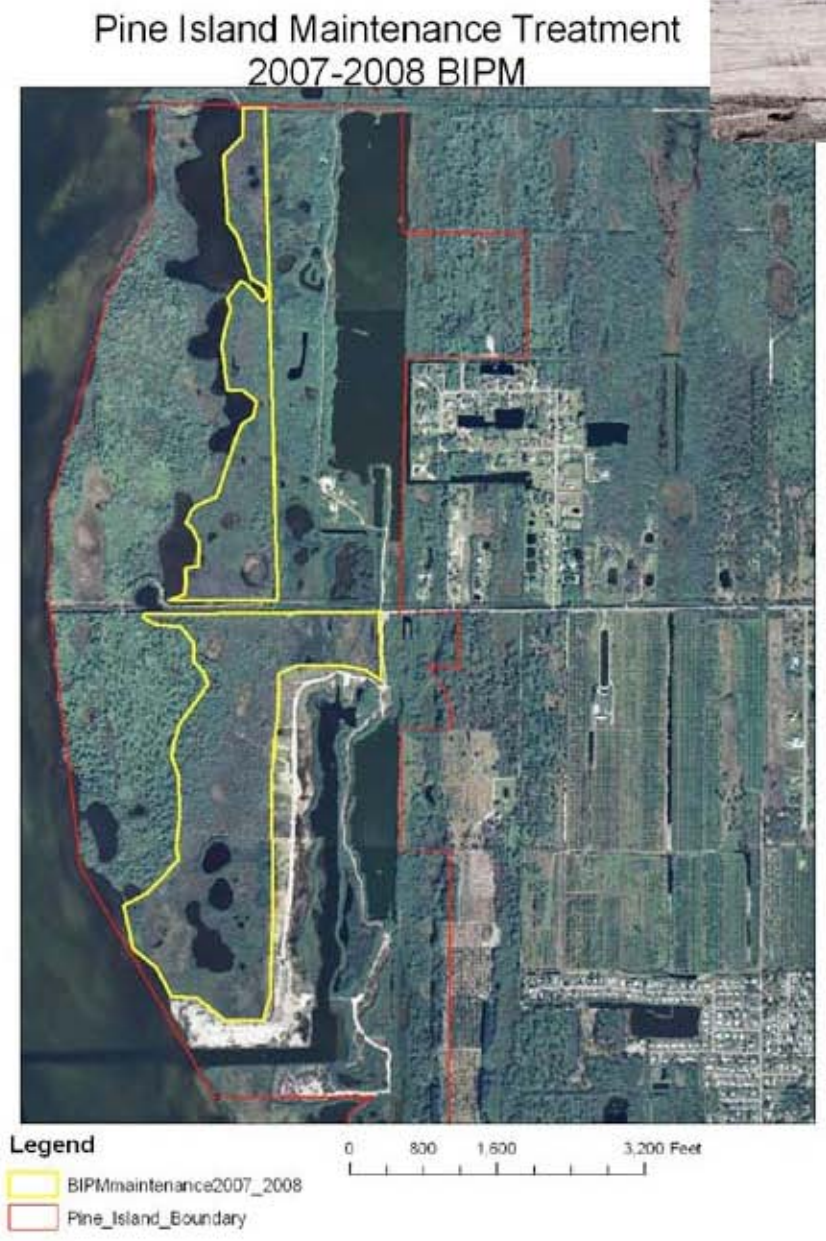
The first project retreated invasive exotic plants (primarily Brazilian pepper) in the phase 1 area of Pine Island. The second project targeted Brazilian pepper for maintenance control in cabbage palm hammocks and disturbed areas adjacent to low salinity marsh.

Species Treated	Common Name	Rank	Type	Herbicide
Cupaniopsis anacardioides	carrotwood	I	HP	n/a
Melaleuca quinquenervia	melaleuca	I	CS	GLY+IMZ
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Sphagneticola trilobata	wedelia	II	FL	GLY
Carica papaya	papaya	n/a	CS	TRIE

Pine Island Conservation Area

Below: The Pine Island project map.

Right: Treated pepper on the edge of a disturbed area.



Merritt Island National Wildlife Refuge

County: Brevard
PCL Size: 139,174 acres

Project ID: MC-072	4,056 acres	$194,388
Project ID: MC-076	96 acres	$90,000
Project ID: MC-085	803 acres	$199,509

Project Manager: U.S. Fish and Wildlife Service
Ron Hight, Refuge Manager
P.O. Box 6504, Titusville, Florida 32782
Phone: 321-861-0667, Fax: 321-861-1276
E-mail: ron_hight@fws.gov

The 43-mile long barrier island that comprises the Refuge and the Canaveral National Seashore is adjacent to the Indian and Banana Rivers and Mosquito Lagoon. About one-half of the refuge consists of brackish estuaries and marshes. The remaining land consists of coastal dunes, scrub oaks, pine forest, pine flatwoods, and palm and oak hammocks. Numerous rare plants grow on the refuge, including seventeen state-endangered plants, such as satinleaf (*Chrysophyllum oliviforme*), Florida peperomia (*Peperomia obtusifolia*), beach star (*Remirea maritima*), coastal hoary pea (*Tephrosia angustissima*), and sea lavender (*Tournefortia gnaphalodes*).

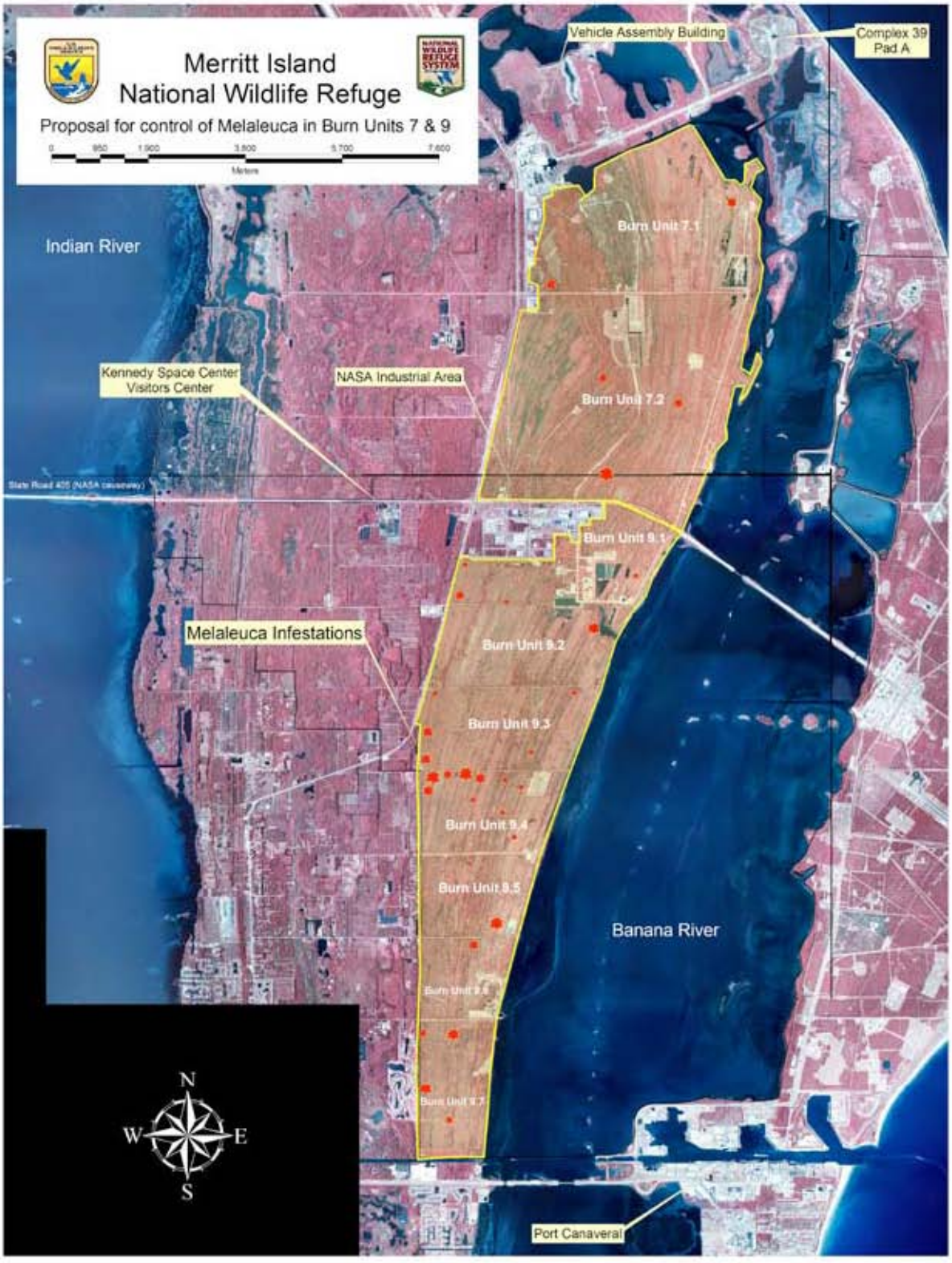
The first targeted area, designated State Road 3 North, is bounded on the south by Haulover Canal, on the north by US1, on the east by SR3, and on the west by the Indian River. Contractors conducted two 300-acre treatments of Brazilian pepper within marsh, mesic hammock, abandoned citrus grove, planted pine, and xeric scrub areas. Refuge staff treated roadside and levee areas for an in-kind match of $70,000 in time and materials. Cover of Brazilian pepper in the abandoned citrus groves approached seventy percent. In the other areas pepper occurred primarily in disturbed sites.

The second project area consisted of numerous sites north of Haulover Canal and one site on C1236. Sites varied from one acre to several acres in size. Early homesteaders that occupied the land before it became a refuge likely introduced air-potato. Most of the air-potato infestations are associated with old homes, settlement sites, or roads. It is unknown how rosary pea was introduced to the Refuge. These invasive plants occurred in hardwood hammocks, pine forest, and flatwoods. Air-potato was the primary target, with several locations where tree canopies were ninety percent covered and the plant continued to spread to new trees at a rapid pace. Rosary pea was first observed this year and occurred at several sites; one in combination with air-potato where coverage was estimated at seventy percent and spreading from tree to tree.

The third target area is known as State Road 3 South, which is adjacent to the first project area. This maintenance project removed Brazilian pepper and Australian pine from the site. The Australian pine was generally restricted to boundary strips and windbreaks around abandoned citrus groves.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	FL	TRIE
Casuarina species	Australian pine	I	BB	TRIE
Dioscorea bulbifera	air-potato	I	FL	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE

Merritt Island NWR



South Lake Conservation Area

County: Brevard
PCL Size: 155
Project ID: MC-086 8 acres $16,535

Project Manager: Environmentally Endangered Lands Program
Xavier de Seguin des Hons, Assistant Land Manager
444 Columbia Boulevard, Titusville, 32780
Phone: 321-264-5185, Fax: 321-264-5190
E-mail: xdeseguin@brevardparks.com

This project primarily targeted air-potato, which encompassed ninety-five percent of the treatment site. Chinaberry, Brazilian pepper, and Guinea grass were some of the other invaders that made up the remaining five percent of cover. Invasive species at the sanctuary were located mainly along the north boundary of the property.

Species Treated	Common Name	Rank	Type	Herbicide
Cinnamomum camphora	camphor tree	I	BB	TRIE
Colocasia esculenta	wild taro	I	FL	TRIE
Dioscorea bulbifera	air-potato	I	FL	TRIE
Lantana camara	lantana	I	FL	TRIE
Nephrolepis cordifolia	sword fern	I	FL	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Broussonetia papyrifera	paper mulberry	II	BB	TRIE
Koelreuteria elegans	Golden rain tree	II	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Panicum maximum	Guinea grass	II	FL	TRIE
Urena lobata	Caesar's weed	II	FL	TRIE
Enterolobium contortisiliquum	earpod tree	n/a	BB	TRIE

South Lake Conservation Area

Indian River Lagoon Preserve State Park

County: Brevard
PCL Size: 870 acres

Project ID: MC-087	80 acres	$180,000
Project ID: MC-088	150 acres	$21,550

Project Manager: Florida Park Service (DEP)
Clinton E. McKenzie, Assistant Park Manager
9700 South A1A, Melbourne Beach, Florida 32951
Phone: 321-984-4852, Fax: 321-984-4854
E-mail: clinton.mckenzie@dep.state.fl.us

Indian River Lagoon Preserve is situated on an Atlantic coast barrier island. Natural communities include maritime hammock, beach dune, and mangrove forest. The first project targeted Brazilian pepper for removal from an abandoned citrus grove adjacent to Brevard County EEL lands and a previously treated mangrove area in the park (below left). Brazilian pepper infested the mostly dead grove. A minor fringe of exotics, primarily Australian pine and Brazilian pepper, surrounded the project area. A Brontosaurus mower removed the major pockets of Brazilian pepper and Australian pine from the site. Park staff provided follow-up herbicide treatment.

The second project provided maintenance of an area that was mowed in 2006. The original project removed Brazilian pepper from Indian River Lagoon (below center) and the nearby Sebastian Inlet State Park (below right). A very small area of cogon grass was also treated at Sebastian Inlet.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Casuarina species	Australian pine	I	MC	n/a
Imperata cylindrica	cogon grass	I	FL	GLY
Schinus terebinthifolius	Brazilian pepper	I	MC/BB	TRIE

***Pepper Sweep* Maintenance**

County: Volusia
PCL: *various*
Project ID: MC-089 7,487 acres $37,801

Project Manager: East Volusia Mosquito Control District
David Farr
801 South Street, New Smyrna Beach, Florida 32168
Phone: 386-424-2920, Fax: 386-424-2924
E-mail: dfarr@co.volusia.fl.us

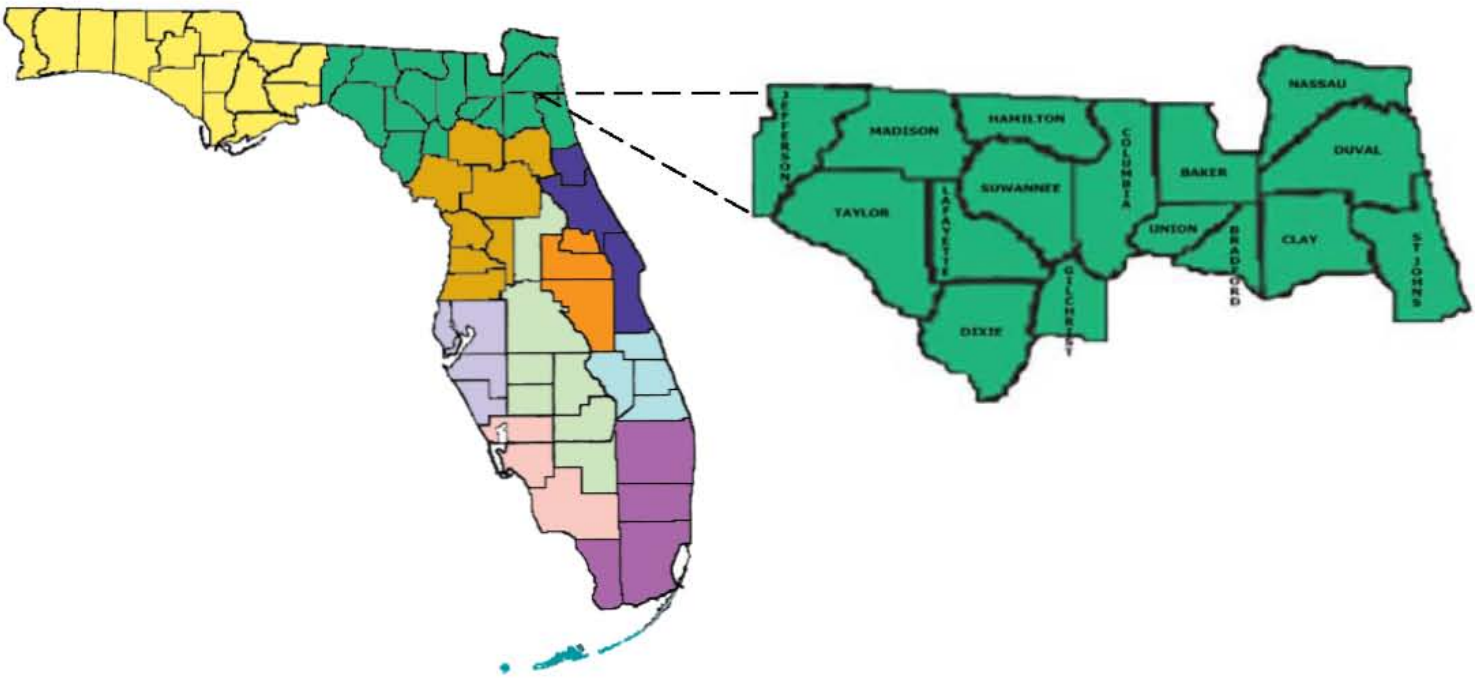
This maintenance control project included a number of county, state, and federal parks within Volusia County that were the subject of initial or maintenance control work under seven previous "Pepper Sweeps" (2000-2007). Natural communities found on these conservation areas include coastal dune, coastal strand, maritime hammock, coastal strand, oak scrub, live oak hammock, mangrove swamp, and tidal marsh. The project was divided into three project regions that encompassed a total of twelve project sites:

Site 1: Canaveral Islands (810 acres) contained 35 acres of Brazilian pepper.
Site 2: Canaveral National Seashore (2,100 acres) contained 75 acres of dense pepper.
Site 3: Seminole Rest (25 acres) contained 7 acres of pepper.
Site 4: Smyrna Dunes Park (178 acres) originally contained 58 acres of pepper.
Site 5: Bicentennial and Seabridge Parks (43 acres) contained 8 acres of pepper.
Site 6: Doris Leeper Spruce Creek Preserve and Spruce Creek Park (920 acres) contained about 55 acres of Brazilian pepper and 6 acres of Australian pine.
Site 7: North Peninsula State Recreation Area, Highbridge Park, Highbridge Road, and Mound Grove (480 acres) contained 55 acres of pepper.
Site 8: Tomoka Spoil and Tomoka Shoreline (135 acres) contained 58 acres of dense pepper and 7 acres of pines.
Site 9: Bulow Creek (2,000 acres) contained 45 acres of pepper and 1.5 acres of pines.
Site 10: Lighthouse Point Park (62 acres) originally contained about 11 acres of dense pepper.
Site 11: Riverbreeze Park (39 acres) had about 13.5 acres of pepper.
Site 12: Canaveral National Seashore (665 acres) originally contained about 25 acres of pepper and 1.5 acres of pines.

BIPM also provided $1,764 in chemicals from its Herbicide Bank for this project.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Schinus terebinthifolius	Brazilian pepper	I	CS/FL	TRIE/IMZ

Northeast Working Group Projects



Big Bend Wildlife Management Area

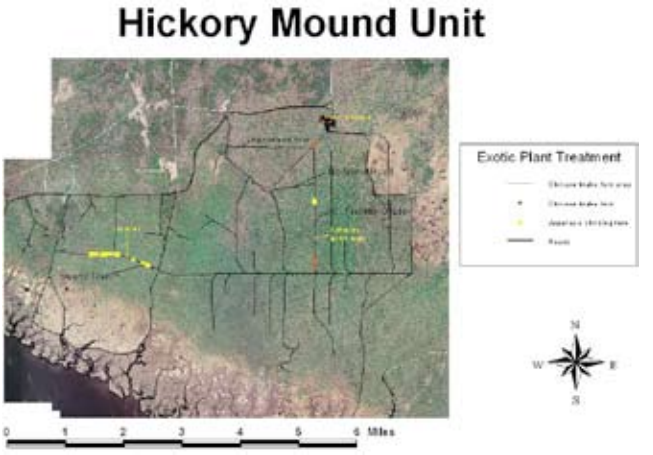
County: Dixie, Taylor
PCL Size: 58,435 acres
Project ID: NE-046 1 acre $9,890

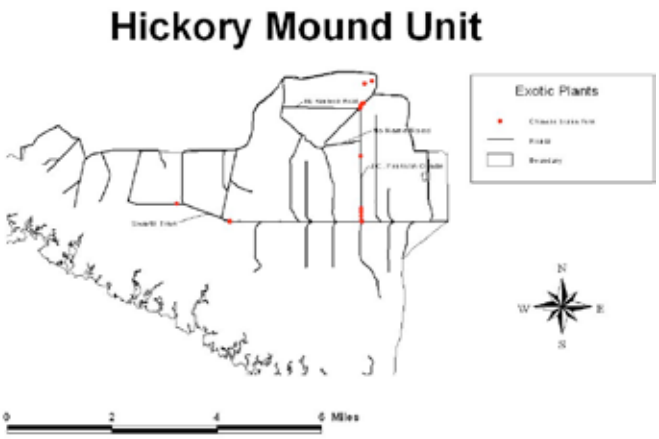
Project Manager: Fish & Wildlife Conservation Commission
Nuria Sancho
663 Plantation Road, Perry, Florida 32348
Office: 850-838-9016, Fax: 850-838-1305
E-mail: nuria.sancho@myfwc.com

The Big Bend Wildlife Management Area is comprised of several individual units: Jena, Tide Swamp, Spring Creek, Hickory Mound, and Snipe Island. The project area was in the Hickory Mound and Spring Creek Units. These units contain rare plant species such as Florida corkwood (*Leitneria floridiana*).

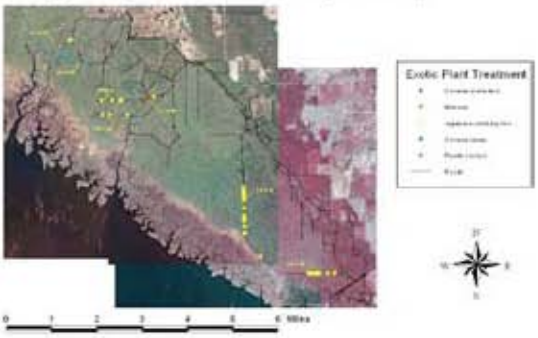
In the Hickory Mound Unit, there were three Chinese brake fern treatment sites in roadside areas adjacent to hydric hammock, with more than 700 plants in total. In the Spring Creek Unit, there were three roadside treatment areas for Chinese brake fern, also next to hydric hammock, with approximately 60 plants in total. Additionally, Chinese tallow was treated in two areas in or next to mesic pine flatwoods, mesohydric hammock, or mixed upland hardwood forest. The total number of tallow trees was approximately 30, with a larger number of saplings also present.

Species Treated	Common Name	Rank	Type	Herbicide
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Triadica sebifera	Chinese tallow	I	CS	TRIE
Pteris vittata	Chinese brake fern	II	FL	TRIA
Sesbania punicea	purple sesban	II	CS	TRIE

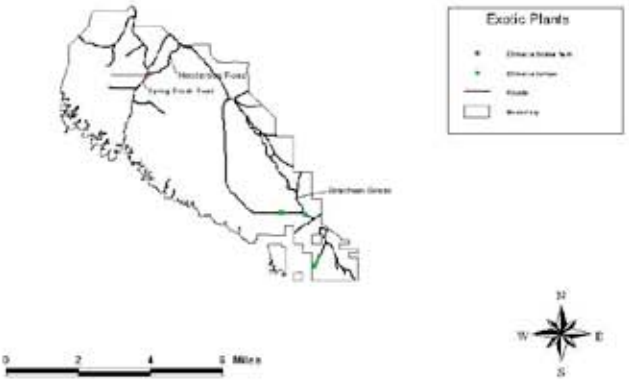




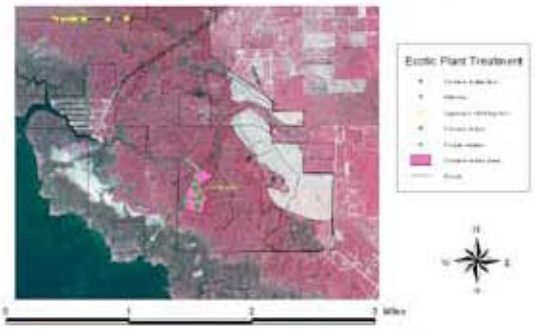
Spring Creek Unit (North)



Spring Creek Unit



Spring Creek Unit (South)



Pumpkin Hill Creek Preserve State Park

County: Duval
PCL Size: 4,000 acres
Project ID: NE-041 7 acres $4,150

Project Manager: Florida Park Service (DEP)
Tim Davis, Environmental Specialist
13802 Pumpkin Hill Road, Jacksonville, Florida 32226
Phone: 904-696-5980, Fax: 904-696-5982
E-mail: tim.davis@dep.state.fl.us

Pumpkin Hill Creek Preserve State Park is part of the Talbot Islands State Parks and contains several protected plant populations, wood stork rookeries, bald eagle nests, and cultural sites. The state and the St. Johns River Water Management District jointly own the Park. Numerous rare species and their associated habitats are located at the Park. These natural communities include dry uplands such as scrubby flatwoods and sandhill natural communities to wetter systems such as cypress domes, depression marshes, and hydric hammocks.

The 41-acre Caldwell parcel was added to the Park in 2006. The tract contains young timber stands, natural areas, and areas with past disturbance. The natural communities of the Caldwell parcel are largely mesic flatwoods and depression marsh. Several recently discovered populations of the state-threatened hooded pitcher plant (*Sarracenia minor*) are located just outside the project area.

The Florida Park Service provided $2,775 in matching control funds.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	CS	TRIE
Triadica sebifera	Chinese tallow	I	CS	TRIE
Broussonetia papyrifera	paper mulberry	II	BB	TRIE
Melia azedarach	Chinaberry	II	CS	TRIE
Momordica charantia	balsampear	n/a	FL	TRIE

Four Creeks State Forest

County: Nassau
PCL Size: 10,221 acres
Project ID: NE-042 67 acres $15,000

Project Manager: Division of Forestry (DACS)
Heather Venter, Biological Scientist II
1337 Long Horn Road, Middleburg, Florida 32068
Phone: 904-291-5534
E-mail: venterh@doacs.state.fl.us

Four Creeks was named after the four streams that transverse its boundaries, which include all or portions of Alligator (Mills), Thomas, Boggy, and Plummer Creeks. The four creeks join together to form the headwaters of the Nassau River, which borders the southeastern portion of the property. In addition to the streams, natural communities of the forest include wet flatwoods, mesic flatwoods, floodplain swamp, tidal marsh, strand swamp, dome swamp, and baygalls. Prior to state ownership, the majority (sixty percent) of the upland communities were intensely managed for timber production by various industrial forest companies.

Although Chinese tallow was in high abundance throughout the forest, this project focused on the populations in the southern forest area (south of Alligator Creek). All age classes of tallow were present and density ranged from heavily infested to scattered trees.

Species Treated	Common Name	Rank	Type	Herbicide
Triadica sebifera	Chinese tallow	I	BB/CS	TRIE

Atsena Otie Key

County: Levy
PCL Size: 60 acres
Project ID: NE-043 60 acres $14,682

Project Manager: Suwannee River Water Management District
Chris Benson
9225 CR 49, Live Oak, Florida 32060
Phone: 386-362-1001, Fax: 386-362-1056
E-mail: benson_c@srwmd.state.fl.us

Atsena Otie Key is an island located near the town of Cedar Key. The island is owned by the Suwannee River Water Management District and cooperatively managed with the U.S. Fish and Wildlife Service. The island is equally divided among two community types, maritime hammock and coastal strand. Most of the Brazilian pepper occurred in the coastal strand, nearest to shore; however, scattered seedlings were found throughout the island. There were few mature plants with far more numerous seedlings (plants 2-3 feet in height) that were generally pulled by hand.

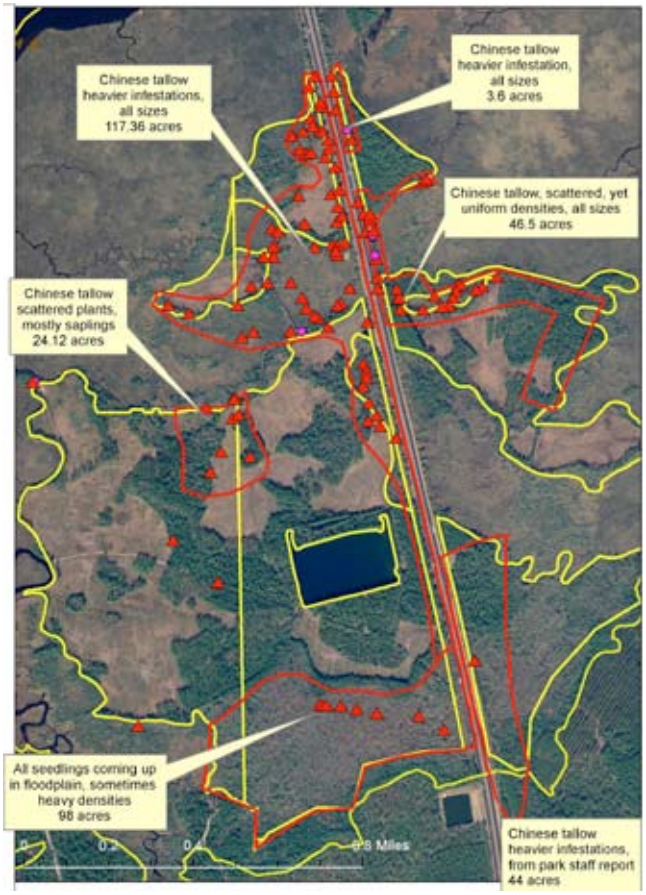
Species Treated	Common Name	Rank	Type	Herbicide
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE

Timucuan Ecological and Historic Preserve

County: Duval
PCL Size: 46,019 acres
Project ID: NE-044 240 acres $20,775

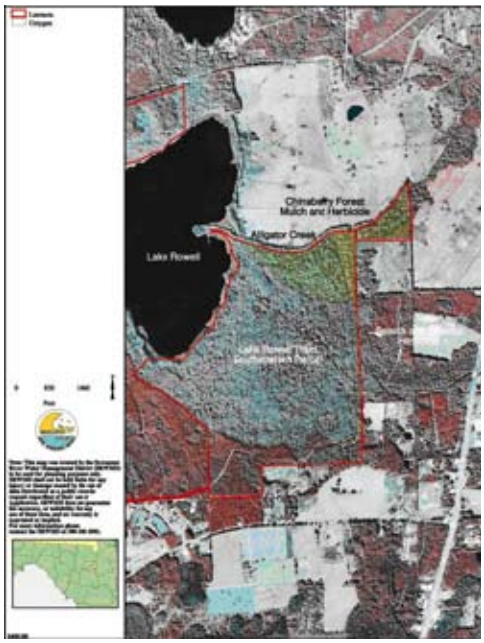
Project Manager: National Park Service
Richard Bryant, Chief of Resource Management
13165 Mt. Pleasant Road, Jax, Florida 32225
Phone: 904-221-7567 x15, Fax: 904-221-5248
E-mail: richard_bryant@nps.gov

This project controlled Chinese tallow and camphor tree in the Thomas Creek parcel. This parcel is the site of a Revolutionary War battle (Battle of Thomas Creek) and is the location of a longleaf pine restoration effort. The Thomas Creek tract within Timucuan Preserve is at the northern boundary of Duval County and is bisected by Interstate 95 and lies south of the Nassau River. The Thomas Creek tract is a mix of hardwood swamp and pine flatwoods. Much of the area was previously in silviculture for production of pine pulpwood. Tallow trees have aggressively sprouted in the area disturbed by pine tree harvest. Approximately one-half of the site had been previously treated by NPS for control of tallow. The National Park Service provided $19,968 of in-kind match in time and materials.



