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Wildland Weeds

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On the Cover:

An aerial survey of Highlands County, Florida revealed this *Lygodium microphyllum* infestation, covering more than 100 acres near Lake Placid. *Photo by Tabitha Ann Biehl.*

Lygodium Infestations in the Lake Wales Ridge

by Tabitha Biehl, The Nature Conservancy

Lygodium *invades lakefront property and backyards in Highlands County, FL. During the aerial survey* Lygodium *was frequently identified along lake edges and in ditches, but even more infestations were mapped in remote swamps and isolated habitats. Photo by Tabitha Ann Biehl.*

INTRODUCTION

On a recent aerial survey over the Lake Wales Ridge in Highlands and Polk counties, biologists marveled at the beauty and biodiversity of the Ridge's unique scrub habitat, dotted with wetlands and sparkling lakes, only to be shocked moments later by what looked like a green carpet smothering the landscape. The mission during these flights was to map locations of invasive species. Biologists expected to find *Lygodium*; however, they did not expect infestations larger than 10-20 acres. The "green carpet" *Lygodium* infestation encountered in Highlands County encompassed 100-200 acres of lake front property.

This green carpet, better known in the invasives world as *Lygodium microphyllum* (Old World climbing fern), is spreading north and, together with *Lygodium japonicum* (Japanese climbing fern) expanding to the south, it is tightening a noose around central Florida.

Lygodium microphyllum and *L. japonicum* are relatively new threats to the Lake Wales Ridge and may be the most threatening of the invasive non-native plant species currently known in Florida. It is *Lygodium*'s ability to spread, dominate and alter natural regimes that inspired the Lake Wales Ridge Ecosystem Working Group (LWREWG) to try and halt further infestations.

The LWREWG works across public and private boundaries to ensure the long-term protection of the native plants, animals and natural communities of the Lake Wales Ridge. Representatives from 12 conservation agencies participate in LWREWG Invasive Species Committee meetings to share information, plans and solutions. The presence of *Lygodium* on the Lake Wales Ridge prompted the committee to collectively develop objectives and strategies to address this threat. The LWREWG Invasive Species Committee's objective is to detect and contain by 2006 invasive species on private and public lands that could become larger infestations. By 2013, we hope to have Lygodium under a maintenance control plan whereby infestations are continuously surveyed and treated.

A June 2003 brainstorming session resulted in a work plan that guides efforts to manage *Lygodium* along the Ridge and meet our stated objective. A strategy that emerged as top priority was to conduct surveys of the Lake Wales Ridge in order to map the *Lygodium* infestations

SURVEY METHODS

The LWREWG Invasive Species Committee plans to conduct systematic and repeatable ground and aerial surveys for *Lygodium*. Standardizing methods across the Ridge enables partners to compare results and measure the success of management methods across the entire ecosystem. Locations of *Lygodium* are collected from private and public landowners. Twice a year, participants submit their most recent *Lygodium* locations to Avon Park Air Force Range (APAFR). Once compiled and spatially referenced,

The committee recognizes that continued surveying and mapping of *Lygodium* are imperative in managing the fragile ecosystems of the Lake Wales Ridge.

the information is disseminated back to participants in the form of a map, data, or both.

Ground Surveys

Ground survey methods were adopted from APAFR and the Florida Division of Forestry (DOF). The protocol recommends using belt transects and multiple observers to survey areas from the ground.

Aerial Surveys

South Florida Water Management District (SFWMD) aerial survey protocols were implemented by the LWREWG. These include establishing east/west transects 1,000 meters apart across the area of concern. With two or three observers and a global positioning system (GPS) unit, we use nested points to continuously log survey transects and record data. The helicopter hovers 50-100 feet over the treetops. When an invasive plant is spotted, the helicopter exits the transect and hovers over the location. Observers then map the location as a point and record information on size, habitat and density of infestation. Once this information is collected, the helicopter returns to the transect and continues surveying.

SURVEY RESULTS

As of March 2004, there were 213 mapped locations of *Lygodium* on the Lake Wales Ridge (ground survey information last updated January 2004). By comparing locations from the helicopter survey (111) to the ground surveys (110), only eight of these locations were duplicates, meaning 103 new infestations were mapped during the aerial survey. This information provided great insight into the immediacy of the problem on the Ridge.

The helicopter survey covered approximately 400,000 acres of the Ridge and resulted in the mapping of an estimated 400-800 acres of *Lygodium*. Observers discovered larger and more frequent infestations of *Lygodium* towards the southern end of the Ridge. Ninety locations were found in Highlands County and 21 locations in Polk County during the aerial survey.

Of the 111 locations of *Lygodium* found during the helicopter survey, only 27 were on conservation lands. Almost all of these infestations have been located and treated with herbicides. The remainder of the locations (84) are on private lands. The LWREWG Invasive Species Committee continues to develop and implement survey and treatment strategies to assist with control of both species of *Lygodium* on private and public lands.

Acknowledgements

The helicopter survey was made possible by the South Florida Water Management District. I would also like to acknowledge Anne Malatesta (DOF), Sandy Greer (DOF), David Blood (Florida Fish and Wildlife Conservation Commission), Adam Peterson (The Nature Conservancy), Tom Shean (DOF) and Peg Margosian (APAFR) for their participation in surveying and data analysis.

For more information, contact Tabitha Biehl, Research and Monitoring Biologist, The Nature Conservancy, Lake Wales Program, 863-635-7506, tbiehl@tnc.org

Important progress on the *Lygodium microphyllum* biological control program

by Robert W. Pemberton, US Department of Agriculture-Agricultural Research Service (USDA-ARS), Invasive Plants Research Laboratory

USDA-Agricultural Research Service scientists are one step closer to releasing the first biological control agent against Old World climbing fern (*Lygodium microphyllum*). Our petition requesting release of a defoliating moth, *Cataclysta camptonozale*, has been approved by the Technical Advisory Group for Biological Control of Weeds, the federal interagency group that evaluates such petitions. This approval is a recommendation for release to USDA-APHIS (Animal and Plant Health Inspection Service), the responsible regulatory agency. It is the first and most critical step in the permitting process. Approval led to the second step, the preparation of a draft Biological Assessment that judged the risk to federally protected rare species to be insignificant. USDA-APHIS is now finishing the Environmental Assessment that will be published in the Federal Register. If there are no serious challenges to the release during the 30-day public comment period, USDA-APHIS will issue a release permit. If there are legitimate objections to the release (none are expected but they can occur), written responses and more research may be needed. We've got our fingers crossed in hopes of receiving a release permit by autumn.

A release petition for another candidate for biological control of *Lygodium*, a gall forming eriophyid mite named *Floracarus perrepae*, was submitted in February. Other biological control candidates including a second defoliating moth, *Neomusotima conspurcatalis*, and a stem-boring moth, *Ambia* sp., are being studied. USDA-ARS scientists are committed to developing biological controls to limit this terrible weed.

This research effort is possible thanks to partnerships with the South Florida Water Management District and the Florida Department of Environmental Protection that provide essential funding, and our overseas cooperators, particularly Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO).

For more information, contact Robert Pemberton at bobpem@saa.ars.usda.gov, 954-475-0541 ext. 106.

Adult moth, *Cataclysta camptonozale*, on Old World climbing fern, *Lygodium microphyllum*. Photo by Christine Bennett, University of Florida, Entomology and Nematology Dept.

Japanese Climbing Fern Control Trials In Planted Pine

by Mark Zeller and Drew Leslie, Florida Department of Environmental Protection, Bureau of Invasive Plant Management

Introduction

Japanese climbing fern (*Lygodium japonicum*; Figure 1), native to Eastern Asia, is naturalized across the Southeastern US. It is a Florida Exotic Pest Plant Council (FLEPPC) Category I invasive plant that occurs in some 29 counties in Florida, particularly in the north central, north and west regions. Japanese climbing fern forms dense mats over ground cover and climbs into tree canopies. This species has not been observed to form the dense arboreal blankets in tree canopies seen with Old World climbing fern (*Lygodium microphyllum*), possibly due in part to freeze damage in populations above the Florida frost line. Both species of *Lygodium* were added to the Florida Department of Agriculture and Consumer Services (FDACS) noxious weed list, Rule 5B-57.007, FAC, in 1999. This rule prohibits introduction, cultivation and transport without a permit issued by FDACS.

