Wildland Weeds

SPRING 2005

New from the Aquatic Prescription Specialists

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Renovate was designed to be effective on submersed, emersed and floating aquatic plants—a feature that allows Renovate to restore wetlands, marshes and shorelines as well as lakes, ponds and canals. With its highly effective systemic mode of action, Renovate provides selective control to help restore aquatic habitats knotted with nuisance and exotic plants including Eurasian Watermilfoil, Purple Loosestrife, Water Hyacinth, and Alligator Weed among others.

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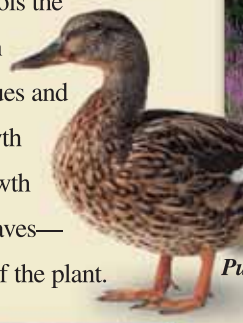

Untreated *1 week after treatment* *4 weeks after treatment*

Eurasian Watermilfoil treated with Renovate (1 ppm), shows the eventual collapse of the plant structure below the surface of the water.

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Purple Loosestrife

Water Hyacinth

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Wildland Weeds

SPRING 2005, VOLUME 8, NUMBER 2

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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: Not all exotic pests are weeds. Here, a Burmese python loses a battle with an American alligator in the Florida Everglades National Park. *Photo by Mike Mercier. Visit his wildlife photography website at http://www.wildphotoguy.com/photoshoot.htm*

editor's note

Dear Readers,

Allow me to introduce you to the FLEPPC Officers and Board of Directors. Although we're all posted on the masthead of each issue, that doesn't tell you much about the expert group of folks who serve voluntarily as your council representatives. In the next issue, I'll introduce you to the Chairs of the Committees and Work Groups. All of us will be at the 20th Annual FLEPPC Symposium in Key West on May 9-11. Please be there—we'd love to meet you personally.

Karen Brown, Editor

Meet the FLEPPC Officers and Board of Directors

Officers

Jim Burney is the Chairman of the Board. He has a Master's degree in Biological Sciences from the University of Central Florida and is certified as a Professional Wetland Scientist by the Society of Wetland Scientists. He is president of Aquatic Vegetation Control, Inc.

Dianne Owen is the Secretary. She received her PhD in Biochemistry from the University of Lausanne in Switzerland in 1983. She now works as a Research Associate in Biological Sciences at Florida Atlantic University.

Kristina Serbesoff-King is the Treasurer. She has a Master's degree in Environmental Studies from Florida International University, and is the Invasive Species Coordinator for the Florida Chapter of The Nature Conservancy.

Karen Brown, the editor, has a Master's degree in Library and Information Science from the University of South Florida. She is a Coordinator of Educational Media/ Communications at the University of Florida's IFAS Center for Aquatic and Invasive Plants.

Mike Bodle is the Immediate Past Chair. He is a Senior Environmental Scientist at the South Florida Water Management District where he works in the Vegetation Management Division of the Operations and Maintenance Department. Mike has a Master's Degree in Biology from Notre Dame University.

Board of Directors

Roger Clark works as Land Stewardship Manager for Lee County. He has a Bachelor of Science degree in Wildlife Biology from North Carolina State University.

Drew Leslie is a Biological Scientist at the Florida Department of Environmental Protection, Bureau of Invasive Plant Management. He has a Master of Science degree in Ichthyology from Florida State University. Drew also plays guitar in the rock and roll band, *The Weeds*.

Cressida Silvers earned a Master's degree in Entomology from the University of California, Riverside in 2000. She is the Project Coordinator of TAME Melaleuca for USDA-ARS.

Jim Duquesnel is a Biological Scientist with the Florida Department of Environmental Protection. He is a park biologist at John Pennekamp Coral Reef State Park and Dagny Johnson Key Largo Hammock Botanical State Park. Jim has a Bachelor of Science degree in Marine Science from Richard Stockton College.

Rob Egan is Vice President of Habitat Restoration Resources, Inc. He attended the school of hard knocks and 'specializes in really cool heavy machinery.'

Amy Ferriter received her Master's degree in Geography from Florida Atlantic University in 1993. She is a Senior Environmental Scientist at the South Florida Water Management District where she works in the Vegetation Management Division of the Operations and Maintenance Department.

Matthew King is an Environmental Program Supervisor at Palm Beach County Department of Environmental Resources Management. He has a Bachelor's degree in Biological Science from Florida State University. He also is a Certified Arborist with the International Society of Arboriculture.

Chris Lockhart has a Master's degree in Biological Sciences from Florida Atlantic University, with an emphasis in Botany. She is president of Habitat Specialists, Inc., and is the Lygodium Specialist for the Florida Natural Areas Inventory (FNAI).

Japanese Climbing Fern Found in Pine Straw Bales

Dear Editor,

Recently Japanese climbing fern (*Lygodium japonicum*) was discovered in pine straw shipments at two home improvement stores in Okaloosa County in Northwest Florida. The Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FLDACS/DPI) issued 'stop sales' on these shipments and the trailers were removed by the supplier. At one of the locations, the first replacement shipment also was contaminated with climbing fern. It also was issued a stop sale by FLDACS/DPI and was removed. The destinations of the contaminated shipments are unknown. Currently, pine straw at both locations appears to be free of any climbing fern.

These shipments of Japanese climbing fern contaminated pine straw are, most likely, not isolated events; the continuation of this practice will only lead to the accelerated spread of this Category 1 invasive species. For concerned citizens who live in an area where pine straw is being sold and are comfortable in identifying climbing fern, a visit to local pine straw distributors might be in order. If Japanese climbing fern is found in baled pine straw, a call can be made to FLDACS/DPI ((352) 372-3505) to report the incident. An agent will be sent to inspect the pine straw and if climbing fern is documented, a 'stop sale' order will be placed on the shipment. If a contaminated shipment is found, this needs to be reported as soon as possible. In Okaloosa County, pine straw is a favorite mulch material used in landscapes, and distributors can sell a shipment of ~1000 bales in 2 days.

The majority of local businesses selling pine straw are probably unaware of the noxious weed/invasive species problem with Japanese climbing fern. Most of these pine straw distributors should be eager to correct the situation. Educational material such as brochures with pictures would be excellent visual aids to pass on to business owners, store managers, or employees.