Species Treated	Common Name	Rank	Type	Herbicide
Triadica sebifera	Chinese tallow	I	BB/CS	TRIE

Lake Rowell Tract



County: Bradford
PCL Size: 593 acres
Project ID: NE-045 100 acres $53,574

Project Manager: Suwannee River Water Management District
Chris Benson
9225 CR 49, Live Oak, Florida 32060
Phone: 386-362-1001, Fax: 386-362-1056
E-mail: benson_c@srwmd.state.fl.us

The southeastern parcels of the Lake Rowell tract total nearly 550 acres. The project area is a floodplain forest community, common along lakeshores between the floodplain swamp and the adjacent upland communities. Alligator Creek runs along the north boundary of the project site into Lake Rowell. An approximately 100 acres of parcels had scattered Chinaberry, camphor tree, and climbing fern.

Prior to the 2004 hurricanes, the project area was a Chinaberry monoculture with a few scattered native maples and elms. The hurricanes in 2004 created tornadoes that swept through the project area and blew over the majority of the Chinaberry trees and blew down most of the air-potato and climbing fern. In 2005 and 2006, DEP funded contractors to control the most heavily infested areas on the eastern portion of Lake Rowell. Because of the cost for heavy equipment required to clean up the site, funds were not available for control operations over the rest of the tract. The downed trees were mulched in 2006 with funds from BIPM. Re-sprouting from the mulched trees and downed vines received maintenance control under this project.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	BB	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY+MET
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Triadica sebifera	Chinese tallow	I	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Sesbania punicea	purple sesban	II	BB	TRIE

Nature Coast Trail

County: Dixie, Levy, Gilchrest
PCL Size: 465 acres
Project ID: NE-047 429 acres $40,685

Project Manager: Office of Greenways and Trails (DEP)
Adele Mills
200 Buckman Lock Road, Palatka, Florida 32177
Phone: 386-312-2273, Fax: 386-312-2276
E-mail: adele.mills@dep.state.fl.us

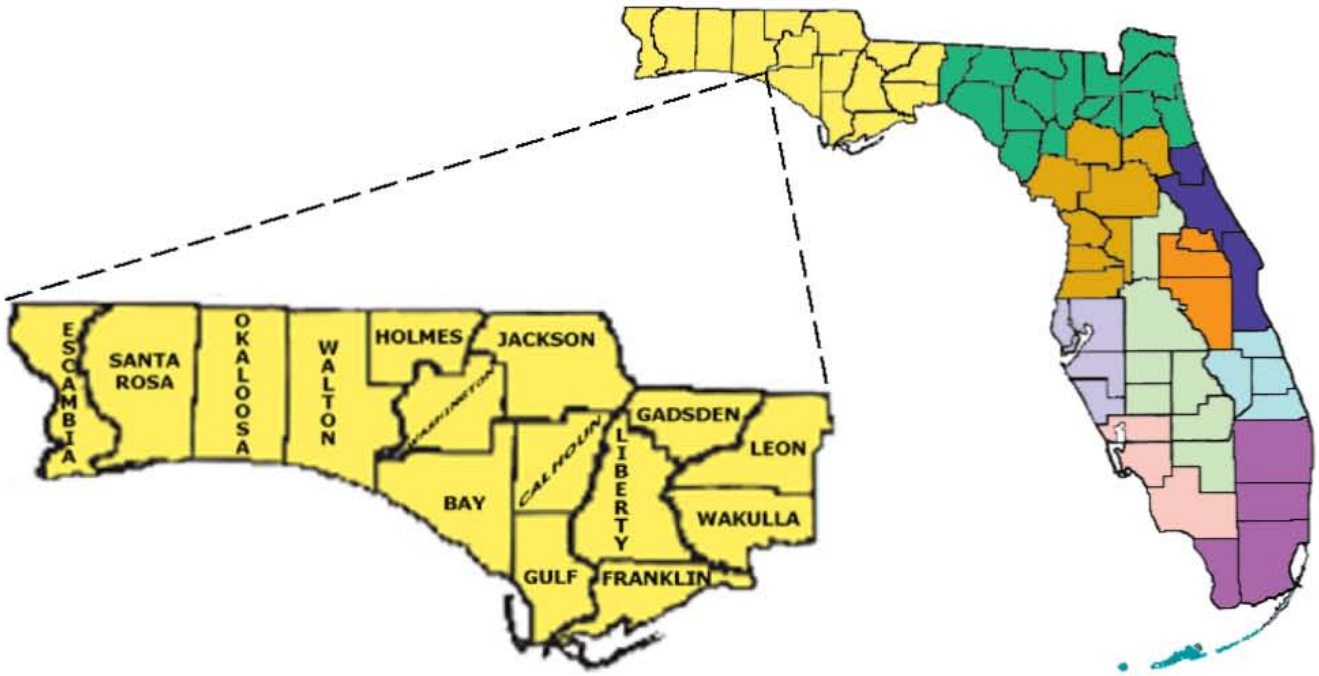
Recovered from old railroad rights-of-way, most of the trail parallels US 19 and State Road 26. The trail concept was developed in 1995 with an interlocal agreement between the trailhead municipalities, the three counties that the trail crosses, and local civic groups. The trail is 32 miles long and includes five trailheads. OGT provided an in-kind match of $45,000 in time and materials toward this project.

The project comprised four areas:

1. Cogon grass along 3 miles of one side of the trail near Trenton Trailhead.
2. Trenton Trailhead, approximately 1 mile long by 120 feet wide.
3. Approximately 5 acres of paper mulberry located behind the school in Old Town.
4. Spot treating the remainder of the trail.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Albizia julibrissin	mimosa	I	BB	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camara	lantana	I	BB/FL	TRIE/GLY+IMZ
Pueraria montana	kudzu	I	FL	GLY
Triadica sebifera	Chinese tallow	I	BB	TRIE
Broussonetia papyrifera	paper mulberry	II	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Xanthosoma sagittifolium	elephant ear	II	FL	GLY

Panhandle Working Group Projects



Eglin Air Force Base

County: Gulf, Okaloosa, Walton
PCL Size: 463,448 acres
Project ID: PH-055 182 acres $47,500

Project Manager: Eglin AFB Natural Resources
Dennis D. Teague, Endangered Species Biologist
Jackson Guard, 107 Hwy 85 N, Niceville, Florida 32578
Phone: 850-883-1155, Fax: 850-882-5321
E-mail: dennis.teague@eglin.af.mil

Eglin Air Force Base is the largest forested military reservation in the United States. In addition to a large expanse of sandhill, there are 34 other natural communities present, including the most significant array of steephead seepage streams under a single ownership in Florida. There is a suite of rare and sensitive plants in this area that benefit from removal of invasive exotic species, including 67 rare plants and 36 federally or state listed animal species. This project was conducted in three areas, one for initial control and two for maintenance control

Cape San Blas consists of approximately 750 acres of coastal and dune associated habitats. Natural communities include beach dune, coastal interdunal swale, coastal grassland, scrub, mesic flatwoods, and maritime hammock. Three populations of Gulf Coast lupine (*Lupinus westianus*) are documented on the property, which also has approximately three miles of shoreline on the Gulf of Mexico.

The majority of invasive species locations in Cape San Blas are associated with roads/trails but some are located in the interior of communities such as interdunal swale, coastal grassland, marine tidal marsh, mesic flatwoods, and coastal strand. Approximately two acres of torpedo grass spread across 41 points with the majority of these points having one hundred percent coverage. The other species grouped together equaled approximately one acre with a total coverage of seventy-five percent.

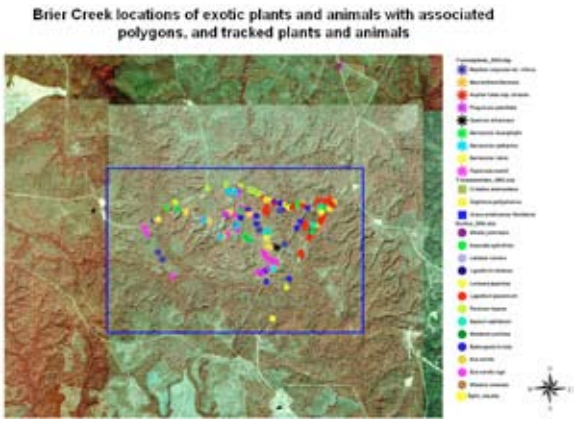
The retreatment sites on Eglin's main base are natural areas south of Eglin airfield and north of Choctawhatchee Bay. Natural and anthropogenic communities include flatwoods, upland pine forest, coastal maritime hammock, sand pine/oak scrub, old field, manmade ponds, beaver ponds, and pine plantations. The Eglin main base natural areas served a variety of uses over time but most have remained intact in a natural state or been allowed to return to a natural state. Approximately 75 acres in several different areas have retreatment requirements. The majority of these areas have an average of fifty percent coverage of Chinese tallow saplings and seedlings.

Brier Creek Natural Area has been ranked as an Outstanding Natural Area by the Florida Natural Areas Inventory. This area consists of a high quality mosaic of seepage slope, upland pine forest, mesic flatwoods, and baygall. Three active red-cockaded woodpecker clusters occur at Brier Creek. Most of the invasives were likely spread along open roads by vehicles, roadwork, and illegal dumping. The target species was Japanese climbing fern with 38 occurrences totaling approximately 3-5 acres across the area. USAF personnel treated cogon grass and torpedo grass in the area.

Eglin Air Force Base

The USAF provided matching funds of $17,335 plus an in-kind match of herbicide and equipment to treat 100 acres of cogon grass and torpedo grass, and woody invasive non-natives on maintenance sites in other areas of Eglin.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	BB	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camara	lantana	I	BB	TRIE
Ligustrum species	privets	I	BB	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Panicum repens	torpedo grass	I	FL	GLY+IMZ
Pueraria montana	kudzu	I	FL	TRIA
Triadica sebifera	Chinese tallow	I	BB	TRIE
Aleurites fordii	tung oil tree	II	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE



Florida Caverns State Park

County: Jackson
PCL Size: 1,279 acres
Project ID: PH-070 56 acres $21,771

Project Manager: Florida Park Service (DEP)
Brian Fugate, Park Manager
3345 Caverns Road, Marianna, Florida 32446
Phone: 850-482-1229, Fax: 850-482-9114
E-mail: brian.fugate@dep.state.fl.us

Most of Florida Caverns State Park lies in the Chipola River floodplain. The natural communities of the Park are predominantly floodplain forest and upland mixed forest. The park is home to numerous rare northern plant species that occur in very few other Florida Locations.

Thirty acres in the old federal hatchery area on the west side of the park comprise one project area. Much of the treatment site was converted into hatchery ponds in the 1930s. The hatchery was abandoned in the mid-1940s and native hardwoods, mixed with exotic shrubs and trees, re-colonized the ponds. Chinese privet was the most abundant exotic plant on the site, with numerous small seedlings adjacent to the staff residences. Overall coverage of exotics was sixty percent.

The second project area is twenty-five acres in the upland hardwood forest around the Visitors Center and along the Bluff Nature Trail on the south end of the park. Nandina and Chinese privet dominated this site. Other woody exotics were lightly scattered through the project area, resulting in a total coverage for all species of sixty-five percent.

The third project area is a nearly one-acre site near the golf pro shop on the south side of the park. This golf course is unique in being part of a state park. The Civilian Conservation Corps began work on the course in the late 1930s. Mules and manual labor shaped the course. The project was suspended in 1941 with the advent of World War II, thus leaving the last nine holes unfinished. Rare silver fox squirrels and white-tailed deer inhabit the native mixed hardwoods of the course. Privets and nandina covered about fifty percent of this area.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	BB/CS	TRIE
Ligustrum lucidum	glossy privet	I	BB/CS	TRIE
Ligustrum sinense	Chinese privet	I	BB/CS	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Melia azedarach	Chinaberry	I	BB/CS	TRIE
Nandina domestica	heavenly bamboo	I	BB/CS	TRIE
Triadica sebifera	Chinese tallow	I	BB/CS	TRIE
Elaeagnus pungens	silverthorn	II	BB/CS	TRIE

Apalachicola National Forest

County: Liberty, Gulf
PCL Size: 569,804 acres
Project ID: PH-071 264 acres $65,400

Project Manager: U.S. Forest Service (USDA)
Gary Hegg, Silviculture and NEPA
57 Taff Road, Crawfordville, Florida 32327
Phone: 850-926-3561 x6508, Fax: 850-926-1904
E-mail: ghegg@fs.fed.us

Lygodium japonicum (Japanese climbing fern) has gradually moved from the Apalachicola River floodplain east into the adjacent flatwoods and wet prairies of the Apalachee Savannahs. This natural area is a matrix of wet prairies—a rare natural community, and associated mesic and wet flatwoods. The wet prairie community supports a number of state and federally listed plant and animal species including *Picoides borealis*, *Ambystoma cingulatum*, *Pinguicula ionantha, Scutellaria floridana*, and *Harperocallis flava*. USFS listed sensitive species found on site include *Aster eryngiifolius, Baptisia simplicifolia, Gentiana pennelliana, Hedeoma graveolens, Oxypolis ternata, Pinguicula planifolia,* and *Verbesina chapmanii*.

Total estimated *L. japonicum* treatment is approximately 260 acres. Most invasive plant infestations are associated with disturbance occurring along Forest System Roads, unauthorized woods roads, and bridges/culverts. *L. japonicum* is spotty along the roads, but in a few locations the infestations have encroached well into adjacent natural areas and are becoming severe. *L. japonicum* infestations occurring along floodplain boundaries and slope forests form a relatively continuous coverage. The vertical distribution of *L. japonicum* ranges from plants a few feet tall to those overtopping the subcanopy.

One infestation of *T. sebifera* and three infestations of *A. julibrissin* total approximately four acres. These are concentrated near Sumatra on Forest Service land. Current infestations of both species are small, isolated, and occur mostly in disturbed areas.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Triadica sebifera	Chinese tallow	I	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE

Maclay Gardens State Park

County: Leon
PCL Size: 1,779 acres
Project ID: PH-072 200 acres $87,900

Project Manager: Florida Park Service
Beth Weidner, Park Manager
3540 Thomasville Road, Tallahassee, FL 32308
Phone: 850-487-4556, Fax: 850-487-8808
E-mail: elizabeth.weidner@dep.state.fl.us

Alfred B. Maclay Gardens is located on US Highway 319 in Tallahassee. The park includes 28 acres of formal gardens. The majority of the park consists of secondary growth upland mixed forest, interspersed with steep ravines and slope forests that exhibit high plant diversity and harbor a number of rare species. Slope forest canopy species such as magnolia, beech, and white oak are still present, even in the most severely infested portions of the project area. Several listed species have been planted in the park including Chapman's rhododendron (*Rhododendron chapmanii*), Florida flame azalea (*Rhododendron austrinum*), and Ashe's magnolia (*Magnolia ashei*). Naturally occurring listed species include trout lily (*Erythronium umbilicatum*), heartleaf (*Hexastylis arifolia*), Florida yew (*Taxus floridana*), and Florida torreya (*Torreya taxifolia*).

Many invasive exotics such as ardisia, nandina, wisteria, camphor, honeysuckle, privet, and climbing fern grow in scattered, often dense clumps throughout the park. No full treatment of the zones immediately surrounding the gardens had been conducted and exotics, especially ardisia, nandina and lygodium, expanded into areas that previously were empty of these species. The Florida Park Service contributed $3,500 in matching funds and an additional in-kind match of $500.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Ardisia crenata	coral ardisia	I	BB	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Ligustrum lucidum	glossy privet	I	BB	TRIE
Macfadyena unguis-cati	cat's claw vine	I	CS	GLY
Nandina domestica	heavenly bamboo	I	BB	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Aleurites fordii	tung oil tree	II	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Elaeagnus pungens	silverthorn	II	BB	TRIE
Wisteria sinensis	Chinese wisteria	II	BB	TRIE
Bambusa species	non-native bamboo	n/a	CS	IMZ
Podocarpus species	podocarpus	n/a	BB	TRIE

Maclay Gardens State Park

The formal gardens make up less than one-tenth of the park.

Botanical State Parks such as Maclay Gardens provide an extra challenge for invasive plant control.
Photos provided by Beth Weidner

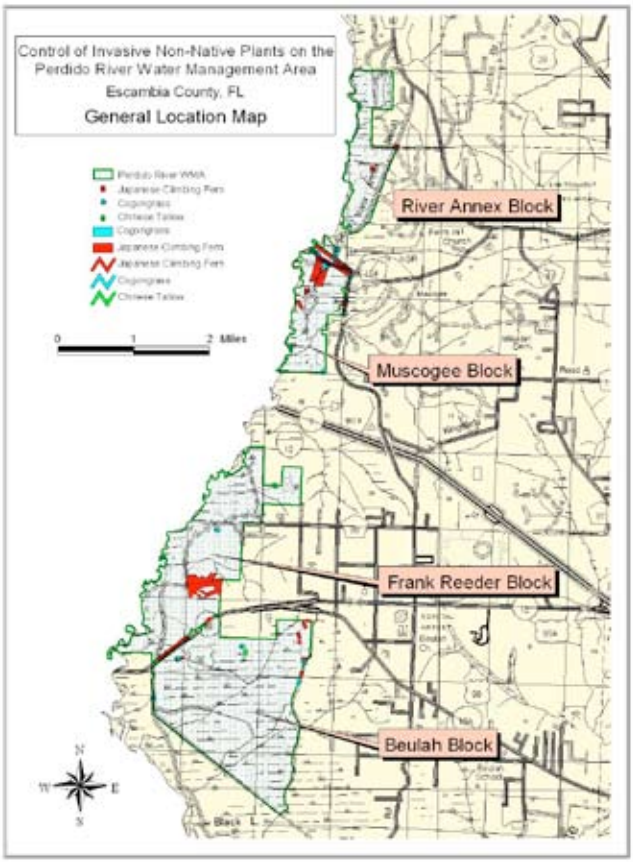
Perdido River Water Management Area

County: Escambia
PCL Size: 4,702 acres
Project ID: PH-073 130 acres $16,230

Project Manager: Northwest Florida Water Management District
Steve Brown, Associate Lands Manager
2261 West Nine Mile Road, Pensacola 32534
Phone: 850-484-5125, Fax: 850-484-5133
E-mail: steve.brown@nwfwmd.state.fl.us

The Perdido River Water Management Area comprises four separate blocks of land along the river. The Perdido River is the border between the states of Florida and Alabama. Chinese tallow occurred in the lowlands and high soil moisture sites such as riversides and creek bottoms. Japanese climbing fern was found in areas ranging from lowlands to uplands and generally declined in density toward these two extremes. Cogon grass mostly grew in dense patches in the uplands.

However, all invasives were located primarily in and around areas of disturbance, such as roads, stand edges, and silviculture operations. Adjacent landowners, such as the Nature Conservancy and International Paper, are actively aiding in removing these species.



Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	CS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Triadica sebifera	Chinese tallow	I	CS	TRIE
Melia azedarach	Chinaberry	II	CS	TRIE

Perdido River WMA

Control of Non-Native Plants on the Perdido River Water Management Area
Beulah Block

0 0.25 0.5 0.75 1 1.25 1.5 Miles

Control of Non-Native Plants on the Perdido River Water Management Area
Frank Reeder Block

0 0.25 0.5 0.75 1 1.25 1.5 Miles

Control of Non-Native Plants on the Perdido River Water Management Area
Muscogee Block

0 0.25 0.5 0.75 1 Mile

Control of Non-Native Plants on the Perdido River Water Management Area
River Annex Block

0 0.5 1 1.5 Miles

City of Tallahassee Parks

County: Leon
A. J. Henry Park: 70 acres
San Luis Mission Park: 43 acres
Tom Brown Park: 250 acres
Project ID: PH-074 363 acres $189,574

Project Manager: City of Tallahassee Parks and Recreation
Chuck Goodheart, Park Management Specialist
912 Myers Park Drive, Tallahassee, Florida 32303
Phone: 850-933-6631, Fax: 850-891-0959
E-mail: goodheac@talgov.com

A.J. Henry Park is mostly upland mixed pine/hardwood forest with an understory of dogwood, viburnum, crataegus, oaks, hickories, and sweetgum. A ravine system supports beech, magnolia, trillium, maple, asimina, and associated species. A small pond forms much of the northern boundary. San Luis Mission Park contains upland mixed pine forest surrounding a 4-acre pond and surrounding wetlands. The Park was previously part of a farm and farm residence, which may be the source of the ornamental invasives, and tung trees may be from an old plantation. Tom Brown Park is bounded on the north by Upper Lake Lafayette, and on the east by Conner Creek, which is also the western boundary of Lafayette Heritage Trail Park. Lafayette Heritage Trail Park was the location of invasive species treatment in 2007. Conner Creek carries propagules from invasive species into downstream systems.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Albizia julibrissin	mimosa	I	BB	TRIE
Ardisia crenata	coral ardisia	I	BB/FL	TRIE/TRIA
Cinnamomum camphora	camphor tree	I	BB	TRIE
Colocasia esculenta	wild taro	I	BB/FL	TRIE/TRIA
Lantana camara	lantana	I	BB	TRIE
Ligustrum spp.	privet	I	BB/FL	TRIE/TRIA
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Nandina domestica	heavenly bamboo	I	BB	TRIE
Pueraria montana	kudzu	I	FL	Transline®
Triadica sebifera	Chinese tallow	I	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Aleurites fordii	tung oil tree	II	BB	TRIE
Elaeagnus pungens	silverthorn	II	BB	TRIE
Wisteria sinensis	Chinese wisteria	II	BB	TRIE

Eden Gardens State Park

County: Walton
PCL Size: 124 acres
Project ID: PH-075 1 acre $2,900

Project Manager: Florida Park Service (DEP)
Daniel Blanner, Park Manager
23937 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-233-5058, Fax: 850-236-3204
E-mail: daniel.blanner@dep.state.fl.us

Eden Gardens State Park is located along the southeastern edge of Choctawhatchee Bay, just north of the town of Seagrove. The park consists of an 11-acre gardens and house, surrounded by over 100 acres of natural area. The majority of the park consists of xeric hammock, scrubby flatwoods, maritime hammock, and floodplain swamp.

Clumping bamboo is a highly invasive and widely spreading exotic species at the park. Total area infested was estimated to be one acre, with stem counts as high as several thousand in one clump. Dense stands were found within the park's northeast wetland area, south of Tucker Bayou. Many native plants occur in the wetland, such as *Lyonia lucida*, *Callicarpa americana*, and *Myrica cerifera*. This project was originally begun as an Americorp effort several years ago.

Species Treated	Common Name	Rank	Type	Herbicide
Bambusa species	clumping bamboo	n/a	CS	GLY

Lake Jackson Aquatic Preserve

County: Leon
PCL Size: 4,700 acres
Project ID: PH-080 621 acres $44,705

Project Manager: Bureau of Invasive Plant Management (DEP)
Jess Van Dyke, Regional Biologist
3900 Commonwealth Boulevard, Tallahassee, Florida 32399
Phone: 850-245-2831, Fax: 850-245-2835
E-mail: jess.vandyke@dep.state.fl.us

The Lake Jackson, Carr Lake, and Mallard Pond ecosystem is a valuable biological, aesthetic, and recreational resource. The Florida Legislature designated this ecosystem as the Lake Jackson Aquatic Preserve for the primary purpose of preserving the biological resources in their natural condition. The expansive freshwater marshes and native submerged vegetation provide exceptional fish, waterfowl, and wading bird habitat. In addition to being an Aquatic Preserve, Lake Jackson is designated as a Surface Water Improvement and Management waterbody, and an Outstanding Florida Water.

The preserve includes only the sovereignty submerged lands located below the ordinary high water line. Irregularly shaped, the lake body ranges from one half mile to three miles in width, and is approximately eight miles long. Because of the steep hills in the region, numerous sub-basins are formed within the complete drainage area of the lake. The three major basins are the southern watersheds draining into Megginnis Arm and Fords Arm, and an area draining into the northeastern segment of the lake via Ox Bottom Creek. These and other sub-basins comprise a Lake Jackson drainage area of approximately 43.2 square miles.

Numerous wetland tree and woody plant species such as sweetgum (*Liquidambar styraciflua*), wax myrtle (*Myrica cerifera*), and elderberry (*Sambucus canadensis*) inhabit the drier portions of the transitional marsh; this also being the area infested with Chinese tallow. This project completed unfinished work from the previous fiscal year.

Species Treated	Common Name	Rank	Type	Herbicide
Triadica sebifera	Chinese tallow	I	BB	TRIE

Indianhead Park

County: Leon
PCL Size: 28 acres
Project ID: PH-081 28 acres $42,876

Project Manager: City of Tallahassee Parks and Recreation
Chuck Goodheart, Park Management Specialist
912 Myers Park Drive, Tallahassee, Florida 32303
Phone: 850-933-6631, Fax: 850-891-0959
E-mail: goodheac@talgov.com

Indianhead Park is a 28-acre green space dedicated to the City of Tallahassee in the early 1950s, when the Indianhead neighborhood was developed. Most of the vegetation within the park is old field successional; however, a fairly high quality floodplain/bottomland forest has become established in two areas. A spring fed stream that runs through the green space has been used as a stormwater conveyance for many years. A wide variety of exotic species infested the park, which had been an area of community concern for many years.

Tallahassee has used chemical control to treat kudzu since the early 1980s. In recent years, the area has been grazed by sheep in an effort to obtain kudzu control. This project continued the effort to control kudzu by using chemical treatment following grazing. The entire site is 28 acres divided into 4 treatment zones. Zone 4 is bounded by the Indianhead neighborhood, which is very supportive of this project and is working with adjoining landowners to accomplish exotic species control on private properties. This project completed unfinished work from the previous fiscal year.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Ardisia crenata	coral ardisia	I	CS/FL	TRIE/TRIA
Cinnamomum camphora	camphor tree	I	CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY+MET
Lantana camara	lantana	I	CS	TRIE
Ligustrum species	privet	I	CS/FL	TRIE/TRIA
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Nandina domestica	heavenly bamboo	I	CS	TRIE
Paederia foetida	skunk vine	I	FL	2,4-D
Pueraria montana	kudzu	I	FL	GLY
Tradescantia fluminensis	tradescantia	I	FL	GLY
Triadica sebifera	Chinese tallow	I	CS	TRIE
Wisteria sinensis	Chinese wisteria	II	CS	TRIE

Blackwater River State Forest
County: Okaloosa, Santa Rosa
PCL Size: 194,668 acres
Project ID: PH-082 183 acres $100,000
Project Manager: Florida Division of Forestry (DACS)

Chris Cook, Senior Forester
11650 Munson Highway, Milton, Florida 32570
Phone: 850-957-6140, Fax: 850-957-6143
E-mail: cookc@doacs.state.fl.us

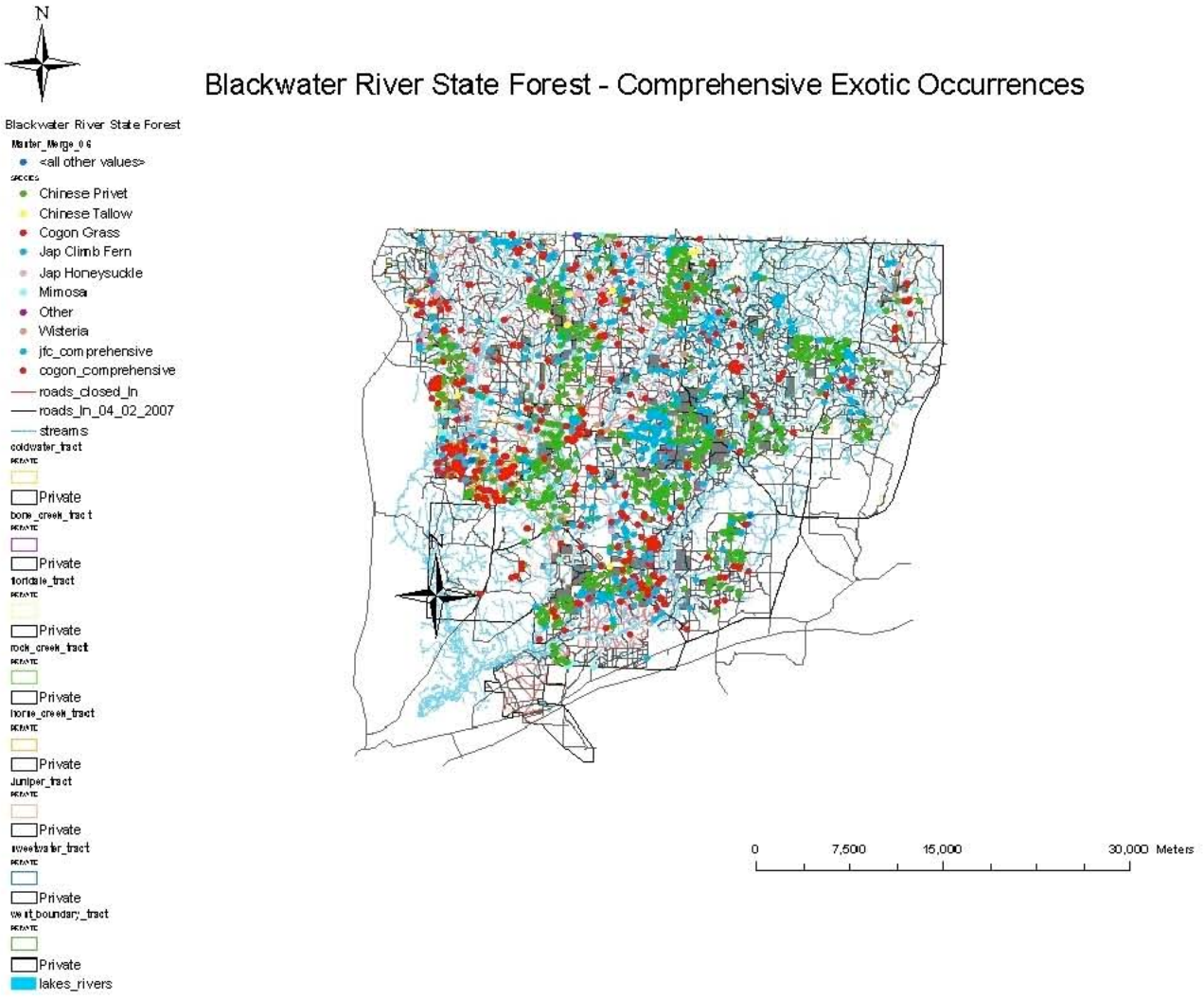
Named for the Blackwater River, which runs through the forest for approximately 30 miles, the Blackwater River State Forest is the second-largest state forest in Florida. The Blackwater River is one of the last remaining shifting sand bottom streams still in its natural state for almost its entire length. The DOF acquired the Forest in 1955 from the US Forest Service. The Forest encompasses twelve natural communities, with five that are considered imperiled in the state: sandhills, slope forests, seepage slopes, blackwater streams, and spring-run streams. The primary listed species under management is the red-cockaded woodpecker (RCW). The Forest maintains a significant population of RCW and management of the forest is directed around maintenance and enhancement of this population.