In northern Florida, entrepreneurs lease rights on pine plantations to rake pine straw to bale and sell as landscape mulch. Many of these tree farms are infested with Japanese climbing fern (Figure 4). Pine straw bales have been a suspected vector for the disbursement of viable Japanese climbing fern plant parts and spores for several years. Numerous observations of fertile leaflet fragments in baled pine straw have been made in the Panhandle (personal observation). The end use of these bales is in residential, commercial, and right of way landscape beds. These sites would offer suitable conditions for *Lygodium* growth (Figure 2).

Recent official complaints concerning transport of Japanese climbing fern in baled pine straw initiated action by FDACS as a violation of Rule 5B-57, for possession and transport of a prohibited agricultural weed. FDACS arranged a meeting with members of the pine straw industry to discuss standardization of practices and to offer the pine straw industry the opportunity to address this problem and find an industry-initiated solution. The Florida Department of Environmental Protection's Upland Invasive Plant section was invited to this meeting and agreed to design climbing fern control trials in planted pines. Controlled field trials with calibrated agricultural equipment might yield information useful to control of this species on conservation lands, as well.

Materials and Methods

Trials were conducted at one site in Hamilton County and one in Calhoun County. The trials were designed to emulate typical forestry applications used by pine straw producers. Tractor broadcast spray equipment was calibrated by measuring spray volume per minute delivered and width of the spray pattern. Time to traverse the plots was adjusted to assure application rates were as close to design as practical. Plot sizes were 300 feet long by 21 feet wide at the Calhoun site and 25 feet wide at the Hamilton site. One row was left untreated between each treatment row as a buffer. Table 1 lists herbicides and rates used in the trial plots.

*Figure 1. (above) Japanese climbing fern (*Lygodium japonicum*) fertile frond*

Figure 2. (right) Japanese climbing fern in a pine straw mulched landscape.

One plot outside of the test area was sprayed by the pine straw farmer's foreman, Tick, using an unspecified "Tick's Roundup-Garlon 4 Brew." This plot was an actual operational control that we observed.

Treatments were evaluated at 0, 15, 30, 60, 90, 180, 270 (300 days for Hamilton County), and 400 (Calhoun County only) days after treatment (DAT). Evaluations were made by two or more people walking the plots and independently ranking percent cover of live *Lygodium*. Within each plot, percent cover of living

continued on page 8

	BROADCAST APPLICATION RATE		AMOUNT OF PRODUCT IN THE MIX	
Herbicide	Low Rate	High Rate	Hamilton	Calhoun
Accord	2 Qts/a	6 Qts/a	1.8%-5.6%	1.4%-4.2%
Garlon 4	1 Qt/a	4 Qts/a	0.9%-3.7%	0.7%-2.8%
Veteran 720	4 Qts/a	8 Qts/a	3.7%-7.4%	2.8%-5.6%
Escort	1 Oz/a	2 Oz/a	---	0.8-1.6 g/gal
Velpar L	2 Qts/a	4 Qts/a	---	1.4%-2.8%

Table 1. Herbicide broadcast application rates and amounts of herbicide in total mix for the low and high rates are provided. Accord (41.5% glyphosate), Garlon 4 (61.6% triclopyr ester), and Veteran 720 (24.58% 2,4-D and 12.82% dicamba) were used at both the Calhoun and Hamilton county sites. Escort (60% metsulfuron methyl) and Velpar L (25% hexazinone) were applied only at the Calhoun County site. A nonionic surfactant (Kinetic) was used at 0.5% with each herbicide mix.

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Lygodium was scored from 0 to 10 for each 10-yard interval and summed to yield percent cover for the plot. Data from each evaluator were averaged for each plot and then scaled by transforming to percent change from day zero (Figure 3). Initial percent cover ranged from 21% to 47% in the Calhoun County plots and 22% to 45% in the Hamilton County plots.

Results and Discussion

Hamilton County trials were begun on September 26, 2001. All treatments resulted in suppression of *Lygodium* compared with the control plots (Figure 3). However some materials performed much better over the long term. At 15 DAT the Veteran 720 resulted in the most herbicide damage followed by Garlon 4 (Figure 3). The effects of winter burn are evident in data for the control plots; at 180 DAT percent cover was 26% lower than Day 0. By 300 DAT, all trials still showed suppression versus Day 0 and the patterns in the control plots, but only plots treated with Accord exhibited acceptable levels of long-term control.

"Tick's Roundup-Garlon 4 Brew" plot was sprayed by the contractor. Based on our measure of the width of the tractor spray pattern, this would have nearly doubled his application rate per row because of overlap. This plot also was mowed about two months after treatment, which is a standard industry practice.

Calhoun County trials were begun October 19, 2001. The Escort and Velpar L applications were made 30 days later. The Veteran 720 and Garlon 4 applications worked quickly compared with Accord, Escort and Velpar L (Figures 3 and 4). By 270-400 DAT the Veteran 720 and Garlon 4 plots exhibited much *Lygodium* regrowth and were near or greater than initial population levels. Escort plots (240 DAT) exhibited good overall control with greater than 80% suppression of *Lygodium* and extensive green healthy natives present. By 370 DAT *Lygodium* in the Escort plots was beginning to recover. Accord at 270 and 400 DAT resulted in more than 80% suppression but there was much more damage to native understory plants relative to Escort plots. The winter burn in controls was approximately 29% at 180 DAT.

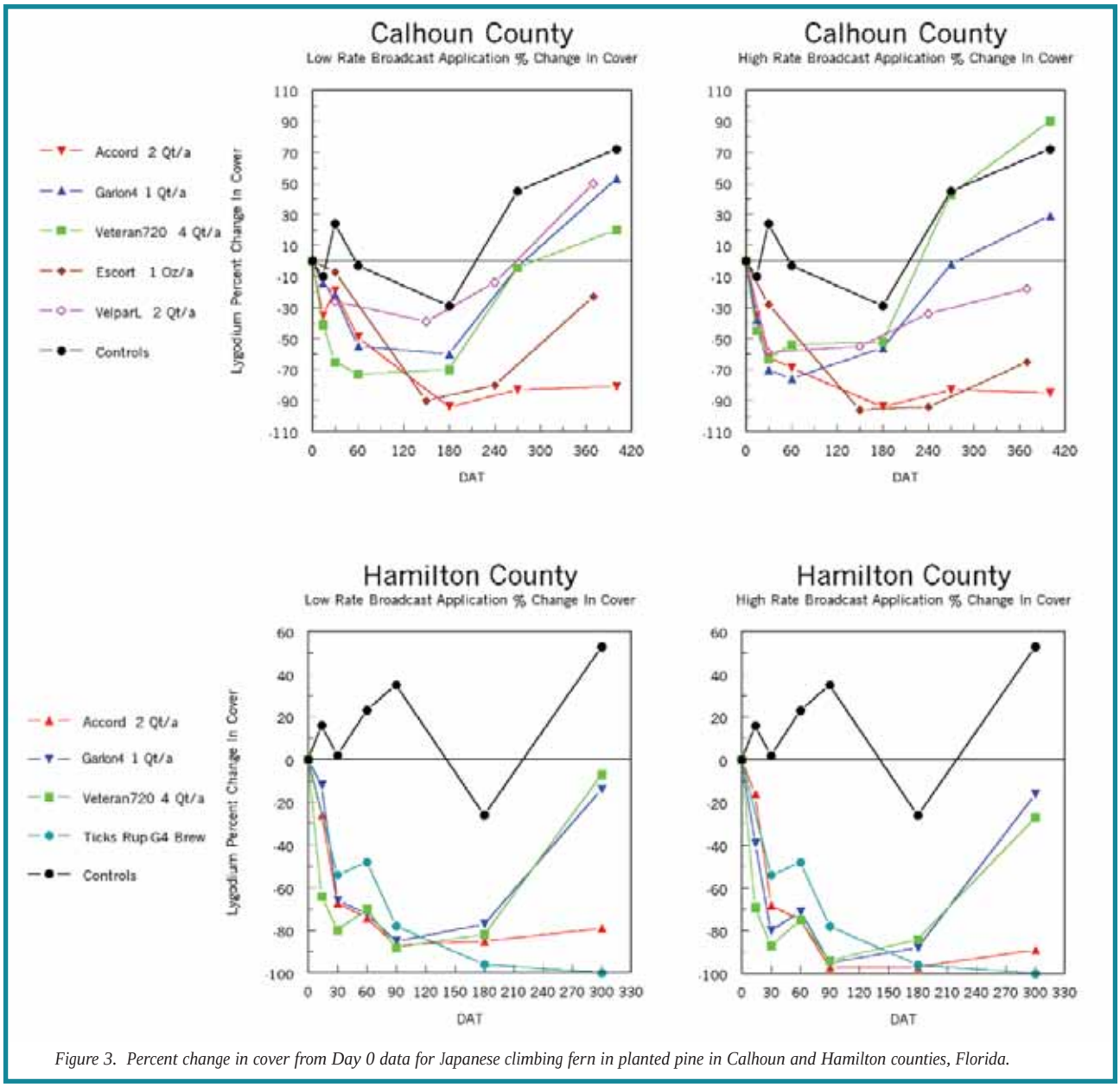


Figure 3. Percent change in cover from Day 0 data for Japanese climbing fern in planted pine in Calhoun and Hamilton counties, Florida.