Respectfully,
Dennis Teague

Editor's Notes:

Mr. Teague is an endangered species biologist with Eglin Air Force Base in Northwest Florida, and is responsible for the management of invasive/exotic species on the base's 464,000 acres.

For a related article, see Japanese Climbing Fern Control Trials in Planted Pine by Mark Zeller and Drew Leslie in the Summer 2004 issue of Wildland Weeds.

To learn to identify Old World Climbing Fern, visit this page from the University of Florida's IFAS Center for Aquatic and Invasive Plants website: http://plants.ifas.ufl.edu/lygjap.html or visit this page from the FLEPPC website: http://www.fleppc.org/Lygodium_info.html

Currently, Lygodium japonicum *is regulated as a noxious weed by the Florida Department of Agriculture and Consumer Services, and in Alabama by the Alabama Department of Agriculture and Industries. It is not yet regulated in Georgia, where the pine straw vendor is located. The FLDACS/DPI has contacted the vendor in an attempt to resolve the problem.*

Snakes & Snails & Puppy Dog Tails

Lest you think that all we need worry about are exotic pest plants, take a look below. We have snakes and snails and weevils just for starters. You'll have to read further to find the puppy dog tail.

Lygodium with Teeth

by Amy Ferriter, South Florida Water Management District

The worlds of exotic plants and exotic animals rarely cross, but they flamboyantly collided recently in Southwest Miami-Dade County. While mowing exotic cane grasses on an Everglades levee, South Florida Water Management District contractors accidentally "mowed" a handful of 8-10 foot exotic Burmese pythons (*Python molurus bivitattus*) in the tall grass. The October 2004 incident was a wake up call to water managers – all five snakes were hit in just a 3-hour period – and prompted them to reconsider vegetation management practices on the artificially high ground in the Everglades area.

News of this python incident quickly reached Skip Snow, Wildlife Biologist at Everglades National Park and he immediately made arrangements to retrieve as much of the remains as possible to continue his research on the animal in the Everglades. Skip has been collecting data on "big snakes" in Everglades National Park for years, and was the first biologist to sound the alarm about the Burmese python. While these snakes have been found in the Park since the late 1970s, the first documented case of breeding was in 2000. Various observations by Park staff of individuals of different age groups support this unfortunate finding.

Lori Oberhofer, Wildlife Technician, Everglades National Park is training "Python Pete" to detect pythons in brush. Skip Snow has this snake safely in the bag.

The Burmese python is native to Southeast Asia. It is a popular pet and hatchlings can be bought for a mere $20. They grow to 6-7' long in one year and can reach a length greater than 20 feet, quickly becoming too large for the average pet owner to maintain. Biologists fear that these cast-off animals are being released "into the woods" intentionally by irresponsible exotic pet owners. The wet-dry interface of water management district levees provides ideal habitat for the snake.

This snake was found along the L-67 extension levee in Miami-Dade County in January 2005. Park wildlife biologists (Lori Oberhofer, holding the snake) spotted three of the animals from the back of a pick-up truck and acted quickly to capture them. Plant biologists that witnessed the event offered little help in capturing the snakes, saying "We're just glad our stuff doesn't move."

The Park and the District are now working together to develop a management plan to deal with this species. In an effort to minimize cover, water managers are increasing mowing cycles and stepping up herbicide applications on cane grass species like *Pennisetum purpureum* and *Neyraudia reynaudiana*. Bob Hill, a Miami field station employee, has been assigned to track the snake on District lands. The Park is leading the effort to collect a wide range of important python data and is launching a "Don't Let it Loose" public awareness campaign to encourage responsible pet ownership.

Park and District staff hope to complete initial ground and aerial surveys for the snake this winter – they are easiest to spot while basking in sunny spots during cold snaps – and the Park is busy training a snake-detecting beagle to help track the species.

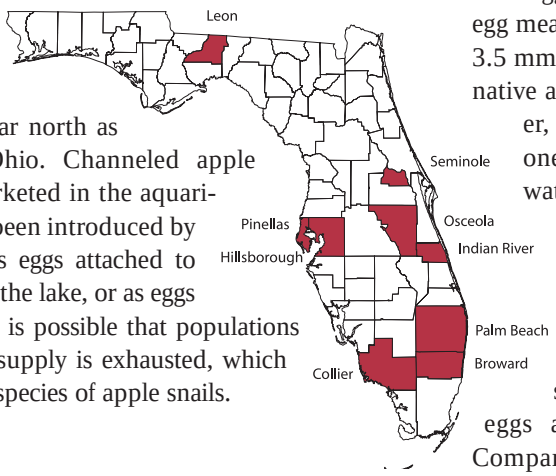
Exotic South American Snail Occurs in Florida Waters

The native Florida apple snail, *Pomacea paludosa*, a favorite food of the endangered snail kite and limpkin, now must compete for food and habitat with an apple snail from South America, the channeled apple snail (*Pomacea canaliculata*). The voracious channeled apple snail readily consumes almost any aquatic plant, and is particularly attracted to less coarse plants such as southern naiad (*Najas guadalupensis*), eelgrass (*Vallisneria americana*), and fanwort (*Cabomba caroliniana*). Their heavy feeding on aquatic plants could impact populations of invertebrates that are consumed by small fish, which are in turn eaten by larger fish like largemouth bass and crappie. Alligators, large turtles, and a few large birds may eat the channeled apple snails but probably not enough to seriously impact the populations.

Eggs hatch in one to two weeks, releasing hundreds of juveniles into the waterbody.

Mating Pomacea canaliculata *from Lake Brantley in Seminole County, Florida.*

The channeled apple snail has been introduced into many areas around the world where it has become a serious agricultural pest (mainly of rice and taro). It threatens many natural lakes and wetlands due to habitat modification and competition with native species. Populations are established throughout Florida (see map) and breeding populations also exist in Texas, California and Hawaii. Individuals have been collected as far north as North Carolina and Ohio. Channeled apple snails frequently are marketed in the aquarium trade and may have been introduced by hobbyists, or possibly as eggs attached to aquatic plants planted in the lake, or as eggs attached to boat hulls. It is possible that populations will decline as the food supply is exhausted, which has occurred with other species of apple snails.



