Wildland Weeds

SUMMER 2007


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Wildland Weeds

SUMMER 2007, VOLUME 10, NUMBER 3

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The mission of the Florida Exotic Pest Plant Council is to support the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational and technical information.

An **exotic plant** has been introduced to Florida, either purposefully or accidentally, from a natural range outside of Florida. A **naturalized exotic plant** is one that sustains itself outside of cultivation (it is still exotic; it has not "become" native). An **invasive exotic plant** not only has become naturalized, but it is expanding its range in Florida plant communities.

Wildland Weeds (ISSN 1524-9786) is published quarterly by the Florida Exotic Pest Plant Council (FLEPPC) and the Southeast Exotic Pest Plant Council (SE-EPPC) to provide a focus for the issues and for information on exotic pest plant biology, distribution and control.

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On the Cover:
Old world climbing fern (*Lygodium microphyllum*) growing around an endangered native bromeliad, *Tillandsia fasciculata*, in a heavily infested cypress strand in Jonathan Dickinson State Park in Martin County (May 2007).
Photo by Jeffrey T. Hutchinson.

-----Original Message-----
Sent: Tuesday, March 20, 2007 9:05 PM
Subject: Leucaena leucocephala

Dear Sirs,

After clearing land in the Abaco's, North Bahamas, we have become inundated with the above tree, known there as the Jumbay tree (we understand it is also called the Lead Tree.) We have tried various ways to remove this tree and thousands of seedlings.

We have tried removing by dragging the trees out with machinery. Unfortunately we tend to lose many wanted trees as the roots travel so far and the earth base is shallow. We have cut back and poisoned, we have sprayed the leaves, with both a watered mixture and also neat poison [Roundup]. The trees appear to die and a few weeks later burst back into life.

Because of its extremely invasive nature we desperately need to eradicate this tree before it spreads further and further over the island. We understand this has been acheived in Dade County and would appreciate advice to do the same.

We thank you for any help you may be able to offer.

Regards,

A.B.

GAYLE EDWARDS

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For cut-surface applications, each stem is cut as level as possible, to minimize runoff. This is usually done at a height of 2 or 3 inches (leaving some stem to treat as well as the cut surface). Then, using a backpack sprayer or handheld spray bottle, the herbicide mixture is applied to the top and sides of the stem immediately after the stem is cut. Keep the interval between cutting and spraying as short as you can, cutting and treating one tree at a time, to get the best results. Follow the label instructions for basal bark treatment. Also, be very careful not to exceed the maximum rate of herbicide per acre. This can be a challenge in areas with dense (what we call "dog-hair") stands of young trees.

Good luck,
James G. Duquesnel

Dear A.B.,

My name is Jim Duquesnel. As a park biologist in Florida, I frequently deal with the species you mention, lead tree or jumbie (*Leucaena leucocephala*), and have been working with it for over 17 years. It is indeed a tough customer, one of the hardest species to control that I have encountered. But, by using diligence and integrated pest control methods, it can be managed to acceptable "maintenance" levels. Eradication is nearly impossible; as long as the conditions and traffic that first brought seeds to the site continue, you will continue to see re-infestations from areas outside your control.

Especially early on in a control program and if *Leucaena* is well established, there will be a seed bank of millions of dormant seeds just waiting for soil disturbance to trigger germination. This is one reason I try to avoid hand-pulling or mechanical removal for this species. Instead, when possible, I use cut-surface applications of herbicide and try to keep disturbance of soil and leaf litter to a minimum. After lead tree debris is removed, I recommend placing a 4-inch deep layer of wood chip mulch over the site to help reduce survival of the seedlings that do sprout. *Casuarina* (Australian pine) mulch does an excellent job.

Another of the control techniques that we use is to have school children or volunteers remove the flowers and seed pods from the trees. Removing the pods before they can open prevents the next generation of seeds from reaching the soil and helps decrease the number of years of follow-up treatments you will be committed to. As *Leucaena* matures quickly, it is very important to monitor the site every three months, and to prevent new recruits from producing another crop of seeds.

As you have heard from Dow's Scott Ditmarsen, *Leucaena* seems to respond best to high rates of triclopyr ester. We are currently using Garlon 4 at rates of 30% in cut-surface and basal applications. As Garlon 4 is a relatively volatile herbicide, you must be careful using it around sensitive non-target species. Here in the Keys, I have found airborne vapors can have an impact on some species, particularly if they are within a meter or two of the treated tree, and if there is little air movement. Buttonwood mangrove (*Conocarpus erecta*) and strangler fig (*Ficus aurea*) are two of the species that have most often shown susceptibility. Also, you must be careful to apply the product at low spray pressures to avoid spatter onto nearby non-target plants, and avoid runoff onto the soil.

We usually apply a 30% mix in an oil diluent (mineral oil or vegetable oil-based, with the latter being preferred). Higher rates can be used but they require calibrated sprayers to measure precisely the amount being applied, without exceeding 15 milliliters per application. Read the label's recommendations regarding "thinline basal applications" at this website: http://www.epa.gov/espp/effects/triclopyr/label-26719-40.pdf. Calibrating a spray bottle is a simple excercise, and using the higher rates allowed with thinline applications may provide better control. Still, I am pretty sure that we kill at least 95% of the treated trees using the methods described above. But, if you are considering a thinline application of Garlon 4 at higher (50% to 75%) concentrations, this application of "2 to 15 milliliters per single stem" requires a "calibrated sprayer."

Calibration of an inexpensive one-quart spray bottle is a very simple procedure. Start with a spray bottle that has chemical-resistant Viton o-rings, such as Delta Spraymaster. Using water or, even better, the same solution you will be dispensing. Simply apply spray directly into a small liquid-measuring container. Nalgene's 50 ml graduated cylinder, available from Forestry Suppliers, is chemical resistant and durable. It also has molded calibrations that won't dissolve and wipe off the way ink or painted marknigs often do when exposed to oil-based herbicides and diluents.

Make sure that you compress the sprayer's trigger slowly and steadily; you are trying to standardize the volume dispensed. Use enough compressions that any minor differences will become insignificant, 10 or 20 compressions are easy numbers to work with. Divide the volume collected (let's assume 40 ml) by the number of trigger compressions (let's say 10, as an example), and you now have a calibrated sprayer (4 ml per compression). If like me, you have poor short-term memory, use a marker or better still, when working with Garlon 4, use an oil-resistant paint, and write the volume per squirt on the bottle.

Use of a spray colorant (usually red or blue) is very helpful, making it easier to see where the spray is going, whether or not there is overspray or spatter, and it helps to detect spray on clothing or skin, or coming from leaky equipment, sooner than would otherwise be possible.