Figure 4. Photopoints from the Calhoun County Japanese climbing fern control plots. Garlon 4 and Veteran 720 produced a quick knockdown of lygodium *but control was of short duration relative to Accord and Escort. Accord gave good long term control of lygodium but induced severe non-target impacts to understory plants. Escort also produced excellent long term* lygodium *control but with less impact to native understory plants.*

Accord and Escort both were very effective at long-term control of Japanese climbing fern. Escort performance at 1-2 oz/a was desirable from a natural resource perspective because of the reduced non-target damage of understory plants relative to Accord. However, Escort would be inadequate for the needs of the pine straw farmers because the industry desires long term bare ground knockdown of all understory plants without impact to pine trees. Based on our results we would recommend 6 quarts of Accord (Roundup) per acre to the pine straw farmers. The results in the Hamilton County "Tick's Roundup-Garlon 4 Brew" plot indicate that a higher rate of a Roundup-Garlon 4 mix also may be sufficient for the pine straw farmer's needs.

Acknowledgements

Sincere thanks to Richard Clark FDACS Division of Plant Industry, Andi Van Loan FDACS Division of Forestry, Jerry and Dan Wyrick of Wyrick & Sons Pine Straw (Calhoun County), and Calvin Stubbs and "Tick," pine straw farmers in Ellaville (Hamilton County), for making this project possible.

For more information, contact Mark Zeller at 850/245-2809, Mark.Zeller@dep.state.fl.us, or Drew Leslie at 850/245-2822, Drew.Leslie@dep.state.fl.us, 3900 Commonwealth Boulevard MS 705, Tallahassee, FL 32399.

Economic Uses of Ferns

From the chapter, Economic Uses of Ferns, from *Ferns of The Tropics* by Wee Yeow Chin, Timber Press, Inc., Portland, OR (1998):

"In New Guinea, the extremely long and tough frond stalks of the Climbing Fern (*Lygodium*) are used as a binding and lashing twine or woven into basketware, known as "Buka baskets." In the Philippines, the leaf stalks of *Lygodium salicifolium* are similarly made into baskets, hats and fancy cases. The Thais split the leaf stalks lengthwise and weave them into elegant ladies' handbags… For many centuries the Chinese used…*Lygodium microphyllum* to arrest bleeding."

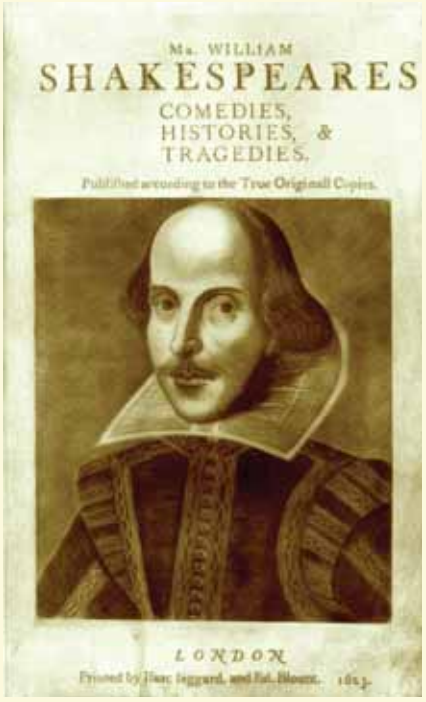
Editor's Note: Professor Don Les regularly gives a humorous presentation on exotic pest plants at various organizations including the Water Garden Society of Greater Kansas City, one of the largest in the United States with over 1,000 members. While usually geared toward his specialty, aquatic plants, the presentation works equally well with any exotic invasive species. Following is an abbreviated look at Don's presentation – he doesn't want to give away all of his secrets!

"Something wicked this way comes . . ."

A Shakespearean perspective on exotic pest plants

by Don H. Les, Department of Ecology and Evolutionary Biology, University of Connecticut

Shakespeare's message: Human nature is incompetent in the eternal quest for romance.
My observation: This incompetence extends to relationships with exotic pest plants.



Act I: Infatuation (Person meets plant and falls in love, in spite of warnings.)

"My only love sprung from my only hate!
Too early seen unknown, and known too late
Prodigious birth of love it is to me,
That I must love a loathed enemy."

– Juliet (Romeo & Juliet)

Act II: Love is blind (Dazzled by beauty, invasive traits are overlooked.)

"But love is blind and lovers cannot see
The pretty follies that themselves commit"

– Jessica (Merchant of Venice)

Act III: Domination (Our attempt to control: we confine the plants to gardens.)

"I'll tame you; I'll bring you in subjection"

– Simonides (Pericles, Prince of Tyre)

Act IV: Infidelity (Free spirits are born to wander and the plants escape our confinement.)

"What a brood of traitors we have here"

– King Henry VI

Act V: Revenge (Former admiration changes abruptly to animosity – when their evil side is exposed, we try to poison, mutilate or otherwise eradicate exotic plants.)

"He's a rank weed, Sir Thomas,
And we must root him out."

– Gardiner (King Henry VIII)

Act VI: Despair (It is no use – our former suitors stalk us worldwide! We will pay ecological alimony forever.)

"O thou weed,
Who art so lovely fair and smell'st so sweet
That the sense aches at thee, would thou hadst
ne'er been born!"

– Othello (Othello)

Act VII: Hope (We find fidelity in native species – not as exotic perhaps, but loyal and with natural beauty.)

"Upon a homely object Love can wink"

– Valentine (The Two Gentlemen of Verona)

Conclusion: Love affairs with invasive species inevitably will lead to irreconcilable differences.

For more information, contact Dr. Les at donald.les@uconn.edu or 860/486-5703. Don currently studies the population and reproductive biology of rare and invasive plants, the origin of angiosperms, and the molecular systematics, evolution and ecology of aquatic angiosperms. He was inducted into The International Waterlily and Water Gardening Society Hall of Fame in 2002.

FLEPPC Pops Up At Spring Garden Festival

Kanapaha Botanical Gardens was the site of the *14th Annual Spring Garden Festival* in Gainesville and the FLEPPC education and membership booth was on display. Approximately 10,000 people attended this immensely popular two-day festival that featured more than 200 vendors offering plants, landscape displays, gardening supplies, non-profit educational materials, plant seminars, music, food, artwork, and a stroll through the beautiful 62-acre botanical gardens.

The FLEPPC display featured one of our local "most *not* wanted" invasive plants, air potato (*Dioscorea bulbifera*). A large glass vase was filled with air potato tubers, with a challenge to festivalgoers to guess how many potatoes were in the jar. With 83 people participating, there was a wide range of guesses ranging from a low of 28 potatoes to a high of 1,304. Three people came within one potato of the correct number: 236. A drawing was held to determine the winner and 12-year-old Alex Roundtree won the grand prize: a native fringe tree (*Chionanthus virginicus*) donated by Tropic Traditions, Inc., a wholesale nursery from Newberry, Florida and one of the many vendors at the festival. Another popular event was the air potato toss where participants could toss a potato into a garbage can to win a piece of candy. The FLEPPC message was delivered to many interested folks and a good time was had by all.

For more information about Kanapaha Botanical Gardens, go to www.kanapaha.org

Exotic Species Threaten Rare Ferns in Miami-Dade County

by Jennifer Possley, Fairchild Tropical Botanic Garden

When envisioning Miami, most people are likely to conjure up images of traffic jams, South Beach, salsa music, and exotic flora…and they would not be wrong! But it may surprise you to know that Miami-Dade County is home to a unique assemblage of *native* flora, often found on postage-stamp sized parcels of county-owned natural areas. The rockland hammock preserves are a special place for fern enthusiasts. Here, sinkholes, solution holes and cliffs provide substrate for rare ferns, some of which are found nowhere else in the United States.