Identification:

The shells of channeled apple snails, *Pomacea caniculata*, vary from 1.5 – 2.3 inches (40 to 60 mm) wide and 1-3/4 – 3 inches (45 to 75 mm) high. The color in the wild is yellowish to brown with or without dark spiral bands. 5 to 6 whorls are separated by a deep, indented suture, hence the species name '*canaliculata*' or 'channeled'. Reddish-pink eggs are loosely attached to each other with the mass being laid above the waterline on docks, seawalls, trees, and plant stems. An average clutch contains 200 to 600 eggs, with each egg measuring 2.20 to 3.5 mm (.086 to .138 inch) in diameter. Compared to the eggs of native apple snails, those of the channeled apple snail are smaller, pinker, and more numerous (see photo). Eggs hatch in one to two weeks, releasing hundreds of juveniles into the waterbody.

Male Pomacea canaliculata *on left with female from Lake Brantley.*

The shells of native apple snails, *Pomacea paludosa*, are 1.5 – 2 inches (40-55 mm) wide by 1-3/4 - 2.5 inches (45-65 mm) high, and are yellowish to greenish brown with red streaks and dark spiral bands. *P. paludosa* eggs are white to slightly pinkish and are laid on emergent stems of vegetation and trees. The clutches of 10 to 80 eggs are loosely packed together in a gelatinous mass. Compared with *P. canaliculata*, the eggs of *Pomacea paludosa* are relatively large, about 0.1" - 0.236" (3 to 6 mm) in diameter, but far fewer in number. –KB

Information and photos provided by Dana Denson, Aquatic Biologist with the Florida Department of Environmental Protection, 407/894-7555, ext. 2355; dana.denson@dep.state.fl.us and http://www.applesnail.net/

Evil Weevils

by Heidi Aspen Rhoades; Photos by Barbra C. Larson, University of Florida

To me there is nothing more spectacular than being in a shadowy world dotted with spiky bromeliads, some bursting with flowers in a myriad of color forms and some just growing enormously as if some sort of Chernobyl accident had occurred. But the joy that comes from witnessing these colossal and sometimes miniscule plants can quickly turn to sadness. Bromeliads, or "pineapples up in the trees" as most folks refer to them, are under attack. It is quite possible that the wild landscapes we are familiar with will be absent those spiky species, a destiny too awful to fully imagine.

Around 1989, a shipment of ornamental bromeliads from Vera Cruz, Mexico arrived in Broward County. Harbored within the plants, weevils known as *Metamasius callizona* lived undetected. Once they'd polished off their food source, it was time for them to find more, and lucky for them, bromeliads are a local menu item. By the time the weevils were discovered in a Broward County nursery, they had already become established in native bromeliads in the area. Today you will be hard pressed to find a bromeliad in any canopy in Broward County. To date, *Metamasius callizona* has been found in 18 counties and numerous state parks, including the Fakahatchee Strand Preserve, home to some of the most rare bromeliads in the United States.

BARBRA C. LARSON, UNIVERSITY OF FLORIDA

Adult Mexican weevil, Metamasius callizona. *Adults range from 11-16 mm (approximately half an inch) in length.*

BARBRA C. LARSON, UNIVERSITY OF FLORIDA

Native weevil, Metamasius mosieri. *Adults range from 6-9 mm (1/4 to 1/3 of an inch) in length.*

Before going any further, it should be mentioned that we do have a native weevil, *Metamasius mosieri*. The native weevil is quite distinctive from its Mexican counterpart. In terms of appearance, the native adult weevil is red anteriorly and black posteriorly, whereas the Mexican bromeliad adult weevil is black with a yellow band. The grubs of the two weevil species are indistinguishable. *Metamasius callizona* and *Metamasius mosieri* are cannibalistic but it is not uncommon to find up to 12 *Metamasius callizona* in one plant. *Metamasius mosieri* may lay more than one egg in a plant but only one larva will survive.

When you are out in the field and find bromeliads, give the center leaves a gentle tug. The Mexican bromeliad weevil kills the plant through the tunneling action of its immature stage (larvae), which may consume the entire base. If this is the case, the center leaves will easily pull out of the plant or the plant will fall to the ground still intact or with leaves strewn about. If the center leaves pull out, give the plant a thorough check, including pulling the plant apart and searching for any weevils.

Though monitoring for weevils seems fairly straightforward, I have found a few instances when it is not. For example, it was widely accepted that the native weevil did not inhabit the larger tank bromeliads (*Tillandsia utriculata* and *Tillandsia fasciculata)*; this hypothesis crashed and burned after a cocoon that I had found in a *Tillandsia utriculata* hatched, revealing a shiny red and black weevil. We were relieved that it was a native but it added a new twist. Other aberrations encountered while weevil monitoring include: herbivory, center leaves pulling out without evidence of weevil damage, ground strewn with bromeliads, "plugs" resembling small corks, and entire populations of *Tillandsia setacea* appearing unhealthy.

Today you will be hard pressed to find a bromeliad in any canopy in Broward County.