In 2005, the DOF received a hurricane recovery grant from the Forest Service to assess and begin treatment of invasive plant populations worsened on the Forest as a result of hurricane impacts. This grant represented $375,000 in funding for six-person invasive plant survey and treatment crew from 2005 through 2007. An additional $100,000 in grant funds was obtained from the Forest Service Cooperative Forest Health Protection grant program for this project. The DOF also provided an in-kind match of time and materials in the amount of $27,465.

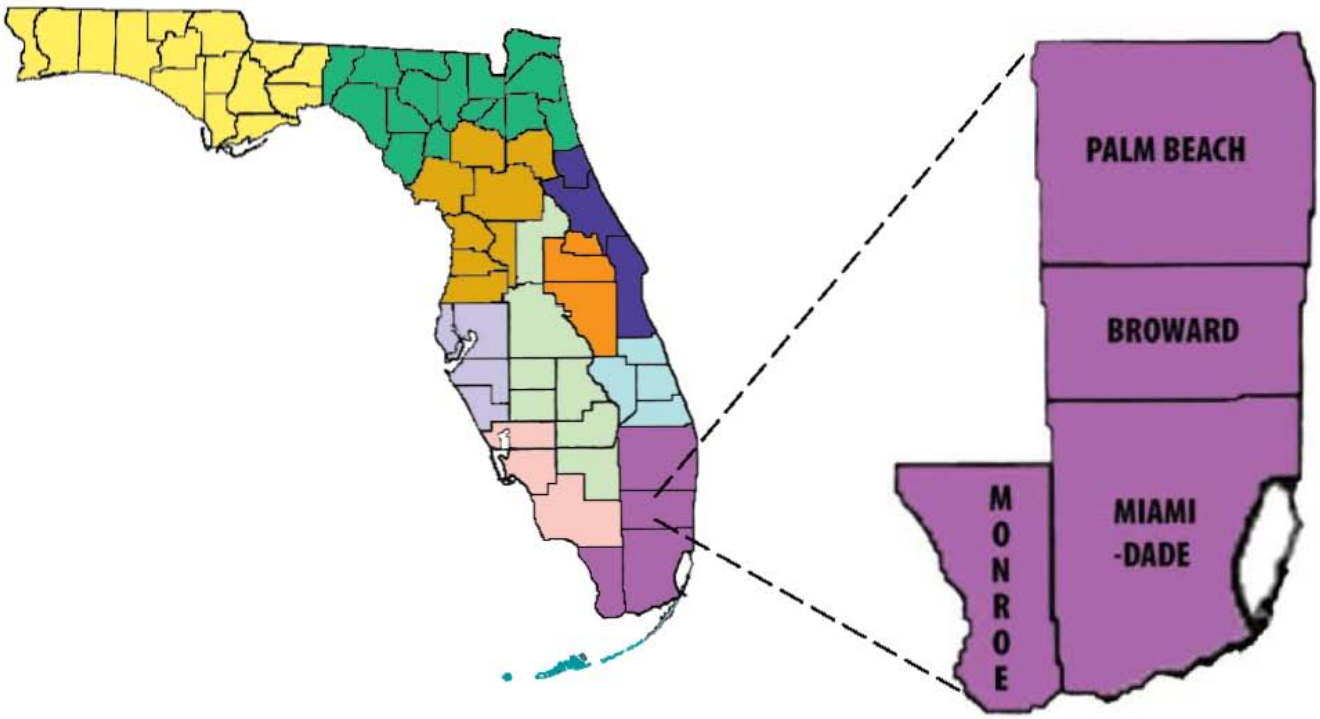
Populations of the target species were scattered across the forest. The highest priority was treatment of all populations of cogon grass and Japanese climbing fern. The second priority was treatment of the woody invasive plants.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Ligustrum species	privet	I	BB	TRIE
Lonicera japonica	Japanese honeysuckle	I	FL	GLY+MET
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Triadica sebifera	Chinese tallow	I	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Wisteria sinensis	Chinese wisteria	II	BB	TRIE

Blackwater River State Forest



Southeast Working Group Projects



Deering Estate at Cutler

County: Miami-Dade
PCL Size: 344 acres
Project ID: SE-116 342 acres $200,000

Project Manager: Miami-Dade Park and Recreation
Beth Wojas, Manager, Resource Development Section
275 NW 2nd Street, Miami, Florida 33128
Phone: 305-755-7947, Fax: 305-755-5466
E-mail: wojas@miamidade.gov

The Deering Estate at Cutler is located at the edge of Biscayne Bay. The six natural communities at Deering Estate include pine rockland, rockland hammock, bottomland forest/slough, marine tidal swamp and marsh, barrier island/beach dune, and seagrass beds. Historically, a freshwater glade, "Cutler Slough," flowed through the property and into Biscayne Bay. The steep edges of eroded rock in Cutler Creek support several rare ferns and fern-relatives. Listed species known to occur in the upland areas at Deering Estate include 15 birds, 4 butterflies, 3 snails, 1 snake, and 61 plants.

Deering Estate has previously received BIPM funds totaling $323,500. This project provided for maintenance control of the entire Deering Estate site. Miami-Dade Natural Areas Management personnel conducted all control treatments for this project. The county provided $224,775 in matching funds and $17,989 as in-kind services.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	CS	TRIE
Albizia lebbeck	woman's tongue	I	CS	TRIE
Ardisia elliptica	shoebutton ardisia	I	CS	TRIE
Bauhinia variegata	orchid tree	I	CS	TRIE
Bischofia javanica	bishopwood	I	CS	TRIE
Casuarina spp.	Australian pines	I	CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	TRIE
Eugenia uniflora	Surinam cherry	I	CS	TRIE
Jasminum dichotomum	Gold Coast jasmine	I	CS	TRIE
Jasminum fluminense	Brazilian jasmine	I	CS	TRIE
Lantana camara	lantana	I	CS	TRIE
Neyraudia reynaudiana	Burma reed	I	CS	TRIE
Schefflera actinophylla	umbrella tree	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Adenanthera pavonina	red sandalwood	II	CS	TRIE
Epipremnum pinnatum cv. Aureum	pothos	II	CS	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE
Phoenix reclinata	Senegal date palm	II	CS	TRIE
Ptychosperma elegans	solitaire palm	II	CS	TRIE
Sansevieria hyacinthoides	bowstring hemp	II	CS	TRIE
Syngonium podophyllum	arrowhead vine	II	CS	TRIE

Deering Estate at Cutler

Species Treated	Common Name	Rank	Type	Herbicide
Terminalia catappa	tropical almond	II	CS	TRIE
Tradescantia spathacea	oyster plant	II	CS	TRIE
Pittosporum pentandrum	cheesewood	n/a	CS	TRIE

J.W. Corbett Wildlife Management Area

County: Palm Beach
PCL Size: 60,228 acres

Projedt ID: SE-117	12,933 acres	$169,023
Project ID: SE-118	14,187 acres	$134,036

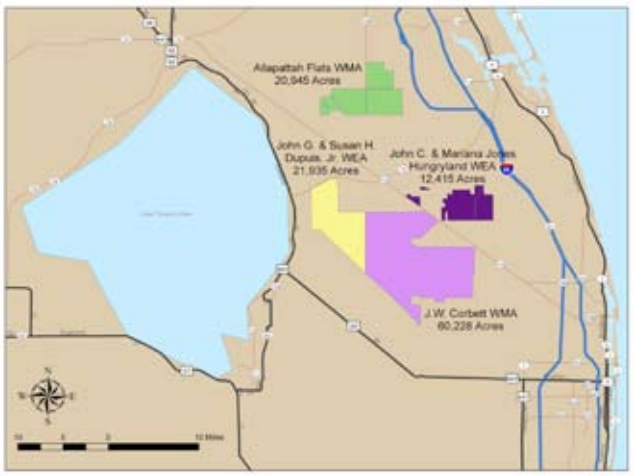
Project Manager: Fish and Wildlife Conservation Commission
Linda King, Biological Scientist III
8535 Northlake Boulevard, West Palm Beach, Florida 33412
Phone: 561-624-6989, Fax: 561-624-6988
E-mail: linda.king@myfwc.com

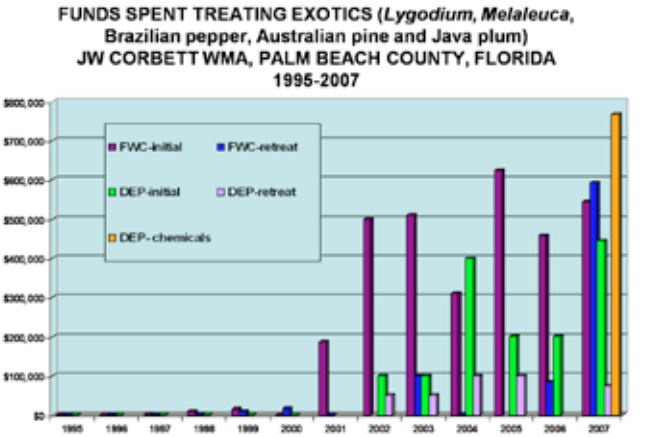
The J.W. Corbett Wildlife Management Area is located in northwestern Palm Beach County and borders the John and Susan H. Dupuis Wildlife and Environmental Area and the John C. and Mariana Jones Hungryland Wildlife and Environmental Area (*see map below left*). Natural communities are primarily mesic and wet flatwoods interspersed with depression marshes and wet prairies. Lygodium has been treated both aerially and from the ground over the past seven years. Significant funds have been spent on lygodium control (*see table below right*) by both FWC and the DEP Uplands Program (prior to its transfer to FWC in 2008).

A maintenance control project (SE-117) targeted an area of 12,933 acres in the northwest portion of the WMA that was treated for Old World climbing fern in 2006 and 2007. Coverage by the exotic fern was sparse with small isolated concentrations. FWCC provided $243,732 in matching funds for additional lygodium maintenance control.

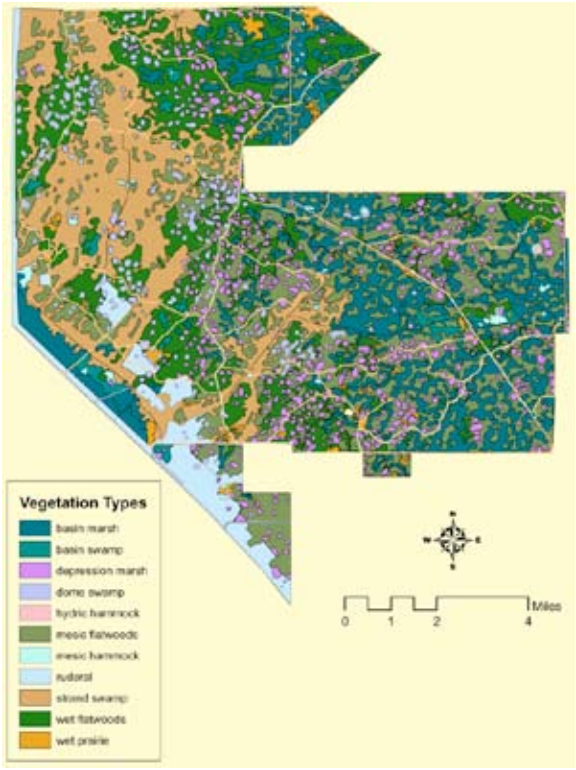
An initial control project (SE-118) encompassed a 1,254-acre tract in the northern portion of the WMA and 12,933 acres in the central portion. Lygodium coverage ranged from sparse up to seventy percent. The project area contains at least one active bald eagle nest and six active RCW clusters. FWCC provided $392,256 in matching funds for additional initial control of lygodium.

Species Treated	Common Name	Rank	Type	Herbicide
Lygodium microphyllum	Old World climbing fern	I	FL	GLY





J.W. Corbett WMA

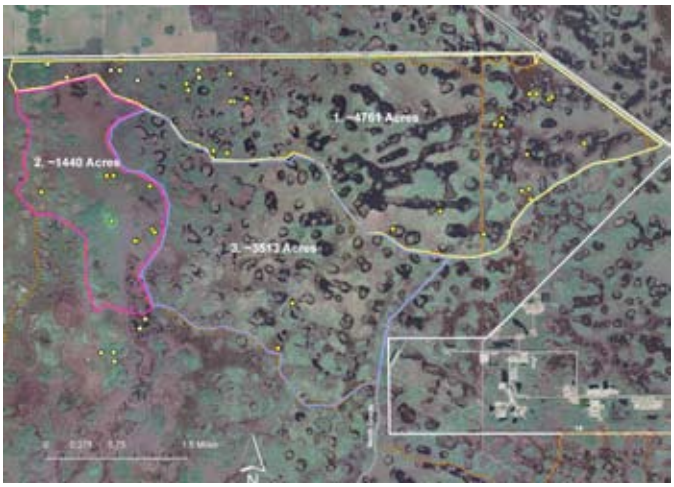


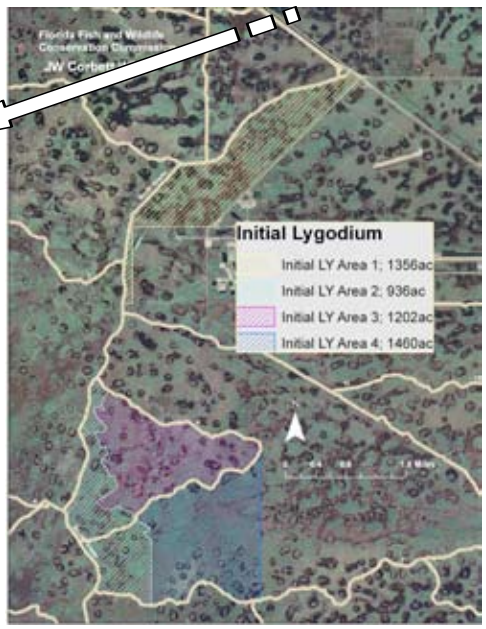
a blanketing mat of lygodium, the only defense for which is

The diverse natural resources of Corbett WMA are all in threat of being enveloped by

a significant offense through the initial control of infestations and

a significant defense through continuing maintenance treatments until the threat is diminished.





J.W. Corbett WMA

Loxahatchee Slough Natural Area

County: Palm Beach
PCL Size: 11,000 acres
Project ID: SE-119 1,659 acres $200,000
Project ID: SE-120 1,208 acres $200,000

Project Manager: Palm Beach County
Mark Romagosa
3323 Belvedere Road, Bld 502, West Palm Beach, Florida 33406
Phone: 561-233-2481, Fax: 561-233-2414
E-mail: mromagos@co.palm-beach.fl.us

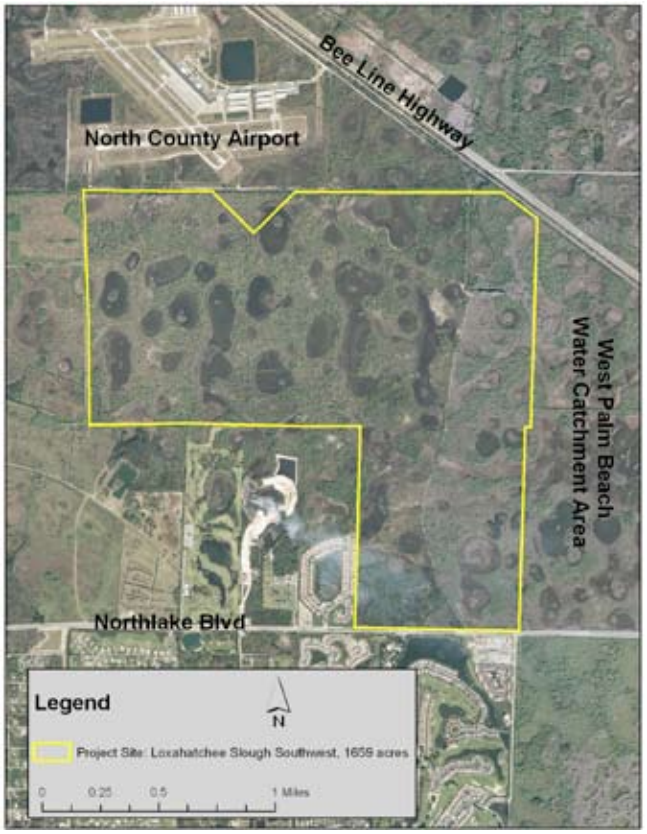
Loxahatchee Slough Natural Area is an integral property for the greenways between Jonathan Dickinson State Park, J.W. Corbett Wildlife Management Area, and the City of West Palm Beach Water Catchment Area. Water flows under the Beeline Highway, through the Loxahatchee Slough, and eventually drains into Florida's only federally listed Wild and Scenic River—the Loxahatchee River. Records of rare species on site include at least three reptile, nine bird, and twenty-eight plant species.

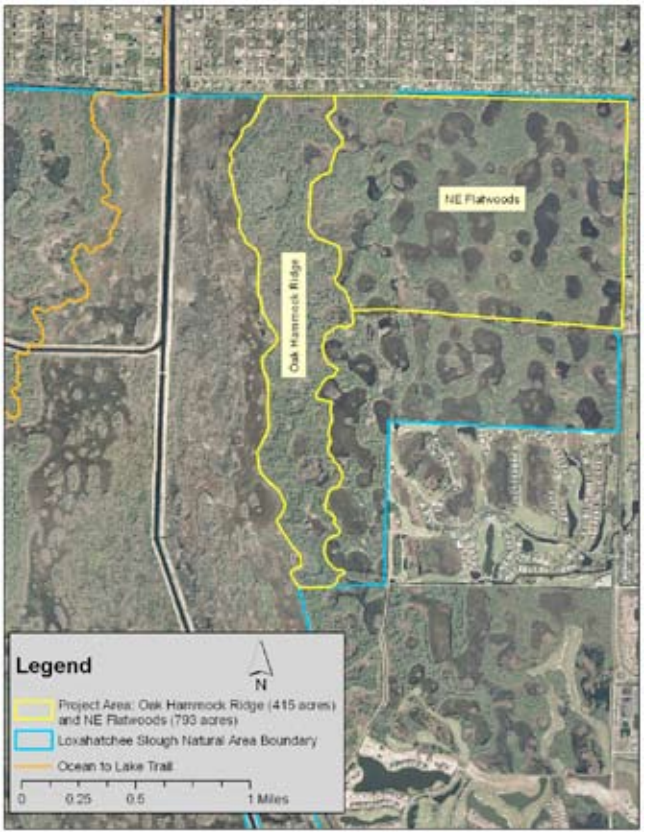
The first project area is a disjunct parcel of the Natural Area. This tract is a cornerstone to the Beeline Wildlife Corridor that links the Water Catchment Area to Corbett WMA. The project area is a mosaic of uplands and wetlands including communities such as mesic and hydric pine flatwoods, wet prairies, and cypress domes. BIPM funded initial control in this project area in 2002, with the county conducting annual maintenance sweeps since then. Melaleuca, Brazilian pepper, Old World climbing fern, and other species were the targets of the original project and this maintenance work. The county contributed matching funds of $42,500 toward this project.

The second project area included the Oak Hammock Ridge and Northeast Flatwoods units. Oak Hammock Ridge lies between marshes, cypress domes, and sloughs to the west and a mosaic of wet flatwoods and wet prairies to the east. The Northeast Flatwoods is predominantly comprised of mesic and hydric pine flatwoods and freshwater marshes interspersed with small areas of wet prairies, cypress domes, and bay swamps. Old World climbing fern and melaleca occurred in numerous light infestations throughout the project area. BIPM funded both sites for initial control in FY04 and the county provided annual follow-up treatments. The county contributed matching funds of $56,800.

Species Treated	Common Name	Rank	Type	Herbicide
Acacia auriculiformis	earleaf acacia	I	CS	TRIE
Ardisia elliptica	shoebutton ardisia	I	CS	TRIE
Bischofia javanica	bishopwood	I	CS	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Lygodium microphyllum	Old World climbing fern	I	FL	GLY
Melaleuca quinquenervia	melaleuca	I	CS	IMZ
Psidium guajava	guava	I	CS	TRIE
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Syzygium cumini	Java plum	I	CS	TRIE

Loxahatchee Slough Natural Area





Pine Glades Natural Area *see next page*

Pine Glades Natural Area

County: Palm Beach
PCL Size: 6,500 acres
Project ID: SE-121 1,882 acres $200,000

Project Manager: Palm Beach County
Kraig Krum
3323 Belvedere Road, Bld 502, West Palm Beach, Florida 33406
Phone: 561-233-2527, Fax: 561-233-2414
E-mail: kkrum@co.palm-beach.fl.us

Pine Glades Natural Area, like Loxahatchee Slough, is another integral greenways property. It encompasses predominantly mesic and hydric pine flatwoods dominated by slash pine, and freshwater marshes of mostly rushes, with occasional patches of pickerelweed in the deeper areas. Interspersed within these two communities are large areas of wet prairie, small, scattered tree islands less than two acres in size, and disturbed areas where melaleuca has invaded. Water flow from Pine Glades also drains into the Loxahatchee River.

The Lara Tract is east of Seminole-Pratt Whitney Road, which bisects Pine Glades. Old World climbing fern was scattered randomly throughout the flatwoods and tree islands on this site. Melaleuca grew predominately in disturbed areas of hydric flatwoods and wet prairies. Brazilian pepper and Australian pine occurred primarily along the perimeter of the site near any disturbed areas. Treatment of invasive plants began in December 2003 and continues today. BIPM funded two projects that were completed in 2006, followed by a maintenance control project in 2007. The county provided $57,200 in matching funds for this current project.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	BB/CS	TRIE
Lygodium microphyllum	Old World climbing fern	I	PC	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	IMZ
Panicum repens	torpedo grass	I	FL	GLY
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE

Cypress Creek Natural Area

County: Palm Beach
PCL Size: 1,838 acres
Project ID: SE-122 200 acres $200,000

Project Manager: Palm Beach County
Harper Carroll
2300 N. Jog Road, West Palm Beach, Florida 33411
Phone: 561-233-2561, Fax: 561-233-2414
E-mail: hcarroll@co.palm-beach.fl.us

Cypress Creek is a mosaic of primarily wetland and mesic plant communities including wet prairie, marsh, swamp, flatwoods, and hydric hammock. Climbing fern was scattered throughout the site, while Brazilian pepper, downy rose-myrtle, and strawberry guava grew in areas that were farmed in the 1920s to 1950s. Australian pine grew along several old roads and in other disturbed areas. Melaleuca dominated the southwest corner of the property, due to past ditching. The county provided $32,500 in matching funds for this project.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	CS	TRIE+IMZ
Ardisia elliptica	shoebutton ardisia	I	CS	TRIE+IMZ
Casuarina species	Australian pine	I	CS	TRIE+IMZ
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Melaleuca quinquenervia	melaleuca	I	CS	IMZ
Psidium cattleianum	strawberry guava	I	CS	TRIE+IMZ
Psidium guajava	guava	I	CS	TRIE+IMZ
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	TRIE+IMZ
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE+IMZ
Senna pendula	climbing cassia	I	CS	TRIE+IMZ
Syzygium cumini	Java plum	I	CS	TRIE+IMZ
Ricinus communis	castor bean	II	CS	TRIE+IMZ
Sphagneticola trilobata	wedelia	II	FL	GLY
Urena lobata	Caesar's weed	II	CS/FL	TRIE+IMZ/GLY

Arthur R. Marshall Loxahatchee National Wildlife Refuge

County: Palm Beach
PCL Size: 145,787 acres
Project ID: SE-134 3,450 acres $199,585

Project Manager: U. S. Fish & Wildlife Service
Gayle Martin
10216 Lee Road, Boynton Beach, Florida 33437
Phone: 561-738-6126, Fax: 561-369-7190
E-mail: gayle_martin@fws.gov

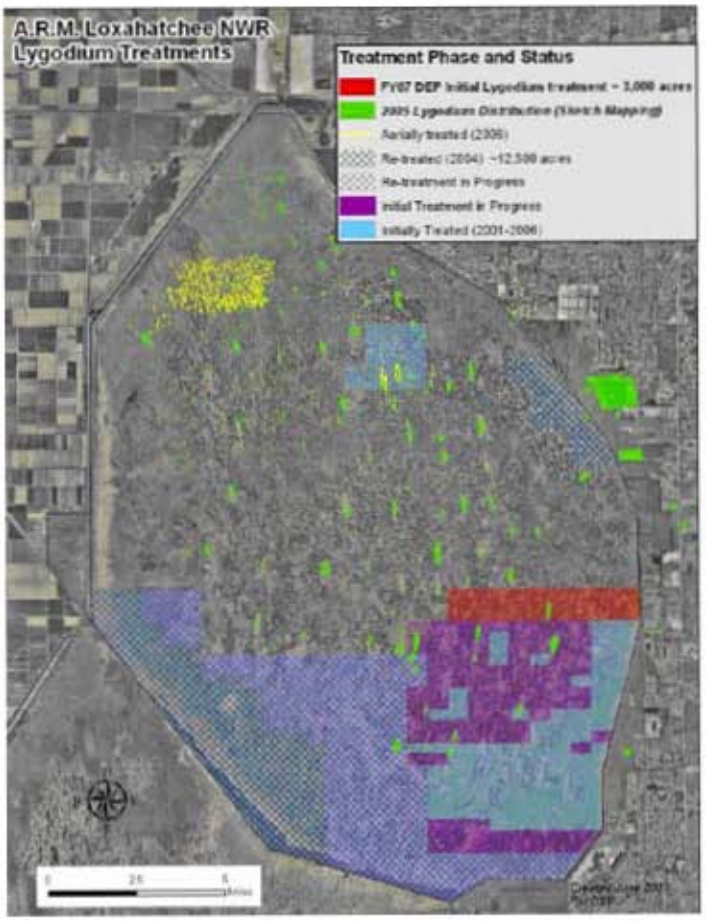
A 50-year license agreement between the Central and Southern Florida Flood Control District (precursor to the South Florida Water Management District) and the U.S. Fish and Wildlife Service in 1951, coupled with the Fish and Wildlife Coordination Act of 1958 and the Migratory Bird Conservation Act of 1929, authorized the establishment of the Arthur R. Marshall Loxahatchee National Wildlife Refuge.

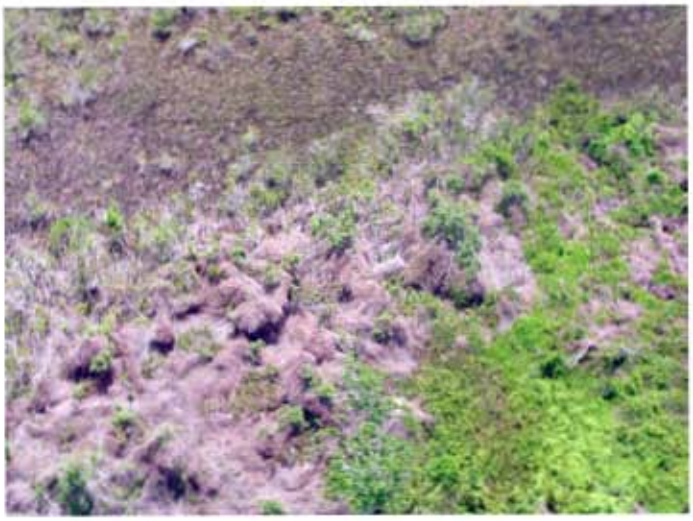
The Refuge is the only remnant of the northern Everglades in Palm Beach County. The 143,238 acres known as the "refuge interior" encompasses Water Conservation Area 1 (WCA 1), which is owned by the state and managed by the Service under the license agreement. The Service also holds in fee title 2,550 acres to the east and west of WCA 1. The interior is characterized by interspersed natural communities of slough, wet prairie, sawgrass marsh and sawgrass-brush, and tree island or bayhead. The Refuge provides critical habitat for nesting wading birds, the endangered snail kite and wood stork, and the endangered spike ray fern (*Schizaea pennula*), which is found only on the Refuge.

Old World climbing fern affects approximately 63,000 acres of the Refuge. The heaviest infestations are in the northern interior where the plant has overrun tree islands. This project treated climbing fern on approximately 3,450 acres in the central portion of the Refuge, which had previously been treated for melaleuca in 2006 with BIPM funds. Infestation levels in the treatment area ranged from scattered small patches to very dense areas of climbing fern, with some heavily infested tree islands.

