DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF INVASIVE PLANT MANAGEMENT

Upland Invasive Plant Management Program

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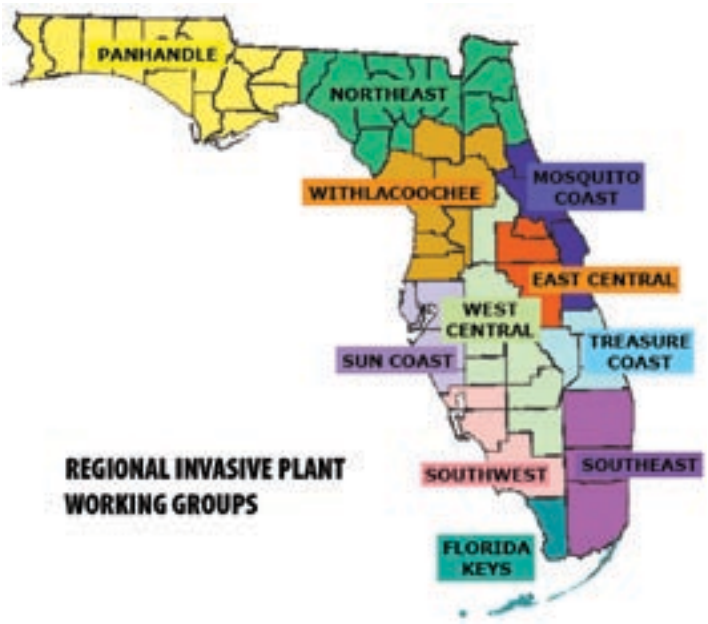
With a wide array of natural communities and a rapidly-expanding human population, Florida's 12 million acres of publicly-owned natural lands are vulnerable to invasion by non-native invasive plants. Invasive plants affect approximately 15 percent of the state's public conservation lands, impacting an annual ecotourism economy valued at nearly $8 billion (Florida's total tourism revenue in 2005 was over $57 billion). Of the state's flora, approximately 31 percent of self-sustaining species are introduced from elsewhere. The Florida Exotic Pest Plant Council considers about 10 percent of these exotic plants as invasive in natural areas. Southern Florida alone is home to more introduced plants than any other region within the United States.

In 1997, the Florida Legislature authorized the Florida Department of Environmental Protection (FDEP) to establish a weed control program focusing exclusively on upland invasive plant species. The Upland Invasive Plant Management Program (upland program) was formed. It incorporates the fundamentals of ecosystem management by relying on the expertise of public land managers throughout Florida to provide direction for funding of upland invasive plant control activities.

The FDEP's Bureau of Invasive Plant Management (BIPM) oversees the program, which is now the largest program for managing invasive plants on public lands in the United States. The BIPM Upland Invasive Plant Management Program coordinates and funds two statewide programs—one for aquatic and the other for upland plants—to control invasive plants on public waterways and conservation lands. Ensuring that the recreational, economic and ecological values of the state's public lands are being preserved, this program also provides education to the public, develops and maintains inventories of plant communities on public lands, and collects information to assist in science-based decision making. The long-term goal of the upland program is to bring invasive plants infestations under maintenance control.



A maintenance control program, as defined in Florida Statutes Section 369.22, is "a method for the control of invasive 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 program's more immediate goal is a 25 percent reduction of upland invasive plant infestations on public lands by 2010.

Program staff is charged with implementing the upland program as outlined in The Upland Invasive Plant Management Program Strategic Plan (2001). A set of specific strategies have been identified, and include:

- implementing an integrated program that uses chemical, mechanical, and biological control technologies;
- modifying procedures as appropriate to assure the greatest protection for natural systems;
- improving the general public's awareness of the threat to biodiversity from invasive plants by developing a comprehensive education and outreach program;
- inventorying and mapping with GIS the distribution of invasive species by the year 2010; and,
- researching the use of biological control agents and providing procedures and facilities for their cultivation, dissemination, and evaluation, including monitoring and field assessments, by 2010.

Program staff draws on a statewide network of 11 Regional Invasive Plant Working Groups composed of over 500 federal, state, and local government conservation land managers and non-governmental organizations throughout the state. Participating land managers serve as members of one of the regional working groups and can choose from several control operation methods. Besides obtaining funding for their own invasive plant management programs, members of the working group develop relationships that

Cogon grass (Imperata cylindrica) *at the Perry Oldenburg Wildlife Environmental Area, before treatment (2005)*

After treatment (2005)

Old world climbing fern (Lygodium microphyllum) *on the Loxahatchee River, Jonathan Dickinson State Park, before treatment (2005)*

After treatment (2005)

lead to new partnering opportunities, and share their knowledge of management strategies and other funding sources.