But alas! Those ferns that have managed to escape the titanic threat of south Florida urbanization have to contend with a tough gang of invasive species with their sights set on the ferns' turf. Controlling these offenders is not easy for county crews. Recent funding cutbacks have reduced invasive species management efforts. But even with adequate funds in place, near-constant attention is needed to eliminate the threat of invasive plants that can replace a native canopy and/or grow much taller and faster than natives.

In monitoring some of our rarest ferns, we've become acutely aware of the threats posed by some of the FLEPPC-listed species. These threats are documented through photographs and herbarium specimens. The following photos are selected from the past year of monitoring.

Jennifer Possley is the GIS Lab Coordinator and a Field Biologist at Fairchild Tropical Botanic Garden. Her work at Fairchild is funded by a 5-year contract from Miami-Dade County to develop a biological monitoring program for rare plants on Miami-Dade County natural areas.

For more information, contact Jennifer at jpossley@fairchildgarden.org or (305) 667-1651 ext. 3433.

Schefflera duff *(J. Possley)*

Schefflera actinophylla (FLEPPC Category I)

Large mature Queensland umbrella trees (right) create serious problems in the hammocks of Miami-Dade County and often favor the same habitat as rare ferns. Their copious leaf litter fills the nooks and crannies of the karst limestone formations, making them unsuitable for fern establishment (above). Furthermore, stands of *Schefflera* cannot simply be removed because the sudden canopy openings would burn any existing ferns and provide gaps for more aggressive invasive vines like pothos and *Syngonium*.

Schefflera actinophylla stand *(J. Possley)*

Epipremnum pinnatum cv. *aureum* (FLEPPC Category II) and *Syngonium podophyllum* (FLEPPC Category I)

1. *Asplenium verecundum* and pothos *(A. Rosenberg)*

2. *Tectaria fimbriata* and pothos *(J. Possley)*

Pothos (*Epipremnum pinnatum* cv. *aureum)* and *Syngonium* are difficult to eradicate once they become established in the hardwood hammock understory. These vines pose threats to ferns when they extend runners over the ground. If unchecked, they can completely blanket fern habitat. These photos show the imminent danger that both of these invasive species present for our rare native ferns.

(1) *Asplenium verecundum* (FL-Endangered) peeks out from between the leaves of a sprawling pothos runner, while young *Schefflera* establishes nearby. (2) *Tectaria fimbriata* (FL-Endangered) clings to the side of a large, bathtub-sized sinkhole, but it is still not safe from pothos. (3) A juvenile *Thelypteris sclerophylla* (FL-Endangered) grows toward pothos – and it is also a neighbor to several *Schefflera* seedlings.

3. Juvenile *T. sclerophylla* and pothos *(A. Rosenberg)*

(4) Another *T. sclerophylla* keeps company with *Syngonium podophyllum*. While the fern will not grow much larger, the vine has the potential to gain dozens of meters. Note that *Syngonium* sometimes sports variegated seedlings, and this seedling is showing the incised, palmate-leaved form that is more typical of the mature vine. (5) Immature *Syngonium* creeps next to a boulder that is home to TWO Florida endangered ferns: *Asplenium verecundum* and *Tectaria fimbriata*. Here, you can see why one of the common names of this morphologically plastic invasive plant is “arrowhead vine.”

4. Juvenile *Syngonium* and *T. sclerophylla* *(A. Rosenberg)*

5. *Syngonium, A. verecundum, T. fimbriata* *(J. Possley)*

Majority Threatened

Just as the rare ferns in Miami hammocks face being overwhelmed by invading exotic plants, so do most of Florida’s other rare native plants.

A compilation of case studies in the late 1990s, supported by FDEP’s Bureau of Invasive Plant Management, revealed that over half (60%) of Florida’s 534 native plant species currently listed as endangered or threatened are up against additional threats from invasive exotics.

About 30 listed species were documented as having already suffered some degree of population loss from displacement by EPPC Category I invasives. Over 170 other listed rare species faced imminent loss from invasives occurring within their habitats. Another 120+ listed species had invasives “at the door” — occurring in adjacent habitats. Involved in these plant-vs.-plant interactions were 28 Category I and two Category II pest-plant species (the *Schefflera* and *Epipremnum* shown here make it 32 species total!)

Recognizing the direct adverse effects of exotic pest plants on rare native plants is now a basic element of setting priorities for control of invasives in Florida. For more information or to add new observations, write kburks@fnai.org.

— K. C. Burks, Florida Natural Areas Inventory, FSU

(J. Possley)

(J. Possley)

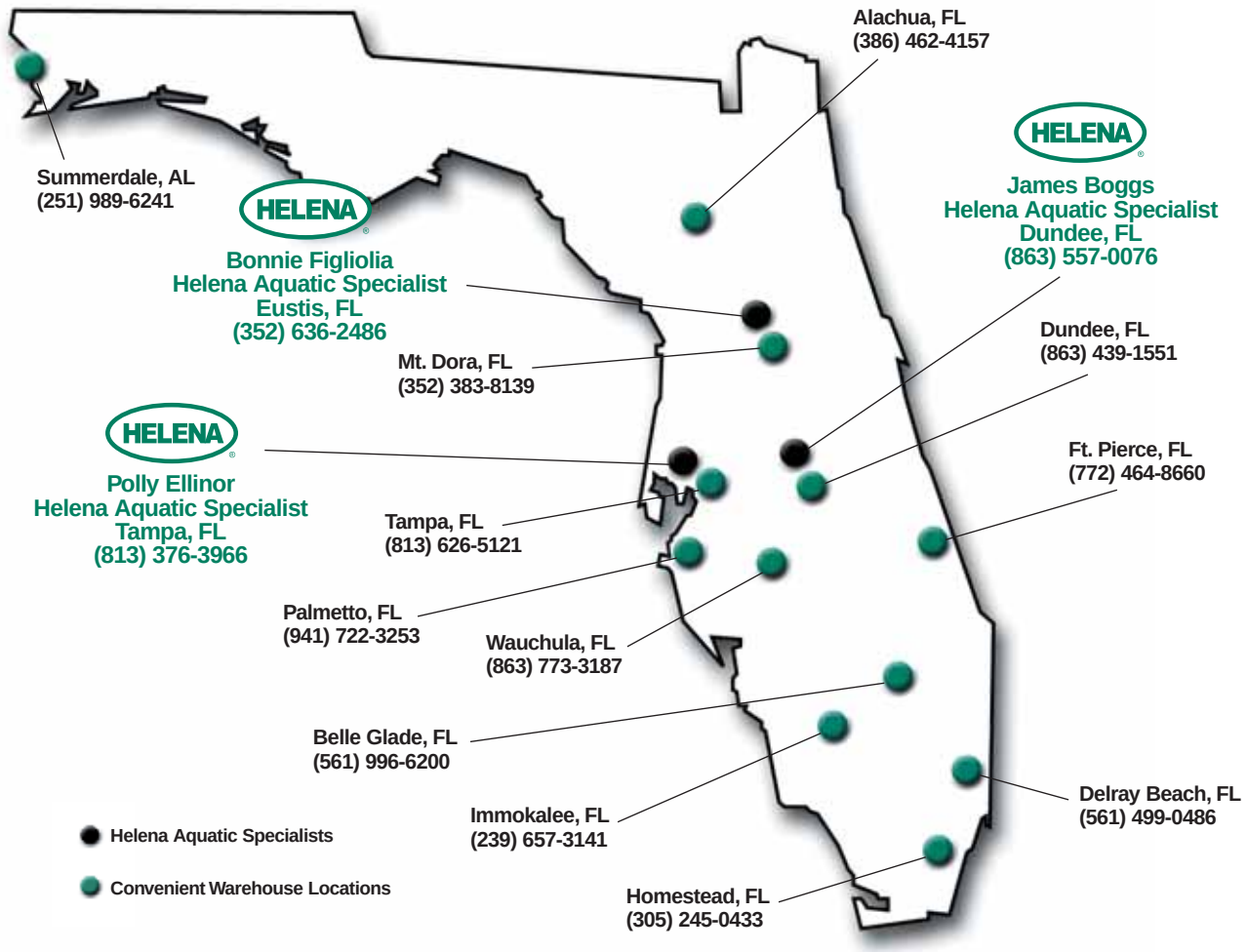
Fern-on-fern action

Sad, but true, Florida's ferns are threatened even by their own kind. This photograph shows a park in Miami-Dade County before (left) and after (right) removal of the FLEPPC Category-I invasive fern *Tectaria incisa*. The understory of this hammock appeared to be nearly a monoculture of the non-native fern but, after removal, we can see that native *Thelypteris kunthii* managed to maintain its foothold. This photo also provides a great view of the type of substrate that ferns (native and non-native) love.