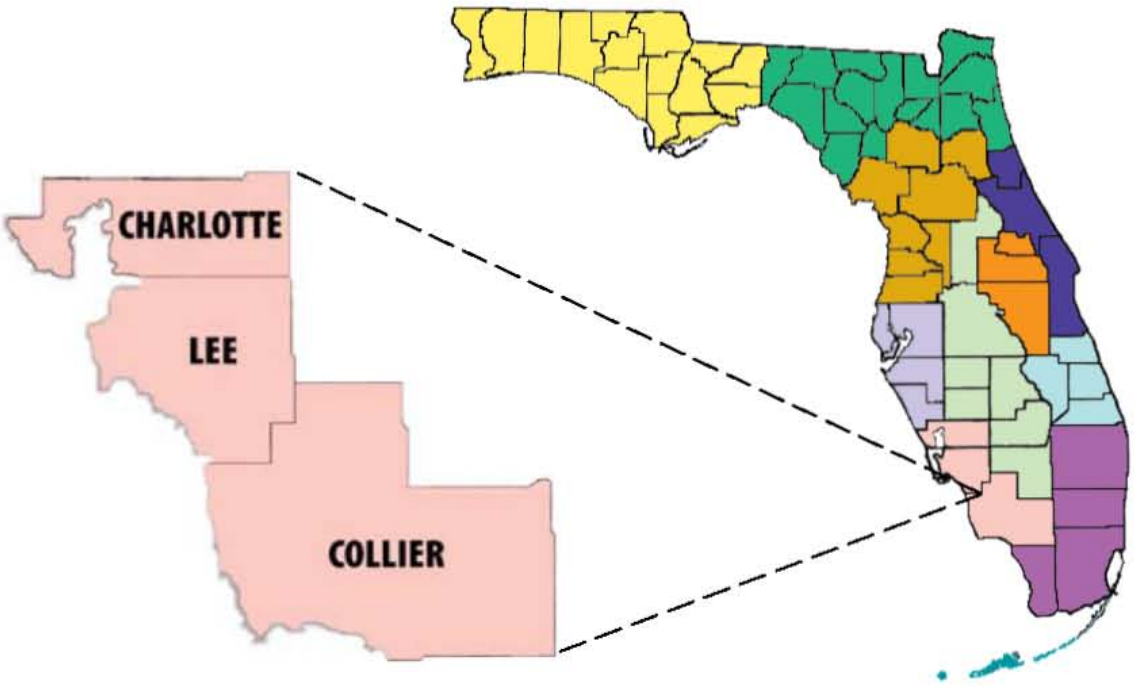
Species Treated	Common Name	Rank	Type	Herbicide
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	GLY+IMZ

Loxahatchee NWR





Southwest Working Group Projects



Rookery Bay National Estuarine Research Reserve

County: Collier
PCL Size: 8,630 acres

Project ID: SW-079	842 acres	$58,656
Project ID: SW-093	400 acres	$85,328
Project ID: SW-105	260 acres	$53,940

Project Manager: Coastal and Aquatic Managed Areas (DEP)
Greg Curry
300 Tower Road, Naples, Florida 34113
Phone: 941-417-6310, Fax: 941-417-6315
E-mail: greg.curry@dep.state.fl.us

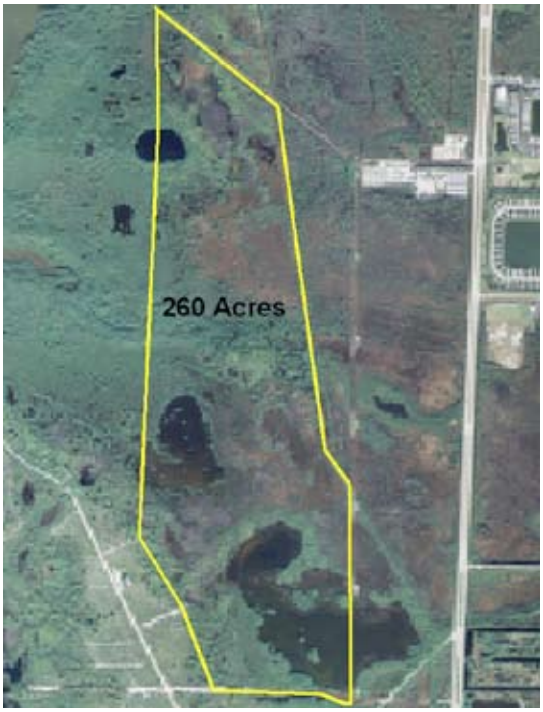
The first project area is Key Island, one of the state's largest remaining unbridged barrier islands. This site hosts a variety of habitats ranging from scrub and tropical hardwood hammocks to mangrove forests. The rare Florida thatch palm (*Thrinax radiata*) grows on the island. The NERR owns and manages over eighty-six percent of Key Island.

Key Island is approximately 1,240 acres and over eight miles long. Initial treatment of Key Island occurred in 1998. Over 350 acres of Australian pine were cut, treated, and burned. Maintenance control occurred in 2001 and 2003, and Americorps treated the first mile of Key Island in 2004. This project provided maintenance control for Australian pine, melaleuca, and Brazilian pepper. Most of the melaleuca occurred in the northern section of Key Island. Brazilian pepper was found throughout the island in small patches. Small and large Australian pines were scattered.

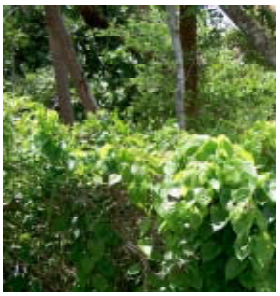
The second project area lies in the northern half of the NERR, near Sand Hill Creek. The area is divided by a Florida Power and Light Company access road. The site seasonally fluctuates as a freshwater marsh along the FPL road, then grades into a hydric pine community, marsh, and mangroves as it approaches the creek. Fifty acres within the site was heavily infested with Old World climbing fern, which formed thick, dense mats that covered the tree canopy. In the rest of the project area, smaller, less dense patches of lygodium occurred.

The third project area begins as a high marsh and grades into a dwarf mangrove forest as it approaches Bear Creek. Several rare species such as golden leather fern and butterfly orchid grow along the Bear Creek site. Infestation levels ranged dramatically throughout this site, with approximately 75 acres infested with light to medium amounts of melaleuca and Brazilian pepper. Earleaf acacia occurred on two acres, Old World climbing fern on less than one acre, and Australian pine on approximately one-quarter of an acre of light infestations.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Acacia auriculiformis	earleaf acacia	I	CS	TRIE
Casuarina species	Australian pine	I	CS	TRIE
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	IMZ/TRIA
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE/TRIA
Scaevola sericea	beach naupaka	I	BB	TRIE



Top left: Sand Hill Creek
Above: Bear Creek
Bottom left: Key Island beach
Below: Island idyll spoiler



Collier-Seminole State Park

County: Collier
PCL Size: 7,271 acres
Project ID: SW-090 50 acres $69,750
Project ID: SW-120 5 acres $12,600

Project Manager: Florida Park Service (DEP)
Chad Lach, Park Manager
20200 Tamiami Trail East, Naples, Florida 34114
Phone: 239-394-3397, Fax: 239-394-5113
E-mail: chad.lach@dep.state.fl.us

Collier-Seminole State Park features a wealth of vegetation and wildlife that is typical of the Everglades region of Florida. A tropical hammock dominated by trees that are characteristic of coastal forests of the West Indies and Yucatan is a special feature of the park. Also, the rare Florida royal palm is a common species here. Other rare plant species include the cowhorn orchid (*Cyrtopodium punctatum*), the fuzzy-wuzzy air plant (*Tillandsia pruinosa*), and the pine pink orchid (*Bletia purpurea*). Natural communities of the park include extensive mangrove swamp, as well as cypress swamp, hydric hammock salt marsh, and mesic pine flatwoods.

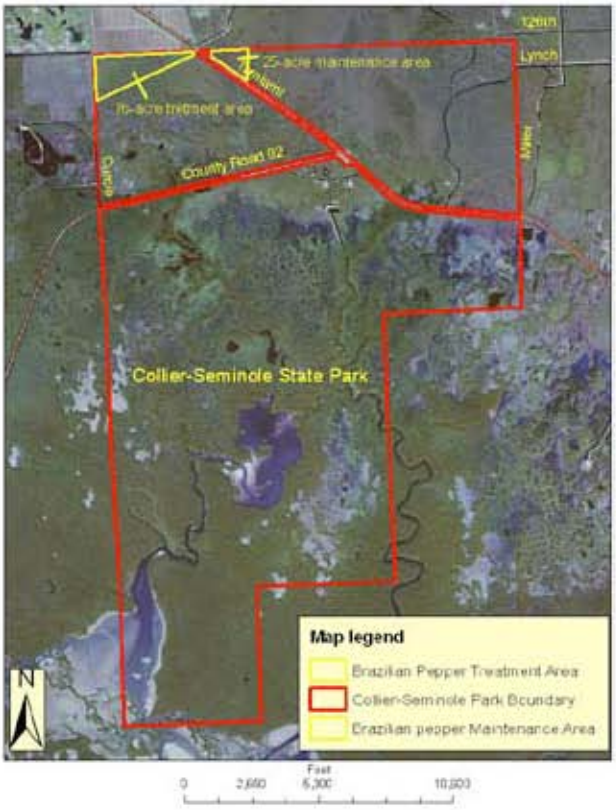
The 50-acre initial treatment area is in the upper northwest corner of the park in an area designated as Zone 1. This zone is primarily wet flatwoods, with some interspersed ruderal areas that are the result of a large berm and ditch meant to prevent run-off of fertilizer and pesticide-laden water from adjacent agricultural fields. Brazilian pepper formed a monoculture in the northwest section of the treatment area and comprised eighty-five to ninety percent coverage in the northeast section.

The 5-acre melaleuca area is located east of the intersection of US Highway 41 and Tomato Road, at the northern boundary of the park. The natural community structure of this area and the surrounding areas is strand swamp with some interspersed mesic flatwoods.

This area is designated by the Florida Department of Transportation (FDOT) as the Gordon River Mitigation Project. The area was treated to remove the Brazilian pepper as part of a mitigation plan by the FDOT in 2005. However, the existing seed bank is large and with the canopy gone, seedling emergence is a constant occurrence. Funding assistance for this maintenance came from $17,750 in leftover grant monies from the original FDOT grant, and an in-kind match from the park of $32,736 in time and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Melaleuca quinquenervia	melaleuca	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB/FL	TRIE/GLY

Collier-Seminole State Park



Estero Bay Preserve State Park

County: Lee
PCL Size: 10,405 acres
Project ID: SW-094 103 acres $51,527
Project ID: SW-096 10.5 acres $11,604

Project Manager: Florida Park Service (DEP)
Stephen Giguere
700-1 Fisherman's Wharf, Ft. Myers Beach, 33931
Phone: 239-463-3240, Fax: 239-463-3634
E-mail: stephen.giguere@dep.state.fl.us

Two projects were conducted within the 103-acre Estero River Scrub management unit. BIPM conducted initial melaleuca treatment of the first project area in 2002. Since that time, melaleuca from the seed bank has re-infested the site. The area is a mesic flatwoods that has an understudy dominated by herbaceous plants. Exotic vegetation within the project site was estimated at sixty percent coverage of melaleuca, eight percent coverage of downy rose myrtle, eight percent coverage of Brazilian pepper, two percent coverage of Old World climbing fern, and two percent coverage of Australian pine.

The second project targeted a 29-acre resource management zone within Estero Bay Preserve. This area is mesic flatwoods with an understory dominated by herbaceous plants and sparse palmetto and gallberry. The project area covered 10.5 acres of infestation estimated at eighty percent melaleuca, two percent downy rose-myrtle, two percent Brazilian pepper, and less than one percent Old World climbing fern. Park staff provided an in-kind match of $2,344 in time and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	CS	IMZ
Lygodium microphyllum	Old World climbing fern	I	FL	IMZ
Melaleuca quinquenervia	melaleuca	I	CS	TRIE/IMZ
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	TRIE/IMZ
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE/IMZ

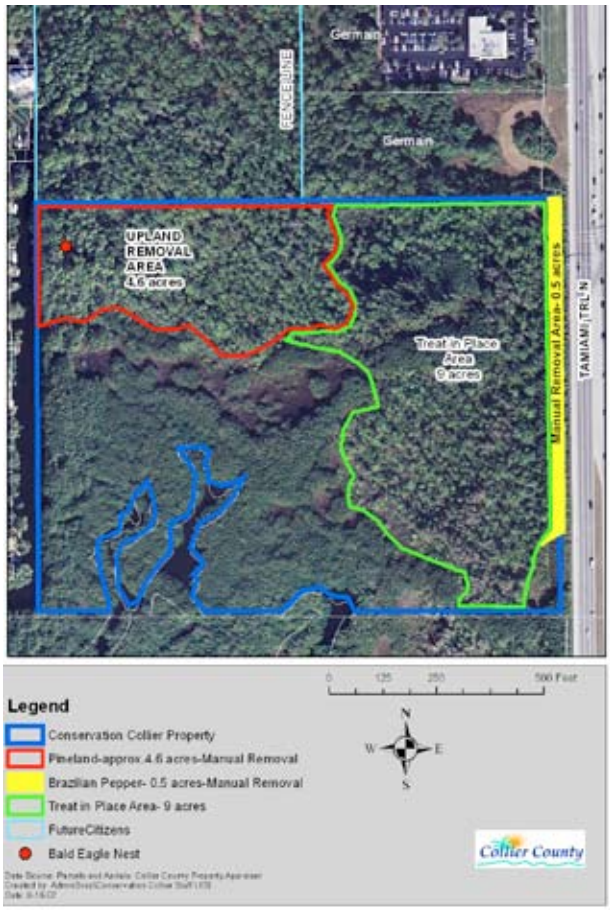
Wiggins Bay Estuary Buffer

County: Collier
PCL Size: 26.77 acres
Project ID: SW-095 15.6 acres $57,700

Project Manager: Collier County Facilities Management Department
Christal Segura, Environmental Specialist
3301 Tamiami Trail East, Naples, Florida 34112
Phone: 239-403-2495, Fax: 239-793-3795
E-mail: christalsegura@colliergov.net

The Watkins-Jones project site is part of the larger 53.35-acre Wiggins Bay Estuary Buffer Restoration Project in the northwest corner of Collier County. The Watkins-Jones property contains various native plant communities including pine flatwoods, mangrove forest, and both saltwater and freshwater marshes.

The county considers these marshes to be unique and endangered. The wetlands buffer and protect the Wiggins Pass Estuarine System, which is designated as an Outstanding Florida Water. A total of 15.6 acres was treated (all habitats except the mangrove forest), of which approximately 9 acres was infested to a significant degree (invasive coverage of 50% or more).



Species Treated	Common Name	Rank	Type	Herbicide
Acacia auriculiformis	earleaf acacia	I	CS	Remedy®
Ardisia elliptica	shoebutton ardisia	I	CS	Remedy®
Casuarina species	Australian pine	I	CS	Remedy®
Lygodium microphyllum	Old World climbing fern	I	FL	GLY
Melaleuca quinquenervia	melaleuca	I	MC/CS	IMZ
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	Remedy®
Schinus terebinthifolius	Brazilian pepper	I	CS	Remedy®
Syzygium cumini	Java plum	I	CS	Remedy®

Conservation Collier Wet Woods Preserve (Formerly known as

Work completed September 11-27, 2007
After Photos taken October 10-15, 2007
All pictures provided by Christal Segura

#1

#2

Watkins-Jones Preserve in Collier County) Before and After Photos

Panoramas taken from photopoints.
#1: Before (above), After (below).
#2: Before (top), After (bottom).

Wiggins Bay Estuary Buffer

Cayo Costa State Park

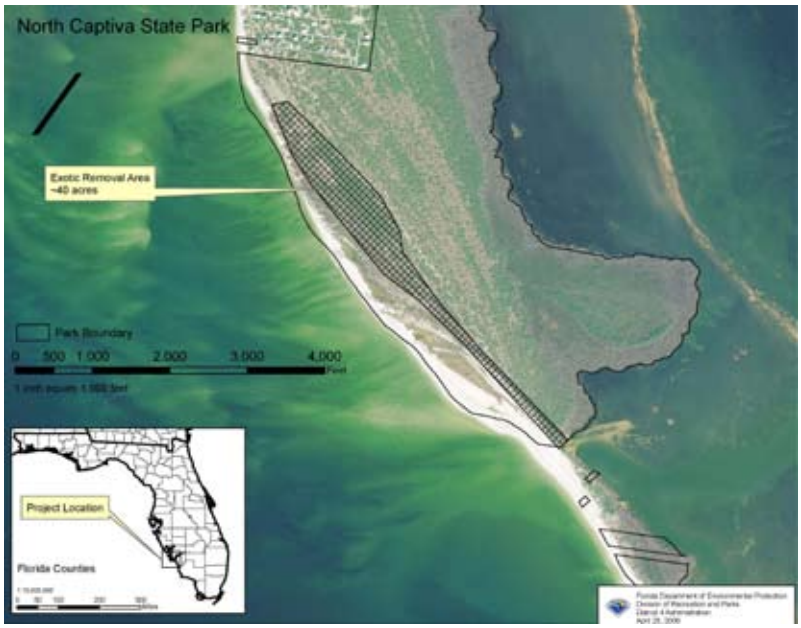
County: Lee
PCL Size: 2,429 acres
Project ID: SW-097 40 acres $59,519

Project Manager: Florida Park Service (DEP)
Reggie Norman, Park Manager
880 Belcher Road, P. O. Box 1150, Boca Grande, Florida 33921
Phone: 941-964-0375, Fax: 941-964-1154
E-mail: reginald.norman@dep.state.fl.us

North Captiva Island is a barrier island located south of Cayo Costa State Park, with 445 acres of the island managed as a unit of the park. This project area is adjacent to the beach dune community, in an area where Australian pine and Brazilian pepper have invaded coastal strand, coastal grassland, and maritime hammock communities. Rare plant species in these communities include state-threatened shell mound prickly pear cactus (*Opuntia stricta*), inkberry (*Scaevola plumieri*), and joewood (*Jacquinia keyensis*). The coastal strand community is also designated by FWC as one of the eight most threatened natural communities in Florida.

This project targeted the highest priority area, Zone 1, which was forty acres of Australian pine and Brazilian pepper with seventy-five percent coverage. The Florida Park Service provided $150,000 in matching funds and in-kind contributions of time and materials toward this project.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	BB	TRIE
Lantana camara	lantana	I	CS	TRIE
Scaevola sericea	beach naupaka	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE



Charlotte Harbor Preserve State Park

County: Charlotte, Lee
PCL Size: 43,614 acres
Project ID: SW-100 47 acres $81,300

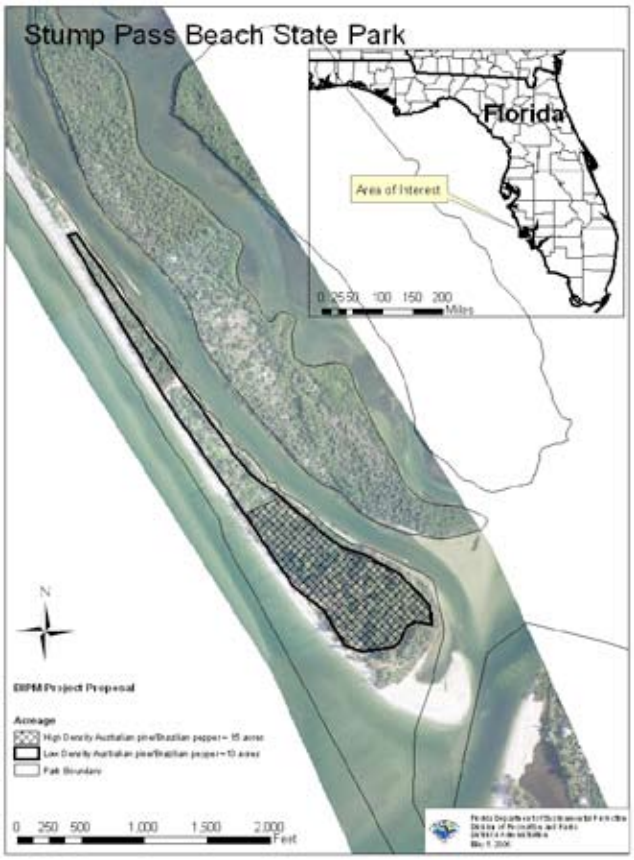
Project Manager: Florida Park Service (DEP)
Annette F. Nielsen
12301 Burnt Store Road, Punta Gorda, Florida 33955
Phone: 941-575-5861, Fax: 941-575-5863
Email: annette.nielsen@dep.state.fl.us

Charlotte Harbor Preserve State Park encompasses nearly ninety percent of the shoreline of Charlotte Harbor from the Caloosahatchee River to Boca Grande Pass. Natural communities include oak scrub, mesic flatwoods, salt marsh, and mangroves along the shoreline of Coral Creek. The project lies within the 20,343-acre Cape Haze Management Unit in northwestern Charlotte Harbor between the Myakka River and Gasparilla Sound.

The project site is known as St. Andrews Lane (a.k.a. Annapolis Lane) and was initially treated in fiscal year 2003. However, site conditions and funding did not allow for completion or follow-up, thus many peppers were missed or have since resprouted. Other invasives on the site include carrotwood and Chinese tallow. The Florida Park Service contributed $13,000 in matching funds.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	BB/FL	TRIE
Albizia lebbeck	woman's tongue	I	CS	TRIE
Cupaniopsis anacardioides	carrotwood	I	BB	TRIE
Dioscorea bulbifera	air-potato	I	FL	TRIE/GLY
Jasminum dichotomum	Gold Coast jasmine	I	BB	TRIE
Lantana camara	lantana	I	CS/FL	TRIE/GLY
Melaleuca quinquenervia	melaleuca	I	CS	IMZ
Nephrolepis species	sword fern	I	FL	TRIE
Schefflera actinophylla	umbrella tree	I	FL	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Senna pendula	climbing cassia	I	CS	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Phoenix reclinata	Senegal date palm	II	CS	TRIE
Sphagneticola trilobata	wedelia	II	FL	GLY
Syagrus romanzoffiana	queen palm	II	CS	TRIE
Urena lobata	Caesar's weed	II	FL	GLY

Stump Pass Beach State Park



County: Charlotte
PCL Size: 253 acres
Project ID: SW-104 25 acres $31,597

Project Manager: Florida Park Service (DEP)
Reggie C. Norman, Park Manager
880 Belcher Road, Boca Grande, Florida 33921
Phone: 941-964-0375, Fax: 941-964-1154
E-mail: reginald.norman@dep.state.fl.us

Stump Pass Beach State Park consists of three barrier islands; Manasota Key, Peterson Island, and Whidden Island. This land was acquired in 1971 and known as Port Charlotte Beach State Recreation Area until 1998, when it was changed to its current name. From 1999-2000 a combined total of 21,055 Australian pine and Brazilian pepper trees were removed through a grant obtained by the South Florida Water Management District. Park staff followed up this work with herbicide treatment of the remaining pines and peppers.

Within the Manasota Key Unit, 15 acres of pines and peppers remained at seventy-five to eighty percent coverage in the maritime hammock and coastal strand. Another 10 acres remained in the coastal strand at fifteen to twenty percent coverage. The park provided an in-kind match of $32,274 in time and equipment.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina equisetifolia	Australian pine	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE

Ten Thousand Islands National Wildlife Refuge

County: Collier
PCL Size: 8,630 acres
Project ID: SW-108 16 acres $75,335

Project Manager: Coastal and Aquatic Managed Areas
Greg Curry
300 Tower Road, Naples, Florida 34113
Phone: 239-417-6310, Fax: 239-417-6315
E-mail: greg.curry@dep.state.fl.us

The Ten Thousands Islands are approximately 8,630 acres with 6,200 acres designated as a National Wildlife Refuge (managed by the US Fish and Wildlife Service) and 2,430 acres designated as a State Aquatic Preserve. Native communities that comprise the Ten Thousand Islands include beach, dune, mangrove forests, costal strand, tropical hardwood hammocks, sea grass beds, and oyster reefs.

The project area is located along the west side of the Faka-Union canal. This 120-acre area is co-managed by USFWS and DEP—70 acres are managed by Fakahatchee Strand Preserve State Park, 39 acres by Rookery Bay National Estuarine Research Reserve, and 11 acres by Ten Thousand Islands NWR. An estimated 90 acres of Old World climbing fern, Brazilian pepper, Australian pine, bowstring hemp, and lead tree were treated in June of 2002. A maintenance treatment in 2006 treated 2.5 miles of the 3 miles long canal.

This project treated the remaining half mile and two spoil islands directly south of the canal, which were not addressed by the two previous projects. Brazilian pepper covered an estimated 15 acres, with a half-acre of lather leaf and a quarter-acre of Australian pine also present. The USFWS contributed matching funds of $50,000 to this project.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia lebbeck	woman's tongue	I	CS	TRIE
Colubrina asiatica	lather leaf	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Sansevieria hyacinthoides	bowstring hemp	II	CS	TRIE

Gasparilla Island State Park

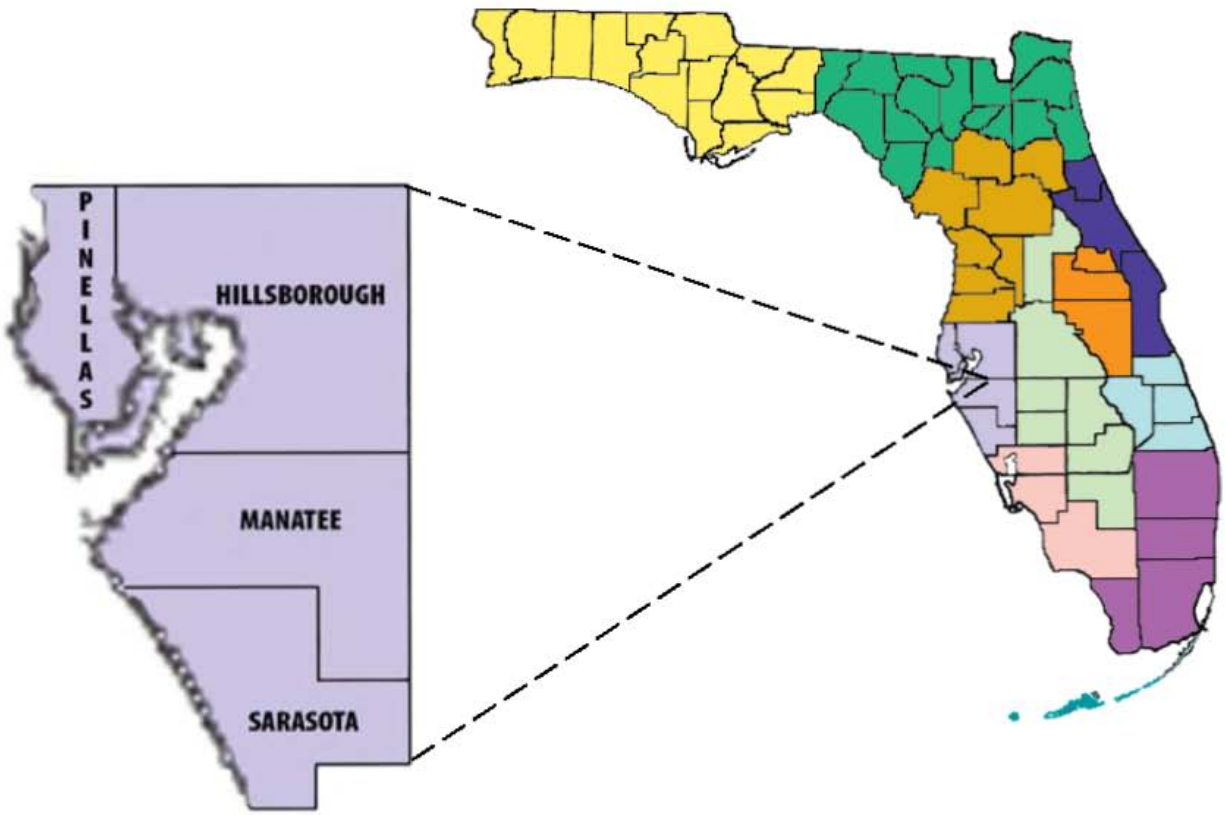
County: Lee
PCL Size: 127 acres
Project ID: SW-123 79 acres $159,500

Project Manager: Florida Park Service (DEP)
Katherine Giguere
880 Belcher Road, P. O. Box 1150, Boca Grande, Florida 33921
Phone: 941-964-0375, Fax: 941-964-1154
E-mail: katherine.giguere@dep.state.fl.us

This maintenance project was within the interior of the park, in an area that was previously cleared in 1998 by a hydro-axe, but not treated with herbicide. The area is comprised of maritime hammock, coastal strand, and estuarine tidal swamp. Invasive species coverage varied from less than five percent (including incidental species) up to fifty percent for Brazilian pepper.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Casuarina species	Australian pine	I	BB	TRIE+IMZ
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE+IMZ
Leucaena leucocephala	lead tree	II	CS	TRIE+IMZ
Ricinus communis	castor bean	II	CS	TRIE+IMZ
Sansevieria hyacinthoides	bowstring hemp	II	BB/CS	TRIE+IMZ
Sphagneticola trilobata	wedelia	II	FL	TRIA/GLY
Catharanthus roseus	Madagascar periwinkle	n/a	FL	GLY

Sun Coast Working Group Projects



War Veteran's Memorial Park

County: Pinellas
PCL Size: 122 acres
Project ID: SC-080 122 acres $90,300

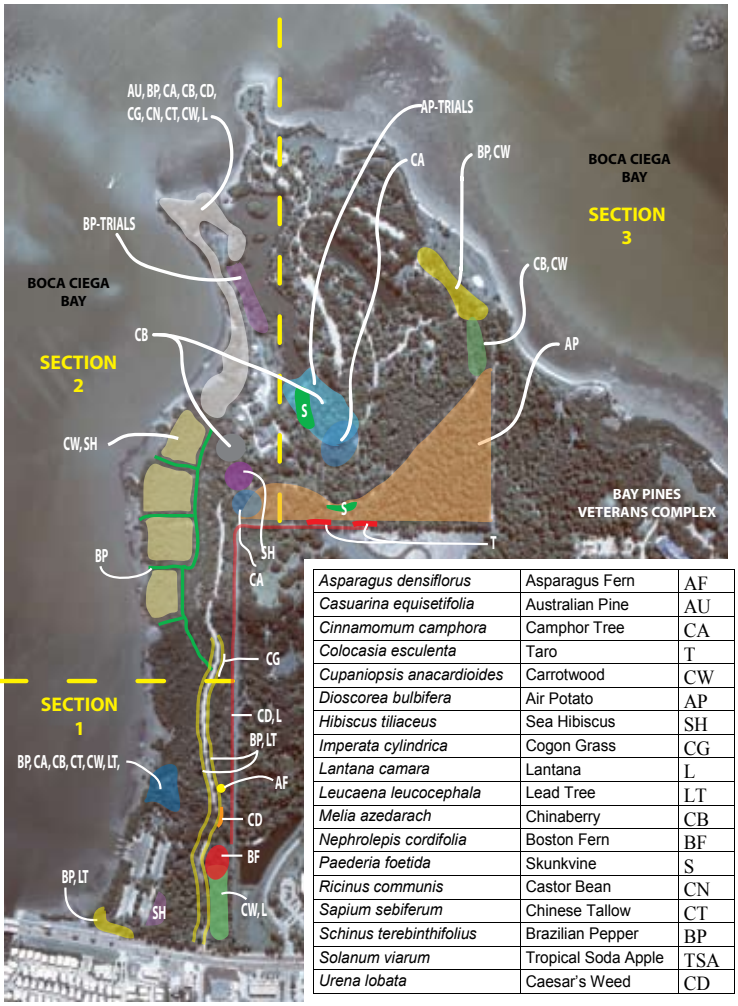
Site Manager: Pinellas County Parks & Recreation Department
Deborah J. Chayet, Grants Specialist
12520 Ulmerton Road, Largo, Florida 33774
Phone: 727-582-2521, Fax: 727-582-2179
E-mail: dchayet@co.pinellas.fl.us

War Veterans' Memorial Park is adjacent to Boca Ciega Bay and the Bay Pines National Cemetery. The park contains pine flatwoods, mangrove fringe, and upland hardwood hammock, as well as a small area of scrub vegetation. The park, especially along property boundaries, was infested with small populations of a variety of invasive species. Invasive species varied from less than one percent up to ninety percent coverage (for patches of cogon grass). The county provided $43,857 in matching funds and in-kind contributions of time and materials.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Abrus precatorius	rosary pea	I	BB/FL	TRIE/GLY
Albizia lebbeck	woman's tongue	I	BB	TRIE
Casuarina species	Australian pine	I	BB	TRIE
Cinnamomum camphora	camphor tree	I	BB	TRIE
Cupaniopsis anacardioides	carrotwood	I	BB/FL	TRIE/GLY
Dioscorea bulbifera	air-potato	I	FL	GLY
Imperata cylindrica	cogon grass	I	FL	GLY
Lantana camara	lantanas	I	BB	TRIE
Schefflera actinophylla	umbrella tree	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Syzygium cumini	Java plum	I	BB	TRIE
Thespesia populnea	seaside mahoe	I	BB	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Leucaena leucocephala	lead tree	II	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Phoenix reclinata	Senegal date palm	II	BB	TRIE
Ricinus communis	castor bean	II	BB	TRIE
Sphagneticola trilobata	wedelia	II	FL	GLY
Urena lobata	Caesar's weed	II	BB	TRIE
Enterolobium contortisiliquum	earpod tree	n/a	BB	TRIE
Momordica charantia	balsampear	n/a	FL	GLY

Live pepper

Dead pepper



Asparagus densiflorus	Asparagus Fern	AF
Casuarina equisetifolia	Australian Pine	AU
Cinnamomum camphora	Camphor Tree	CA
Colocasia esculenta	Taro	T
Cupaniopsis anacardioides	Carrotwood	CW
Dioscorea bulbifera	Air Potato	AP
Hibiscus tiliaceus	Sea Hibiscus	SH
Imperata cylindrica	Cogon Grass	CG
Lantana camara	Lantana	L
Leucaena leucocephala	Lead Tree	LT
Melia azedarach	Chinaberry	CB
Nephrolepis cordifolia	Boston Fern	BF
Paederia foetida	Skunkvine	S
Ricinus communis	Castor Bean	CN
Sapium sebiferum	Chinese Tallow	CT
Schinus terebinthifolius	Brazilian Pepper	BP
Solanum viarum	Tropical Soda Apple	TSA
Urena lobata	Caesar's Weed	CD

Dead and gone pepper

McKay Creek Greenway

County: Pinellas
PCL Size: 183 acres
Project ID: SC-089 183 acres $126,700

Site Manager: Pinellas County Park Department
Deborah J. Chayet, Grants Specialist
631 Chestnut Street, Clearwater, Florida 33756
Phone: 727-464-5111, Fax: 727-464-3379
Email: dchayet@co.pinellas.fl.us

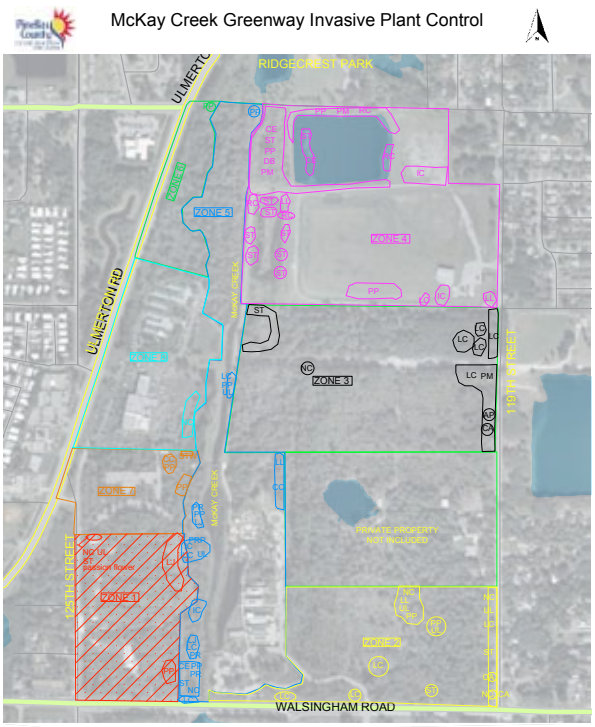
The McKay Creek Greenway is a contiguous corridor of over four miles that includes large parklands, conservation lands, and other Pinellas County owned properties. The Phase II project site included approximately 183 acres of land used for passive recreation, environmental education, and wetland preservation. Nearly 60 acres of this site were purchased through the Florida Communities Trust, as part of the Preservation 2000 program. Phase I funding provided treatment for most of the interior sections of the P-2000 property and some areas along the greenway.