It is my opinion that using a lopper (pruning tool), even a very sharp one, will crush some of the stem's vascular system, reducing the movement of herbicide and reducing its effectiveness. This is especially true of anvil pruners, and perhaps somewhat less true of by-pass pruners. In either case, I prefer to use a very sharp saw. I have had very good success using the incredibly sharp wood-handled Corona Razor Tooth, 13-inch curved pruning saw (www.forestry-suppliers.com/). Corona also makes a folding pocket saw, a nice convenience, but once my crew members get their hands on the 13-inch saws, there is no going back to the smaller saws. The unanimous consensus is the 13-inch saws are much easier and faster to work with. If you do buy the 13-inch Corona saws, for your own safety, be sure to buy the protective curved saw sheath that is made for this saw. An extra blade or two is a good idea as well.

We have recently discovered that Fast Orange hand-cleaner helps to remove the plant resin that cutting *Leucaena* leaves on these blades. The resin will otherwise build up like a layer of varnish, until it makes the saws very difficult to use.

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Invasive Species and the 2007 Farm Bill

K. A. Langeland, University of Florida Agronomy Department and Center for Aquatic and Invasive Plants,
J. K. Clark and M. Johnson, Montana State University, Center for Invasive Plant Management

The buzz on Capitol Hill in some circles this past spring was largely about "the Farm Bill." What the Sam Hill is a Farm Bill? And what does it mean for invasive species management? Read on to find out. Ed.

The Farm Bill

A farm bill is a collection of agriculture-related laws that authorizes programs and sets the overall direction of U.S. agricultural policy for a specified number of years. But farm bills affect much more than farming and farmers (Jones et al. 2001). The farm bill also provides incentives for certain agricultural land management practices. Fifty-two percent of total U.S. land is in agricultural use, while urban land use and parks and wildlife are just 2.6 and 13.1 percent, respectively (Anonymous 2006). The annual budget for the U.S. Department of Agriculture (USDA) to implement farm bill policies exceeds $90 billion, approximately 10 times the budget of the U.S. Department of the Interior (USDI). Thus, the farm bill has more impact on more U.S. land than any other single piece of legislation (Redlin et al. 2007).

American farm policy was first developed in the 1930s to mitigate the catastrophic economic impact of the Great Depression (Redlin et al. 2007). Since then, farm bills have increasingly addressed conservation and environmental issues in various ways. The current era of conservation programs emerged with the 1985 farm bill (Food Security Act of 1985, P.L. 99-198), which established the Conservation Reserve Program (CRP) (Anonymous 2006). Subsequent farm bills created new conservation programs including the Environmental Quality Incentives Program (EQIP), the Conservation Security Program (CSP), and the Grasslands Reserve Program (GRP), and increased funding of conservation programs to $4.7 billion in 2005.

The current farm bill (officially the Food Security and Rural Investment Act of 2002) expires Sept. 30, 2007. Congress is in the process of writing a new, five-year farm bill that must be authorized before 2002 farm bill provisions expire. During Farm Bill Forums held nationally by the USDA in 2005-2006 to solicit public input on the new legislation, invasive plant management was often identified as a key issue. Invasive plants may affect farm bill conservation programs in numerous ways. For example, invasive plant species may alter wildlife habitat, reduce production on grasslands and agricultural lands, or may replace less flammable native plants with species that promote wildfire.

Invasive Plants and the 2007 Farm Bill Recommendations[1]

Elevate invasive plant management as a critical conservation concern of the 2007 Farm Bill. Invasive plants can change soil properties and reduce soil stability and productivity, alter natural hydrologic regimes, degrade wildlife and migratory bird habitat, degrade wetlands, and alter fire regimes.

Prioritize funding for USDA invasive plant specialists and require comprehensive training of technical service providers who may be consulted regarding invasive plants, site- and ecosystem-appropriate vegetation, and management strategies.

Prioritize prevention and early detection of invasive plants. Invasive plant prevention is more cost-effective and efficient than long-term management.

Make maintenance and restoration of biodiversity an explicit program objective. Diverse plant communities sequester more carbon below-ground and support more diverse lifeforms above-ground. Invasive plants can decrease biodiversity.

Prohibit establishment of invasive plants for biofuel production to avoid spreading invasive plants and tilling highly erodible soils. Determine the invasive potential of species being considered for biofuel production.

Allow haying, mowing, burning, and grazing to manage invasive plants. All actions should be NRCS-approved and strategically timed to allow reproduction of native birds and wildlife and production of native seed.

Expand invasive plant management program eligibility to include non-producers. Invasive plants on non-agricultural lands can threaten the productivity of agricultural lands and the integrity of wildlife habitat.

Provide increased incentives for long-term, multi-stakeholder efforts to prevent or manage invasive plants at multiple spatial scales. Cooperative weed management is likely to engage more people and be more sustainable than single-agency approaches.

Invasive plants should be explicitly excluded from definitions of "appropriate vegetative cover." Define "appropriate vegetative cover" as species deemed appropriate by NRCS Ecological Site Guides.

Require monitoring of land-health indicators and management effects to provide a basis for management adaptations and program accountability. Long-term data are needed to evaluate program effectiveness and determine future strategies.

[1]Based on outcomes of Invasive Plants and the 2007 Farm Bill Workshop, sponsored by the Center for Invasive Plant Management on March 20-21, 2007, at Montana State University-Bozeman

Invasive Plant Species and the 2007 Farm Bill Workshop

Farm bill conservation programs are intended to conserve the ecosystem services of U.S. lands and waters with particular attention paid to conservation of soils, wetlands, wildlife habitat, water quantity, and water and air quality. Therefore, it is critical that science-based recommendations regarding invasive plant management be provided to those who are developing the 2007 farm bill. Senate Agriculture Committee staff requested scientific recommendations on how to increase the effectiveness of the farm bill conservation programs in dealing with invasive plants and noxious

weeds from the Center for Invasive Plant Management (CIPM) at Montana State University. In response, CIPM organized and sponsored a workshop of invited scientists to help inform policy for the 2007 farm bill conservation programs. The workshop was held March 20-21, 2007, at Montana State University-Bozeman. Eight participants, representing seven states and all areas of the U.S., considered the impacts of invasive plants on wildlife, water quality, water quantity, production (agricultural, grazing, and forestry), and wetlands. They assessed the state of the science relevant to conservation programs, considered implications for future management, and developed science-based recommendations.

The CIPM developed two documents from the workshop: a two-page "Invasive Plants and the 2007 Farm Bill Recommendations" (see sidebar) and a draft comprehensive workshop proceedings, "Invasive Plants and the 2007 Farm Bill Workshop Results," annotated with literature citations. These documents are available at http://www.weedcenter.org/farm_bill_07_wkshp.html. These results were well received when presented to staff of the Senate Agriculture Committee majority and minority leaders and others on April 11, 2007. Results were also presented to the Washington liaison for the Weed Science Society of America, the National Invasive Species Council staff (including coordinators for the USDA and USDI), the Union of Concerned Scientists, and other U.S. Senate staff.