(J. Possley)

Say it ain't so!

This past spring, several biologists from Fairchild and Miami-Dade County located *Lygodium microphyllum* at the Deering Estate - the crown jewel of Miami's park system. The (thankfully) sterile frond was climbing up the base of *Acrostichum danaeifolium*, the giant leatherfern. Until then, *Lygodium* hadn't been seen in the county south of the northern county line. We quickly removed this individual, vouchered it to Fairchild's herbarium, and reported its occurrence to Dr. Wunderlin at the USF Herbarium.



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Invasive Exotics Affect Park Utilization

A recent article in the *Washington Post* (March 15, 2004) has aroused some local controversy concerning tree removal from Ossian Hall Park in Annandale, Fairfax County, Virginia. It seems the park has become rundown, overgrown and, hence, attractive to neighborhood gangs and others pursuing illicit activities. In an attempt to upgrade the park and make it more safe and attractive to residents, the Fairfax County Park Authority has proposed cutting down trees, perhaps hundreds of them, as part of a Master Plan Revision. The *Washington Post* article states, however, that overgrown underbrush is at the root of the problem of poor visibility and dangerous activity.

When a message on the topic was posted to the Native Plants East Listserve, it was picked up by Marc Imlay, board member of the Mid-Atlantic Exotic Pest Plant Council, vice president of the Maryland Native Plant Society, and chair of the Biodiversity and Habitat Stewardship Committee for the Maryland Chapter of the Sierra Club. He stated that, "I have many times been to areas not used by people simply because of the invasives. This included multiflora rose at Runneymeade Park at Herndon (Virginia) before we cleared them on Earth Day. Several neighbors came up to us afterwards to personally thank us for allowing them to use the park again. (A joint VNPS/MNPS/Army National Guard project.) I have seen this with wineberry, tree of heaven and with porcelain berry, kudzu, honeysuckle and English ivy vines, separate or mixed together. It is plausible that identification and removal of the invasive vines and bush honeysuckle at Ossian Hall Park will clear the line of sight enough." The thread was continued when another member wrote to say, "Good point. Planting prickly natives that provide good cover for wildlife but not for humans (blackberry, raspberry, American holly, etc.) in strategic spots might also be worth considering." This was followed up by another member, who stated, "If there is a dense understory, it is probably 90%+ exotic invasives that shouldn't be there anyway. Ironically, cutting the trees may merely tend to worsen the invasives problem [by allowing more sunlight to penetrate from above]."

At present, the Master Plan Revision for Ossian Hall Park is still under review. The topic is an interesting one that bears further discussion. It also is full of prospects for the development of volunteer projects, educational opportunities, community service, and more in parks everywhere. And we can add the concern for personal safety for ourselves and our families to the environmental concerns posed by exotic pest plants.

— KB, Ed.

Following is a transcript from the ABC (Australian Broadcasting Corporation) National Rural News that is broadcast daily to all states on ABC Regional Radio's Country Hour and in the city on ABC News Radio (see http://www.abc.net.au/newsradio/). *Mimosa pigra* is a FLEPPC Category 1 weed that we share with Australia.

Schoolchildren Help Defeat Noxious Weed

Schoolchildren from Darwin are being recruited to help stop the spread of one of the Top End's most noxious weeds, *Mimosa pigra*.

Introduced a century ago, the prickly plant now covers vast tracts of land, choking waterways and threatening agricultural production.

For three weeks 60 children have been raising 500 *Macaria pallidata* moths, which they're releasing at Adelaide River.

Nicole Ostermeyer from the Department of Infrastructure, Planning and the Environment says they hope to raise awareness about biological controls.

"They knew a little bit, not overly much, they certainly knew about insect life cycles which was great, they took on board everything quite well, so when we would quiz them on things they were able to give us all the right answers. What we intend on doing next year is bringing in other insects that might be more relevant to the students in the rural area, that is a weed that they might find on their blocks at home and we will be showing them how to rear that insect, so they'll be actually able to do that at home themselves."

Hawaiian Plant Threatens South Carolina Dunes

by Robin Roecker and Tommy Socha
photos by: Will Conner, Baruch Institute of Coastal Ecology and Forest Science

During the 1960's, a plant was sought that would help protect and build ocean-side fore dunes in South Carolina. The plant had to be drought resistant, sand and salt tolerant, and fast growing.

Beach vitex showing blue-purple flowers.

Beach vitex (*Vitex rotundifolia*), native to Korea, Hawaii, Japan, and China, was chosen. The prolific and resilient plant now is taking over the natural vegetation along the South Carolina shore. Beach vitex threatens native plants along primary beach dunes, including sea oats (*Uniola paniculata*), sweet grass (*Muhlenbergia filipes*), and sea beach amaranth (*Amaranthus pumilus*). It also threatens loggerhead sea turtles. Recent state and local newspapers have deemed it "a predatory plant," "a killer of sea-turtle nests," and the "kudzu of the coast." Fortunately, major efforts are underway to document the occurrence and spread of the plant, to increase public awareness of its invasiveness, and to explore methods of control while restoring native beach dune vegetation.

The South Carolina Exotic Pest Plant Council (SC EPPC) has requested a grant from the *Pulling Together Initiative* (a public/private partnership for invasive and noxious plant management coordinated by the National Fish & Wildlife Foundation) to coordinate efforts to control beach vitex in South Carolina. This effort involves cooperation among various federal and state agencies, non-profit groups, and private landowners comprising a beach vitex task force, and is a pilot for the National Early Detection and Rapid Response System for Invasive Plants in the U.S.

For the last eight years, Tommy Socha, a plant specialist for the U.S. Army Corps of Engineers, Charleston District, has observed the growth of beach vitex along frontal dunes in South Carolina. Socha first noticed the sprawling shrub with blue-purple flowers while working on a Corps project to replenish 25.6 miles of the South Carolina coast from the north end of North Myrtle Beach to Garden City Beach. Socha observed healthy beach vitex growing below the high tide line, mingled among native sea oats and bitter panicum. Later, while evaluating beach vitex for use on dune stabilization projects, Socha and others, including Bob Eplie and Randy Westbrooks, then with the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, Plant Protection and Quarantine, observed beach vitex overtaking another aggressive non-native plant, silverberry (*Elaeagnus sp.*), and creating a monoculture on the frontal dunes. They found multiple runners (stolons) on the beach vitex, with some measuring more than 10-meters long. Later they learned that this location had been landscaped with more than 500 beach vitex plants at the request of the homeowner. The plant also was noticed a couple of years ago by sea turtle volunteer Betsy Brabson, who observed it spreading quickly up and down the beach in Georgetown County, SC. Last year, Betsy documented that the plant was indeed spreading when she counted 167 new plants in a 0.4-mile stretch on DeBordieu Beach heading towards Hobcaw Beach. Betsy and other sea turtle volunteers have since noticed the plant spreading in or near turtle nesting areas, where its fibrous roots have the potential to trap turtles and destroy eggs.

Planting on the dunes in South Carolina is regulated by the state Department of Health and Environment, Office of Ocean and Coastal Resource Management (DHEC-OCRM), which requires a permit before planting in dunes under its jurisdiction. Permits are only granted for planting sea oats, American beach grass, and panic grass, though there is no requirement that other plants be removed.