Working groups select upland invasive plant management projects at a local level. They use a set of common ranking criteria to prioritize all submitted proposals, but may also incorporate additional criteria they feel is necessary for their region. Projects must address these basic ranking criteria in order to be considered for funding:

- cooperative cost-share/matching funds are available through the management steward;
- the target invasive species:
  a) is recognized as having high invasive potential, and
  b) has current control technologies already established for its control;
- control project may benefit specific threatened or endangered species that inhabit the site;
- site has relatively high restoration potential, in that:
  a) significant patches of native vegetation remain within or on perimeter of site for natural recruitment;
  b) native seed bank is shown to be present on site; and/or
  c) revegetation planting is practical and funded;
- public education/outreach programs will increase the awareness of the impact of invasive plants.

UPLANDS EXPENDITURES BY MANAGING AGENCY 1997-2006

Manager	Cost	Acres
Cities	$1,440,452	2,216
Counties	$10,637,618	39,536
Local Total	$12,078,070	41,752
DEP Coastal and Aquatic Managed Areas	$614,105	4,433
DACS Division of Forestry	$2,325,112	34,667
DEP Division of Recreation and Parks	$10,086,731	51,399
Fish and Wildlife Conservation Commission	$4,159,266	100,796
DEP Office of Greenways & Trails	$159,167	5,045
Water Management Districts	$9,509,097	94,780
Universities	$385,313	114
State Total	$27,238,791	291,234
Department of Defense	$621,597	3,724
US Fish & Wildlife Service	$3,399,537	62,730
US Forest Service	$66,692	471
National Park Service	$3,509,914	101,625
US Department of Agriculture	$422,900	0*
Federal Total	$8,020,640	168,550
Grand Total	$47,337,501	501,536

*Release of biocontrol agents on public lands
Does not include FY07 expenditures of $18 million

North Region 8,851 Project Acres 1998-2006 Total Expenditures $2,544,778		
Plant Treated	Estimated Acres Controlled	% of Total Project Acres
Tallow	3,654	41.3%
Coral ardisia	1,389	15.7%
Lygodium japonicum	1,294	14.6%
Chinaberry	1,072	12.1%
Privet	851	9.6%
Wisteria	614	6.9%
Camphor tree	371	4.2%
Cogon grass	353	4.0%
Japanese honeysuckle	331	3.7%
Mimosa	244	2.8%
Lantana	177	2.0%
Kudzu	145	1.6%
Torpedo grass	139	1.6%
Silverthorn	131	1.5%
Tung oil tree	123	1.4%

Central Region 59,428 Project Acres 1998-2006 Total Expenditures $13,276,439		
Plant Treated	Estimated Acres Controlled	% of Total Project Acres
Brazilian pepper	17,554	29.5%
Cogon grass	6,254	10.5%
Tropical soda apple	3,342	5.6%
Lygodium microphyllum	3,144	5.3%
Melaleuca	3,116	5.2%
Caesar weed	2,615	4.4%
Skunk vine	1,882	3.2%
Lygodium japonicum	1,372	2.3%
Australian pine	1,349	2.3%
Tallow	1,259	2.1%
Air potato	972	1.6%
Camphor tree	532	0.9%
Downy Rose Myrtle	527	0.9%
Chinaberry	352	0.6%
Mimosa	345	0.6%

South Region 241,026 Project Acres 1998-2006 Total Expenditures $31,041,397		
Plant Treated	Estimated Acres Controlled	% of Total Project Acres
Melaleuca	160,597	66.6%
Brazilian pepper	37,505	15.6%
Lygodium microphyllum	13,898	5.8%
Australian pine	3,918	1.6%
Cogon grass	1,007	0.4%
Aquatic nightshade	787	0.3%
Air potato	679	0.3%
Shoebutton ardisia	607	0.3%
Lather leaf	597	0.2%
Seaside mahoe	459	0.2%
Lead tree	444	0.2%
Tropical soda apple	401	0.2%
Caesar weed	288	0.1%
Guava	257	0.1%
Downy rose myrtle	249	0.1%

To illustrate conflicts of interests in setting funding priorities for invasive plant projects in Florida, Dr. Alison Fox (UF-IFAS Agronomy Department) has undergraduate students in her "Biological Invaders" course select what they would fund if an unexpected $1 million appropriation became available. Students are assigned to different agencies and asked to select their priorities from a theoretical list of projects. Interestingly, students never select the final option, which is to fund 20 demonstration projects on invasive plant control throughout the state. However, they quickly learn the value of this strategy when DEP's Upland Invasive Plant Management program is discussed and they find out how this successful program began and how it has attracted large amounts of additional funds in subsequent years.