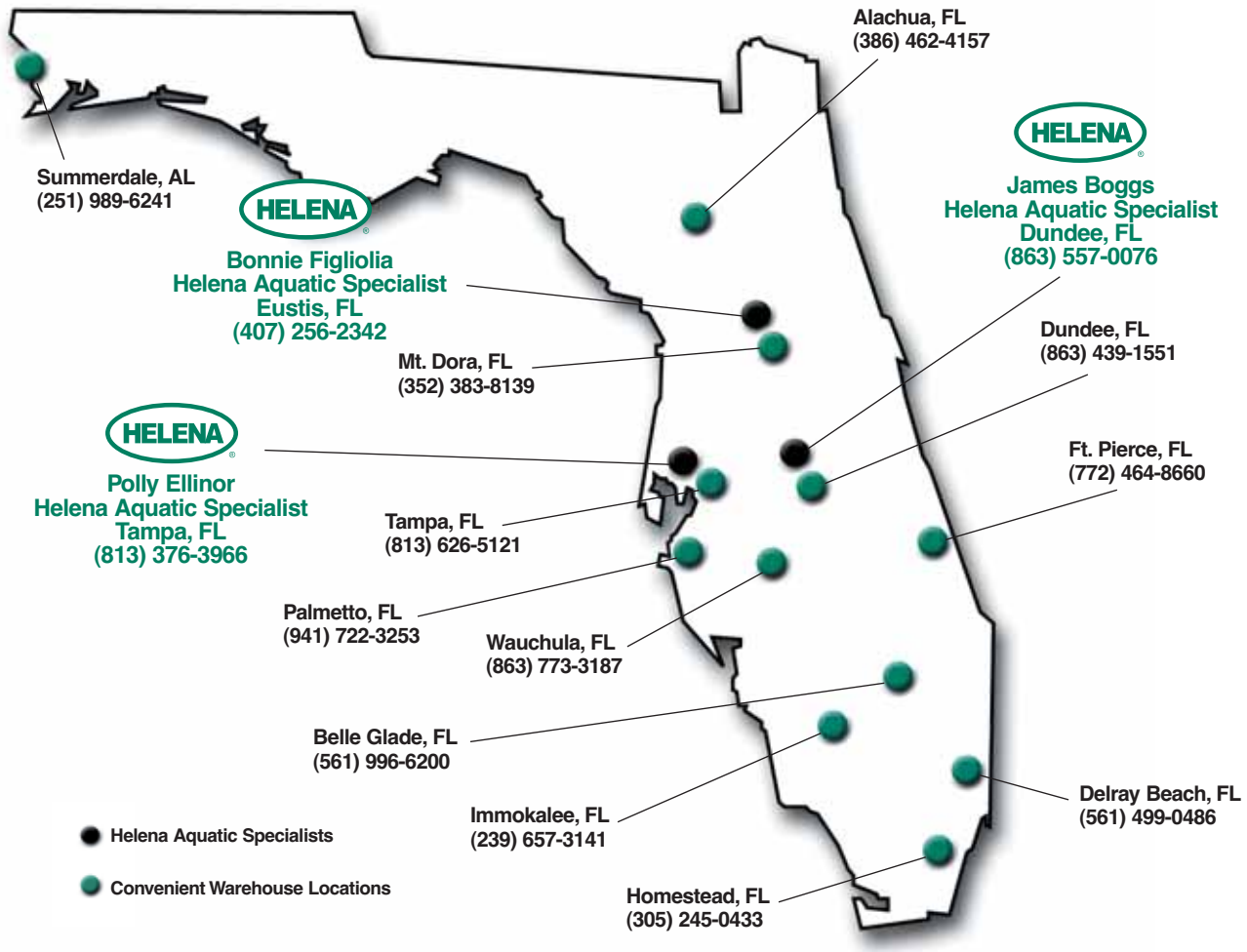
It turns out that rabbits, deer, and cattle enjoy browsing on bromeliads. The bromeliad will look like it's gotten a bad haircut

but the plant will survive. I have also found that center leaves from the smaller *Tillandsia* species as well as young *Tillandsia fasciculata* and *Tillandsia utriculata* will pull out easily even if they appear healthy. Ray Creel, a bromeliad enthusiast and conservationist, explained that this can happen when the plants receive too much moisture. Sometimes you can enter a hammock and find bromeliads on the ground; do not panic! Consider the weather; has there been a lot of wind recently? Bromeliads can become dislodged during windy weather and fall to the ground. When this occurs, give the plant a check up and then find a nice nook and replace the plant—it should be fine. Finding an adult *Metamasius mosieri* has been a very rare experience for me, however, I have found evidence of it in the form of a plug. Made of plant material, this plug is constructed by the weevil to keep moisture in the plant and/or protect itself from predators. Finally, if you are in an area and notice a "brown out" of *Tillandsia setacea*, do not be alarmed; this "unhealthy look" is part of the *Tillandsia setacea* life cycle.

If you find weevil damage, map the location and collect weevils if you find them, then contact a weevil team member at the University of Florida (see below). You will want to revisit the area and monitor for flowering and seeding. Seed collection is being used to try to save Florida's native bromeliads. The seeds will be germinated by designated nursery growers and released to the same site after the exotic weevil threat is over. (For more information, visit the Save Florida's Native Bromeliads website at savebromeliads.ifas.ufl.edu). Also on the management front is a biological control agent in the form of a parasitic fly (possible genus *Lixophaga*). Currently, the fly is being studied by Alonso Suazo at the Panamerican School of Agriculture in Honduras (in conjunction with Drs. Howard Frank and Ron Cave of the University of Florida). Studies have confirmed that the fly will readily parasitize *Metamasius callizona* and *Metamasius mosieri*, with evidence suggesting that it prefers *Metamasius callizona.* The fly is found in Honduras and Guatemala; it resides in high elevation cloud forests and has heretofore been very difficult to colonize in the laboratory. Soon it will be brought to the University of Florida's new quarantine center (opened in July 2004) located at the Indian River Research and Education Center in Fort Pierce. This new facility will enable researchers to colonize the fly under optimal conditions (humidity, lighting, temperature and space). It is not yet known when (or if) the biological control agent will be released.

In this age of homeland security, let's not forget our stewardship responsibilities; monitor and keep in touch—it's a highly effective way to conserve the real Florida.

For more information, contact Heidi Rhoades at flscrubj@earthlink.net, Dr. Howard Frank at jhf@ifas.ufl.edu or Dr. Ron Cave at RDCave@ifas.ufl.edu.



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The Power of Partnerships - Island Style

by Alison Higgins, Land Stewardship Coordinator, The Nature Conservancy of The Florida Keys

The Setting

The Florida Keys are a string of more than 1,800 limestone and mangrove islands that arc southwest off the southern tip of Florida. These rocky islands support a number of specialized habitats and endemic species. The hardwood hammocks found here support a richer biodiversity of trees than any other forest in the United States – about 120 tree species! Clearly, the Keys lie at a "biological crossroads" between the temperate habitats of North America and the tropical habitats of the West Indies.