Beach vitex, also known as roundleaf chastetree, chasteberry, Monk's pepper, or kolokolo kahakai (as well as numerous other Hawaiian names), typically grows to 6-8 feet in spread diameter and six inches to two feet tall, but can reach four feet in height and twelve feet in width when protected from wind and salt spray. The round leaves are gray-green to silvery, 1 to 2 inches long, and have a spicy fragrance. The flowers are typically one inch wide, bluish

Beach vitex going dormant.

purple, and produced in small clusters at branch tips throughout the growing season. The round fruits are about 1/4 inch in diameter and bluish purple to black when ripe. *Vitex* species are now placed in *Lamiaceae*, the mint family (e.g. Weakley 2002); they were long considered part of *Verbenaceae*, the vervain or lantana family (e.g., Radford et al. 1968). There are about 250 species of trees and shrubs in the *Vitex* genus, mostly tropical but a few in temperate zones. Only two species of *Vitex*, both non-native and widely sold as ornamentals, are known from the Carolinas: *Vitex rotundifolia* and *V. agnus-castus* (lilac chaste tree).

Beach vitex was carried early to Europe and used medicinally, particularly as a remedy for female ailments. In Roman times, women whose husbands were abroad spread the aromatic leaves on their couches to reduce sexual desire. During the Middle Ages, the berries were a food spice at monasteries, hence the names Monk's pepper or Cloister pepper. It also was used in Europe as an important remedy for regulating the female reproductive system, controlling acne in teenagers, easing menopausal changes, and easing pain during childbirth. According to one modern herbal web site (Holistic-online.com), beach vitex stimulates and normalizes pituitary gland functions.

The focus of the beach vitex task force and SC EPPC over the next couple of years will be to document the occurrence and spread of the plant along coastal dunes, to inform private landowners, local nurseries, and others regarding the invasiveness of the plant, to document impacts to native plants and animals, and to hand-pull seedlings occurring on coastal dunes, with landowner permission. More active restoration of coastal dunes is being explored.

Beach vitex is being used as a field test for the National Early Detection and Rapid Response System, developed by the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW 2003) (see http://ficmnew.fws.gov/FICMNEW_EDRR_FINAL.pdf). As part of this effort, an ecological assessment will be conducted to document impacts to native plants and animals and to sand dunes on South Carolina beaches. A regulatory assessment will be conducted to determine if beach vitex should be listed as a state noxious weed.

The Charleston District of the Corps of Engineers is in position to play an active role in coordinating control and restoration activities on federal and state lands. Removing the deep-rooted plant will most likely involve herbicides; digging them out may create too much disturbance in the fragile beach dune ecosystems.

Partners with SC EPPC on the beach vitex task force include the SC Native Plant Society; the SC Turtle Volunteer network; SC Department of Parks, Recreation, and Tourism; the SC Department of Natural Resources; the Belle Baruch Foundation; the University of South Carolina's North Inlet – Winyah Bay National Estuarine Research Reserve, Baruch Marine Field Laboratory; the SC Department of Health and Environmental Control Office of Ocean and Coastal Resource Management (DHEC-OCRM); the U.S. Fish and Wildlife Service; Clemson University Departments of Plant Industry; of Forestry and Natural Resources; and of Horticulture; the U.S. Geologic Survey (USGS); the Natural Resources Conservation Service (NRCS); Friends of Huntington Beach State Park; and area newspapers.

Robin Roecker is president of the South Carolina Exotic Pest Plant Council. For more information, contact her at rroecker@fs.fed.us

References cited:

Hawaiian Native Plant Propagation Database, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, pdcs.ctahr.Hawaii.edu

Radford, A.E., H.E. Ahles and C. Ritchie Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press, Chapel Hill. NC. 1,183 pp.

Weakley, A.S. 2002. Working Draft, *Flora of the Carolinas and Virginia*. Curator, University of North Carolina Herbarium, Chapel Hill, NC.

Beach vitex showing habitat.

Legislative Update

by Matthew King, Chair, FLEPPC Legislative Committee

The Fall 2002 issue of *Wildland Weeds* (Vol. 5(4)) reported the passage of House Bill 1681 that added language to State Statute 581.091 and limited the ability of local governments to regulate invasive non-native plants. Specifically, the bill limited the plants that a local government could regulate or define as invasive to those plants listed by the Florida Department of Agriculture and Consumer Services (FDACS) as a "Noxious Weed" (5B-57.001 Florida Administrative Code). Another aspect of the bill was the requirement that FDACS, in conjunction with the University of Florida Institute of Food and Agricultural Sciences, develop a process that would require a periodic, scientific review of the FDACS list to ensure that new invasive plant species are evaluated and added, or removed, when necessary.

In March of 2003, FDACS released a public notice for comments on amendments to 5B-57.001. The amendments included new language based on the additions to the Statute (a quick civics lesson on Florida statutes and rules: bills can become statutes, and then rules are written based upon these statutes. Rules generally have more detail than the statutes.) The majority of the new language detailed the procedure for the addition and removal of noxious weeds from the FDACS list. FLEPPC, along with several local governments and environmental groups, commented on these proposed rules. FLEPPC addressed the following main issues:

1. FDACS included language that allowed for the removal of a noxious weed from their list if the weed "is distributed throughout its potential range or has spread too far to implement effective control; evidence that control has been unsuccessful and further efforts are not supported or feasible; …" FLEPPC did not agree with this interpretation and suggested changing the language to state that *a noxious weed should be removed from the list only when it no longer meets the definition of a noxious weed.*

2. FLEPPC felt that the definition for a noxious weed should include *naturalized plants that disrupt naturally occurring native plant communities.*

3. Invasive plants from the Florida Department of Environmental Protection list were to be added to the FDACS list per the statute; however, they were omitted.

In late December 2003, Palm Beach County alerted FLEPPC and several other agencies/municipalities that FDACS had released a second public notice for the rule amendment that did not include several of the comments previously expressed. FDACS did include a new definition for an "Invasive Plant," which included our recommended language; however, they failed to change the criteria for removing a noxious weed from the list, along with what appeared to be several administrative omissions.

Because the proposed rules did not adequately express the comments submitted previously by various agencies, Palm Beach County requested a public hearing on the matter in order to require FDACS to accept additional comments. Again, FLEPPC, along with several local governments, submitted comments. This time, FDACS incorporated most of FLEPPC's comments into the rule change, including the three mentioned above.

For more information, contact Matthew King at 561/233-2400 or mking@co.palm-beach.fl.us

References:

Existing Rule No. 5B-57, FDACS, Division of Plant Industry, INTRODUCTION OR RELEASE OF PLANT PESTS, NOXIOUS WEEDS, ARTHROPODS, AND BIOLOGICAL CONTROL AGENTS can be found at: http://www.doacs.state.fl.us/pi/5b-57.htm

A copy of the proposed rule changes can be found at: http://faw.dos.state.fl.us/fawframes.html Select the February 13, 2004 edition of the *Florida Administrative Weekly*. The changes are in Section III, starting on page 716.

The Florida DEP listed plants can be found at: http://www.dep.state.fl.us/lands/invaspec/2ndlevpgs/perrules.htm

FLEPPC Member and Advocate of the Year Awards

Kristina Serbesoff-King was selected as FLEPPC *Member of the Year – 2004* for her exceptional work as Treasurer since accepting the position in September 2001. In addition to her year-round work performing various treasury duties, Kris oversees the registration process for the annual FLEPPC symposium. In spite of the workload and harried last-minute details, Kris always has a bright smile and a winning attitude. Thank you, Kris!

Mike Page is president of Helicopter Applicators, Inc., a prominent contractor providing aerial application and other services throughout the eastern U.S. However, since 1982 he has provided much more. In that year, he began working with various public land management agencies in Florida. At that time, no effective aerial treatment was known to control melaleuca. Mike's expert knowledge, dedication and tireless work were pivotal in the development of successful aerial melaleuca control technology following several years of trials.

Today, his extraordinary personal involvement and commitment to Florida's natural resources continue as controls are sought for other invasive species. Mr. Page brings outstanding professionalism to the job and spends many hundreds of flight hours annually in the attack on invasive pest plants. His dedication extends beyond what is called for by simple business commitments and profit motives. For these reasons and more, he has been selected as the FLEPPC *Environmental Advocate of the Year – 2004*. Thank you, Mike!

M. Bodle, Immediate Past Chair, FLEPPC

FLEPPC and SE-EPPC in 2004

by Thaddeus Hunt, University of Florida IFAS Center for Aquatic and Invasive Plants

On the final three days of April 2004, Pensacola Beach hosted the 19th Florida EPPC and 6th Southeast EPPC Symposia. The event brought together land managers, researchers, students, state and federal agents, fishing equipment and rental cars from throughout the southeastern U.S. When I say southeastern U.S., I mean Florida, Georgia, Alabama, South Carolina, North Carolina, Michigan, Tennessee, Bermuda, and more. Just under half of the 186 participants were attending their first EPPC symposium.