Phase II targeted eight previously untreated zones of eight to thirty-six acres in size, with invasive plant coverage ranging from less than one percent, up to ninety percent in small areas of cogon grass. County contractors treated areas of the P-2000 property using mechanical control to remove treated and untreated plants. This work represented a cash match of $41,718. Additional time and materials devoted to the project provided an in-kind match of $80,567.

Species Treated	**Common Name**	**Rank**	**Type**	**Herbicide**
Abrus precatorius	rosary pea	I	BB/CS/FL	TRIE/GLY
Albizia julibrissin	mimosa	I	BB/CS	TRIE
Cinnamomum camphora	camphor tree	I	BB/CS/MC	TRIE
Colocasia esculenta	wild taro	I	FL	GLY
Cupaniopsis anacardioides	carrotwood	I	BB/CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY+MET
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camera	lantana	I	BB/CS/FL	TRIE/GLY
Ludwigia peruviana	Peruvian primrose willow	I	FL	GLY
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	TRIE
Nephrolepis species	sword fern	I	FL	GLY
Panicum repens	torpedo grass	I	FL	GLY
Pennisetum purpureum	Napier grass	I	FL	GLY
Psidium guajava	guava	I	BB/CS	TRIE
Rhynchelytrum repens	Natal grass	I	FL	GLY
Schefflera actinophylla	umbrella tree	I	BB/CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE
Syngonium podophyllum	arrowhead vine	I	FL	GLY

McKay Creek Greenway

Species Treated	Common Name	Rank	Type	Herbicide
Syzygium cumini	Java plum	I	BB/CS	TRIE
Triadica sebifera	Chinese tallow	I	BB/CS	TRIE
Leucaena leucocephala	lead tree	II	BB/CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Passiflora biflora	passion vine	II	BB/CS/FL	TRIE/GLY
Phoenix reclinata	Senegal date palm	II	BB/CS	TRIE
Ricinus communis	castor bean	II	BB/FL	TRIE/GLY
Pteris vittata	Chinese brake fern	II	FL	GLY
Sesbania punicea	purple sesban	II	FL	GLY
Sphagneticola trilobata	wedelia	II	FL	GLY+MET
Washingtonia robusta	Washington fan palm	II	BB/CS	TRIE
Urena lobata	Caesar's weed	II	BB/CS/FL	TRIE/GLY
Momordica charantia	balsampear	n/a	FL	GLY



CODE	SPECIES	COMMON NAME
AP	Abrus precatorius	Rosary Pea
CC	Cinnamomum camphora	Camphor Tree
CE	Colocasia esculenta	Taro
CA	Cupaniopsis anacardioides	Carrotwood
DB	Dioscorea bulbifera	Air Potato
IC	Imperata cylindrica	Cogon Grass
LC	Lantana camera	Lantana
LL	Leucaena leucocephala	Lead Tree
LJ	Lygodium japonicum	Japanese Climbing Fern
MA	Melia azedarach	Chinaberry
NC	Nephrolepis cordifolia	Boston Fern
PM	Panicum maximum	Guinea Grass

CODE	SPECIES	COMMON NAME
PR	Panicum repens	Torpedo Grass
PP	Pennisetum purpureum	Napier Grass
PRP	Phoenix reclinata	Senegal Date Palm
RC	Ricinus communis	Castor Bean
SS	Sapium sebiferum	Chinese Tallow
ST	Schinus terebinthifolius	Brazilian Pepper
SD	Solanum diphyllum	Two-leafed Nightshade
STW	Sphagneticola trilobata (=Wedelia trilobata)	Wedelia
SR	Syagrus romanzoffiana	Queen Palm
SP	Syngonium podophyllum	Arrowhead Vine
UL	Urena lobata	Caesar Weed

Educational information about invasive exotic plants is posted on signs in the park. A large assortment of other information is available from an IFAS Extension Office located next to the park. University professors also use this property for field education on invasive plant control techniques.

Cockroach Bay Aquatic Preserve

County: Hillsborough
PCL Size: 8,000 acres
Project ID: SC-090 88 acres $30,200

Project Manager: Hillsborough County Conservation Services
Jennifer Roberts, Environmental Specialist
3709 Gulf City Road, Ruskin, Florida 33570
Phone: 813-671-7754, Fax: 813-671-7758
E-mail: robertsje@hillsboroughcounty.org

This project removed Brazilian pepper and Australian pine from the 52-acre Boy Scout property and the 29-acre Fish Farm tract within the Cockroach Bay Aquatic Preserve. The Preserve consists of mangrove islands stretching north from the mouth of Cockroach Bay into the Little Manatee River, as well as salt marshes, tidal flats, salterns, oyster bars, and upland areas. The uplands consist of low-lying coastal hammocks dominated by live oak, cabbage palm, and slash pine.

This project supported the ongoing effort to remove invasive plants found on natural preserve land acquired through Hillsborough County's Environmental Lands Acquisition and Protection Program. The Southwest Florida Water Management District's Surface Water Improvement and Management Program completed extensive restoration and exotic removal on the site. Hillsborough County provided an in-kind match of $21,425 in time and materials.

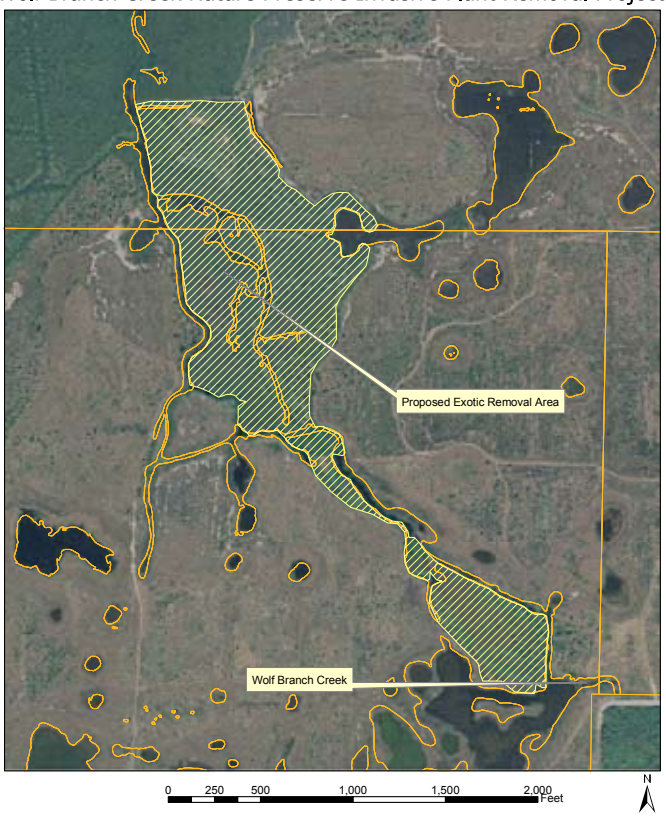
Hillsborough County Conservation Services has a five-person spray crew based on-site. The Hillsborough County spray crew has dedicated 175 hours to exotic removal throughout the site in the past six months. In addition, Hillsborough County staff dedicated 25 hours of mechanical and herbicidal invasive plant species removal in the Fish Farm tract in July 2006.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina equisetifolia	Australian pine	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE

Cockroach Bay Aquatic Preserve Invasive Plant Removal Project

(*see next page*)

Wolf Branch Creek Nature Preserve Invasive Plant Removal Project



Wolf Branch Creek Nature Preserve

County: Hillsborough
PCL Size: 1,176 acres
Project ID: SC-091 38 acres $15,000

Project Manager: Hillsborough County Conservation Services
Jennifer Roberts, Environmental Specialist
3709 Gulf City Road, Ruskin, Florida 33570
Phone: 813-671-7754, Fax: 813-671-7758
E-mail: robertsje@Hillsboroughcounty.org

Wolf Branch Creek Nature Preserve lies within the Bullfrog Creek watershed and consists of mangrove island, tidal flat, coastal hammock, salt marsh, and freshwater marsh/pond communities, in addition to upland areas being restored to native habitat. The project targeted Brazilian pepper, Australian pine, and lead tree in the mangrove islands.

The Southwest Florida Water Management District's Surface Water Improvement and Management Program has completed extensive restoration and exotic removal efforts on the site. Previous restoration efforts included 280 acres of non-native vegetation removal and the planting of nearly 150,000 native plants. Hillsborough County Conservation Services has a five-person spray crew based out of the Cockroach Bay Aquatic Preserve, which has dedicated over 100 hours to exotics removal throughout Wolf Branch Creek Nature Preserve in the past six months. Hillsborough County provided an in-kind match of $16,173 in time and materials for this project.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina equisetifolia	Australian pine	I	BB	TRIE
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE

Alafia River State Park

County: Hillsborough
PCL Size: 6,186 acres

Project ID: SC-092	89 acres	$9,950
Project ID: SC-101	89 acres	$3,200

Project Manager: Florida Park Service (DEP)
Caroline Eckert, Park Naturalist
14326 County Road 39 South, Lithia, Florida 33547
Phone: 813-672-5320, Fax: 813-672-5225
E-mail: caroline.eckert@dep.state.fl.us

Alafia River State Park consists of 5,159 upland acres and 1,027 acres of wetlands and waterbodies. Before acquisition by the state, the property was a phosphate mine called the Lonesome Mine, named after the nearby community of Fort Lonesome. The South Prong of the Alafia River flows through the center of the park property. The park features both natural and cultural resources.

The park engages in the removal of invasive plants using several techniques that involve volunteers, Americorps, community service workers, and park staff. The park enlists help from the local community through the PARKnership program, monthly Exotic Removal Weekends, Boy and Girl Scout Service projects, public educational programs, planting projects, partnerships, and grant opportunities.

The project area consisted of four small parcels, one to twelve acres in size, on the west side of the South Prong of the Alafia River, and a 65-acre parcel known as Dogleg Branch on the east side of the river. Cogon grass and lygodium were the dominant invaders in the project area. The Florida Park Service provided an in-kind match of $146,926 in time, equipment, and materials for this project. The original project area was retreated in the spring.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+IMZ
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE+IMZ
Triadica sebifera	Chinese tallow	I	BB	TRIE+IMZ
Melia azedarach	Chinaberry	II	BB	TRIE+IMZ

Alafia River State Park

Terra Ceia Preserve State Park

County: Hillsborough
PCL Size: 1,400 acres

Project ID: SC-093	42 acres	$21,600
Project ID: SC-102	42 acres	$8,000

Project Manager: Florida Park Service (DEP)
Larry Busby, Park Service Specialist
130 Terra Ceia Road, Terra Ceia, Florida 34250
Phone: 941-721-2068, Fax: 941-721-2070
E-mail: larry.busby@dep.state.fl.us

Terra Ceia Preserve State Park (TCP) is located on the southeastern shore of Tampa Bay in northwest Manatee County. Several rare plants such as Florida golden aster (*Chrysopsis floridana*), Tampa vervain (*Glandularia tampensis*), and hand fern (*Ophioglossum palmatum*) occur on TCP. Large areas of the preserve are fallow fields that once were slash pine and mesic flatwoods or maritime hammocks, but more recently were dominated by Brazilian pepper and other invasive exotic species. Much of Terra Ceia is included in a Surface Water Improvement and Management (SWIM) restoration project being conducted by the Southwest Florida Water Management District. Matching funds in the amount of $32,396 were provided through the SWIM Program.

This maintenance control project consisted of three treatment sites located in the south-central and southeastern regions of the preserve. Coverage of invasive species at these sites averaged 70-80 percent in the previous year before treatment. The original project area was retreated in the spring.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	FL	GLY+IMZ
Albizia julibrissin	mimosa	I	BB	TRIE
Albizia lebbeck	woman's tongue	I	BB/FL	TRIE/GLY+IMZ
Dioscorea bulbifera	air-potato	I	FL	GLY+IMZ
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camara	lantana	I	BB/FL	TRIE/GLY+IMZ
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+IMZ
Schinus terebinthifolius	Brazilian pepper	I	BB	TRIE
Syngonium podophyllum	Arrowhead vine	I	FL	GLY+IMZ
Antigonon leptopus	coral vine	II	FL	GLY+IMZ
Melia azedarach	Chinaberry	II	BB	TRIE
Panicum maximum	Guinea grass	II	FL	GLY+IMZ
Ricinus communis	castor bean	II	CS	TRIE
Sphagneticola trilobata	wedelia	II	FL	GLY+IMZ
Urena lobata	Caesar's weed	II	FL	GLY+IMZ
Xanthosoma sagittifolium	elephant ear	II	FL	GLY+IMZ
Indigofera hirsuta	roughhairy indigo	n/a	FL	GLY+IMZ
Ipomoea cairica	mile a minute vine	n/a	FL	GLY+IMZ
Momordica charantia	balsampear	n/a	FL	GLY+IMZ

John Bonner Park

County: Pinellas
PCL Size: 22 acres
Project ID: SC-094 22 acres $34,900

Project Manager: City of Largo, Parks Division
Greg Brown, Parks Superintendent
323 Central Park Drive, Largo FL 33771
Phone: 727-586-7415, Fax: 727-586-7426
E-mail: gbrown@largo.com

John Bonner Park is located in the City of Largo along the Inter-Coastal Waterway. The park is the winter home of many migratory bird species and is part of the Great Florida Birding Trail. The project area consisted of upland and wetland areas in the park. Invasive species included Brazilian pepper, Chinaberry, Australian pine, and melaleuca. Brazilian pepper was present in monocultures on the site. The city provided $79,617 of in-kind match in labor, equipment, and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Asparagus aethiopicus	asparagus-fern	I	BB	TRIE
Casuarina species	Australian pine	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	CS	TRIE
Cupaniopsis anacardioides	carrotwood	I	CS	TRIE
Ludwigia peruviana	Peruvian primrose willow	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Syngonium podophyllum	arrowhead vine	I	FL	GLY
Syzygium cumini	Java plum	I	CS	TRIE
Triadica sebifera	Chinese tallow	I	CS	TRIE
Leucaena leucocephala	lead tree	II	CS	IMZ
Melia azedarach	Chinaberry	II	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Phoenix reclinata	Senegal date palm	II	CS	IMZ
Sansevieria hyacinthoides	bowstring hemp	II	CS	TRIE
Sphagneticola trilobata	wedelia	II	FL	GLY
Syagrus romanzoffiana	queen palm	II	CS	IMZ
Washingtonia robusta	Washington fan palm	II	CS	IMZ

Close-up of the area in green outline in map above.

George C. McGough Nature Park

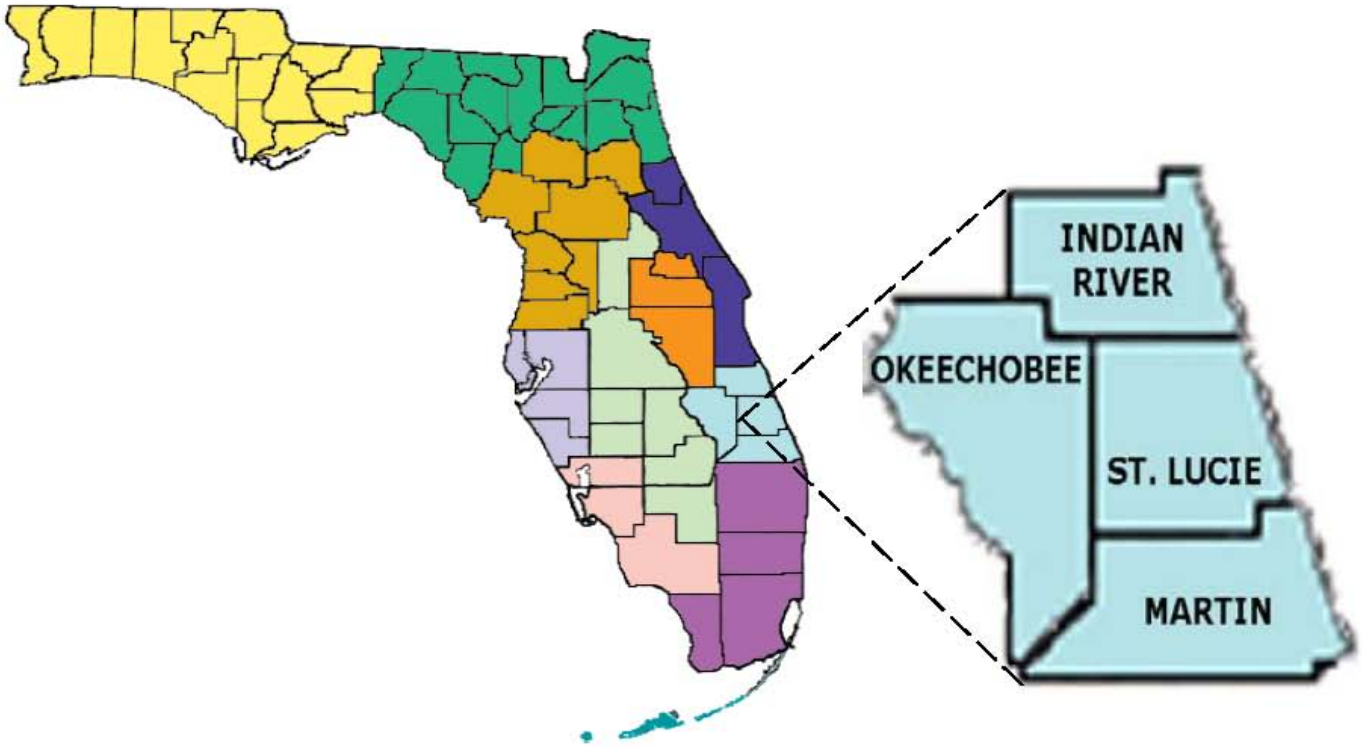
County: Pinellas
PCL Size: 26 acres
Project ID: SC-095 27 acres $47,925

Project Manager: City of Largo, Parks Division
Greg Brown, Parks Superintendent
323 Central Park Drive, Largo FL 33771
Phone: 727-586-7415, Fax: 727-586-7426
E-mail: gbrown@largo.com

The park is located in the City of Largo along the Inter-Coastal Waterway. The park is the winter home of many migratory bird species and is part of the Great Florida Birding Trail. The project area consisted of upland and wetland areas in the park. Invasive species included Brazilian pepper, Chinaberry, and melaleuca. Brazilian pepper was present in monocultures on the site. Invasive species coverage was estimated at forty percent. This Phase I project was expected to complete fifty percent of the control effort. The city provided $84,121 of in-kind match in labor, equipment, and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	FL	GLY
Albizia lebbeck	woman's tongue	I	CS	TRIE
Bischofia javanica	bishopwood	I	HP	none
Cinnamomum camphora	camphor tree	I	CS	TRIE
Cupaniopsis anacardioides	carrotwood	I	CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY
Eugenia uniflora	Surinam cherry	I	CS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY
Ligustrum sinense	Chinese privet	I	CS	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Melaleuca quinquenervia	melaleuca	I	CS	IMZ
Nephrolepis species	sword fern	I	FL	GLY
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Senna pendula	climbing cassia	I	CS	TRIE
Syzygium cumini	Java plum	I	CS	TRIE
Triadica sebifera	Chinese tallow	I	CS	TRIE
Leucaena leucocephala	lead tree	II	CS	TRIE
Melia azedarach	Chinaberry	II	CS	TRIE
Panicum maximum	Guinea grass	II	FL	GLY
Sansevieria hyacinthoides	bowstring hemp	II	CS	TRIE
Syagrus romanzoffiana	queen palm	II	CS	none
Washingtonia robusta	Washington fan palm	II	CS	none

Treasure Coast Working Group Projects



Hungryland Wildlife and Environmental Area

County: Martin, Palm Beach
PCL Size: 12,415 acres
Project ID: TC-085 2,052 acres $66,000

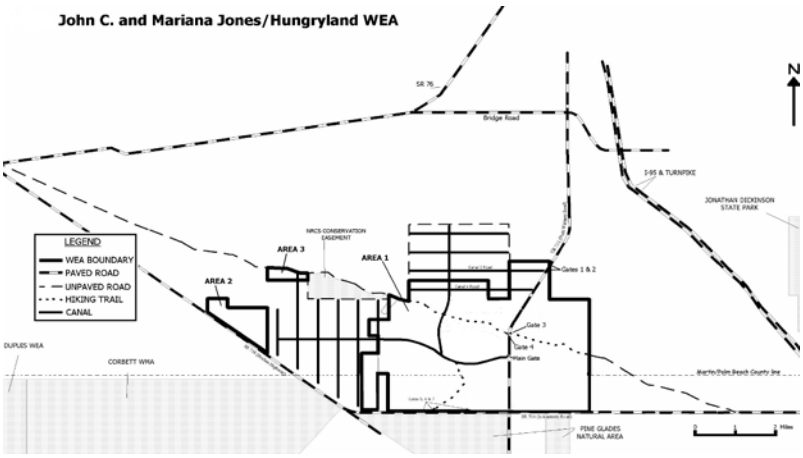
Project Manager: Fish and Wildlife Conservation Commission
Beth Morford, Biological Scientist III
8535 Northlake Boulevard, West Palm Beach, Florida 33412
Phone: 561-625-5122, ext. 142, Fax: 561-625-5129
E-mail: beth.morford@myfwc.com

Hungryland Wildlife and Environmental Area (HWEA) crosses from southern Martin County into northern Palm Beach County. The natural communities of HWEA are comprised primarily of mesic and wet flatwoods, interspersed with depression marshes and wet prairies. *Florida Conservation Lands 2001* described HWEA as "one of the highest quality pine flatwoods in south Florida."

This project provided maintenance control for Brazilian pepper, lygodium, melaleuca, Australian pine, and other invasive plants in Hungryland Burn Zones 3 and 9. A natural slough system separates the two zones. Some outer portions were initially treated with FWC funds in 2005. In 2006, both zones were fully treated through BIPM funding.

Burn Zone 3 is approximately 1,152 acres. Burn Zone 9 is approximately 900 acres. Scattered lygodium, Brazilian pepper, and melaleuca comprised the majority of plants requiring retreatment.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina species	Australian pine	I	CS	TRIE
Lygodium microphyllum	Old World climbing fern	I	FL	GLY
Melaleuca quinquenervia	melaleuca	I	CS	TRIE
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE



Hobe Sound National Wildlife Refuge

County: Martin
PCL Size: 1,100 acres
Project ID: TC-099 416 acres $222,013

Project Manager: US Fish and Wildlife Service
Jackie Isaacs, Wildlife Biologist
PO Box 645, Hobe Sound, Florida 33475
Phone: 772-546-6141, Fax: 772-545-7572
E-mail: jackie_isaacs@fws.gov

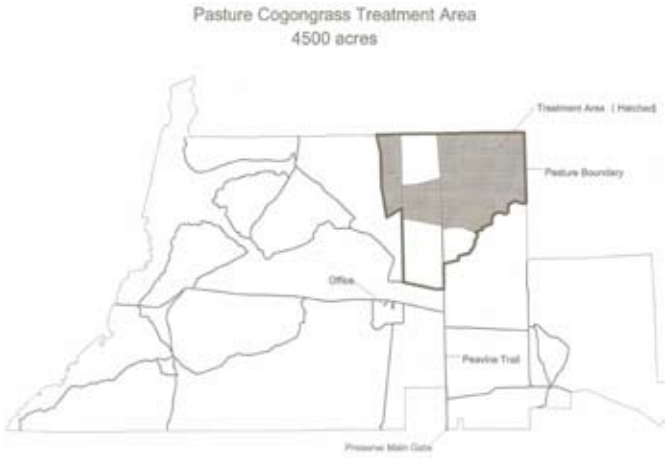
Hobe Sound National Wildlife Refuge is comprised of two separate and distinct tracts of land; a 300-acre mainland tract located between US 1 and the Indian River Lagoon, and a 735-acre island tract. The F1 and F2 Mosquito Impoundment/Spoil Island Restoration project is located on the island tract. This project is part of a larger scale restoration effort.

A part of the overall restoration goal is the removal of Australian pine and Brazilian pepper that dominate the impoundments and prevent re-establishment of native vegetation such as mangroves. The F-1 Impoundment contained eight dense areas of infestation totaling approximately 86 acres. The F-2 Impoundment contained seven dense infestations totaling approximately 48 acres. Invasive plant coverage on both sites was approximately seventy percent.

F-2 Impoundment Project Area Map

Species Treated	Common Name	Rank	Type	Herbicide
Schinus terebinthifolius	Brazilian pepper	I	CS/MC	TRIE

Kissimmee Prairie Preserve State Park



County: Okeechobee
PCL Size: 54,000 acres
Project ID: TC-101 4,500 acres $57,600

Project Manager: Florida Park Service (DEP)
Paul Miller, Park Biologist
33104 NW 192nd Avenue, Okeechobee 34972
Phone: 863-462-5360, Fax: 863-462-5276
E-mail: paul.miller@dep.state.fl.us

Kissimmee Prairie Preserve protects the largest remaining tract of dry prairie habitat east of the Kissimmee River, which the park borders for nine miles. Dry prairie is an endemic natural community and is listed as a globally and state imperiled community by the Florida Natural Areas Inventory. Dry prairie covers approximately 21,000 acres of the property. The preserve hosts several rare plants, including the state-endangered spreading pinweed (*Lechea divaricata*) and giant wild pine (*Tillandsia utriculata*) and the state-threatened Catesby's lily (*Lilium catesbaei*), blue butterwort (*Pinguicula caerulea*), yellow butterwort (*P. lutea*), and little butterfly orchid (*Pteroglossapsis ecristata*).

Park staff have been surveying and conducting cogon grass treatments in the pasture areas to stop the spread into the surrounding dry prairie community. Initial surveys have indicated that there are up to 86 acres of cogon grass in the 6,600 acres of poorly improved pasture. Cogon grass occurs scattered throughout the dry prairie/wet prairie matrix of the park. The patches vary in size, with the largest patches found to date occurring near the river. The Park Service provided $3,000 in matching funds toward this project. This project is to complete the pasture treatment that was started with FY06 TC-075, in which 27% (1,500 acres) of the pasture was treated, and this project will endeavor to treat the remaining 73% (4,500 acres).

Species Treated	Common Name	Rank	Type	Herbicide
Dioscorea bulbifera	air-potato	I	FL	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY
Solanum viarum	tropical soda apple	I	FL	TRIE

Kissimmee River Valley

County: Polk, Osceola, Okeechobee, Highlands, Glades
PCL Size: 36,879 acres
Project ID: TC-103 2,000 acres $200,000

Project Manager: South Florida Water Management District
Jeff McLemore
205 N. Parrott Avenue, Okeechobee, Florida 34972-2916
Phone: 800-250-4200 x3022, Fax: 863-462-5857
E-mail: jmclemo@sfwmd.gov

The project area encompasses district-owned lands in the Kissimmee River Valley between Lake Kissimmee and Lake Okeechobee. Climbing ferns (*Lygodium* spp.) in the project area were initially treated in 2003. Natural communities consist of mostly (90%) broad-leaved marsh, in addition to hardwood shrub, and live oak/palmetto hammock. The lands were purchased within the last 17 years to restore the Kissimmee River and its floodplain for improved water quality, increased water storage, and to reverse the degradation of the riverine habitat that occurred due to the channelization of the river.