The uniqueness of these islands was recognized early on and many agencies collaborated to purchase land for conservation. To date, more than 50 percent of the Florida Keys is in public ownership. However, because many subdivision property lines have already been mapped, there are many singular public properties surrounded by private lands and the invasive exotic plants that may reside within them (see map on page 13). This means that, mile for mile, there are many times more adjacent public/private property lines than there is coastline, which adds up to a lot of potential for invasion.

©Bill Keogh

Brandishing a handsaw, Boy Scout Chris Purcell lays waste to a Brazilian pepper.

Do Exotics on Private Lands Equal Job Security?

Unfortunately, local public land managers have little time to worry about exotics on private lands. Operating with few resources and staff, some are unable even to address exotics within their own boundaries, much less outside them. If it weren't for funding from the Florida Department of Invasive Plant Management, many areas would be out of control. However, public money cannot be used on private lands, even though they serve as tremendous sources of seed that can be disbursed to adjacent public lands by wind, birds, or mammals. An alternate method is needed to remove these potential seed sources from private lands.

Beyond Boundaries

The Keys biodiversity also attracted The Nature Conservancy (TNC), which helped many public agencies with land acquisition and then turned its sights on land management. With three preserves (Terrestris on Big Pine Key, Torchwood Hammock on Little Torch Key, and the Braft Tract on Lower Sugarloaf Key) in healthy shape, The Nature Conservancy wanted to look beyond its own borders to help the Keys landscape as a whole. To accomplish this, TNC helped form the Florida Keys Invasive Exotic Task Force (FKIETF) in 1996, bringing public and private conservation land managers, the county extension service, road maintenance crews, electrical utility providers, and others to the table to share knowledge, equipment, labor and training opportunities. The Task Force banded together to produce brochures, its own Keys-specific exotic plants list (see next page) and a quick response team to deal with new invading species.

The Nature Conservancy also initiated "Project GreenSweep" in 1999. In response to the Task Force's requests for help, GreenSweep recruits, trains and places volunteers in high-priority exotics control projects. They also conduct community outreach campaigns to

continued on page 14

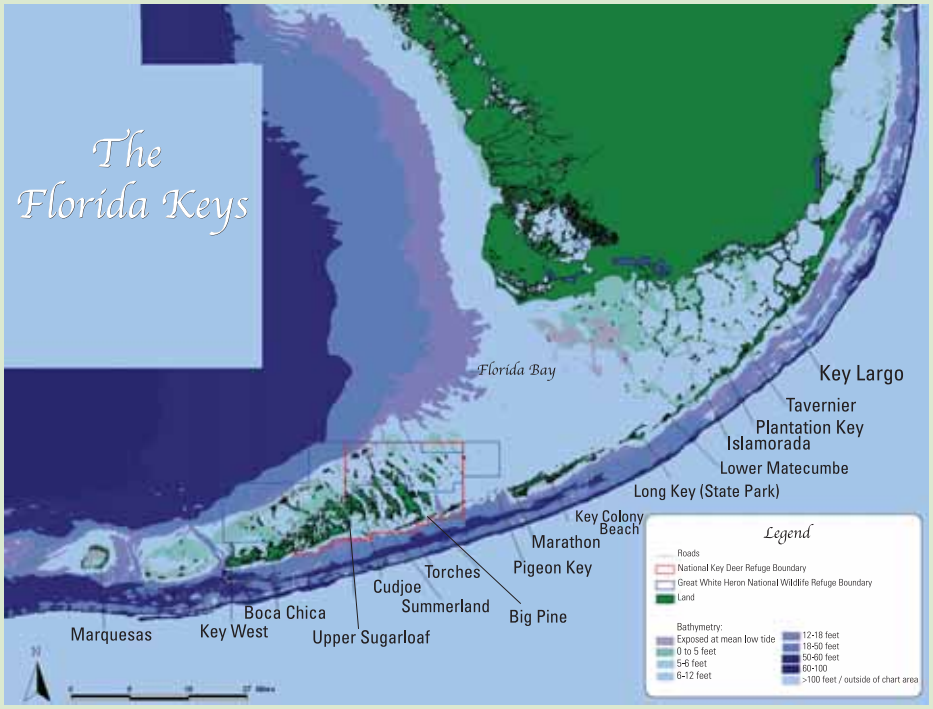
Volunteers help remove Scaevola at Naval Air Station, Key West.