The keynote address by Phyllis Windle illustrated a timeline perspective of the accomplishments of the past decade, observance that our national policy is "A day late and a dollar short" (and several other accurate clichés), and the significance of the "Call to Action on Invasive Species" for remedying this policy shortcoming by creating law. She was followed by Randall Stocker, who gave an energetic, humorous, and statistically playful account of the significance of this symposium and Executive Order 13112 (1999), with a note that the political gains of Exotic Pest Plant Councils are not yet "Front Page News."

A break was taken and coffee consumed. Some looked at presentation posters while others insured placement on a Friday field trip, while even more collected sample bottles of *Vinex*. The break ended and the rest of the symposium ensued. On this first day we focused on some of the bigger, badder issues of quelling exotic weed anarchy. A notable example of this would be the "Industry Influence on Exotic Pest Plant Policies," as given by Barbara Lucas, who included some information on the status of our relationship and cooperation with various nursery and growers associations. Another talk was "Federal Noxious Weeds and Other Invasive Species Regulated by USDA APHIS." We always want to know what is going on at the federal level and Arthur Miller brought that information to us. What a great guy! Another of my favorites was "Tag, Your It!" from Al Cofrancesco. This was described as biocontrol for dummies. It wasn't just for people new to FLEPPC or SE-EPPC either. This day also contained some heartening biocontrol updates and critical herbicide information. The working part of the day wrapped up with the Florida EPPC business meeting, wherein Jim Burney stepped in as the new chair of FLEPPC and Mike Bodle stepped down. Outgoing board members Jim Burney, Jim Cuda, William Snyder and Andrea Van Loan were replaced by newly elected board members Roger Clark, Drew Leslie, Cressida Silvers and Jim Duquesnel. Kristina Serbesoff-King was awarded *FLEPPC Member of the Year 2004* for her hard work as Treasurer, and Tom Page was awarded *FLEPPC Advocate of the Year* for his many years of service assisting with aerial weed control operations.

When not in conference, what do weed people on the Florida coast do? They eat good seafood and they eat bad seafood. The quality of the seafood increased with each step you could take away from the hotel. With a little thought, this may indicate that those who enjoyed their lunches were prone to a late return to the conference. The first day concluded with a delightful yet crowded social on the Clarion Suites patio where intelligent conversation, high roughage shrimp, high carbohydrate beverages, and lowbrow humor could be enjoyed. Many lingered at the social while young fishermen went to compete and old fishermen went to pretend to compete on a windy pier at the first ever EPPC fishing tourney.

Day two began with some sort of breakfast, I'm sure. I was much more concerned with where to get a better lunch. The more important thing was the conference. This day was not about the big issues of exotic weed anarchy, rather, the smaller factions of those exotic weed anarchists. Kathy Burks gave a great lesson on practical field taxonomy of legumes and was followed by Colin Hughes' practical lab taxonomy of air potato as well as its African origins. Lunch was followed by what could simply be called "*Everything You Ever Wanted to Know About Lygodium But Were Too Afraid To Ask About The Fern That May Eat the Vine That Ate The South*." Actually, it wasn't that grim. This series of sessions ended with some great news and applause about biocontrol and management strategies. An extended break was taken to view written and graphical information about some of these plants. This means that we got extra time to view many informative posters, meet the creators, talk a lot, and show up late to the next event.

Day two ended with a good meal, a small party, and a big sound. Actually, I hear that other guests of the Clarion enjoyed the music of *The Weeds* as well. We certainly enjoyed the dinner. Our buffet was set up in a slightly cramped hall, but it all seemed to work out quite well and, by the time I was hearing Stray Cat Strut, I wouldn't have cared if dinner had been a disaster.

The following morning was rainy and probably adventurous for those who signed up for a field trip. I suspect that only the hardest core weed people ventured out on these wet excursions, which provided a chance to see all of the local beauties of the panhandle and lower Alabama being invaded by the exotic uglies. Some of these great locations included Eglin Air Force Base, the Pensacola Naval Air Station, and the Blackwater River State Forest.

This year's conference of FLEPPC and SE-EPPC saw many new attendees and insured that they will return for more. The political, technological, and social advances that our colleagues have made and that we were exposed to at this conference are invaluable and deserving of mainstream attention. You would have to be consumed by Lygodium (or Kudzu, if Lygodium is not locally available) not to attend next year.

Thanks to Thaddeus for his on site reporting. He's never a day late. Ed.

Internodes

Mark Your Calendar

- Aquatic Plant Management Society 44th Annual Conference, July 11-14, 2004, Tampa Hyatt Regency, Tampa, FL. www.apms.org
- 13th International Conference on Aquatic Invasive Species, September 19-23, 2004, Ennis, County Clare, Ireland. Elizabeth Muckle Jeffs, profedge@renc.igs.net -or- http://www.aquatic-invasive-species-conference.org/
- 12th Annual NAWMA (North American Weed Management Association) Conference and Trade Show, September 20-23, 2004, Rushmore Plaza Holiday Inn, Rapid City, SD, http://www.nawma.org/
- 3rd International Conference on Biological Invasions NEOBIOTA – From Ecology to Control. September 30th – October 1st, 2004, University of Bern, Switzerland. Invasive alien species of all taxa (plants, animals, fungi) will be discussed, with a focus on ecology of neobiota, environmental, socio-economic and human health impacts, risk assessment, pathways and prevention, and control. Geographic focus is on Central Europe. www.neobiota.unibe.ch
- 14th Annual Cal-IPC Symposium: Invasive Plants and the Wildland-Urban Interface/California. October 7-9, 2004, Ventura Holiday Inn, Ventura, California. Sessions will explore the migration of ornamental plants across the wildland-urban interface (WUI), fragmentation and edge effects, invasive plants and fire at the WUI, volunteer weed control efforts, current academic research, funding strategies for urban projects, and new treatment methods. Field trips include Santa Monica Mountain restoration sites and Channel Islands National Park. http://www.cal-ipc.org
- 31st Annual Natural Areas Association Conference: *Emerging Issues: Possibilities and Perils*, October 13-16, 2004, Holiday Inn Mart Plaza, Chicago, IL. Symposia and plenary sessions will focus on emerging problems and creative strategies to preserve biological resources for the future. Co-hosted by the Natural Areas Association, Illinois Nature Preserves Commission, and Illinois Department of Natural Resources with participation of the University of Illinois and other state and private educational institutions, federal resource agencies, the Illinois Chapter of The Nature Conservancy, several conservation, forest preserve and park districts, Chicago's world class museums, botanical and zoological institutions and the Chicago Wilderness coalition. The NA-EPPC meeting will be held here, as well. www.naturalarea.org
- 28th Annual Conference of the Florida Aquatic Plant Management Society, October 17-20, 2004, Hilton Hotel Deerfield Beach. Earn CEUs in Aquatics, Natural Areas, Right of Way and Core. Join other plant managers and share ideas and concerns related to aquatic plant management. Equipment demonstration on site. www.homestead.com/fapms/meeting.html
- Third International Conference on Invasive *Spartina*/ California, November 8-10, 2004, San Francisco, California. *Spartina* research from around the world, plus an opportunity to hear and discuss the experiences of a wide range of marsh managers and technical experts. Ground and aerial tours to view the *Spartina* "hybrid swarm" (*S. alterniflora* x *foliosa*) that threatens the San Francisco Estuary. http://www.spartina.org
- 66th Annual Meeting of the Association of Southeastern Biologists (ASB), April 13-15, 2005, Florence, AL. Scott Jewell, 336/421-0034, A2ZConvention@yahoo.com or www.asb.appstate.edu/

Publications

- *Lantana: Current Management Status and Future Prospects* by Michael Day, et al. Australian Centre for International Agricultural Research (ACIAR). Contact Michael Day, Queensland Government Natural Resources and Mines, Michael.day@nrm.qld.gov.au
- *Ecology and Control of Introduced Plants* by Judith Myers and Dawn Bazely, Cambridge University Press, 2003. Aimed at advanced students and land managers. 800/872-7423, http://www.cup.org
- *1,000 Weeds of North America,* CD from the Weed Science Society of America (WSSA). $49.95 plus S/H. A tutorial is required to run this CD containing identification information on 140 grass-like weeds and 860 broadleaf weeds. Future updates will sell for a reduced price to registered owners. 800/627-0629 X-297, http://www.wssa.net/
- *Invasive Plant News – New England* is the newsletter of the New England Invasive Plant Group (NIPGro) and the Invasive Plant Atlas of New England (IPANE). Future issues will be published on the IPANE web site (http://invasives.eeb.uconn.edu/ipane). To keep up with invasive plant issues in New Hampshire, Vermont, Rhode Island, Connecticut, Massachusetts, and Maine, join their free network and receive email notification of new issues: Cynthia_Boettner@fws.gov, 413/863-0209 X-6.