Once a working group has agreed upon a prioritized list of proposals, a liaison from the group presents the chosen projects at an annual meeting of all eleven working group liaisons and program staff. For each project selected for funding, a cooperative agreement between BIPM and the land management agency is established to allow funds to be expended and control operations to begin. Service contracts are available with regional invasive plant control companies that have an established fee schedule to help all Florida governmental entities streamline the hiring of plant removal contractors.

The upland program utilizes a statewide cooperative strategy that funds individual invasive plant control projects on public conservation lands. Funding is provided through the Invasive Plant Management Trust Fund as set forth in Florida Statutes Section 369.252(4), which has spent over $65 million for upland weed control projects since program inception. Participating land management agencies have provided nearly $25 million in matching funds and in-kind services. The land managers are responsible for the continued maintenance control of areas originally treated with bureau funding. However, BIPM has further assisted land managers by providing herbicide for maintenance control at a cost of over $4.5 million since FY 2001.

Program staff has successfully incorporated science-based, ecosystem management concepts into on-the-ground operations and flexible, innovative strategies, bringing together locally and regionally diverse interests to address local upland invasive plant management issues on public conservation lands. In 2006, the program provided almost two million dollars [$1,881,606] for efficient and cost effective weed management activities on 35,581 acres of NPS and USFWS lands alone in Florida. The success of these efforts can be measured by the fact that this program is being used as a model by other states and countries.

Since its inception, the Uplands Program has funded initial control on 400,000 acres and maintenance control on 150,000

"Having been exposed to other successful programs in the U.S., I am always impressed with the amount of money and time that this program dedicates to invasive species management on public conservation lands. I haven't seen any other state that puts this amount of funding in a line item directly on the ground on public conservation lands. In the Florida Keys and Central Florida, TNC has been able to leverage DEP-BIPM funding to buffer public conservation lands by securing federal and other grant funding to work on adjacent private lands that act as spore/seed sources."

— Kristina Serbesoff-King, The Nature Conservancy

acres of invasive plants, with the result of nearly one-half million acres of public conservation lands under maintenance control. The uplands program also administers a joint melaleuca control program with the South Florida Water Management District, which has resulted in an additional one million acres of district land under maintenance control. To date, staff members implementing the uplands program have assisted public land managers on over 400 federal, state and county managed natural areas located in 58 of Florida's 67 counties by funding in excess of 1000 invasive plant control operations and treating 100 recognized weedy species.

The Upland Invasive Plant Management Program strives to meet the needs of land managers through the development and implementation of a comprehensive plan that incorporates broad and consistent strategies, reduces agency inconsistencies, and addresses differing agency mandates to achieve the goal of controlling invasive plant species in Florida. The Bureau of Invasive Plant Management believes that this innovative program provides the needed infrastructure to conduct an efficient and cost-effective statewide program.

For More Information

1. DEP Upland Plant Management Program – contains links to Annual Reports, information for Contractors and Regional Working Groups, and links to upland plant management information: http://www.dep.state.fl.us/lands/invaspec/2ndlevpgs/Uplandsplntman.htm
2. BIPM Invasive Plant Management Contractors http://www.dep.state.fl.us/lands/invaspec/2ndlevpgs/pdfs/Contractors%20%20Map_By%20Region_rev07.pdf

Project Samples

3. Northeast Working Group Projects http://www.dep.state.fl.us/lands/invaspec/4thlevpgs/Uplands_04-05_northeast.pdf
4. Withlacoochee Regional Working Group Projects http://www.dep.state.fl.us/lands/invaspec/4thlevpgs/Uplands_04-05_withlac.pdf
5. NPS – Exotic Plant Management Team 2005 Annual Report (see web pages 29-32) http://www1.nrintra.nps.gov/brmd/invasivespecies/exoticplants/resources/EPMT_AnnRep_05.pdf

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