SCIENTIFIC NAME	COMMON NAME	EPPC	KEYS INVASION PATTERN AND COMMENTS	SEEDING (DISPERSAL, SEASON)	ERADICATION RECOMMENDATION
FKIETF CATEGORY I: INVASIVE EXOTICS THAT ARE ALTERING FLORIDA KEYS NATIVE PLANT COMMUNITIES BY DISPLACING NATIVE SPECIES, CHANGING COMMUNITY STRUCTURES OR ECOLOGICAL FUNCTIONS, OR HYBRIDIZING WITH NATIVES					
Casuarina equisetifolia	Australian pine	I	Highly invasive in wetlands and uplands	wind blown, year round	Basal or stump with 10%-30% Garlon 4
Colubrina asiatica	Asiatic colubrina	I	Highly invasive, especially on beaches and coastlines	floating, year round	Foliar with 3% Garlon 4 in cut grid pattern
Ficus microcarpa	Laurel fig	I	Highly invasive in uplands in Upper Keys, epi- and litho-phytic	birds	Basal with 5% Garlon 4
Leucaena leucocephala	Lead tree	II	Invasive mainly on roadways and disturbed edges at present	nearly year round	Basal or stump with 40% Garlon 4
Manilkara zapota	Sapodilla	I	High localized invasion in higher elevation hammocks	heavy fruit, year round	Basal with 10%-25% Garlon 4
Melaleuca quinquenervia	Melaleuca	I	Localized invasion in N. Key Largo, Stock I. and Boca Chica	wind blown, August - December	Hack and squirt with 50% Garlon 3A and 1% Arsenal
Neyraudia reynaudiana	Burma reed	I	Prefers disturbed and ruderal sites but moves into undisturbed hammocks; occurs on all roadsides in Upper Keys; at least one fairly large patch treated on Big Pine Key	seed/rhizome	Foliar with 2% Roundup Pro
Scaevola sericea	Beach naupaka	I	Spreads quickly from landscaping, especially on beaches and coastal edges/causeways	tides/birds/animals, nearly year round	Basal with 10% Garlon 4 or stump with 50% Garlon 3A
Schefflera actinophylla	Queensland umbrella tree	I	Hammock and mangrove margins, disturbed sites and spoil islands in the Upper Keys	birds, summer	Basal with 10% Garlon 4 or stump with 50% Garlon 3A
Schinus terebinthifolius	Brazilian pepper	I	Highly invasive in wetlands and uplands	animals, October - March	Basal or stump with 10%-15% Garlon 4
Thespesia populnea	Seaside mahoe	I	High localized invasion in transitional areas	floating, year round	Stump with 50% Garlon 3A applied immediately
FKIETF CATEGORY II: INVASIVE EXOTICS THAT HAVE INCREASED IN ABUNDANCE OR FREQUENCY BUT HAVE NOT YET ALTERED FLORIDA KEYS PLANT COMMUNITIES TO THE EXTENT SHOWN BY CATEGORY I SPECIES					
Acacia auriculiformis	Earleaf acacia	I	Local problem in Upper Keys; has appeared in Lower Keys	wind blown	Stump with 50% Garlon 3A
Agave sisalana	Sisal hemp	II	Spreads from landscapes and establishes where dumped	tall seed stalks, June-August	Spray with 3% Garlon 4 on center bud
Albizia lebbeck	Woman's tongue	I	Problem in Upper Keys, occurs throughout Keys	wind blown	Basal or stump with 30% Garlon 4
Asparagus densiflorus	Asparagus fern	I	Spreads from landscapes and establishes where dumped	dumping/birds/animals	Foliar with 2% Roundup Pro
Asystasia gangetica	Ganges primrose	II	Spreads from disturbed sites and climbs forest edges	March-August	Foliar with 2% Roundup Pro
Casuarina cunninghamiana	Australian pine	II	Suckering, somewhat cold tolerant, very limited in Keys	wind blown, year round	Basal or stump with 10%-30% Garlon 4
Casuarina glauca	Australian pine	I	Less salt tolerant and less widespread than C. equisetifolia	no seeds - suckers off planted trees	Basal or stump with 10%-30% Garlon 4
Cryptostegia madagascariensis	Madagascar rubber vine	II	Occurs in transitional wetlands, old homesteads in Upper Keys	summer, wind blown	Basal with 10% Garlon 4
Cupaniopsis anacardioides	Carrotwood	I	Recent introduction; has spread from planting in Key West; invades uplands to buttonwood zone	birds/small mammals	Basal with 10% Garlon 4 or stump with 50% Garlon 3A
Dichrostachys cinera	Sickle bush, Marabu	II	Dense thickets in Cuba, Pacific Islands.	mowing, rhizomes	Unknown at this time.
Dioscorea bulbifera	Air Potato	I	Invades variety of habitats: 23 FL counties, Big Pine & Cudjoe	vine, tubers, floats	Manual removal
Epipremnum pinnatum	Pothos (philodendron)	II	Has spread from landscapes, dump sites to hammock		Foliar with 2% Roundup Pro
Furcraea cabuya	Central American sisal	n/a	Spreads from landscapes and establishes where dumped	June–August	Spray with 3% Garlon 4 on center bud
Hibiscus tiliaceus	Sea hibiscus	II	So far largely limited to disturbed sites	drift seed/wrack lines	Stump with 50% Garlon 3A applied immediately
Hylocereus undatus	Night-blooming cereus	n/a	Spreads from landscapes and established where dumped	animals, suckering	Manual removal
Kalenchoe spp.	Life plant	II	Spreads from landscapes and establishes where dumped		Foliar with 2% Roundup Pro
Lantana camara	Lantana	I	Spreads from landscapes to hammock margins and pinelands	bird dispersed, nearly year round	Basal with 5% Garlon 4
Nephrolepis multiflora	Asian sword fern	I	Invades hammocks	seeds spores/rhizome	Foliar with 2% Roundup Pro
Panicum maximum	Guinea grass	II	Present in Keys, but extent of invasion unknown	rhizomes/seeds	Foliar with 2% Roundup Pro
Panicum repens	Torpedograss	I	Present in Keys, but extent of invasion unknown	rhizomes/seeds	Foliar with high concentration of Rodeo
Pennisetum purpureum	Napier grass	I	So far limited to roadsides	spread by mowing, nearly year round	Foliar with 2% Roundup Pro
Pennisetum setacea	Fountain grass	II	Planted for landscaping and is currently spreading on roadsides, medians and disturbed sites; seeds after mowing	spread by mowing, nearly year round	Foliar with 2% Roundup Pro
Psidium spp.	Guava	I	Spreads from neighborhood fruit trees into uplands	mammals/humans	Basal with 10% Garlon 4
Rhoeo spathacea	Oyster plant	I	Spreads from landscaping and establishes where dumped		Foliar with 3% Garlon 4 in water or oil
Sansevieria hyacinthoides	Bowstring hemp	II	Spreads from landscaping and establishes where dumped	seeds/rhizomes	Foliar with 5% Garlon 4 in water or oil
Stachytarpheta urticifolia	Porterweed	n/a	Non Native porter weed that hybridizes with native		
Tecoma stans	Yellow elder	n/a	Moving into hammocks from disturbed edges		