Web Sites

- *Oh, I've seen fire and I've seen weeds*…The USDA Forest Service, Fire Effects Information Systems web site can be found at http://www.fs.fed.us/database/feis/index.html. The FEIS database contains literature reviews of almost 900 plant species, about 100 animal species, and 16 Kuchler plant communities found in North America. FEIS provides updated scientific and technical information about interactions between fire and invasive, nonnative plant species, including the role of fire in enabling plant invasions; altered fire regimes following plant invasion; the use of fire to control plant invasions; and background information on taxonomy, species distribution, basic biology and ecology, and management.

notes from the disturbed edge - chapter 12

He had to ask himself, "Why am I doing this?" He was staring at the computer screen, fingers on the keyboard. He'd always thought that it would be easy to sit down and write this, but it just wasn't happening.

For some time he'd been jotting down notes, thoughts, ideas on scraps of whatever was available to write on, and now he had them all spread out in front of him, shuffling bits of paper into interconnected columns and rows like a confetti jigsaw puzzle that was almost ready but still missing a few key pieces. He knew that anyone witnessing this exercise would probably think he was insane, and he kind of liked that.

He'd come to the conclusion quite a while ago that devising a means to convey the breadth and depth of the invasive exotic plant problem to the general populace was the only way to possibly turn the tide. Anyone who already cared already knew. The only real hope lay in reaching the rest of the world. Now he just had to put it into words.

It wasn't that he hadn't written before - he had penned a box full of journal articles and technical publications throughout his education and career, but those were different. They were sound, well-documented compilations of information but, he had to admit, reading them was about as exciting as watching paint dry, and although he saw them occasionally cited as references in other equally scintillating papers, he wasn't sure whether anyone besides his mother had actually read them, and even she had been suspiciously vague about content in follow-up conversations. He wanted to write something different, something that a person from outside the wonderful worlds of land management and botany might read or, heaven forbid, even enjoy. It didn't matter whether the stuff was packaged in a dry journal, a pocket-sized pamphlet, or a slick magazine layout. Nobody in their right mind was going to read it unless it was just the least bit fun, or even a little kooky.

He knew this could work. The whole invasive exotics thing just lent itself so eagerly to becoming a somewhat twisted metaphor for the human condition, with struggles between old and new, stayed normalcy and self-induced chaos, and parallels or inroads to everything from macroeconomics to theology. It all seemed so clear, so intricately entangled in the stuff of everyday life and transcendent awareness at the same time. He knew that people needed poetry and craziness, imagery and prose, empathy and inspiration. Any text that could pull it all together was almost certainly destined to become a cult classic. He wanted to write something that a reader would never want to end.

This almost certainly was a job for some creatively concocted down-to-earth super-heroes who were larger than life, but not too much larger than conceivable reality. They needed to be a bit edgy, bearing nebulous monikers that could promote some eyebrow raising or stir a little interest. Adam and Eve, Yin and Yang, or Sonny and Cher, cutting line in tandem from Eden to who knew where.

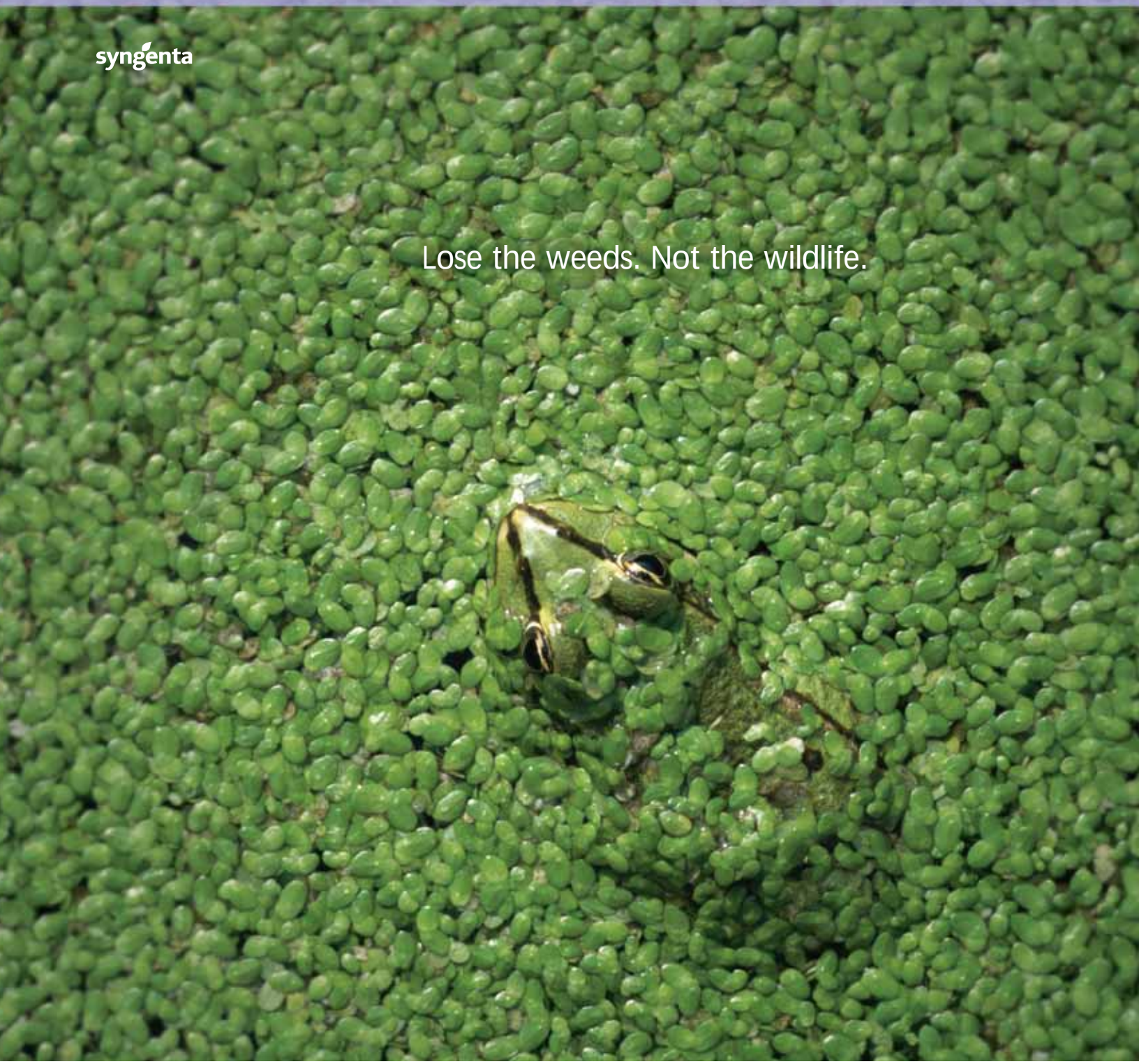
Maybe he could convince just one person that we can all do something to help the earth by spreading awareness or taking action, eating the elephant one bite at a time. He knew that most people considered the prospect of nuclear war, world hunger, or a scratch in their new car to be of greater concern than the idea of a bunch of plants growing wild, but he knew he had to try. Maybe just one person would take one step towards sanity or sustainability in a world run amok, and that couldn't be a bad thing.

He was ready to dig deep into common human experience and that long list of the things we all realize we could or should have done, to tell a tale as it emerged from his daily stream of consciousness. He didn't know how it would end, and at this point he didn't even know how it would start.

This wasn't going to be easy, but he thought it was possible and he knew it was necessary, and so he began, imagining that one day someone might stop him on the street, grasp his forearm, look him in the eye and tell him that their outlook on life had been changed by reading about a character who had sat at a keyboard and asked, "Why am I doing this?"

- J.A.

An Excerpt from *"The Adventures of Hack Garlon and His Buxom Sidekick Squirt"*



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