What You Can Do

As of late May, the House had drafted and released language for parts of the new farm bill; the Senate had not yet released its version. To follow progress of the 2007 farm bill legislation, go to http://agriculture.senate.gov/ag/fb.htm and http://agriculture.house.gov/inside/2007FarmBill.html. The USDA weighs in with its own farm bill suggestions at www.usda.gov (search for "2007 farm bill").

EPPC boards of directors and members are encouraged to monitor language and progress of the 2007 farm bill as various drafts are released throughout the summer. Contact your legislators to support invasive plant management provisions in the farm bill. Legislators who are on House or Senate agriculture committees will be responsible for crafting the final language of this far-reaching legislation.

Citations

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DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF INVASIVE PLANT MANAGEMENT

Upland Invasive Plant Management Program

By Greg Jubinsky, Environmental Administrator, Drew Leslie, Biological Scientist[4] and Ruark Cleary, Biological Scientist[3], Upland Plant Management Section, Florida Department of Environmental Protection, Bureau of Invasive Plant Management

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

Contact Greg Jubinsky at Greg.Jubinsky@dep.state.fl.us

Florida Invasive Plant Teams Win National Conservation Award

Secretary of the Interior Dirk Kempthorne awarded the U.S. Department of the Interior's highest honor, the Cooperative Conservation Award, to the Florida Department of Environmental Protection's (DEP) Upland Invasive Plant Management Program, and The Nature Conservancy's Florida Keys Invasive Exotics Task Force at a ceremony on May 9th in Washington, D.C. Greg Jubinsky, the Environmental Administrator of DEP's Upland Invasive Plant Management Program, accepted the award on behalf of the Bureau of Invasive Plant Management team, and Alison Higgins, chair of the The Nature Conservancy's (TNC) Florida Keys Task Force, accepted the award on behalf of her group.

Top: U.S. Department of Interior Secretary Dirk Kempthorne and Alison Higgins, The Nature Conservancy, Florida Keys

Sam Hamilton, Director, Southeast Region, U.S. Fish & Wildlife Service and Greg Jubinsky, Florida Department of Environmental Protection, Bureau of Invasive Plant Management

The U.S. Department of Interior's Cooperative Conservation Award recognizes conservation achievements that involve collaborative activity among a diverse range of entities, including federal, state, local and tribal governments, private for-profit and non-profit institutions, other non-governmental entities and individuals.

The Upland Invasive Plant Management Program was honored for establishing and incorporating science-based ecosystem management concepts into field and on-the-ground operations. A collaborative effort between DEP, the National Park Service and the U.S. Fish and Wildlife Service, the program has helped control more than 250,000 acres of upland weeds in 105 locations, dedicating $8.5 million in state funding toward the effort.

The more than 22 member organizations of The Nature Conservancy's Florida Keys Invasive Exotics Task Force have collaborated on a number of projects to eliminate invasive non-native species throughout the Keys. In particular, the Interior Department recognized the task force's "Green Thumb Certified" campaign. Under the leadership of Alison Higgins, TNC's Florida Keys land conservation program manager, the task force has been able to bring in matching state and federal dollars to implement this and other successful programs.

In an effort to reach out to home gardeners, the task force partners developed a nursery certification program that not only addresses sales of invasive plants, but also increases native plant purchases and use of appropriate fertilizers, mulches and irrigation products. The "GreenThumb Certified" program works with 30 business owners, providing them with free advice, materials and promotion. The nurseries, in turn, provide their customers with Keys-friendly landscaping plants, products and advice. Land managers can now refer citizens to trusted resources for native plants.

"The Florida Exotic Pest Plant Council is proud to congratulate the members of DEP's Bureau of Invasive Plant Management, Upland Plant Management Program, and TNC's Florida Keys Invasive Exotics Task Force, on this prestigious award from the U.S. Department of the Interior. Efforts such as these, and team leaders such as Greg and Alison, are why many other states look to Florida as the model to emulate. This award is a well-deserved tribute to your excellent work and valuable contributions to exotic plant management over the last ten years. Congratulations!"

— Alison Fox, Chair, FLEPPC

"It was a wonderful day seeing both the Florida Keys Invasive Exotics Task Force and the Upland Section of the Florida Bureau of Invasive Plant Management receive Cooperative Conservation Awards from the Secretary of the Interior at the same event. Together they made quite a statement for the type of partnerships that are underway in Florida. Quite a few of the Washington staff made a point of coming up to meet and congratulate them."

— Kathy O'Reilly-Doyle
Partners for Fish and Wildlife Program
U.S. Fish and Wildlife Service, Naples, FL

"Florida is proud to be recognized for our partnership program that is protecting native species and improving the quality of public conservation lands. The work of the Upland Invasive Plant Management Program is preserving the state's natural beauty and preventing the environmental and economic damage caused by invasive exotic plants."

— Michael W. Sole
Secretary, Department of Environmental Protection

WANTED: *Lygodium microphyllum* sites for biological control research

Old World Climbing Fern, *Lygodium microphyllum*, is a serious invasive weed in southern Florida. Hundreds of thousands of acres of public and private land are infested and if unchecked, it is likely that *L. microphyllum* will expand its range considerably within southern Florida and northwards into central Florida.

Current strategies for managing *L. microphyllum* either do not offer effective long-term control or are too expensive for treatment of the huge area infested. The United State Department of Agriculture, Agricultural Research Service, Invasive Plant Research Laboratory is vigorously pursuing research to develop effective biological control agents for *L. microphyllum*. As candidate agents receive regulatory approval, field sites are needed at which agents can be released and monitored for establishment and effectiveness. Suitable field sites would already be infested with *L. microphyllum* and would not be subject to active weed management, including burning, shredding or herbicide spraying, for a period of three years following releases. The minimum size of the untreated research site would need to be an area equivalent to 100 x 100 m (~2.5 acres), and within this, a cumulative area greater than 20 x 20 m (400 square meters or ~0.1 acres) would need to be covered with *L. microphyllum*.

If you own or manage areas of land in southern Florida that meet these criteria and are interested in cooperating in a program to develop biological control options for *L. microphyllum*, please contact Anthony Boughton, USDA-ARS IPRL at anthony.boughton@ars.usda.gov or 954-475-6584.

CEIPSC Spurs Federal Funding for Invasive Weed Control

By Jim Bean, BASF Environmental Resource Specialist

Jim Bean has been working on invasive species issues for 27 years. He helped form the Coalition for Invasive Plant Species Control (CEIPSC) in order to define a cohesive strategy to increase federal funding for weed control initiatives, and has helped prepare Eastern weed experts to speak with their Congressional delegations about important legislation under review in 2007.

Even if you line up the best scientific information, the best coalition and the best on-the-ground control methods for invasive weeds, you still have one last hurdle to jump. You must have sufficient funding to get the job done. Many of our best ideas about how to stop the spread of invasive weeds never come to fruition because coalitions lack the financial resources to move forward with control projects.