Terminalia catappa	Tropical almond	II	Occasional problem on Keys coastlines and near plantings	drift seed	Basal with 10% Garlon 4 or stump with 50% Garlon 3A
Tribulus cistoides	Puncture weed	II	Moving down the roadside; also on beaches	animals, year round	Foliar with 2% Roundup Pro
Wedelia trilobata	Wedelia	II	Disturbed sites, beaches	year round	Foliar with 2% Roundup Pro
FKIETF CATEGORY III: INVASIVE EXOTICS THAT HAVE NOT YET BECOME A SERIOUS PROBLEM IN THE FLORIDA KEYS BUT ARE TO BE WATCHED (TBW).					
Adenanthera pavonina	Red sandlewood	II	Fast growing and spreading where planted	wind blown	
Ardisia elliptica	Shoebutton ardisia	I	Moving south on Card Sound Road; not yet over bridge	birds, year round	
Bauhinia variegata	Orchid tree	I	Planted here but no escape observed yet		
Broussonetia papyrifera	Paper mulberry	II	One escape in Key Largo, serious problem in Dade		
Bucida bucera	Black Olive	n/a	Copius seeder, may invade canopy gaps near parent		
Bucida bucera B. Spinosa	Black Olive	n/a	Has been found in Key Largo hammocks		
Carica papaya	Papaya	n/a	Found in hammocks and along coastal berms		
Catharanthus roseus	Madagascar periwinkle	n/a	Disturbed sites, beaches		
Clusia rosea	Pitch apple, autograph tree	n/a	Spreading in Key Largo, Dade/Broward, epiphytic, lithophytic	birds, spring-summer	Basal with 10% Garlon 4
Dactyloctenium aegyptium	Crowfoot grass	n/a	So far seems to be limited to disturbed sites or as an early colonizer only at natural sites		
Ficus altissima	False banyan	II	Planted here but no escape observed yet	birds	
Flacourtia indica	Governor's plum	II	Planted here but no escape observed yet	animals	
Jacquinia arbora	Bracelet Wood	n/a	Disturbed sites, Key Largo Geiger Key areas		
Macroptilium atropurpureum	Jumbie bean	n/a	Edge species, moving into coastal berms and dunes	wind blown	
Macroptilium lathyroides	Jumbie bean	n/a	Edge species, moving into coastal berms and dunes	wind blown	
Melia azedarach	Chinaberry	I	Planted as ornamental and has potential to spread	animals	
Merremia tuberosa	Wood rose	II	It's planted in Keys; is a problem in Dade	year round	
Murraya paniculata	Orange-jessamine	II	Planted here but no escape observed yet	animals	
Ochrosia parviflora	Kopsia	n/a	Planted here but no escape observed yet		
Oeceoclades maculata	Ground orchid	n/a	Definitely invades, but does it disrupt? There's some question as to whether it's introduced or naturally arrived		
Phoenix spp.	Date palm	II	Localized problem at Marquesas Keys and Cape Florida EPPC lists *P. reclinata* as Cat. II	rhizomes/seeds	Manual removal
Rhynchelytrum repens	Natal grass	II	Occurs on roadside over the entire Keys; potential pineland problem	year round	Foliar with 2% Roundup Pro
Solanum viarum	Tropical soda apple	I	Invades pastures and upland pines	livestock/mamals/ hay	Glyphosate at a 3% solution
Stenotaphrum secundatum	St. Augustine grass	n/a	Planted here, beginning to invade hammocks from roadsides.	rhizomes, Sep-Nov	
Syzygium cumini	Java Plum	I	One site on Ramrod Key, waiting to see	birds/small mammals	Glyphosate at a 3% solution
Tabebuia sp.	Pink shower tree	n/a	One localized problem known at Upper Sugarloaf Key	wind blown, Mar - Aug	
Tamarindus indicus	Tamarind	n/a	Naturalizing in Key Largo Hammock		
Tradescantia spp.	Wandering Jew	I	Spreads from landscapes and dump sites; localized problem Spreading along some forest edges in the Upper Keys		
Turnera ulmifolia	Yellow alder	?	Disturbed areas may invade beach dunes		
Vitex trifolia	Chastetree	?	Key Largo hammocks and Long Key as a landscape tree	landscapers	
Zoysia japonica	Zoysia grass	n/a	Escaping from park residence at north end of Bahia Honda	rhizomes	Foliar with 2% Roundup Pro

PLANTS THAT MAY HYBRIDIZE WITH NATIVES OR ARE BEING SOLD AS NATIVES

Exotic		hybridize?	Native	
Hamelia patens African	African Fire Bush	?	Fire Bush	*Hamelia patens*
Scaevola sericea Vahl	Beach Napauka	?	Scaevola,ink berry	*Scaevola plumieri*
Stachytarpheta urticifolia	Porterweed	Y	Blue Porterweed	*Stachytarpheta jamaicensis*
Sophora tomentosa var. *occidentalis*	Texas Necklace pod	Y?	Necklace pod	*Sophora tomentosa* var. *truncata*



MIKE PALMER, GIS SPECIALIST, TNC

spread the word about these spreading problem plants. Through the planning efforts of Conservancy staff, GreenSweep grew into a Keys-wide program with training manuals, a large volunteer network and a method for addressing private land invasives. To date, GreenSweep staff and volunteers have assisted hundreds of private landowners in achieving and maintaining exotics free properties, in turn keeping millions of seeds away from public conservation lands. GreenSweep also gives away thousands of native plants to Keys residents during its annual Native Plant Fair while working with residential neighborhood organizations to encourage the use of non-invasive plants in landscaping.

Finding Agency Partners

While The Nature Conservancy may not be able to help on your site, there are probably other nonprofit organizations that can. Do you have a "friends of" group? A local native plant society chapter? Even if you can't think of anyone right now, there are other things your agency can do to help involve others.

The Nature Conservancy gives away thousands of native plants to the community during its annual Native Plant Fair.

First, don't reinvent the wheel. Florida Keys Conservancy staff members Alison Higgins and Chuck Byrd are happy to supply GreenSweep materials to help you train volunteers, recruit AmeriCorps teams, and obtain permission from private landowners. Locally, Miami-Dade County soon will be utilizing its first AmeriCorps team. Across the water, the Bahamas Environment, Science and Technology Commission is adapting GreenSweep materials to fit the country's local invasive plant control needs.

Second, start making more friends. Talk to people in other agencies in your region. Find out who the crew supervisor is for your local road right-of-ways and utility lines. You may just find an ally you didn't know you had.

The Big Picture

Natural lands don't recognize property lines. Neither do invasive exotic plants. We need all partners to pitch in to address these issues on a landscape scale. With cooperative groups like the Florida Keys Invasive Exotics Task Force, innovative projects such as Project GreenSweep, and strategic private lands involvement through non-profits like The Nature Conservancy, the threat of invasive species can be fought and won. Unique habitats such as the Florida Keys can be protected, at least in part, and the rich native biodiversity preserved for another generation.