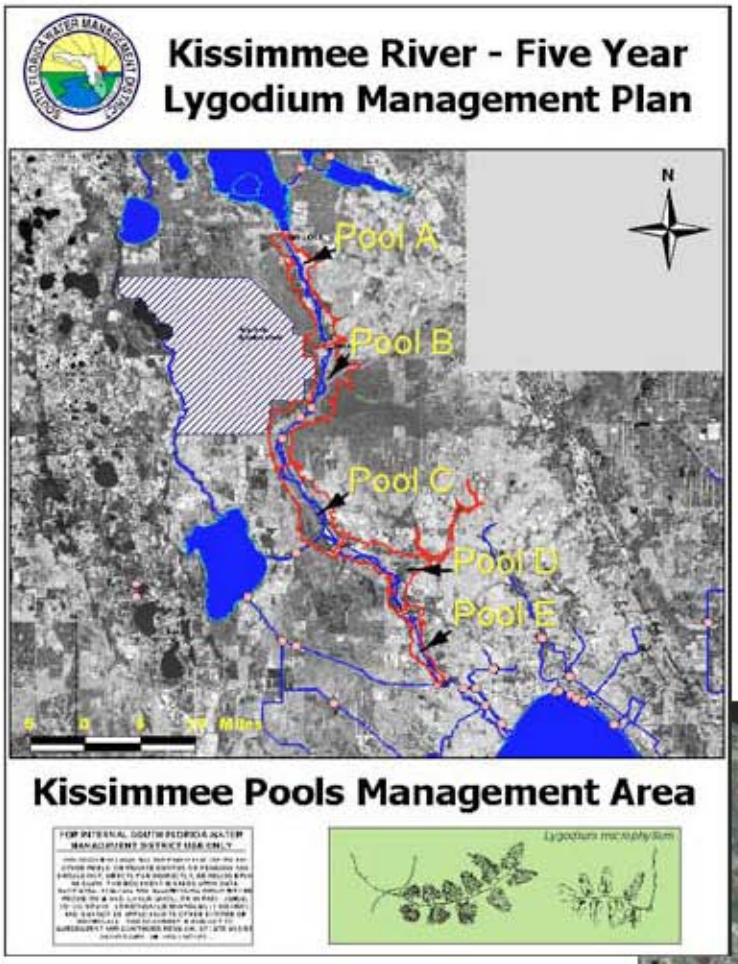
An aquatic glyphosate is used for aerial and ground crew treatments of *Lygodium*, since most of the sites where the fern grows contain standing water at least part of the year. *Lygodium* infests primarily the floodplain marshes and adjacent hardwood shrub and hammock areas along the river. Most of the project area was treated by helicopter, with the remainder treated by ground crews. Helicopter application of glyphosate is quite accurate and is aided by the use of an agricultural-type GPS unit on board. Ground crews use backpack sprayers to treat *Lygodium* on the ground after any vines leading to the canopy have been cut with machetes. Care is taken to aerially treat sites with trees (cypress and maple) during the dormant season to spare the trees any ill effects. Ground crews then return to treat any missed areas.

The treatment sites are located in Pools A, B-C, D, E, and Paradise Run (the southernmost section of the river that is not dammed but connected to Lake Okeechobee). The Kissimmee River Lygodium Control Program is one of the most successful for controlling *Lygodium* in the District. It is believed that this is due to the fact that in the restored section of the river (Pool B-C), the floodplain is holding enough water during the wet season to prevent the re-establishment of *Lygodium*. The density of infestation for all areas has been reduced from high to moderate (some sites) or low (most sites).

The District's fiscal year 2008 is the sixth year of treatment of *Lygodium* in the Kissimmee River Valley on District lands. The first year the District received $100,000 from BIPM to assist with the initial treatment. The District has received funds for follow-up treatments each year thereafter.

Species Treated	Common Name	Rank	Type	Herbicide
Lygodium japonicum	Japanese climbing fern	I	AE/FL	GLY+MET
Lygodium microphyllum	Old World climbing fern	I	AE/FL	GLY+MET

Kissimmee River Valley



Jonathan Dickinson State Park

County: Martin
PCL Size: 11,480 acres

Project ID: TC-104	797 acres	$237,858
Project ID: TC-105	50 acres	$121,505

Project Manager: Florida Park Service (DEP)
Rob Rossmanith, Park Biologist
16450 SE Federal Highway, Hobe Sound, Florida 33455
Phone: 561-744-9814, Fax: 561-744-7604
E-mail: robin.rossmanith@dep.state.fl.us

Old World climbing fern (lygodium) and downy rose-myrtle are the targets of a significant removal effort at JDSP. The overall design is to remove lygodium and other invasive plants from the tributaries of the Loxahatchee River in the park. The Loxahatchee River is recognized as a National Wild and Scenic River and is home to numerous endangered plant and animal species.

The first project provided maintenance control in the D and G Blocks in the western half of the park, which were treated in previous years. The project area is composed of pine flatwoods, cypress sloughs, depression marshes, and willow swamps. The major infestations, and maintenance effort, occurred in the wetland communities. The Florida Park Service provided matching grant funds from the Loxahatchee River Preservation Initiative for both this and the second project, for a total of $400,000.

The second project was located in the 356-acre C-5 Unit. Initial treatment of Old World climbing fern was conducted within a 50-acre project area composed of cypress swamp and hydric pine flatwoods. These areas had a very heavy concentration of lygodium, some areas having coverage of seventy-five to one hundred percent. The heaviest concentrations occurred within the cypress swamp.

Species Treated	Common Name	Rank	Type	Herbicide
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	TRIE+IMZ
Psidium guajava	guava	I	CS	TRIE+IMZ
Rhodomyrtus tomentosa	downy rose-myrtle	I	BB/CS	TRIE+IMZ
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE+IMZ
Syzygium cumini	Java plum	I	BB/CS	TRIE+IMZ

Photo by John Phillips

The upper reaches of the Loxahatchee River where John Phillips and the author used to go canoeing

The Loxahatchee River has been a scenic destination for many decades.

Peck Lake Park

County: Martin County
PCL Size: 67 acres
Project ID: TC-107 8 acres $67,947

Project Manager: Martin County Parks and Recreation
Charles Barrowclough
2401 S.E. Monterey Road, Stuart, Florida 34996
Phone: 772-288-5476, Fax: 772-221-1333
E-mail: cbarrowc@martin.fl.us

Peck Lake Park is owned by the Florida Inland Navigation District and managed by the Martin County Environmentally Sensitive Lands Division. The park contains a wide range of habitat types including scrubby and mesic flatwoods, hydric and mesic hammock, baygall, tidal marsh, tidal swamp, and disturbed uplands. Several listed plant species have been observed at Peck Lake Park, including erect prickly pear cactus (*Opuntia stricta*), common wild pine (*Tillandsia fasciculata*), giant wild pine (*Tillandsia utriculata*), unscented vanilla (*Vanilla mexicana*), Curtiss' milkweed (*Asclepias curtissii*), and nodding pinweed (*Lechea cernua*).

The project area was an 8-acre site on the eastern edge of the park where spoil deposition and land clearing caused extensive impacts to the landscape. Australian pine, Brazilian pepper, carrotwood, seaside mahoe, and lather leaf occupied over ninety percent of the area. Despite its highly disturbed nature, this section is critical to the ecology of the park and adjacent areas because it is surrounded by pristine mangrove swamp. Due to accessibility issues, the heavy equipment for mechanical control was barged to the site.

Species Treated	Common Name	Rank	Type	Herbicide
Acacia auriculiformis	earleaf acacia	I	CS	TRIE+IMZ
Ardisia elliptica	shoebutton ardisia	I	CS	TRIE+IMZ
Bischofia javanica	bishopwood	I	CS	TRIE+IMZ
Casuarina species	Australian pine	I	CS/MC	TRIE+IMZ
Colubrina asiatica	lather leaf	I	CS	TRIE+IMZ
Cupaniopsis anacardioides	carrotwood	I	CS/MC	TRIE
Ludwigia peruviana	Peruvian primrose willow	I	CS	TRIE+IMZ
Lygodium microphyllum	Old World climbing fern	I	FL	GLY
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	TRIE+IMZ
Scaevola taccada	beach naupaka	I	CS	TRIE+IMZ
Schinus terebinthifolius	Brazilian pepper	I	CS/MC	TRIE
Thespesia populnea	seaside mahoe	I	CS/MC	TRIE

Peck Lake Park

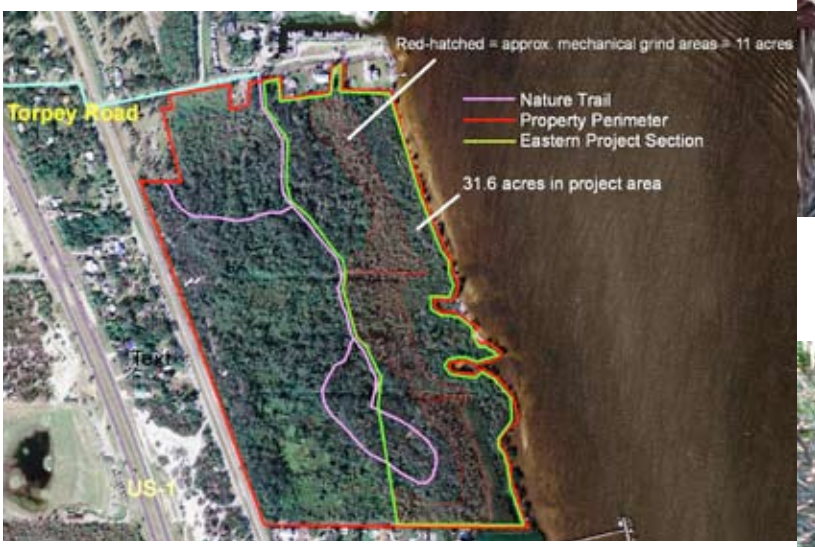
St. Lucie Village Heritage Park

County: St. Lucie
PCL Size: 74.5 acres
Project ID: TC-113 32 acres $57,501

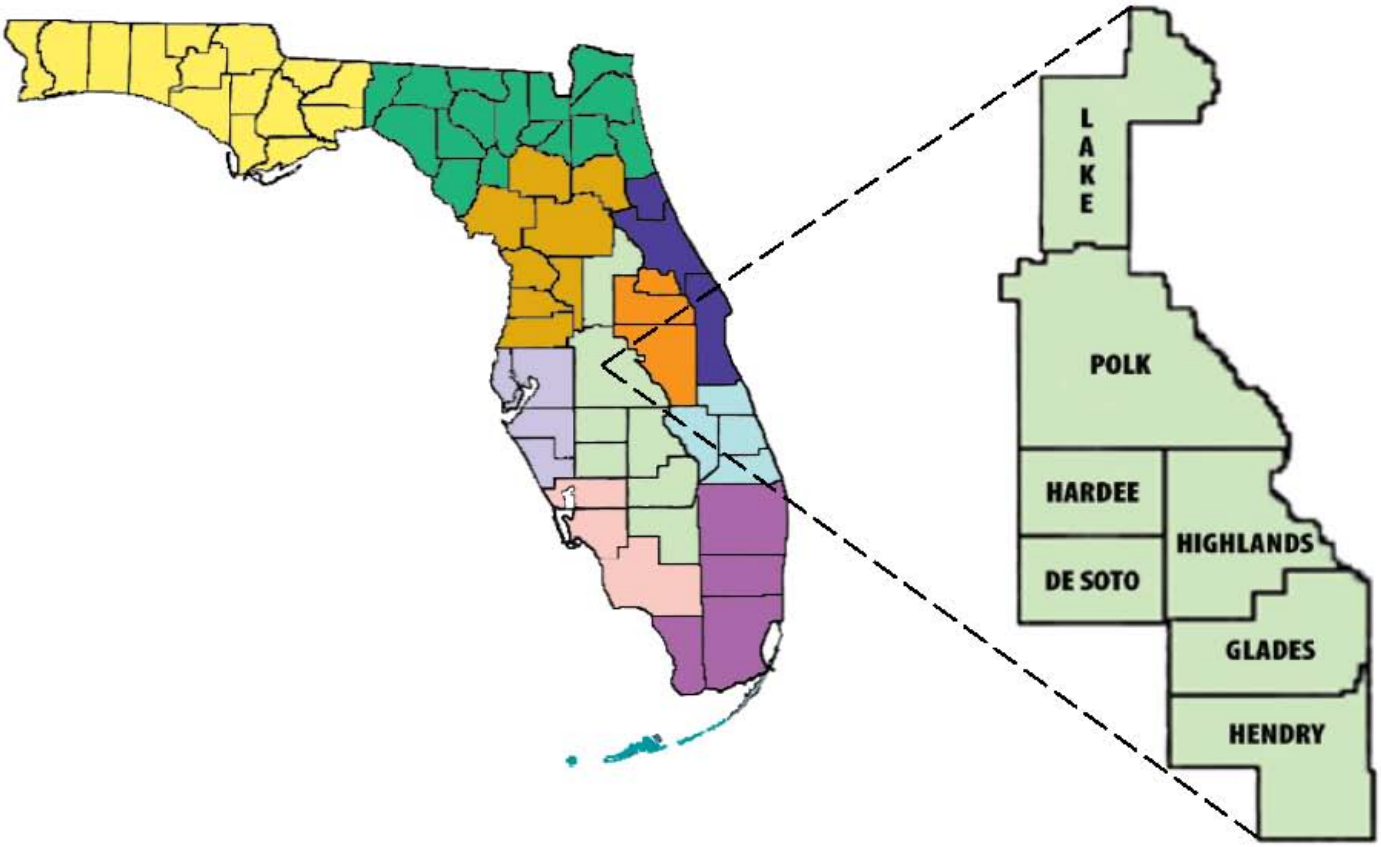
Project Manager: St. Lucie County
Steve Fousek, Environmental Lands Specialist
2300 Virginia Avenue, Ft. Pierce, Florida 34954-0760
Phone: 772-462-2525, Fax: 772-462-1684
E-mail: stevef@stlucieco.gov

This county park is located within the boundaries of the Indian River Lagoon National Estuary Program and adjacent to the Indian River–Vero Beach to Fort Pierce Aquatic Preserve. The park consists of 31 acres of hydric hammock, 22.5 acres of baygall, 16 acres of tidal swamp, and 5 acres of scrub. Brazilian pepper was found throughout the site; denser pockets occurred in hydric hammock.

Species Treated	Common Name	Rank	Type	Herbicide
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE



West Central Working Group Projects



Paynes Creek Historic State Park

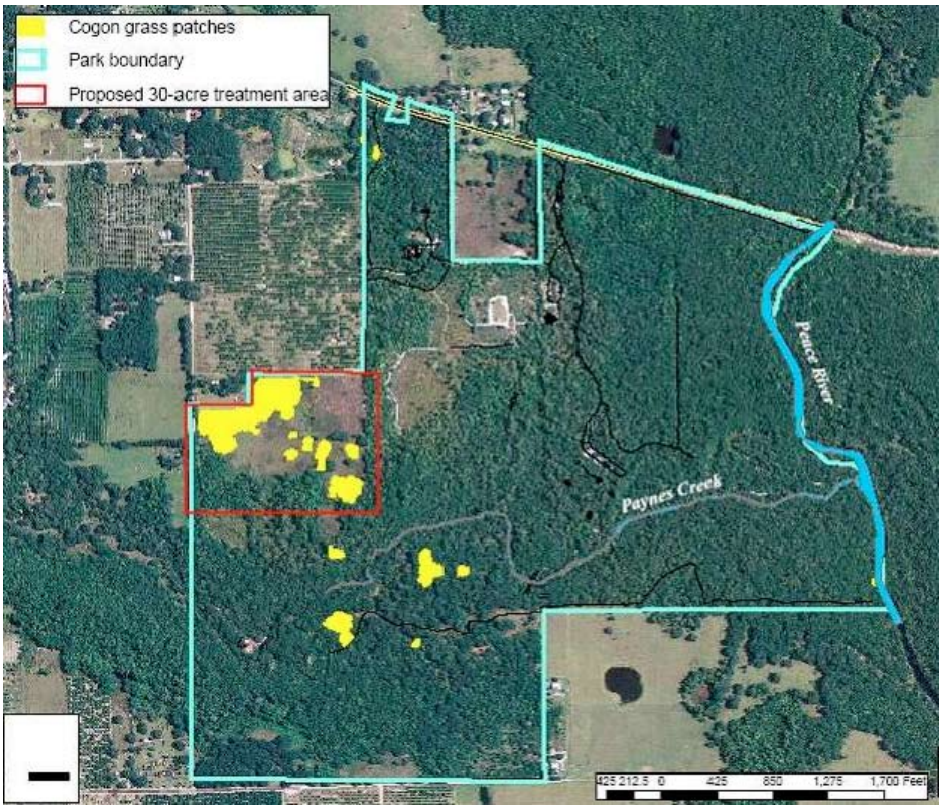
County: Hardee
PCL Size: 412 acres
Project ID: WC-069 37 acres $5,500

Project Manager: Florida Park Service (DEP)
Ray N. Gilmore, Park Ranger
888 Lake Branch Road, Bowling Green, Florida 33834
Phone: 863-375-4717
E-mail: ray.gilmore@dep.state.fl.us

Paynes Creek meanders through the southern portion of the park and is a tributary of the Peace River. The Peace River is the eastern boundary of the park. The park has three historically significant sites, each a part of the Seminole Indian War of 1849. These sites are the Fort Chokonikla site, the Kennedy-Darling Trading Post, and a monument. The project area is located near the Kennedy-Darling Trading Post site, in the west and southwest areas of the park.

Cogon grass infested two plant communities, bottomland forest and xeric hammock, as well as ruderal and disturbed areas. Cogon grass was isolated within the project area in approximately thirteen patches totaling 13.5 acres. The Florida Park Service provided $5,319 in matching funds.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY



Paynes Creek Historic State Park

Lake Wales Ridge State Forest/KICCO Wildlife Management Area

County: Polk, Highlands
PCL Size: 25,000 acres
Project ID: WC-070 473 acres $42,300

Project Manager: Florida Division of Forestry
Anne Malatesta, District Biologist
851 CR 630 East, Frostproof, 33843
Phone: 863-635-8589 X102, Fax: 863-635-7837
E-mail: malatea@doacs.state.fl.us

The Lake Wales Ridge is a unique and vulnerable habitat of which only ten to fifteen percent remains. The State Forest contains four globally imperiled ecosystems—dry prairie, ancient dune scrub, sandhill, and cutthroat seep—and sixteen federally listed endangered plants, including pygmy fringetree (*Chionanthus pygmaneus*), perforate reindeer lichen (*Cladonia perforate*), shortleaved rosemary (*Contradina brevifolia*), Avon Park rattlebox (*Crotalaria avonensis*), scrub blazing star (*Liatris ohlingerae*), Florida scrub plum (*Prunus geniculata*), and Carter's mustard (*Warea carteri*). The scrub community supports several species of threatened and endangered animals and is home to the Florida scrub jay. The Prairie and Arbuckle Tracts are part of the Lake Wales Ridge State Forest.

The Prairie Tract is 4,875 acres of pasture and dry prairie. Maintenance control was conducted on 20 acres of ditch banks for climbing fern and cogon grass. The Arbuckle Tract is 13,500 acres of natural communities that include scrub, scrubby flatwoods, sandhill, cutthroat seeps, swamps, and flatwoods. Initial treatment targeted climbing fern and tropical soda apple on the 20-acre Arbuckle Creek site and the 20-acre Lake Arbuckle site.

KICCO Wildlife Management Area contains 7,426 acres of various native habitats. The project area included 206 acres of slash pine adjacent to ditches for initial and maintenance control of climbing ferns, and 207 acres of floodplain marsh for initial control of Brazilian pepper.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+IMZ
Solanum viarum	tropical soda apple	I	FL	GLY+IMZ[1]

[1]Tropical soda apple on the Arbuckle Creek site was treated with Milestone©.

Lake Wales Ridge SF/KICCO WMA

Fisheating Creek Wildlife Management Area

County: Glades
PCL Size: 18,272 acres
Project ID: WC-071 1,142 acres $189,364

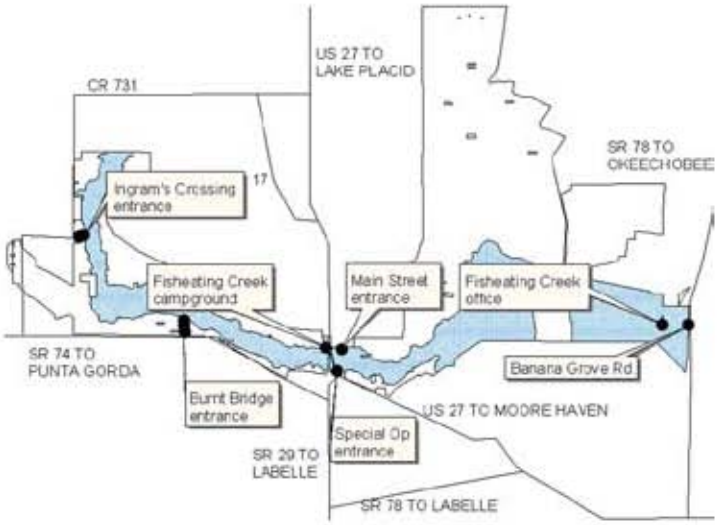
Project Manager: Fish and Wildlife Conservation Commission
Grant Steelman, Wildlife Biologist
3010 Banana Grove Road, Moore Haven, Florida 33471
Phone: 863-946-1194, Fax: 863-946-1087
E-mail: grant.steelman@myfwc.com

Fisheating Creek is the only non-dammed tributary to Lake Okeechobee. Natural communities in the WMA include cypress swamp, bottomland forest, freshwater marsh, dry prairie, prairie hammock, and hydric hammock. This project targeted wetland nightshade, Old World climbing fern, and other invasive exotics throughout the 20.3-mile Fisheating Creek channel from the Highlands-Glades county line to US 27. This maintenance control project was for continued retreatment of acres within the Phase II project area. FWC provided $219,030 in matching funds.

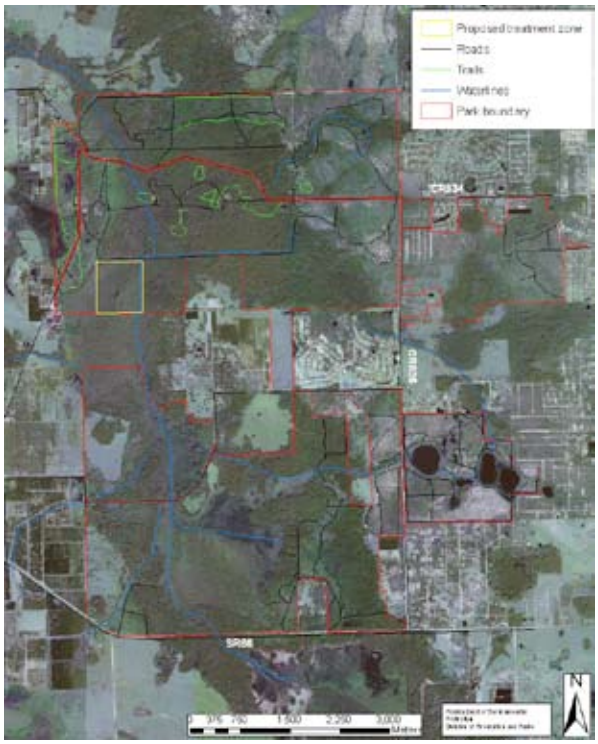
Treated climbing fern (brown) amidst cypress trees.

Species Treated	Common Name	Rank	Type	Herbicide
Casuarina equisetifolia	Australian pine	I	BB/CS	TRIE/IMZ+GLY
Lygodium microphyllum	Old World climbing fern	I	FL/AR	GLY+MET
Melaleuca quinquenervia	melaleuca	I	CS	IMZ+GLY
Schinus terebinthifolius	Brazilian pepper	I	BB/CS	TRIE/IMZ+GLY
Solanum tampicense	wetland nightshade	I	FL	24D/GLY+MET
Solanum viarum	tropical soda apple	I	FL	GLY+MET
Melia azedarach	Chinaberry	II	BB	TRIE

Fisheating Creek WMA



Highlands Hammock State Park



County: Highlands
PCL Size: 9,251 acres

Project ID: WC-072	140 acres	$12,973
Project ID: WC-083	140 acres	$7,460

Project Manager: Florida Park Service (DEP)
Judy Buchanan, Park Manager
5931 Hammock Road, Sebring, Florida 33872
Phone: 863-634-7869
E-mail: jeanne.parks@dep.state.fl.us

The park property is split into two main sections. The northern section is a 3,800 acre area that constitutes the original park boundary as established in 1931. The project area is in the southern portion of this northern section. The park is part of the southern extent of the Lake Wales Ridge system. Rare plants found in the park include the rein orchid (*Habeneria distans*), butterfly orchid (*Encyclia tampensis*), green fly orchid (*Epidendrum conopseum*), and royal fern (*Osmunda regalis* var. *spectabilis*).

The project area is a basin swamp and is covered with standing water for about seven months of the year. Little Charlie Bowlegs Creek crosses the park and flows north along the eastern edge of the project area. The creek was channelized along the swamp and this disruption of the hydrology allowed the encroachment of hardwoods into the swamp. *Lygodium microphyllum* then appeared in isolated patches throughout this area. Coverage of lygodium was estimated at fifteen percent. The project area was treated initially and then retreated in the following spring. The Florida Park Service provided $5,656 in matching funds.

Species Treated	Common Name	Rank	Type	Herbicide
Lygodium microphyllum	Old World climbing fern	I	FL	GLY+MET

Photos of representative *Lygodium microphyllum* patches within the proposed treatment zone. April 2007

Photos of representative *Lygodium microphyllum* patches within the proposed treatment zone. April 2007

Avon Park Air Force Range

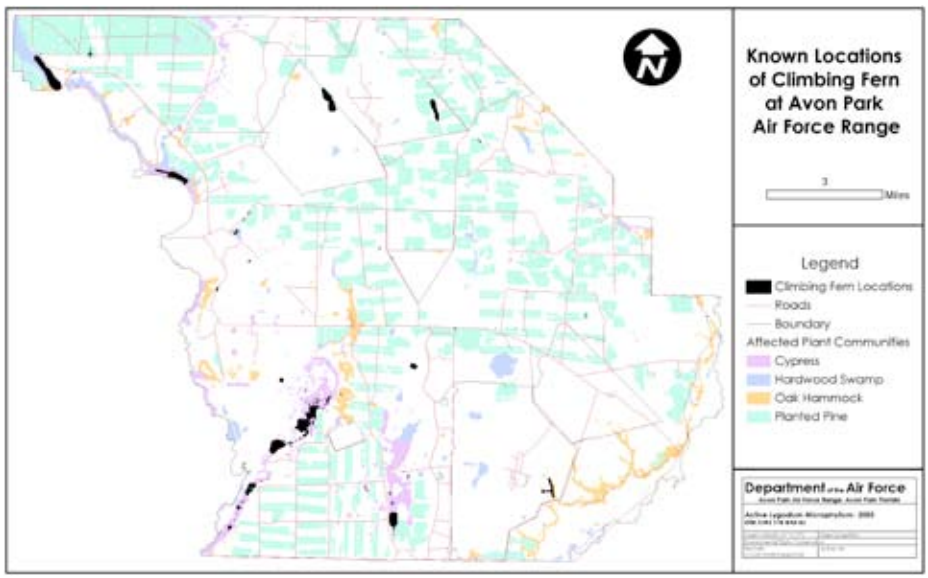
County: Highlands, Polk
PCL Size: 106,110 acres
Project ID: WC-073 582 acres $56,180

Project Manager: Department of Defense, U. S. Air Force
Clarence Morgan
18 ASOG, DET 1, OL, A CEVN
29 South Boulevard, Avon Park Air Force Range, Florida 33825-5700
Phone: 863-452-4119 x305, Fax: 863-452-4161
E-mail: clarence.morgan@avonpark.macdill.af.mil

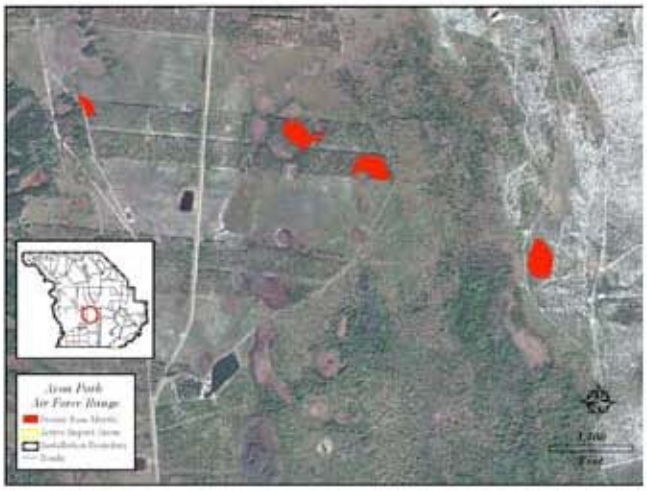
Avon Park Air Force Range (APAFR) is the largest parcel of natural land in the Greater Arbuckle Ecosystem. Its numerous natural communities include rare scrub, dry prairie, and cutthroat grass seeps. The APAFR supports an amazing array of rare plants and animals, including twelve animals and two plants that are listed as federally endangered or threatened species.

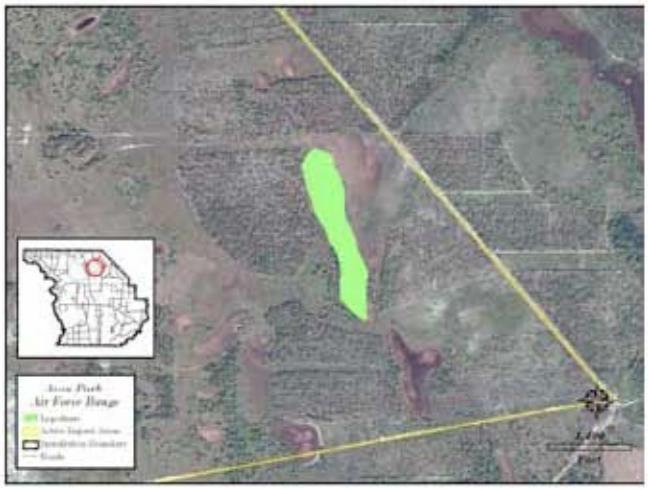
This project provided maintenance control for climbing ferns that infested approximately 554 acres of cypress and hardwood swamps, as well as initial control on two new invaders, air-potato and downy rose-myrtle. Downy rose-myrtle occurred in four locations affecting about 25 acres. Air-potato was found in two locations totaling 2.5 acres. The Department of Defense provided $50,000 in matching funds for work on this project.