Among the funding options available are appropriations from federal laws or agencies. The hurdle in many cases is actually getting that funding out of Washington, D.C., and to the front lines of weed control initiatives. Legislators and agency personnel need to understand how the funds that weed control groups need fit into their national, regional and local agendas, and how they can talk to constituents about their decisions. Landowners must be armed with the right tools to get decision-makers to commit money.

To help meet that need for information at a regional level the Coalition for Eastern Invasive Plant Species Control (CEIPSC) was formed in 2006. The group's mission is to serve as an agent for public policy change through an interdisciplinary approach to weed control, educating decision-makers about the threat of invasive weeds, and providing stakeholders with the resources they need to make a real difference. Southeast EPPC leadership, including President Tony Pernas, have been involved in CEIPSC since the outset, and provide important counsel as the organization develops.

Dozens of new faces joined Congress in 2007 from throughout the Southeast. Many returning Southeastern senators and representatives are now in positions of power on important committees such as Agriculture, Appropriations, Resources, Environment and Energy. These leaders need to know the facts about the economic and ecological impact of invasive weeds on forest land throughout the region. CEIPSC provides materials to help landowners get the message to the Hill.

CEIPSC does this by providing training sessions, handouts, success stories and other news to its members via online meetings and its Web site, www.ceipsc.org. Online meetings make it possible for people to meet without leaving their offices. The only requirements are an Internet connection and a telephone for a toll-free call. The Web site contains past presentations, weed-specific handouts that can be tailored with local information, success stories and upcoming meeting information, as well as tutorials for people who have not worked with elected officials. All these resources are available at no charge to anyone with an interest. No membership or registration process is required.

This year's National Invasive Weed Awareness Week (NIWAW) gave invasive weed experts from around the country an opportunity to talk with legislators and agency staff at the highest levels. The NIWAW committee annually sets legislative priorities for attendees to discuss with elected officials. CEIPSC mirrors this process by having its members vote on various bills to determine the top priorities members should talk about when they meet with legislators.

Of primary importance in the 2007 session is the Farm Bill, which Congress will be re-authorizing. The nation has been buzzing about this for months and there have been many different views about what will eventually happen with this vast appropriations bill. Though most of the funding in the Farm Bill is used to enhance and support production agriculture, programs such as the Environmental Quality Incentive Program (EQIP), the Conservation Reserve Program (CRP), the Wetlands Reserve Program (WRP) and the Wildlife Habitat Incentive Program (WHIP) provide millions of dollars for land managers to protect habitat around the country.

Like all other Farm Bill programs, the conservation programs are being evaluated to ensure they are regulated and funded properly into the future. According to farm industry experts, the demand for ethanol may drive a reduction in the number of acres that can be set aside for conservation. This could have a significant impact on landowners managing their property for recreation, hunting and wildlife habitat who have taken advantage of CRP in the past. Though nothing is set in stone, it is important to make your voice heard about protecting this and other conservation programs.

A key strategy that land managers can use is to keep members of the House and Senate Agriculture and environmental committees informed of the potential threat to conservation programs if the Farm Bill changes significantly. It is important for vegetation managers to make sure Congressional representatives have information about economic impacts and land protection to ensure adequate funding for the future. Remember, politics is local—

if you can inform legislators about the impact invasive weeds have in their home district, it will help them lead the charge to protect or expand programs.

Another important initiative CEIPSC members addressed with elected officials is S.241/HR 658, the "Natural Resource Protection Cooperative Agreement Act" of 2007. This bill allows one of the biggest federal agencies—the National Park Service—to cooperate with neighboring landowners to protect natural resources and habitat areas. Without this ability it has been very difficult for parks to keep weed infestations from creeping over their borders from neighboring areas. Landowners with property adjacent to parks can also benefit greatly from the expertise of federal officials in stopping the spread of invasive weeds, and stemming the tide of future reinfestations from park borders.

Following NIWAW, the House passed the bill almost unanimously. The Senate Energy and Natural Resources Committee reported favorably on the bill, offering no amendments, and placed it on the calendar for future consideration. If you live in a state represented by a senator on that committee (including members from Louisiana, Arkansas, North Carolina, South Carolina, Tennessee, Kentucky, Alabama and Florida), be sure to contact them and ask for their support of the bill.

As activities surrounding the reform of the Endangered Species Act have slowed considerably in recent months, the impact of invasive species on endangered species habitat has not been forgotten. Many attendees at NIWAW highlighted this problem with their senators and representatives. They also asked that programs for eradication of invasive weeds that impact endangered species be enhanced, giving landowners more resources to deal with this threat.

There are many other important bills and agency initiatives discussed at NIWAW and throughout the year. They include memorandums of understanding between multiple federal agencies, urging Congress to write a new bill for aquatic invasive plant species control and many others. The most important thing we can do to support these initiatives is to be a resource for elected officials who may not have the scientific background to know these impacts on their own. Though it may be difficult to build a relationship with elected officials, giving them the best information on economic impact will help them champion funding for control to protect the ecosystems important to the Southeast region.

CEIPSC members will be well-trained and well-armed to meet with their senators, congressional representatives and federal agency personnel throughout 2007 and beyond. The group continues to seek up-to-date information from everyone interested in this focus on funding. New members are always welcome. We look forward to meeting you and helping you work for change.

To get the most up-to-date information on the Farm Bill re-authorization process, visit www.usda.gov. Also, see article on page 6.

Contact the author at: James.Bean@basf.com

10 Little Pine Island Marks Years of Wetland Restoration

By Carla Kappmeyer-Sherwin
Public Outreach Coordinator,
Charlotte Harbor Preserve State Park

Golden ax in hand, the Mariner team, DEP and KLECE ecologists gear up to take down the last melaleuca tree.

A major milestone in exotic removal, the 10th anniversary marking the restoration of Little Pine Island, occurred on March 24, 2007. Residents of Pine Island and other communities within greater southwest Florida joined in the open house celebration hosted by Mariner Properties Development. Activities included a wildlife photography workshop, guided hikes, kayak raffle, and a barbecue lunch. High spirits and good humor abounded at a ceremony in which the last remaining melaleuca tree, which had been spray-painted gold, was felled with a golden ax! Why all the hoopla? This restoration is a tale worth telling.

Little Pine Island (LPI) is an extensive coastal wetland sandwiched between Pine Island and Matlacha Pass Aquatic Preserve in the greater Ft. Myers area of the Florida Gulf Coast. Landward from the island's fringing mangrove forest, the interior is transformed into an array of salt and freshwater marshes, salt flats, maritime meadows, buttonwood hammock, and stands of slash pine. A cross section resembles an inverted shallow bowl with the highest areas of elevation towards the center where Pine Island Road (State Road 78) bisects the 4,700-acre island. This site, a part of Charlotte Harbor Preserve State Park and a listed stop on the Great Florida Birding Trail, also functions as a mitigation bank through a partnership between the Florida Department of Environmental Protection (DEP) and Mariner Properties Development (MPD).

Currently, public access is temporarily closed due to heavy equipment operations. A limited number of guided field trips are offered annually during the fall, winter, and spring through the state park field office. Upon completion of the restoration, a series of trails will be created throughout the island for the benefit and enjoyment of the public. LPI is predominantly high marsh consisting of broad expanses of grasses (*Distichlis*, *Paspalum*, and *Spartina* spp.) sedges (*Eleocharis* and *Fimbristylis* spp.), and black needlerush (*Juncus roemerianus*). This invaluable habitat exports tons of organic biomass to the estuary annually, supports a diversity of wildlife, serves as a nursery for juvenile fish, and provides critical rest stops and breeding areas for migratory birds.

Salt marsh habitat is one of the most impacted ecosystems in the greater Charlotte Harbor estuary. Over 60 percent of the original marshes surrounding the harbor were lost to development or habitat changes caused by hydrological alteration. Mosquito control ditching and draining operations were conducted on LPI in the late 1950s and 1960s, while the island was privately owned. The hydrologic regime was changed, facilitating the spread of melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), and Australian pine (*Casuarina* spp.). The loss of natural sheet flow and tidal action, together with the infestation of melaleuca, was destroying the marsh and its capacity to support wildlife. Had it not been for the fortuitous attendance of a local entrepreneur at a Washington, DC conference in 1993, this rare gem of an island might have been lost forever.

Raymond Pavelka, MPD President had experienced uncertainties and liabilities associated with traditional on-site/off-site mitigation in his 21 years with Mariner Properties, Inc. At the Urban Land Institute Conference, he listened to a DEP presentation showing that 74 percent of project mitigation during the past 10 years had failed. The concept of mitigation

banking was introduced and Ray took up Thomas Edison's challenge "***There's a better way – Find it***!" Mindful of the potential, he began to explore the feasibility of establishing a mitigation bank in coastal southwest Florida and sought out a scientist known for wetland restoration experience: Kevin Erwin, Principal Ecologist of Kevin L. Erwin Consulting Ecologist Inc. (KLECE). Erwin, a member of Governor Lawton Chiles' Wetland Mitigation Banking Task Force, had just published a comprehensive study, "***Wetland Mitigation in the South Florida Water Management District (SFWMD)***." He confirmed that mitigation banking was one of the more desirable solutions to offset wetland impacts and a list of potential bank sites was prepared.

Erwin had worked on LPI previously, aiding its transfer from private to public ownership, and suggested LPI as an ideal site, one meriting a high standard of restoration due to the rapidly expanding impacts resulting from drainage and exotic plant infestations. Meetings were held with Tallahassee officials to discuss the possibility of a public/private partnership. With the strong support of key DEP personnel, Mariner Properties Development secured unanimous approval by the Governor and Cabinet, completing rigorous state and federal permitting processes within 2.5 years. As Little Pine Island Mitigation Bank (LPIMB) was one of the first banks to be approved, agency regulators and MPD were actually defining the process as they went through it.

Wetland mitigation is the replacement of wetland functions which are lost from private development or public projects. Kevin conducted the research and developed the state's first wetland functional assessment methodology for evaluating potential impact sites that would use LPIMB as the required form of wetland mitigation. Between 1993 and early 1997, baseline studies were completed to determine the historical ecology, existing wetland functional capacity, methods of restoration, and criteria for success. His 1996 landmark report, "***A Functional Assessment Procedure For Wetland Impact Sites,***" provides the criteria and formulas for determining Wetland Functional Capacity Scores for nine critical functions including 1) habitat for wetland dependent species, 2) support of food chains, 3) support of native plant populations, 4) maintenance of biological integrity, 5) provision of landscape heterogeneity, 6) access to aquatic refugia, 7) maintenance of natural hydrologic regimes, 8) maintenance of water quality, and 9) support of soil processes. Calculations to determine the number of required bank credits were also derived. Credits, the equity in the bank, are created as a direct result of increased functional capacity resulting from restoration, and may be sold or transferred to a private entity or public agency in need of compensation for wetland impacts. One wetland mitigation credit is equivalent to the ecological value of one acre of healthy, properly functioning restored wetland. The LPI mitigation service area includes portions of Charlotte, Lee, Sarasota, and Collier Counties from the coast inland to the 100-year floodplain line.

After the agency permits were secured and the baseline ecological research had been conducted, Richard Anderson, MPD's Director of Sales and Customer Service, began to address the public and meet with community groups. Misconceptions had arisen such as the intent to build a subdivision or a gated community. In April 1997, LPI began undergoing the initial phases of exotic plant removal. Melaleuca was hand-cut with chainsaws and the stumps treated with herbicide. KLECE had investigated herbicide application rates and determined that a 20 percent concentration of Garlon would kill the exotics without harming the native seed bank. Bob Offi, MPD's Onsite Project Manager, who had encountered numerous snags (both literally and figuratively) during the past ten years, reflected on the sheer magnitude of cutting, treating, and removing an exotic forest in keeping with special permit requirements. Temporary roads had to be constructed to accommodate the removal of an average of 30 tons of exotic biomass per acre. Tire mats better suited to the conditions and the movement of track hoes carrying trees to chippers were brought in to replace rigid steel mats. Chipped material was disposed of offsite at power plants for use as bio-fuel or a local composting facility for use as mulch.

Initially the barren appearance of clear-cut areas alarmed those accustomed to driving through the corridor of exotic forest on Pine Island Road. However, seed bank recovery was so phenomenal that the nursery Bob had set up to provide supplemental planting was eventually phased out. Wagon ride tours of the site were scheduled for area residents, agency personnel, and environmental groups. Functional Assessment of Wetlands Workshops were offered several times a year to train environmental specialists. Offi is in constant communication with the removal and maintenance crews. Consolidated Resource Recovery foreman David Pahuta is seeing the restoration through to the end, and foreman Rainey Adams of Caretaker Management ensures thorough follow-up maintenance. The upshot—seven miles of ditches have been filled and more than 5 million melaleucas and 100 million pounds

continued on page 18

The removal of temporary roads constructed from tire mats is the last remaining heavy equipment operation.

Little Pine Island *continued from page 17*

of exotic vegetation have been removed! Moreover, 106 bird species (including 51 wetland-dependent species), 11 mammal species, 17 reptile species, 7 amphibian species, 13 fish species, and 95 aquatic macro-invertebrate species have been counted by KLECE ecologists engaged in site monitoring.

LPI is a large-scale, regionally significant wetland restoration that initially called for the removal of 1600 acres of invasive vegetation and the hydrological restoration of 3300 acres. Weather, longer hydroperiods, melaleuca encroachment on to another 200 acres, and working around nesting bald eagles that now return annually to a restored area resulted in extending the operations and increasing the number of years and investment costs originally estimated for completion. However, this restoration, now in its final phase, is equivalent to the replacement of nearly 500 separate wetland mitigation projects—their permitting, construction, and monitoring—and is far more successful than traditional "postage stamp" mitigation projects which are generally far more costly to manage. Private developers and public agencies such as SFWMD, the Department of Transportation, and Lee County government have benefited from LPI's cost effective credits and ecologically sound restoration.