Species Treated	Common Name	Rank	Type	Herbicide
Dioscorea bulbifera	air-potato	I	FL	GLY
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Lygodium microphyllum	Old World climbing fern	I	FL	GLY
Rhodomyrtus tomentosa	downy rose-myrtle	I	CS	GLY+IMZ



Avon Park Air Force Range





Okaloacoochee Slough Wildlife Management Area

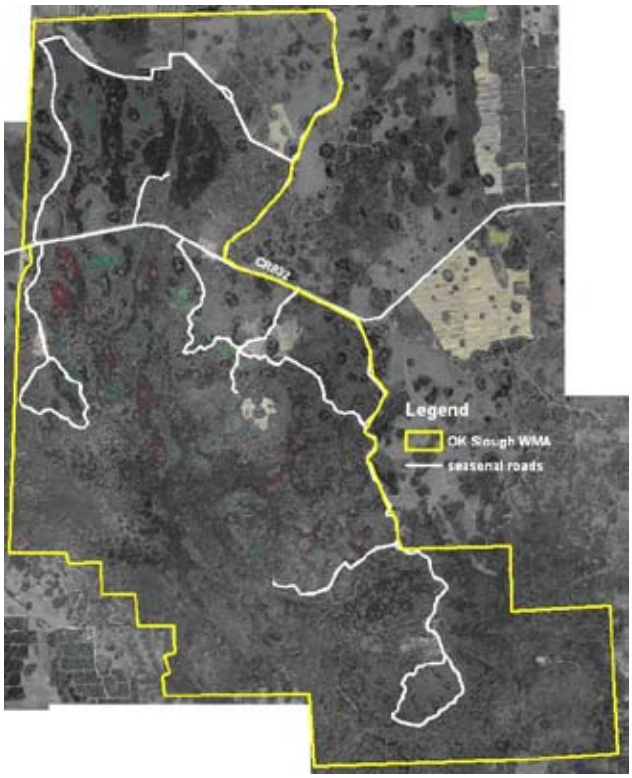
County: Hendry, Collier
PCL Size: 35,039 acres
Project ID: WC-074 10,687 acres $198,000

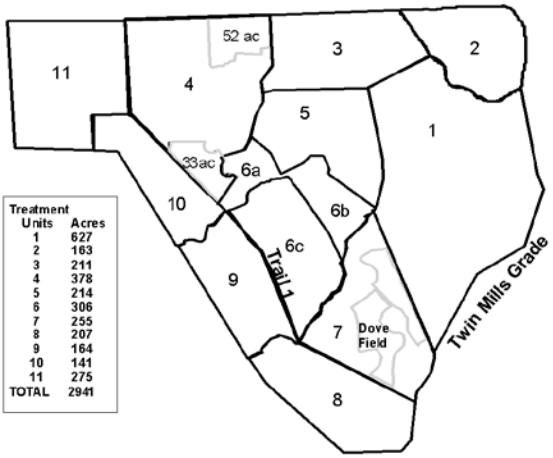
Project Manager: Fish and Wildlife Conservation Commission
Jean McCollom, Biologist III
PO Box 716, Felda, Florida 33930
Phone: 863-612-0775, Fax: 863-612-0786
E-mail: jean.mccollom@myfwc.com

The 'OK' Slough Wildlife Management Area is generally hydric in nature, with approximately 12,000 acres of mesic flatwoods and oak-cabbage palm hammocks persisting on the driest sites. The remaining two-thirds of the forest is made up of approximately 20,000 acres of a variety of plant native communities such as dome swamp, swale, depression marsh, and hardwood swamp, and approximately 2,500 acres of abandoned pasture and old fields. Timber, agriculture, and cattle operations comprised the historic use of the property. Rare plants include the listed species cutthroat grass (*Panicum abscissum*), as well as threatened bromeliads, orchids, and ferns.

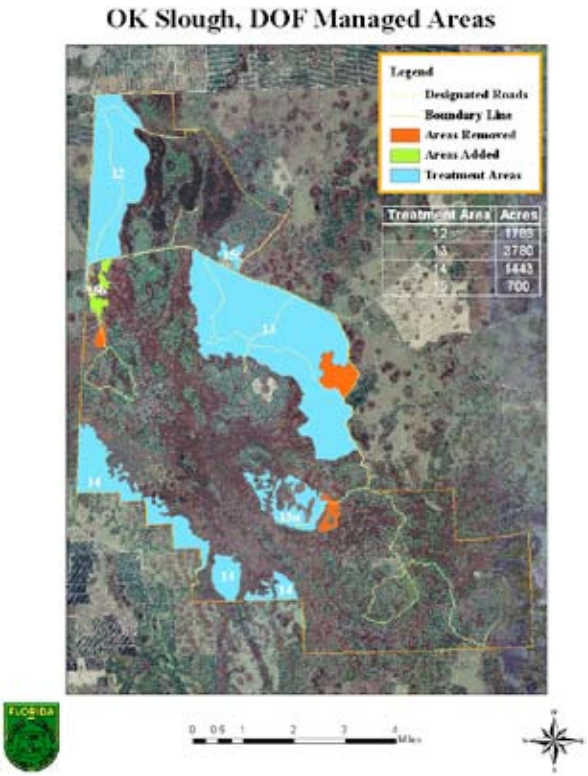
All of OK Slough has been treated for some invasive plant species in the past. Areas of infestation occurred throughout the Wildlife Management Area. This maintenance project retreated 2,975 acres managed by the FWC as part of the OK Slough WMA and 7,712 acres of the State Forest. FWC and the Division of Forestry provided an in-kind match of $53,266 in time and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Hymenachne amplexicaulis	West Indian marsh grass	I	FL	GLY
Imperata cylindrica	cogon grass	I	FL	GLY
Rhynchelytrum repens	Natal grass	I	FL	GLY
Schinus terebinthifolius	Brazilian pepper	I	FL	GLY
Solanum viarum	tropical soda apple	I	FL	GLY
Urochloa mutica	Pará grass	I	FL	GLY
Panicum maximum	Guinea grass	II	FL	GLY
Urena lobata	Caesar's weed	II	FL	GLY





Treatment units located on the FWC managed portion of Okaloacoochee Slough (above) and treatment units located on DOF managed portion of Okaloacoochee Slough (below).



Peace River Watershed

County: Polk
PCL Size: 84,627 acres
Project ID: WC-075 247 acres $22,230

Project Manager: Bureau of Mine Reclamation (DEP)
Kevin Claridge, Environmental Manager
2001 Homeland-Garfield Road, Bartow, Florida 33830
Phone: 863-534-7077, Fax: 863-534-7143
E-mail: kevin.claridge@dep.state.fl.us

The project area was a forested segment (Segment 2) of the Upper Peace River that also has numerous karst features. Hydrological alterations have reduced native vegetation and allowed tallow to invade. Tallow density was estimated at ten mature trees per acre. Trees occurred as scattered individuals or in small clusters. The Bureau of Mine Reclamation contributed $25,000 in matching funds toward this project.

Species Treated	Common Name	Rank	Type	Herbicide
Triadica sebifera	Chinese tallow	I	BB	TRIE

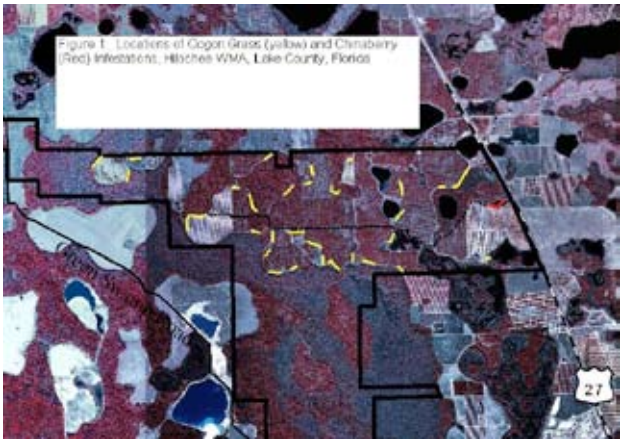
Hilochee Wildlife Management Area

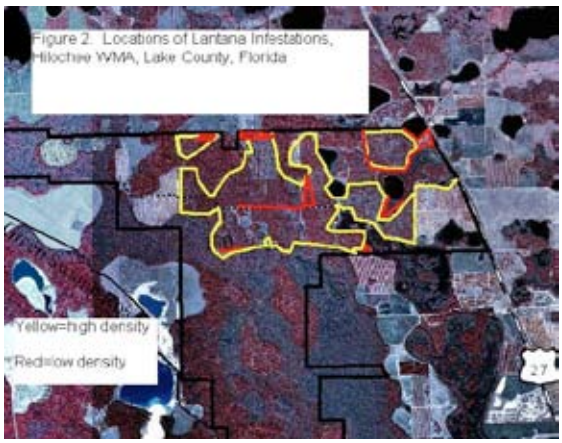
County: Lake, Polk
PCL Size: 11,100 acres
Project ID: WC-082 1,450 acres $92,581

Project Manager: Fish and Wildlife Conservation Commission
Cyndi A. Gates, Area Biologist
12932 CR 474, Clermont, Florida 34714
Phone: 352-241-8501, Fax: 352-242-4478
E-mail: cyndi.gates@myfwc.com

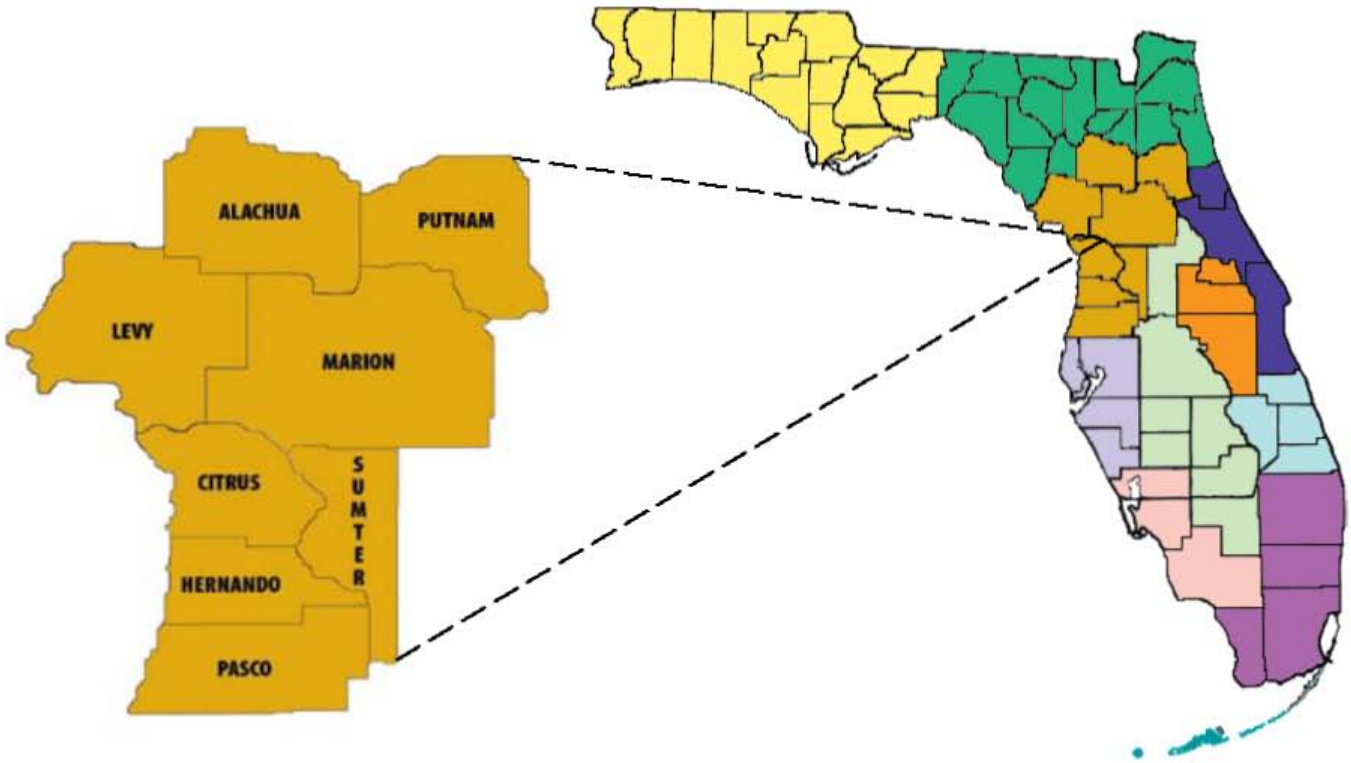
The Lake County portion of Hilochee WMA occupies approximately 5,400 acres. The project site consists of slash and sand pine plantations, citrus groves, pine flatwoods, cypress swamp, and improved pasture. Invading exotic plants include cogon grass, chinaberry, and lantana. Small infestations of cogon grass occupied a total area of 20 acres scattered over approximately 600 acres of pine plantations. Infestations ranged in size from 0.1-1.5 acres. Lantana occurred primarily within slash pine plantations that were former grove sites with densities ranging from 5-25 plants per acre scattered over approximately 600 acres of plantations. This project consisted of maintenance control on an area treated in 2006.

Species Treated	Common Name	Rank	Type	Herbicide
Abrus precatorius	rosary pea	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	CS	TRIE
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camara	lantana	I	CS	TRIE
Lygodium species	climbing fern	I	FL	GLY+IMZ
Schinus terebinthifolius	Brazilian pepper	I	CS	TRIE
Melia azedarach	Chinaberry	II	CS	TRIE
Enterolobium contortisiliquum	earpod tree	n/a	CS	TRIE





Withlacoochee Working Group Projects



Loblolly Woods

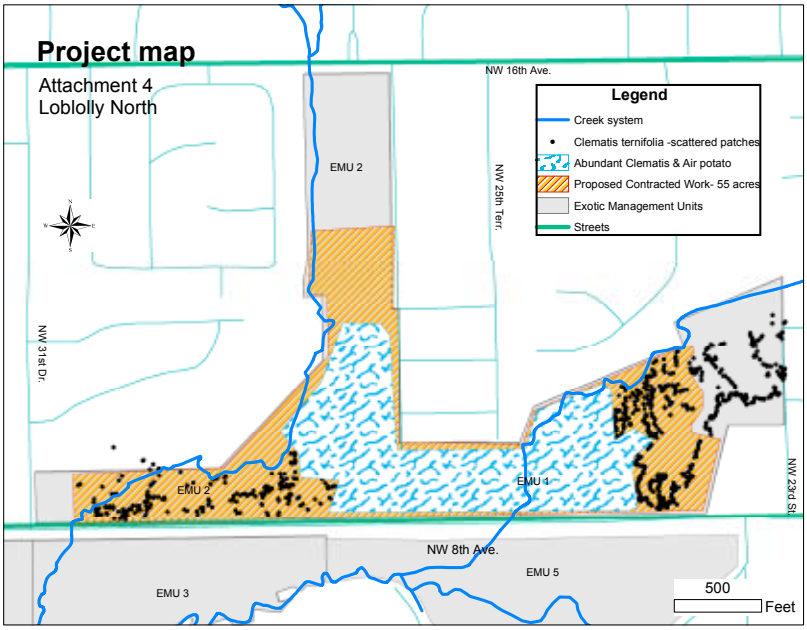
County: Alachua
PCL Size: 130 acres
Project ID: WR-090 55 acres $31,600

Project Manager: City of Gainesville
Geoffrey Parks
Station 66, PO Box 490, Gainesville, Florida 32602
Phone: 352-334-2231, Fax: 352-334-2234
E-mail: parksgr@cityofgainesville.org

Loblolly Woods contains seepage stream, floodplain forest, upland mixed forest, and bottomland forest natural communities. Possum and Hogtown Creeks flow through the preserve. Three listed plants occur in Loblolly Woods, Godfrey's swampprivet (*Forestiera godfreyi*), Florida milkvine (*Matelea floridana*), and needle palm (*Rhapidophyllum hystrix*). The Loblolly Woods population of the extremely rare Say's spiketail dragonfly (*Cordulegaster sayi*) is the largest known in the world.

This project was the fourth phase of the Loblolly Woods Invasive Exotic Plant Removal Project. The project focused on high-density populations of *Clematis terniflora* and *Dioscorea bulbifera*, which ranged between thirty-five to sixty percent and twenty-five to forty percent coverage, respectively. High densities of both species occurred along the Hogtown Creek Greenway. *Clematis terniflora* is a vigorous semi-evergreen vine than can climb up to thirty feet on a semi-woody stem that can reach four inches in diameter. The city contributed an in-kind match of $32,855 in time and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Clematis terniflora	sweet autumn virgins bower	I	FL	GLY
Dioscorea bulbifera	air-potato	I	FL	GLY
Lonicera japonica	Japanese honeysuckle	I	FL	GLY

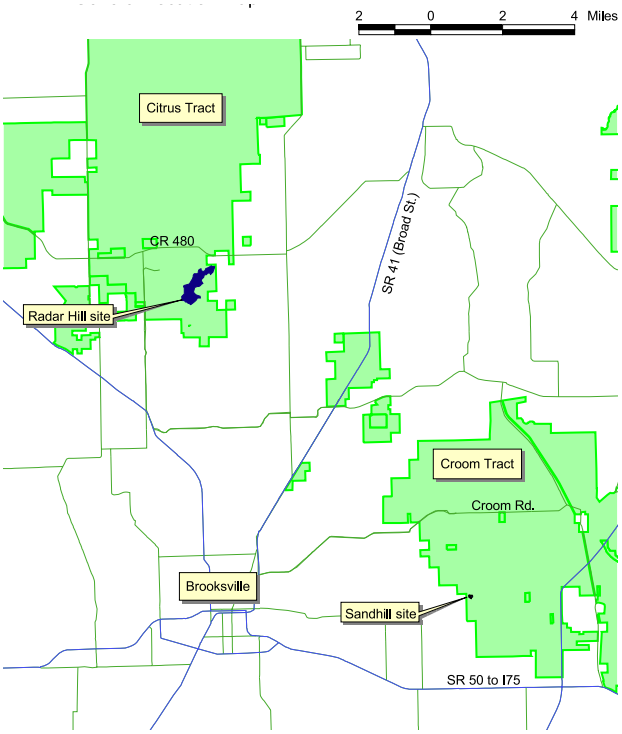


Withlacoochee State Forest

County: Hernando
PCL Size: 155,270 acres

Project ID: WR-091	91 acres	$17,000
Project ID: WR-103	240 acres	$17,358

Project Manager: Division of Forestry (DACS)
Vincent Morris
15019 Broad Street, Brooksville, Florida 34601
Phone: 352-754-6777 x129, Fax: 352-754-6751
E-mail: morrisv@doacs.state.fl.us



The 1,449-acre Headquarters Tract is located directly between the Croom and Citrus Tracts of the state forest. This area lies within the South Brooksville Ridge. Natural communities of the Headquarters Tract include sandhill, xeric hammock, upland mixed forest, and basin marsh. Rare listed species known to occur on the Headquarters Tract include the federally endangered Cooley's water willow (*Justica cooleyi*) and the state endangered pigmy pipes (*Monotropsis reynoldsiae*), sandhill spiny pod (*Matalea pubiflora*), and widespread polypody (*Pecluma dispersa*). This project provided maintenance control for 40 acres of cogon grass and 51 acres of coral ardisia.

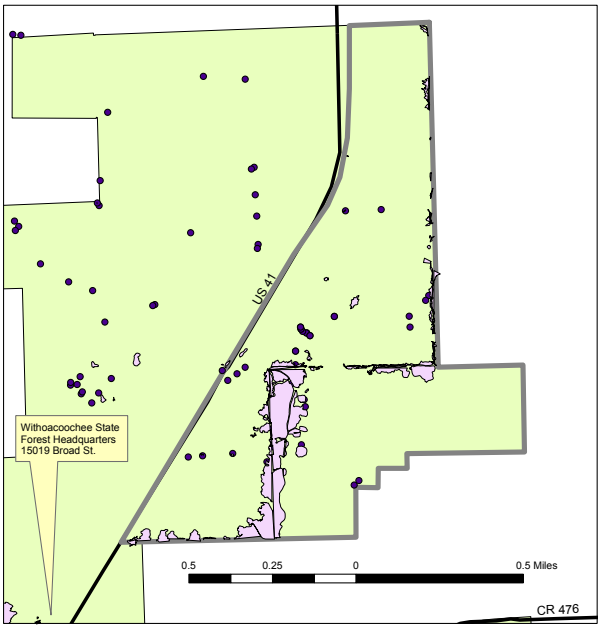
The second maintenance project targeted two sites initially treated in FY07. The Croom Tract site is 4.4 acres of sandhill that previously was completely covered in cogon grass. The Citrus Tract site is the 236-acre former Radar Hill Mine. Remnant natural communities associated with the mine area include sandhill, upland mixed forest, depression marsh, sink, and terrestrial cave. Cogon grass was widely scattered over the site. The Division of Forestry conducted additional in-house work as an in-kind match toward the two projects, with a value of approximately $200,000 in time and materials.

Species Treated	Common Name	Rank	Type	Herbicide
Ardisia crenata	coral ardisia	I	CS/FL	TRIE+IMZ
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ

Withlacoochee State Forest

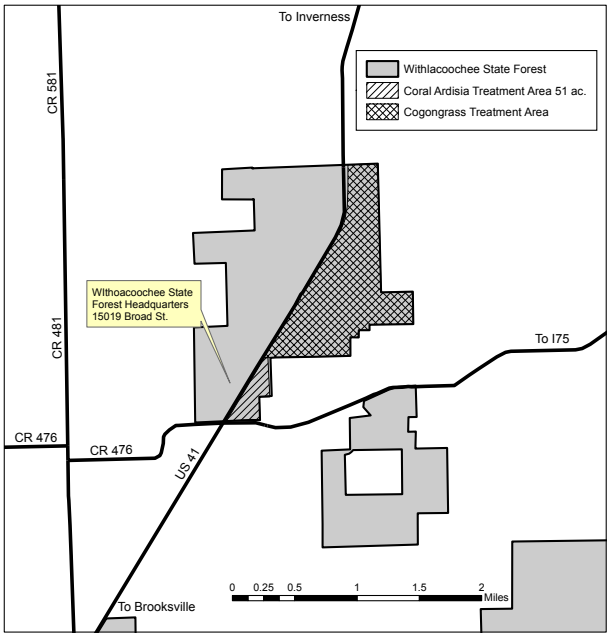
Withlacoochee State Forest
Headquarters Tract Cogongrass and Coral Ardisia
Maintenance Project 2007-2008

Cogongrass Infestation Map
39.7 Acres to be Treated

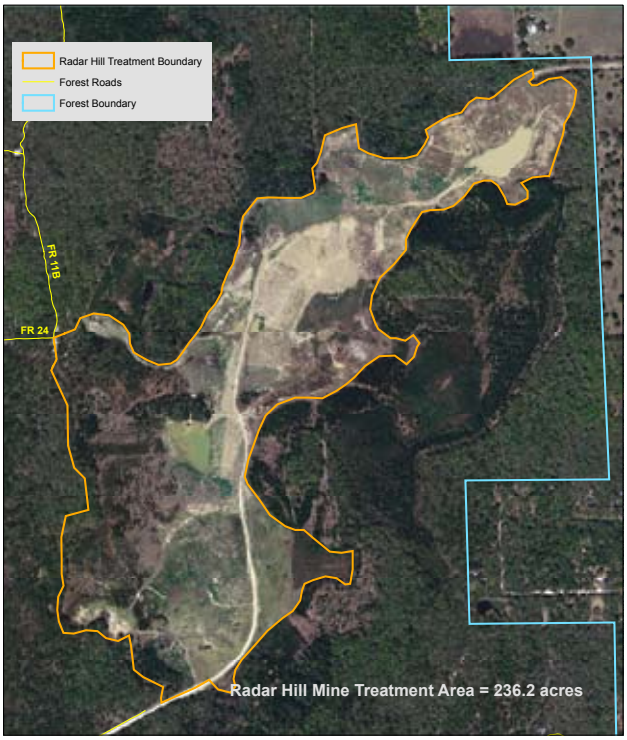


Withlacoochee State Forest
Headquarters Tract Cogongrass and Coral Ardisia
Maintenance Project 2007-2008

Area Map



Radar Hill Mine Cogongrass Treatment 2006-2007



Ocala National Forest

County: Marion, Lake, Putnam
PCL Size: 383,573 acres
Project ID: WR-092 120 acres $6,289

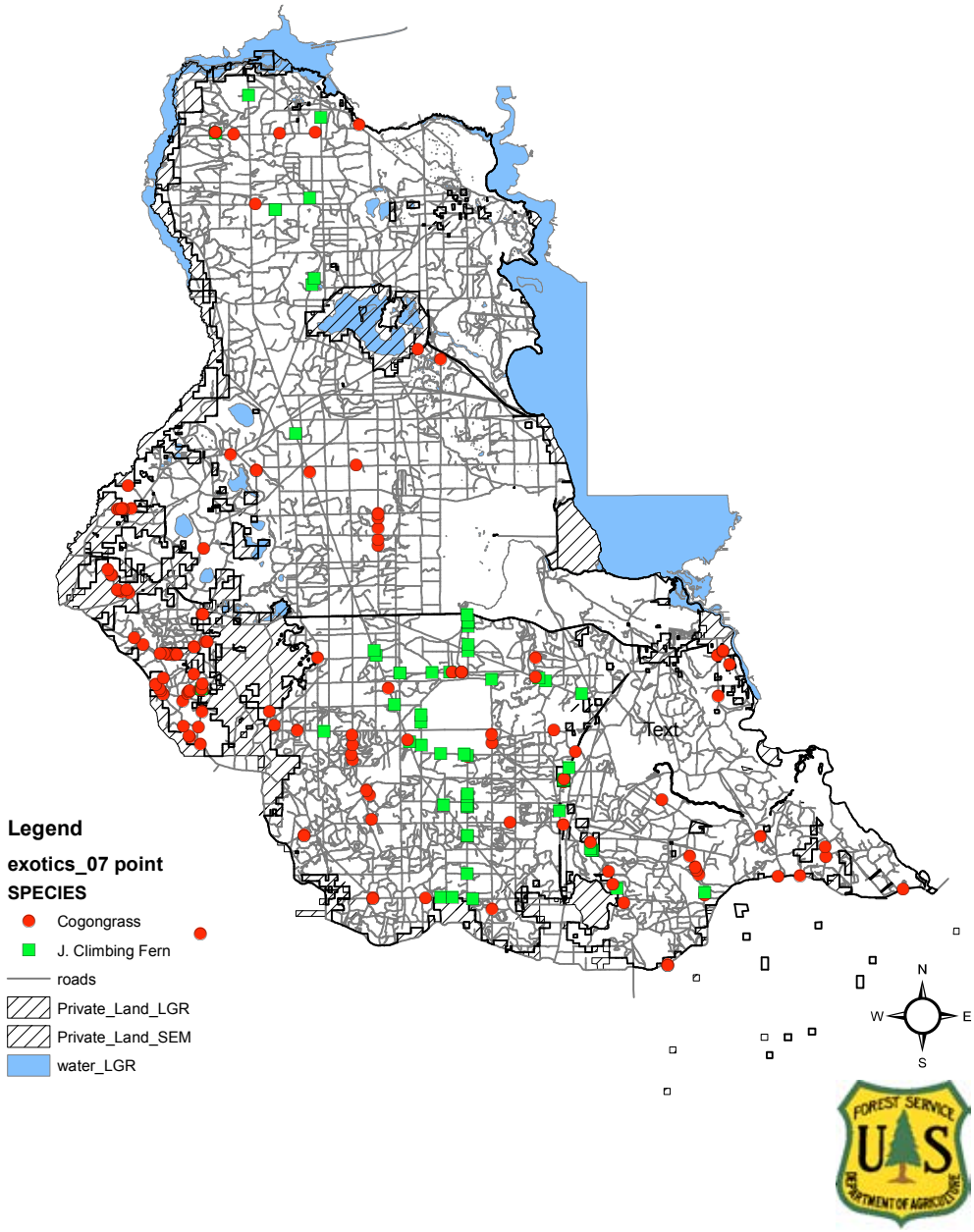
Project Manager: US Forest Service (USDA)
William Carromero, Ph. D., Botanist
17147 East Hwy 40, Silver Springs, Florida 34488
Phone: 352-625-2520, Fax: 352-625-7556
E-mail: wcarromero@fs.fed.us

Ocala National Forest encompasses approximately 380,000 acres in north-central Florida. The Forest is divided between two Ranger Districts, Lake George and Seminole. The Forest is bounded by the St. Johns River on the east and the Ocklawaha River on the west and north. The Forest contained exotics infestations that varied in size from 0.1 acre to 3 acres with fifteen to one hundred percent coverage. Two project sites were located in the Seminole Ranger District and one site in the Lake George Ranger District.

Ocala National Forest encompasses a variety of natural communities such as sand pine scrub, scrub oak, longleaf pine/wiregrass/turkey oak, xeric hammock, pine flatwoods, floodplains, hardwood swamps, and bayheads. Numerous endangered and threatened plant species occur in the sand pine scrub and longleaf pine/wiregrass ecosystems. Federally listed species on the Forest include the endangered *Polygala lewtonii* (Lewton's polygala) and *Nolina brittoniana* (Britton's beargrass), and the threatened *Bonamia grandiflora* (Florida bonamia), *Eriogonum longifolium* var. *gnaphalifolium* (scrub buckwheat), and *Clitoria fragrans* (scrub pigeon-wings).

Since the initial establishment of cogon grass in the Forest in the late 1970s, this invasive plant has steadily spread along county road rights-of-way through the Forest, infesting adjacent forested areas and private in-holdings. Seed dispersion via wind and animal fur has enabled cogon grass to establish along powerline rights-of-way and in remote parts of the Forest. Sites varied in size ranging from 0.1 acre to 3.0 acres, scattered over 100 acres. Small populations of Japanese climbing fern were found within 20 acres of the Forest. The Forest Service contributed an in-kind match of $9,840 toward this project.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY
Lygodium japonicum	Japanese climbing fern	I	FL	GLY



Cogon grass and Japanese climbing fern distribution in the Ocala National Forest.

Paynes Prairie Preserve State Park

County: Alachua
PCL Size: 20,945 acres
Project ID: WR-093 93 acres $38,400

Project Manager: Florida Park Service (DEP)
James Weimer, Park Biologist
100 Savannah Boulevard, Micanopy, Florida 32667
Phone: 352-466-8081, Fax: 352-466-4297
E-mail: jim.weimer@dep.state.fl.us

Paynes Prairie Preserve State Park is located immediately south of the City of Gainesville (and the University of Florida). The park is an Outstanding Florida Water, a National Natural Landmark, and a Priority Wetland Species Use Area. The park has a national reputation for the abundance and diversity of its plants and animals. The vertebrate list exceeds three hundred species and the vascular floral contains half of the species found in north central Florida. With its large size, the park is the central piece in the Orange Creek Corridor of public lands, which stretches over forty miles, extending from the Santa Fe River in the north to the Ocklawaha River to the southeast.