Although the cost to restore LPI will total nearly $12 million, no public funding or taxpayer dollars have been involved. All restoration, maintenance, and monitoring costs are paid for by MPD. Of the total revenue generated from mitigation credit sales, 7 percent of which constitutes about $2 million, is designated as a "State Use Fee" and is returned to Charlotte Harbor Preserve State Park. Further, an additional 5 percent of the total revenue from credits sales, in excess of $1.5 million, was set aside when the LPI Preservation Trust Fund was created to fund the perpetual maintenance and long-term monitoring of the island. Preserve staff and others will have the opportunity to provide resource input to the Management Trustees. DEP and MPD have created a model public/private partnership that incorporates open-mindedness to problem-solving and applies new techniques creatively.

Had Ray Pavelka not assumed the risk or engaged such an effective team, Little Pine Island would have been entombed in melaleuca. Although Mariner Properties Development has yet to recoup the investment, the ecological profit—a recovered, thriving wetland—is tremendous. And walking through a sea of softly waving native grasses as the afternoon shadows lengthen with the setting sun—*priceless!*

Contact Richard Anderson, Mariner Properties Development, Inc., richard.anderson@marinerproperties.com or Kevin Erwin, Kevin L. Erwin Consulting Ecologist, Inc., klerwin@environment.com and visit the following websites:
www.littlepineisland.com
www.floridastateparks.org/CharlotteHarbor
www.GreatFloridaBirdingTrail.com

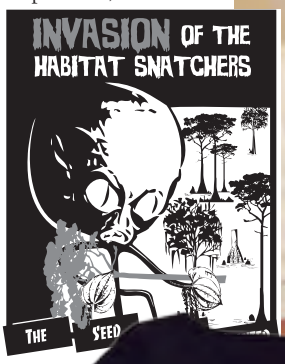
Contact the author at:
carla.kappmeyer-sherwin@dep.state.fl.us

Reference

Kevin L. Erwin Consulting Ecologist, Inc. May 2006. Little Pine Island Mitigation Bank Eighth Annual Monitoring Report: Phases I, II, VA; Seventh Annual Monitoring Report: VB, VC, and VIIA; Second Annual Monitoring Report: VI and VIIB.

FLEPPC Symposium a Smash Hit!

Invasion of the Habitat Snatchers — the seed is planted was a smash hit at its spring screening in early May on the Cocoa Beach space coast. More than 180 attendees were present. The star-studded crowd included David Lodge (University of Notre Dame), who provided the keynote address on the assessment of invasion risks. In addition to interesting papers and posters, there was a risk assessment panel session and several workshops. These included a workshop on Cooperative Weed Management Areas (CWMAs — an important new development in Florida) lead by guest speaker Jim Olivarez (USDA Forest Service) and Kathy O'Reilly Doyle (US Fish & Wildlife Service), and a "Techie's Workshop" with Alison Higgins (The Nature Conservancy Florida Keys) that demonstrated useful gadgets in monitoring, assessment, and data management.



A Natural Area Weed Management training session helped prepare participants for their certification exam for restricted use pesticide applicators on the final day.

Reports from the half-day field trips were highly favorable, whether it was Brazilian pepper-bustin' and rocket history at Cape Canaveral Air Force Base, invasive plant management at Sebastian Inlet and Indian River Lagoon Preserve State Parks, or vegetation inventory techniques in Lori Wilson County Park.

This Symposium also saw the roll-out of the new online FLEPPC database format at: http://www.fleppc.org/EDDMapS/ which is based on the SE-EPPC Early Detection and Distribution Mapping System. Chuck Bargeron and Sarah Braun introduced the new system, which includes maps, a much improved reporting page, and many more useful features. This is a very important resource, particularly for tracking "newer" species that are increasing in abundance, but it needs everyone's site record contributions to keep the system up-to-date. Chuck Bargeron will write about EDDMapS in detail in the Fall issue of *Wildland Weeds*.

Plaques of appreciation were given to outgoing Past-Chair Jim Burney and Directors Scott Ditmarsen, Jon Lane, Paul Pratt, and Tony Pernas. Chair-Elect Dan Clark was welcomed to the FLEPPC Board, as well as Directors Alyssa Jacobs (Seminole Tribe of Florida), Jennifer Possley (Fairchild Tropical Botanic Garden), Jonathan Taylor (National Park Service), and Sandra Vardaman (Alachua County Environmental Protection Department). LeRoy Rodgers received the Member of the Year Award for his tireless work as Symposium Program Chair. Plaques also were presented to Kris Serbesoff-King (former Treasurer), Jackie Smith (former mailing list coordinator), and Jim Duquesnel (former Training Coordinator) in recognition of exceptional service to FLEPPC.

Recipients of the FLEPPC Advocate of the Year (non-member) Award were Jim Krakowski (retired) and Layne Hamilton (U.S. Fish and Wildlife Service) who were nominated by Dennis Giardina in recognition of their roles in creating and expanding the annual Exotic Species Workshop for Southwest Florida.

Proceeds from a silent auction and a raffle, for which the donated prizes were a digital range-finder and a GPS unit, will go towards FLEPPC Education activities. The outdoor social and banquet (rocking with ***The Weeds***) made the most of the fine location and perfect weather. If you missed us this year, please think about joining us in 2008. The tentative meeting site is Jacksonville, Florida.

A cause for pause…

"Since I was getting queries about the room rate, I called the hotel directly. The person that answered was very helpful… once I clarified that the conference was not for the *'Exotic Breast Implant Council.'*"

Internodes

Mark Your Calendar

- Aquatic Plant Management Society 47th Annual Meeting, July 15-18, 2007, Nashville, TN. www.apms.org
- International Soil & Water Conservation Society Conference, July 21 - 25, 2007, Tampa, Florida. The five-day conference will include a session on invasive species. http://www.swcs.org/en/swcs_international_conferences/
- Mid-Atlantic EPPC biannual symposium, cosponsored with the Morris Arboretum, Invasive Plants: Research, Removal and Renewal, August 15-16, 2007, Philadelphia, PA. http://www.ma-eppc.org/
- 9th International Conference on the Ecology and Management of Alien Plant Invasions, September 17-21, 2007, Perth, Australia. www.congresswest.com.au/emapi9/
- 14th North American Weed Management Association (NAWMA) Conference, September 24-27, 2007, Las Vegas, Nevada. www.nawma.org
- Florida Aquatic Plant Management Society (FAPMS) Annual Meeting, October 1-4, 2007, St. Petersburg, Florida. www.fapms.org
- 34th Annual Natural Areas Conference: Some Assembly Required: Preserving Nature in a Fragmented Landscape, October 9-12, 2007, Cleveland, Ohio. http://www.naturalarea.org/07conference/
- Right-of-Way & Aquatic Pesticide Applicator Training , October 16-18, 2007, Panama City Beach, FL. http://conference.ifas.ufl.edu/applicator/ or 352-392-5930.

New Books

Invasive Plant Responses to Silvicultural Practices in the South, by C.W. Evans, D.J. Moorhead, C.T. Bargeron and G.K. Douce, The University of Georgia, Bugwood Network, BW-2006-03, December 2006. 52 pp. Intended to aid foresters and managers in the southeastern U.S. in developing management plans and managing forests threatened by invasive plants. Includes a herbicide quick reference guide, plant ID, potential mechanisms for spread, and a suite of silvicultural management/control practices. Available at www.invasive.org

Natural Florida Landscaping by Laurel Schiller and Dan Walton of Florida Native Plants. "As land is developed in Florida the native flora is removed and usually replaced with non-native vegetation. Wildlife habitat is reduced, water, fertilizer and pesticide usage increases, and the appearance of Florida is altered. But urban and suburban dwellers can reduce the damage being done to our ecosystems by viewing their yards as part of the natural system. This means using native plants and doing it in a way more attuned to natural places. This small book will help you make a plan that will work for your yard and choose the native plants that will thrive there with minimal care." Paperback $12.95 ISBN: 1-56164-388-2 Available at bookstores.

Invasive Plants — Guide to Identification and the Impacts and Control of Common North American Species tells the history of invasives, defines their role in natural areas and the economy, describes their role in natural systems, and provides a field guide to over 175 of the most common species in North America. Written by Sylvan Kaufman and Wallace Kaufman. Hard Cover, 464 pp, 250 color photos, $39.95 http://www.invasiveplantguide.com/home.html

New Publications

Preventing horticultural introductions of invasive plants: potential efficacy of voluntary initiatives, by J.W. Burt, et al, Biological Invasions 10.1007/s10530-007-9090-4 (2007). "With very little government regulation of horticultural imports of invasive plants, efforts have turned toward fostering voluntary initiatives to encourage self-regulation by the horticulture trade."

Exotic seed dispersal by white-tailed deer in southern Connecticut, by S.C. Williams and J.S. Ward. Natural Areas J. 26:383-390 (2006). "We estimated that the deer herd on site had the potential to disperse 586-1046 viable exotic seeds/day/km2 during the 2002 sampling period and 390-696 viable exotic seeds/day/km2 during the 2003 sampling period."

Biological Invasions: recommendations for U.S. policy and management, by D.M. Lodge, et al, ESA Report, Ecological Applications 16(6):2035-2054 (2006). "Recent scientific

Florida Native Plant Society (FNPS) Model Landscape Ordinance Available for Download — http://www.fnps.org/

This model ordinance is intended to be used by local governments that wish to adopt or amend their existing landscape ordinance to encourage or require the use of appropriate native vegetation in all landscaped areas. It provides sample language that can be adopted (in whole or in part) by a local government, and a well-researched and fully referenced section on legal authority to enact landscape ordinances. The goal is to provide a comprehensive plan to promote appropriate native vegetation and best landscaping practices. "Appropriate native vegetation" is vegetation found in the natural community that is suited to the soil, topography, and hydrology of a particular site.

Local governments can derive substantial benefits from promoting and protecting native vegetation that is appropriate to the area, such as achieving water conservation goals, preserving habitat in urban areas, greatly reducing maintenance costs for landscaping, and protecting property values.

Many city and county governments throughout Florida are already taking a pro-active approach:

Brevard - 50% Native vegetation required

Dade County - 30% Native vegetation required

Indian River County - 50% Native vegetation required

Islamorada - 75% Native vegetation required

Key Colony Beach - 50% Native vegetation or xeriscape vegetation required

Key West - 70% Native vegetation required

Lee County - 75% Native vegetation required for tree species; 50% Native vegetation required for shrub and groundcover species

Manatee County - 30% Native vegetation required

Marathon - 70% Native vegetation required

Monroe County – 70% Native vegetation required

Miami - 30% Native vegetation required

Polk County - Recommends native vegetation and includes native vegetation on the recommended plant list

St. Lucie County - 50% Native vegetation or waterwise landscape required

and technical advances provide a sound basis for more cost-effective national responses to invasive species. Greater investments in improved technology and management practices would be more than repaid by reduced damages from current and future invasive species. The Ecological Society of America recommends that the federal government take six specific actions."

Mechanical and physical properties of composite panels manufactured from Chinese tallow tree furnish, by T.F. Shupe, et al, Forest Products J. 56(6):64-67 (2006). "This preliminary study indicated that Chinese tallow tree can be successfully used for all three composite panel types [particleboard, fiberboard, and structural flakeboard] to produce panels meeting various American National Standards Institute grades based modulus of rupture, modulus of elasticity, and internal bond."

Invertebrate fauna associated with torpedograss, Panicum repens *(Cyperales: Poaceae), in Lake Okeechobee, Florida, and prospects for biological control*, by J.P. Cuda, et al, Florida Entomologist 90(1):238-248 (2007).

Colonization patterns of the invasive Brazilian peppertree, Schinus terebinthifolius, *in Florida*, by D.A. Williams, et al, Heredity 1-10 (2007). "The evidence for extensive movement throughout the state suggests that Brazilian peppertree will be capable of rapidly recolonizing areas from which it has been eradicated."

Effects of defoliation on growth and reproduction of Brazilian peppertree (Schinus terebinthifolius), by L.W. Treadwell and J.P. Cuda, Weed Science 55:137-142 (2007). "From this simulated herbivory study, we infer that multiple defoliations by insect defoliators have the potential to significantly suppress the growth and fruit production of Brazilian peppertree in Florida."

Resource-use efficiency and plant invasion in low-resource systems, by J.L. Funk and P.M. Vitousek, Nature 446:1079-1081 (2007).

See http://www.nps.gov/plants/alien/fact/mivi1.htm for an updated fact sheet on Japanese stiltgrass *(Mycrostegium vimineus)*.

The new journal **"Invasive Plant Science and Management"** is seeking manuscripts for its first issue to be published the first quarter of 2008. The peer-reviewed journal will focus on fundamental and applied research on invasive plant biology, ecology, management, and restoration of invaded non-crop areas, as well as on educational, sociopolitical, and technological aspects of invasive plant management. A publication of the Weed Science Society of America. For more information, see http://www.wssa.net/WSSA/Pubs/IPSM.htm

In the News

The Second Non-native Pet Amnesty Event took place March 24th in Clearwater, FL. Florida Fish and Wildlife Conservation Commission is the lead agency working with the City of Clearwater and Pinellas County Animal Services and many other educational participants. Approximately 300–400 people attended and 50 unwanted exotic pets were turned in to the event. These included frogs, lizards, snakes, etc. All surrendered animals were placed with approved adopters. http://myfwc.com/nonnatives/amnestyDay.html

Meijer Stores Remove Two Known Invasives, Unveil New Plant Tag for Garden Centers

The Nature Conservancy has worked with Meijer Stores to recommend non-invasive plants that are best suited for backyards in the Midwest. Shoppers will find 16 percent of Meijer's plants, trees and shrubs marked with a special icon created by a Nature Conservancy volunteer indicating that scientists have determined them to be "Recommended Non-Invasive" species. In addition, Meijer will remove two species from their inventory, Norway maple and Lombardy poplar, both of which are known to be invasive in parts of the Midwest.