The East Rocky Point site is the upland edge of a wet prairie. The project area extends north along the upper edge of the Paynes Prairie bluff for approximately one mile. Of the 93 acres, 13 acres had a high density of Chinese tallow, averaging 1,000 to 1,500 stems per acre. The remaining 80 acres had a low density, averaging 3 to 5 stems per acre. The higher density locations frequently had a carpet of seedlings beneath the larger trees. Chinese tallow within the lower density areas occurred in small clumps. The Park contributed a match of $10,000 towards this project.

Species Treated	Common Name	Rank	Type	Herbicide
Triadica sebifera	Chinese tallow	I	BB	TRIE

Paynes Prairie Preserve State Park

Rainbow Springs State Park

County: Marion
PCL Size: 1,449 acres
Project ID: WR-094 75 acres $15,680

Project Manager: Florida Park Service (DEP)
Joe Smith, Park Manager
19158 SW 81st Place Road, Dunnellon, Florida 34432
Phone: 352-489-8503, Fax: 352-465-7855
E-mail: joe.smith@dep.state.fl.us

The project area is located on the 365-acre Griffitts property, an addition to Rainbow Springs State Park. The tract was previously managed largely for timber production, although pastures are also present on the property. Sandhill is the predominant natural community (~300 acres), with smaller areas of mesic flatwoods, and hydric hammock directly adjacent to the Rainbow River.

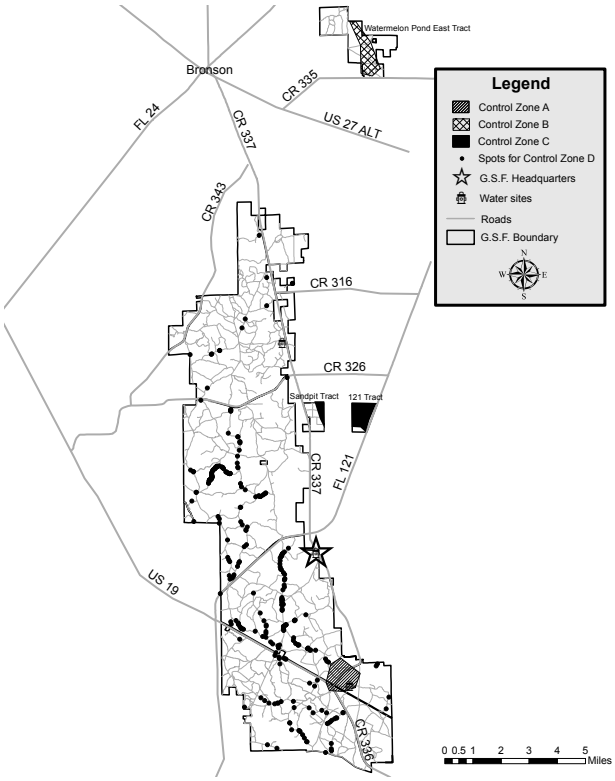
This project combined maintenance control of 55 acres with initial control of 20 acres, all targeting cogon grass. Approximately 15 acres of the previously untreated cogon grass occurred as understory in sandhill community with a dense, young canopy of sand pine. The density of cogon grass varied from moderate under gaps in the canopy to shaded areas where cogon grass was patchy and sparse. Less than 5 acres of cogon grass was located in pasture that abuts the project area. The Park contributed $5,000 in matching funds to this project.

Species Treated	Common Name	Rank	Type	Herbicide
Imperata cylindrica	cogon grass	I	FL	GLY

Goethe State Forest

County: Levy, Alachua
PCL Size: 53,000 acres
Project ID: WR-095 24 acres $22,833

Project Manager: Division of Forestry (DACS)
Jim Blush, Biologist
9110 SE CR337, Dunnellon, Florida 34431
Phone: 352-465-8572, Fax: 352-465-8515
E-mail: blushj@doacs.state.fl.us



The Goethe State Forest (GSF) has an extensive old-growth longleaf pine forest, which houses one of the largest populations of red-cockaded woodpeckers on public conservation land. Rare and listed plants found on GSF include spoon-leaved sundew, pondspice, spiny-pod, giant orchid, small ladies'-tresses, scarlet ladies'-tresses, lacelip ladies'-tresses, long-lip ladies'-tresses, lesser ladies'-tresses, little ladies'-tresses, and hooded pitcher plant. The following natural communities are found within the control zones of this project: sandhill, xeric hammock, mesic flatwoods, hydric hammock, and wet flatwoods.

The project area is divided into four control zones: Tidewater, Watermelon Pond East, 121 Tract/ Sandpit Tract, and the Main Goethe Roadside Cogon Grass Project. The Tidewater control zone is a 600-acre area that consists of mesic flatwoods, wet flatwoods, cypress ponds, and hydric hammocks. The majority of the exotic plants in this control zone were within a 12-acre area that consists of an old homesite, an archeological site, and an old rail bed. The exotics outside of the zone were widely scattered at low densities. Watermelon Pond East is a 460-acre area within a 1,946-acre out-parcel consisting of sandhill and xeric hammock. Cogon grass was scattered in dense clumps along the northern boundary of the parcel. The 121 Tract and Sandpit Tract are two out-parcels that total 882 acres, consisting of high quality sandhill habitat. The last zone is the main body of GSF to perform maintenance treatment of individual clumps of cogon grass found along a total of two miles of road in three separate infestations.

Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE+IMZ
Dioscorea bulbifera	air-potato	I	FL	GLY+IMZ
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Wisteria sinensis	Chinese wisteria	II	CS	TRIE
Pseudosasa japonica	arrow bamboo	n/a	FL	GLY+IMZ

Paynes Prairie Sweetwater Preserve

County: Alachua
PCL Size: 113 acres
Project ID: WR-098 68 acres $36,000

Project Manager: Alachua County Environmental Protection Department
Kelly McPherson
201 SE 2nd Ave, Suite 201, Gainesville, Florida 32601
Phone: 352-264-6848, Fax: 352-264-6852
E-mail: kmcpherson@alachuacounty.us

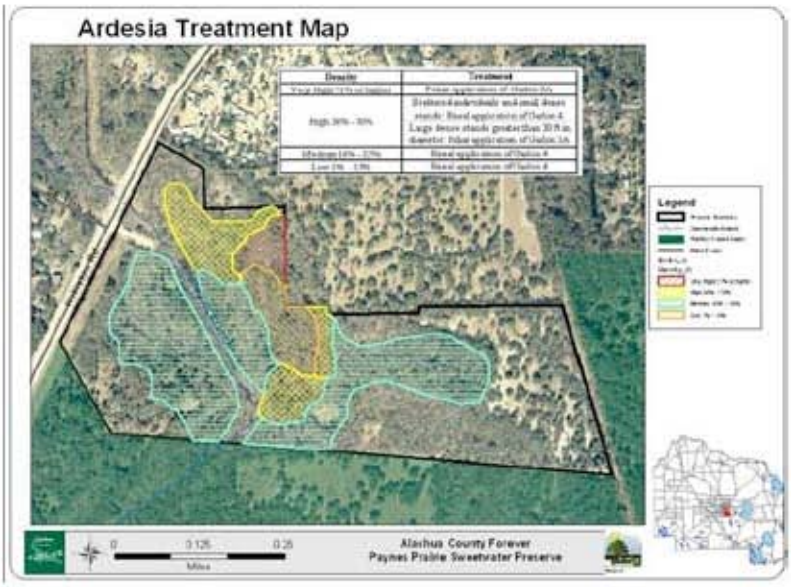
Alachua County acquired Paynes Prairie Sweetwater Preserve through the Florida Communities Trust program. The preserve is adjacent to Paynes Prairie Preserve State Park, Boulware Springs City Park, and the Gainesville-Hawthorn State Trail. The preserve is composed of upland mixed forest, baygall wetlands, seepage slope forest, xeric hammock, and sandhill communities. Sweetwater Branch, a creek that runs through the property, empties into Paynes Prairie Preserve State Park. Numerous exotic plants had invaded the preserve, many near Sweetwater Branch.

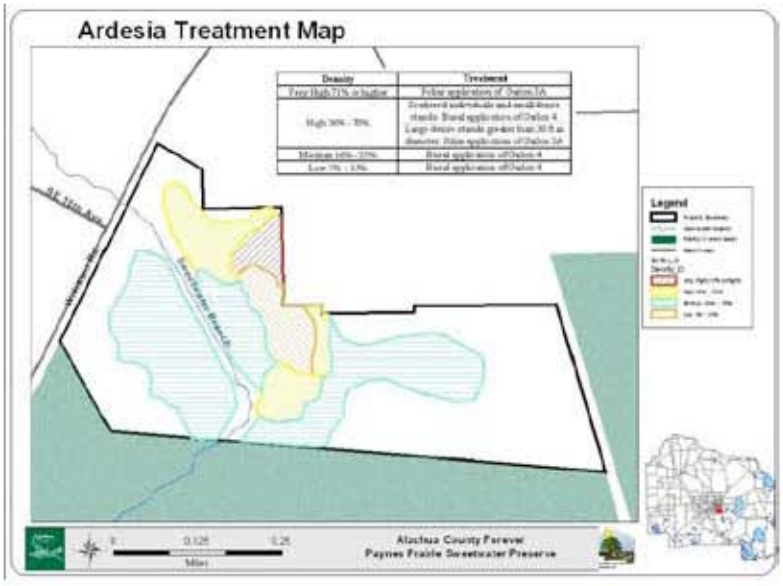
Coral ardisia occurred over much of the property, but mainly in upland mixed forest, seepage slope forest, at the toe of slopes leading into baygalls, and on hammocks within baygalls. The densest infestations were on the east side of Sweetwater Branch. Much of the ardisia lay beneath a diverse canopy of deciduous hardwoods within the unique seepage slope forest. Densities varied from as low as one percent coverage to over seventy percent.

With the exception of camphor tree, all of the other woody species were scattered or small patches of individuals. Very large camphor trees dominated the canopy layer, while beneath and near these trees were dense concentrations of camphor of all age and size classes. Some patches of camphor tree reached eighty to ninety percent coverage. Air-potato also established along Sweetwater Branch, typically extending approximately 200 feet perpendicular from the creek and forming bands of infestation paralleling the creek. In the growing season, air-potato ranged from twenty to one hundred percent coverage. The county provided matching funds of $8,300 and $1,024 of in-kind contribution in time and materials for this project.

Species Treated	Common Name	Rank	Type	Herbicide
Ardisia crenata	coral ardisia	I	BB/FL	TRIE/TRIA
Cinnamomum camphora	camphor tree	I	BB	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY
Ligustrum lucidum	glossy privet	I	BB	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY
Nandina domestica	heavenly bamboo	I	BB	TRIE
Triadica sebifera	Chinese tallow	I	BB	TRIE
Melia azedarach	Chinaberry	II	BB	TRIE

Paynes Prairie Sweetwater Preserve





Marjorie Harris Carr Cross Florida Greenway

County: Marion, Citrus, Levy, Putnam
PCL Size: 93,241 acres
Project ID: WR-099 10,600 acres $99,873

Project Manager: Office of Greenways and Trails (DEP)
Adele Mills
200 Buckman Lock Road, Palatka, Florida 32177
Phone: 386-312-2273, Fax: 386-312-2276
E-mail: adele.mills@dep.state.fl.us

The Cross Florida Greenway (CFG) has evolved from a proposed shipping canal to a proposed barge canal to a realized state recreation and conservation area. Covering sections of Citrus, Levy, Marion, and Putnam counties, the CFG is a 110-mile linear park that represents one of the largest public land areas managed by the State of Florida today. The Office of Greenways and Trails (OGT) contracted with Florida Natural Areas Inventory (FNAI) to inventory the CFG for upland invasive exotic pest plants. FNAI inventoried the entire CFG and produced maps showing locations of all documented invasive exotics. Thirty-six invasive exotic species occur in multiple infestations along the length of the CFG.

OGT has an active cogon grass control program on the CFG. Each year OGT treats newly discovered infestations and re-treats existing or known infestations. This maintenance project was located in Sections 7, 8, and 9A of the Greenway. The primary target was 160 acres of cogon grass within these sections.

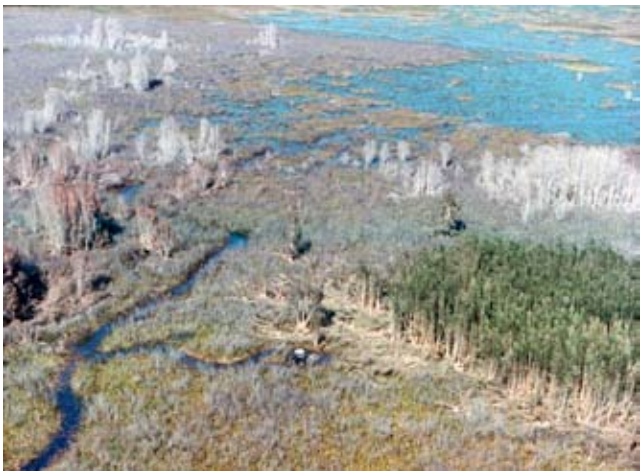
Species Treated	Common Name	Rank	Type	Herbicide
Albizia julibrissin	mimosa	I	CS	TRIE
Albizia lebbeck	woman's tongue	I	CS	TRIE
Cinnamomum camphora	camphor tree	I	CS	TRIE
Dioscorea bulbifera	air-potato	I	FL	GLY+MET
Imperata cylindrica	cogon grass	I	FL	GLY+IMZ
Lantana camara	lantana	I	CS	TRIE
Lygodium japonicum	Japanese climbing fern	I	FL	GLY+MET
Nephrolepis species	sword fern	I	FL	GLY+MET
Paederia foetida	skunk vine	I	FL	GLY+MET
Broussonetia papyrifera	paper mulberry	II	CS	TRIE
Melia azedarach	Chinaberry	II	CS	TRIE
Rhynchelytrum repens	Natal grass	II	FL	GLY+MET
Pteris vittata	Chinese brake fern	II	FL	GLY+MET

Melaleuca Program

Melaleuca was brought to Florida in the early 1900s as an ornamental tree. Its fast-growing nature led to it being planted extensively as wind breaks and fence rows. The U.S. Army Corps of Engineers originally introduced melaleuca to Lake Okeechobee in the late 1930s, planting trees on low-lying islands immediately lakeward of the levee to protect against storm generated wind and wave erosion. From these limited plantings, melaleuca spread into many thousands of acres of marsh within the lake.

During the 1980s and early 1990s, the South Florida Water Management District (SFWMD) was the primary source of funding for melaleuca control on public lands. In 1993, the Florida Legislature authorized an annual appropriation of $1 million for the specific purpose of melaleuca control (Section 206.606, Florida Statutes). The Bureau of Invasive Plant Management (BIPM) initiated a cost-sharing program with this $1 million, which the District matches dollar for dollar. This partnership, referred to as the Melaleuca Program, has resulted in over $20 million of melaleuca control to date. BIPM later expanded the program to also provide melaleuca control on non-district conservation lands. At the current level of funding, melaleuca could be eliminated from the Everglades Water Conservation Areas (WCA) and Lake Okeechobee (Lake O) within the next ten years.

Melaleuca Management—Melaleuca became a target of invasive plant control in the 1980s. Initial work was done on Everglades National Park, Big Cypress National Preserve, Lake O, and the WCA. The National Park Service treated 90,717 acres of melaleuca on ENP during 1986 to 1998 and 71,000 acres on BCNP from 1984 to 1997. The U.S. Fish and Wildlife Service treated 8,095 acres of melaleuca on Loxahatchee National Wildlife Refuge (a.k.a. WCA 1) prior to 1987 and 6,755 acres from 1987 to 1998. The SFWMD assisted with these early efforts, as well as treating Lake O and the WCA.



The SFWMD pioneered the aerial treatment of melaleuca by helicopter in the 1990s. During 1994 to 1998, the District aerially treated 3,813 acres of Lake O, 1,643 acres of WCA ('95-'97), and 1,322 acres of the Pennsuco Mitigation Area ('98 only). On areas that are aerially treated, ground crews are used for follow-up and maintenance control. With aerial treatment, large areas can be treated for relatively little cost; the primary factors being helicopter time and amount of herbicide used. Ground control, on the other hand, can cost three to ten times more than aerial treatment, depending upon the size and density of the trees, ease of access to the site, and labor and machinery costs.

In 1993, the SFWMD estimated there were over 500,000 acres of melaleuca in south Florida, with fifty percent on public conservation lands. In 2005, twenty-five percent of melaleuca was on these lands—a decrease of over 125,000 acres through Florida's dedicated funding for melaleuca control. Melaleuca has been completely cleared from Water Conservation Areas 2A, 3A, and 3B, north and south of Alligator Alley. These areas are now under "maintenance control." Today, the melaleuca infestation is no longer increasing; in many areas it is being reduced.

Management Strategy—An effective, integrated management of melaleuca requires a combination of control techniques; chemical, mechanical, and biological. The melaleuca snout beetle (*Oxyops vitiosa*) was released in WCA-3B near Ft. Lauderdale in April 1997. The insect is now established within melaleuca populations throughout south Florida. A second insect, a sap-sucking psyllid (*Boreioglycaspis melaleucae*), was released in November 2002 and is also well established. These two control agents have been observed to severely curtail flowering and new growth of melaleuca.

Effective melaleuca management requires knowledge of its biology. The reproductive potential of melaleuca is tremendous. A mature tree may retain millions of seeds, all of which may be released from their protective capsules following a stressful event such as drought, fire, physical damage, or herbicide application. Once released, fifteen to twenty percent of the seeds will germinate. New trees take approximately two years to mature and produce viable seeds. Follow-up treatment within the second year after the initial treatment is essential to eliminate seedlings before they can produce viable seeds. Under ideal conditions, melaleuca can be nearly eliminated from an area within two years. The first phase of control targets all existing trees and seedlings in a given area. Using GPS equipment, crews return to the same site to remove any seedlings resulting from the control activities of the previous year. The District's control operations consist of three phases:

Phase I. Elimination of all mature trees and seedlings present in an area.

Phase II. Revisiting previously treated sites for follow-up treatment to control trees previously missed and remove seedlings that may have resulted from control activities of the preceding year.

Phase III. Long-term management of melaleuca: surveillance and inspection of previously treated sites to monitor the effectiveness of control and maintain reinfestation levels as low as possible.

The goal of the current melaleuca management program is to contain melaleuca on all District land and to maintain infestation levels as low as possible while minimizing impacts to non-target vegetation. The melaleuca management strategy is based on the quarantine strategy, where the least infested areas (outliers) are addressed first, in order to stop the progression of the existing population. Frill-and-girdle application of an herbicide solution (25% glyphosate, 10% imazapyr in water) is the primary method used to kill mature trees. Aerial application is useful for control operations on large areas of melaleuca monocultures, although these areas are becoming rarer on public lands.

Regardless of the control method used, a comprehensive data collection and evaluation plan is essential for the success of melaleuca management initiatives. Record-keeping is invaluable for making future management decisions. Data collection in the District's program includes: longitude and latitude coordinates at each treatment site, type of control method, type of herbicide and amount, method of application, number of trees and seedlings or hectares treated at each site, and other operational information. The data are used to produce maps to keep track of progress on individual control sites.

Program Expenditures—For fiscal year 2008, a total of $1,076,377 was reimbursed to SFWMD for maintenance control operations on 36,598 acres of Lake Okeechobee and the Water Conservation Areas. An additional $64,416 was spent by BIPM on herbicides to assist the District with these operations.

Two panoramic views of a melaleuca initial control operation before and after completion.

Lygodium Strike Team Projects

The Bureau of Invasive Plant Management initiated an additional service for conservation land managers throughout the state in 2004. The Bureau hires a contractor to visit individual conservation lands to provide control of small incipient populations of Old World and Japanese climbing ferns (*Lygodium microphyllum* and *L. japonicum*, respectively). This effort targets populations too large for in-house control efforts, but too small to design a formal project around and apply for funding at the working group level. Maximum size for any control area is usually limited to 10 acres.

The Lygodium Strike Team is an experienced weed control specialist under contract with the Bureau. The contractor provides service to treat lygodium whenever there is a need anywhere in the state. The service includes all labor, materials, equipment, and herbicide and adjuvants, necessary to treat *Lygodium* species. The contractor conducts either a foliar application or a "poodle-cut" application; a modified foliar method where the vines are cut 4-5 feet up the stem and the foliage is rolled up from the base, then all vines on the ground are sprayed.

Treatment is usually with glyphosate herbicide (Roundup™, Glypro™, Aquaneat™, etc.) at three percent, or at two percent with the addition of metsulfuron methyl herbicide (Escort™, Patriot™, etc.) usually at two ounces per hundred gallons of mix. A list of public conservation lands visited by the Lygodium Strike Team and the acres of lygodium treated follows. Total cost for treating 222.5 acres was $97,466.

Twin Rivers State Forest	6.0
Estero Bay Preserve State Park	20.0
San Felasco Hammock Preserve State Park	3.0
Highlands Hammock State Park	8.0
Ichetucknee Springs State Park	10.0
Rainbow Springs State Park	6.0
Suwannee River State Park	10.0
Raiford Wildlife Management Area	61.0
Jacksonville/Baldwin Rails-to-Trails, Duval County	3.0
Wolf Branch Sink Preserve, Lake County	9.0
Danforth Creek, Martin County	5.0
Delaplane Park, Martin County	1.0
Gomez Park, Martin County	15.0
Hawks Hammock, Martin County	6.0
Oxbow Park, Martin County	2.0
Peck Lake, Martin County	5.0
Palm City Park, Martin County	9.0
Pendarvis Cove, Martin County	6.0
Phipps Park, Martin County	3.0
Scrub Oak, Martin County	10.0
Hampton Bay, Orange County	24.5

Herbicide Bank Projects

The Upland Invasive Exotic Plant Management Program established the "Herbicide Bank" to assist land managers in maintenance control of exotics on lands that were part of a project previously funded by the program. The Herbicide Bank supplies the herbicide for re-treatment, while the land manager provides the labor, time, and any other materials required. Depending upon the type of plant, re-treatment is typically needed one to two years after the initial control work is completed. The Herbicide Bank may also supply chemicals for initial control projects where land managers choose to do exotic removal in-house.

In the 2008 fiscal year, the Herbicide Bank provided chemicals to over 120 land management units for initial or maintenance control at a total cost of $595,260. The number of acres treated by site are listed below.

Managed Area	Cost	Acres
Alafia River State Park	$9,389	396
Anastasia State Park	$7,379	22
Atlantic Ridge State Park	*	50
Avalon State Park	*	14
Bill Baggs Cape Florida State Park	$894	35
Catfish Creek Preserve State Park	$1,702	23
Collier-Seminole State Park	$834	75
Colt Creek State Park	$1,043	240
Crystal River Preserve State Park	$138	3
Dade Battlefield Historic State Park	$1,332	23
De Leon Springs State Park	$3,971	76
Estero Bay Preserve State Park	$16,486	140
Falling Waters State Park	$695	168
Florida Keys Parks Techs	$3,029	*
Ft. Pierce Inlet State Park	$8,913	20
Homosassa Springs State Park	$138	4
Indian River State Park	*	115
Islands GEOpark	$5,500	94
John D MacArthur Beach State Park	*	10
Jonathan Dickinson State Park	$3,210	115
Lake Griffin State Park	$1,916	25
Lake Louisa State Park	$2,912	13
Lake Manatee State Park	$2,102	6
Myakka River State Park	$1,539	21
Oleta River State Park	$817	40
Paynes Creek Historic State Park	$792	24
Paynes Prairie Preserve State Park	$5,707	290
Ponce de Leon Springs State Park	$1,588	406
Savannas Preserve State Park	$3,897	30
St. Sebastian River State Park	$4,109	32
Sebastian Inlet State Park	$2,739	510
Silver River State Park	$4,644	227
Terra Ceia Preserve State Park	$10,535	460
Three Rivers State Park	$3,348	405
Tomoka State Park	$1,350	10
Washington Oaks State Park	$1,034	14
Blackwater River State Forest	$37,894	2,240
Four Creeks State Forest	$2,910	150
Goethe State Forest	$811	10
Matanzas State Forest	$2,916	17
Picayune State Forest	$61,755	1,810
Tates Hell State Forest	$21,253	225
Tiger Bay State Forest	$9,600	19
Wakulla State Forest	$238	5
J.W. Corbett Wildlife Management Area	$171,775	*
Salt Lake Wildlife Management Area	$5,303	14
Triple N Ranch Wildlife Management Area	$10,649	50
Juniper Lake Fish Management Area	$2,002	*
Lake Toho Fish Management Area	$1,563	7
Tenoroc Fish Management Area	$518	72
Indian/Banana Rivers Aquatic Preserves	$637	79
Lake Jackson Aquatic Preserve	$703	26
Yellow River Marsh Aquatic Preserve	$771	12
Homeland Tract	$1,214	30
SFWMD Kissimmee Chain of Lakes	$33,531	200
SRWMD Conservation Areas	$1,677	34
Timucuan National Preserve	$558	20
Gulf Islands National Seashore	$403	100
Loxahatchee National Wildlife Refuge	$2,207,256	*
Pelican Island National Wildlife Refuge	$58,874	4,000
City of Largo Parks	$3,903	156
City of Gainesville Parks	$3,651	80
Tree Hill Nature Center	$69	5
Dicerandra Scrub Sanctuary	$2,891	11
Southern Pines Conservation Area	$523	13
South Lake Conservation Area	*	6
Upper Little Manatee River Preserve	$3,132	26
Lake County Water Authority	$3,182	126
North Island-GIBA	$1,900	*
Leon County Greenways	$15,200	800
Halpatiokee Park	$5,999	210
Pinellas County P-2000 Property	$3,278	60
Boca Ciega Millennium Park	$1,783	185
Ft De Soto Park	$482	1,100
McKay Creek Greenway	$2,525	80
Lake Seminole Park	$3,820	250
Sawgrass Lake Park	$5,386	400
Sarasota County Parks	$810	60
Lake Lotus Park	$344	22

TOTALS: $595,260 86,916 acres

Uplands Program Operations Summary

Uplands Operations Summary of Working Group Projects 1997-2008

Total 1997-2008						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	393,301	$1,396	$571	$4-$33,333	27.82	1.07
Shrubs/Grasses	81,436	$653	$308	$9-$8,352	16.43	1.02
Vines	107,279	$888	$414	$9-12,977	30.23	1.11
TOTALS	582,030	$1,148	$488	$4-$33,333	25.90	1.07

2007-2008						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	38,486	$1,090	$381	$5-$493	18.69	0.81
Shrubs/Grasses	33,436	$446	$137	$9-$2,900	8.87	1.21
Vines	44,780	$426	$121	$9-$3,000	4.47	0.54
TOTALS	116,717	$772	$224	$5-$8,493	14.12	0.87

2006-2007						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	93,965	$709	$325	$5-$6580	14.99	0.52
Shrubs/Grasses	7,630	$471	$347	$12-$1,756	10.52	0.86
Vines	35,779	$59	$286	$22-$4,600	13.92	0.89
TOTALS	137,374	$616	$291	$5-$6,580	13.59	0.67

2005-2006						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	59614	$1,586	$478	$5-$29,288	25.48	0.97
Shrubs/Grasses	13268	$483	$272	$13-$3,777	8.18	0.83
Vines	4019	$732	$304	$732-$4,458	22.85	0.91
TOTALS	76901	$1,100	$396	$5-$29,228	20.28	0.91

2004-2005						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	68141	$1,726	$411	$4-$17,169	23.41	0.74
Shrubs/Grasses	8604	$649	$250	$50-$6,071	11.29	0.57
Vines	9536	$536	$402	$19-$1,783	14.50	0.64
TOTALS	86281	$1,189	$371	$4-$17,169	18.23	0.67

Acres Controlled, Total Cost/Total Acres, Cost Range of Projects, Average Project Cost Per Acre, Median Project Cost Per Acre, Average Project Hours Per Acre and Average Herbicidal Product Use Per Acre as derived from completed Daily Progress Reports (not available for all projects historically). Cost range varies from low-end (aerial maintenance) to high-end (initial mechanical/heavy equipment) projects, so no “average” cost per acre for every project should be inferred.

2003-2004						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	81029	$1,894.88	$535.14	$4-$33,300	34.35	1.22
Shrubs/Grasses	10885	$1,049.46	$248.28	$26-$8,352	15.47	1.06
Vines	5080	$1,196.33	$412.95	$9-$11,856	28.11	1.28
TOTALS	96994	$1,661.65	$482.80	$4-$33,300	29.60	1.20

2002-2003						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	16036	$1,956	$824	$36-$19,678	29.50	1.21
Shrubs/Grasses	3040	$426	$225	$23-$1,480	11.81	1.01
Vines	3776	$827	$418	$73-$7,577	29.44	0.93
TOTALS	22852	$1,453	$556	$23-$19,678	26.15	1.13

2001-2002						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	18921	$1,591	$842	$93-$21,667	37.02	1.53
Shrubs/Grasses	3092	$696	$288	$20-$3,158	51.65	0.96
Vines	1776	$2,574	$1,490	$490-$12,977	138.68	2.23
TOTALS	23788	$1,526	$821	$19-$21,667	56.62	1.56

2000-2001						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	11,429	$842	$636	$17-$4,918	13.40	0.76
Shrubs/Grasses	494	$785	$492	$35-$1,787	14.26	0.58
Vines	985	$1,253	$862	$98-$5,082	21.87	1.43
TOTALS	12,908	$889	$562	$17-$5,082	14.94	0.85

1999-2000						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	1964	$1,478	$1,051	$60-$5,576	40.36	1.71
Shrubs/Grasses	390	$1,379	$975	$423-$5,186	18.61	2.09
Vines	744	$1,211	$983	$343-$1,917	37.56	3.04
TOTALS	3,098	$1,396	$983	$60-$5,576	37.21	2.02

1998-1999						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	1677	$858	$796	$32-$2,696	28.61	1.60
Shrubs/Grasses	597	$248	$158	$94-$730	32.77	1.30
Vines	804	$729	$389	$54-$1,832	19.86	1.23
TOTALS	3,078	$758	$620	$32-$2,696	27.84	1.47

1997-1998						
	Acres Controlled	Projects Mean	Projects Median	Cost Range	Hrs/a	Gal/a
Trees	2,039	$790	$729	$422-$1,167	23.05	1.17

On July 1st of 2008, the Bureau of Invasive Plant Management and its associated programs were transferred into the Florida Fish and Wildlife Conservation Commission. This annual report of the Uplands Program is the final report prepared for the Department of Environmental Protection.