All Meijer Back Yard employees will be trained on the new plant tags and invasive species to better understand and explain to shoppers about the dangers of invasive plants and the benefits of using recommended non-invasives.

In Florida, the Conservancy and the Southeast and Florida Exotic Pest Plant Councils also have partnered with the Lowe's chain, which has agreed not to sell 45 species of invasive plants in their garden centers in that state.

FLEPPC has been working similarly with the Florida Nursery, Growers and Landscape Association (FNGLA), Tampa Bay Wholesale Growers (TBWG), the Florida Department of Transportation (FDOT), and others to reduce the availability and use of invasive plants.

America's Sportsmen Draw Bead on Invaders from http://www.protectyourwaters.net/

The "**Stop Aquatic Hitchhikers!**" campaign and web site encourage recreational users to become part of the solution in stopping the transport and spread of invasive hitchhikers.

April 25, 2007 — Brooklyn Center, MN
A survey of twenty national hunting and fishing organizations demonstrates a growing concern about the impact that invasive plant, animal and insect species are having on America's woods and waters. Some of the groups are adopting conservation actions to combat invasive species. Wildlife Forever, the non-profit arm of the North American Hunting Club and North American Fishing Club, recently polled sportsmen's groups about their awareness of and attitudes toward invasive species in an effort to foster a national conservation response to the threat posed by invasives.

The largest result in the poll shows that 71% of the groups have an increased awareness about the threat posed by invasive species in recent years compared to 29% who had no change in their awareness. Seventy percent believe that invasive species have significant (35%) or moderate (35%) impact on fish and wildlife issues, while 30% feel invasive species have little or no effect. *Fifty-three percent of the groups have increased existing programs or initiated new programs to deal with invasive species (emphasis added).*

The National Council for Science and the Environment (NCSE) is pleased to announce the formal launch of the **Earth Portal** (www.EarthPortal.org).

Earth Portal is a comprehensive, free and dynamic resource for timely, objective, science-based information about the environment built by a global community of environmental experts. In contrast to information from anonymous sources with no quality control, the Earth Portal is created and governed by individuals and organizations who put their names behind their words and where attribution and expert-review for accuracy are fundamental.

The Earth Portal includes:

- **Encyclopedia of Earth** (www.eoearth.org) has an initial 2,300 articles from over 700 experts from 46 countries, as well as such content partners as the World Wildlife Fund and the United Nations Environment Programme;
- **Earth News** (www.earthportal.org/news) includes breaking news updates from many sources, with links from key words to Encyclopedia articles, enabling readers to learn about the science behind the headlines;
- **Earth Forum** (www.earthportal.org/forum) allows the public to engage in discussions with

Coral ardisia grazed by cattle.

Coral Ardisia Kills Cows

A Seminole County cattle rancher recently lost 23 mature cows in a matter of weeks. He sent one of the deceased animals to the University of Florida for necropsy and was informed that the cow succumbed to poisoning and there were "white seeds" in the gut. Upon inspection of the oak hammocks within the specific rangeland, the rancher discovered that coral ardisia *(Ardisia crenata)* plants and seeds were being heavily grazed by the cattle (the "white seeds" were apparently the remnants of the ardisia's red seeds). He has not lost any more cows since they were moved from the infested rangeland to an adjacent pasture. It appears that the cows were left to forage in an area with more oak hammock than pasture and they heavily foraged a 1–2 acre patch of ardisia in the interior. The top 1/3 of the plants were consumed (seeds, branches, and foliage). Brent Sellers of the UF/IFAS Agriculture and Researach Education Center in Ona is preparing a fact sheet on the topic to alert ranchers.

experts, ask questions and get answers, and to participate in community debates about issues that matter to them;

• **Environment in Focus** (www.earthportal.org/?page_id=70) provides an exploration of a major issue each week—energy, climate change, environmental economics and other topics—led by a prominent expert in the subject and involving articles, news, places, discussions, Q&A, interesting facts, and more.

The National Council for Science and the Environment (www.NCSEonline.org) is a not-for-profit organization dedicated to improving the scientific basis for environmental decision-making. The NCSE specializes in programs that foster collaboration among diverse institutions, communities and individuals.

A new invasive species outreach brochure and poster provides gardeners and homeowners with best management practices to prevent invasive plants from spreading to parklands and natural areas. The material was developed in cooperation with the National Park Service, The Garden Club of America, the National Invasive Species Council and many others. To request free copies, email Lynda Brick (lbrick@wildflower.org) with your address and quantity requested. 3,000 brochures are on hand and more can be ordered if necessary.

http://www.wildflower.org
phone: 512.232.0110
PDF files for the brochure & poster are at http://wildflower.utexas.edu/plantwise/

from the Invasive Species Council (Australia)

The Weedy Truth about Biofuels

With climate change so much in the news, biofuel crops are attracting interest, but initial investigations by the Invasive Species Council (Australia) have found that many of these are potential major weeds—putting the economy and the environment at risk.

"For example a biodiesel company in Queensland has called on farmers to grow jatropha (also called physic nut), an Indian plant that is banned in Western Australia and the Northern Territory because of its weediness. Jatropha is also closely related to bellyache bush—one of the worst weeds of grazing lands in northern Australia - and like bellyache bush it is poisonous to livestock. It could be a disaster if this plant was deliberately put in the ground as a crop in Australia," said ISC spokesman Tim Low.

The ISC has found that other known major weeds touted as biofuel crops include Chinese tallow tree, castor oil plant, reed canary grass, giant reed and Chinee apple. For example Chinese tallow tree is one of America's worst weeds, and it was recently declared a noxious weed in northern New South Wales because it is invading land so rapidly.

To see the Weed Science Society of America's white paper on "Biofuels and Invasive Plant Species," visit www.wssa.net

Invasive Species Cause Big Economic Loss in China

www.chinaview.cn 2007-04-21 10:31:08
WUHAN, April 21 (Xinhua) — Invasive plant species have brought hazards to rice, wheat, corn and other crops in China and caused big economic loss, said a scientist with the Chinese Academy of Sciences (CAS).

Water hyacinth is also posing a serious problem in rivers, lakes and ponds. There are more than 280 foreign invasive species of plants and animals in China, with 18 aquatic plant species and 170 terrestrial plant species. Half of the species are from America and about one-fifth from Europe.

Statistics show that invasive species have caused a total economic loss of 14.45 billion U.S. dollars in China between 2001 and 2003, with direct and indirect economic losses accounting for 16.5 and 83.41 percent.

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