For more information, contact Alison Higgins, Land Stewardship Coordinator, The Nature Conservancy of The Florida Keys, 305/745-8402 ext. 111, ahiggins@tnc.org

A guidebook was prepared by TNC for use by Task Force members and other interested people. *Identification Guide for Invasive Exotic Plants of the Florida Keys* contains photos or line drawings of each plant on the list, together with location, basic identification and control information. The book was prepared by Kate Hadden and Kaita Frank and has just been updated by Chuck Byrd. Copies may be obtained by contacting him at The Nature Conservancy, P.O Box 420237, Summerland Key, FL 33042, 305-745-8402; chuck_byrd@tnc.org

Mark Conrad Zeller October 24, 1967-November 25, 2004

This gentle man and loving father passed suddenly from this life, and will be sorely missed by his family, friends, and co-workers. We will remember his generous nature, his willingness to share his time, his quiet but keen sense of humor, and his warm sincere smile.

Mark Zeller truly loved the outdoors and was an extremely dedicated biologist and avid woodworker. He loved killing weeds, and relished his role in enabling conservation land managers to remove invasive plants from their properties. Despite his youth, Mark had a world of experiences and adventures. He had lived all over the United States, attended college in Alaska (drove there on a motorcycle with his girlfriend and eventual wife, Lisa), and volunteered on two separate occasions with animal rescue related to oil spills while there. He also spent six months in Antarctica studying seal behavior. When crisis occurred after the first hurricane hit Florida last year, he was one of the first department employees to leave his family to help with relief efforts.

Our office at DEP is a small close-knit group–a family. Mark, known as "Z" by coworkers and contractors alike, was with us for some ten years. He was our friend and able co-conspirator. He would bring little tokens of friendship back from vacation trips. For example, he brought Drew a Willie Nelson CD entitled "Old And In The Way" after one trip. A quart bottle of "Arrogant Bastard" ale showed up after a particular California trip. Then there were the numerous field trips when things would go particularly "well"; we'd just sit in the truck and Mark would finally break the silence and say, "OK, word of this doesn't leave this truck!" He was the best and we will sorely miss him.

– Greg Jubinsky and Drew Leslie, Florida Department of Environmental Protection, Bureau of Invasive Plant Management

TAME MELALEUCA

PRESENTS

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2005

Demonstrating biologically-based management of the invasive melaleuca tree

For Professionals:

A full day's program of presentations and a guided tour of treatment demonstration plots emphasizing integrated pest management. Four total allowable CEUs available for Natural Areas, Right-of-Way, Aquatics, Private Applicators, and FNGLA certified horticulturalists; 3.5 allowable CEUs for ISA certified arborists. Pre-registration and $15 fee required.

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- February 15 in Ft Myers, Lee Co.
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A half-day program with the homeowner in mind. Learn why you should help tame melaleuca and what your control options are. And get to know melaleuca's natural enemies, the weevil and the psyllid!

Choose the date and location most convenient for you!
- February 16 in Ft Myers, Lee Co.
- March 5 in Lake Worth, Palm Beach Co.
- March 12 in Davie, Broward Co.
- April 2 in Naples, Collier Co.

For details and registration information for all events visit

http://tame.ifas.ufl.edu

or call (954) 475 0541 extension 145

Cogongrass: An Increasing Threat to South Georgia

by Christopher Evans, University of Georgia and Georgia EPPC

Cogongrass (*Imperata cylindrica*) is a serious invader of open lands and forests throughout much of the southeastern United States. Mississippi, Florida, and Alabama have extensive infestations that harm both the ecology and economics of natural resource management. Native to Southeast Asia, cogongrass was introduced in the early 1900s for erosion control and as a forage crop. It quickly escaped initial plantings and began spreading throughout the southeast.

Closeup of cogongrass leaves, showing characteristic off-center whitish midvein.

Once established, cogongrass quickly dominates the understory plant environment where it displaces native vegetation, restricts tree seedling establishment, and increases fire risks. These potential hazards and the aggressive nature of cogongrass led to it being listed as a Federal Noxious Weed by the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS).

Until recently, only small isolated occurrences of cogongrass had been found in the state of Georgia. In the fall of 2004, several acres of dense cogongrass were found in Mitchell County, Georgia in a 10 year-old planted loblolly pine stand. The center of the infestation occurs in the middle of the pine stand and only a small portion has spread onto a road right-of-way. The cogongrass is aggressively displacing all other understory plants and in most of the infested area it is the only plant species in the understory. The origin of the cogongrass introduction has not been determined but it may have come in on equipment used in planting the pine trees.

Surveys were conducted in the woodlands, disturbed areas, and field edges that occur close to the infestation in an attempt to determine if cogongrass had spread or if any additional infestations had occurred. Several small satellite populations were found in the immediate area. Control of the infestation is being conducted and a combined effort from the Georgia Department of Agriculture, USDA-APHIS, the University of Georgia, the Georgia EPPC, and the Georgia Forestry Commission has been initiated to increase both surveying efforts and educational outreach programs. Previously, only limited surveys were conducted because it was thought that cogongrass was not a major problem in Georgia. New surveys will assess how large of a problem it has become. Educational outreach efforts are currently targeting foresters, wildlife biologists, landowners, and others who are likely to come across cogongrass while working. The programs focus on identification of cogongrass and stress the importance of reporting infestations.

For more information, contact Christopher Evans at the Coastal Plain Experimental Station, P.O. Box 748, Tifton, GA 31793; 229-386-3298; cevans@uga.edu

For more information on cogongrass, please visit the University of Florida's IFAS Center for Aquatic and Invasive Plants website: http://plants.ifas.ufl.edu/impcyl.html

Thick infestation of cogongrass within a planted pine stand.

Cogongrass forms a dense mat.

Internodes

Mark Your Calendar

- Treasure Coast Invasive Plant Management Short Course (half-day), March 23, 2005, St. Lucie County Cooperative Extension, Fort Pierce, FL, 772/462-1660, ktgioeli@ifas.ufl.edu
- 66th Annual Meeting of the Association of Southeastern Biologists (ASB), April 13-15, 2005, University of North Alabama, Florence, AL. Scott Jewell, 336/421-0034, A2ZConvention@yahoo.com or www.asb.appstate.edu/
- *Invasive Species: Their Ecological Impacts and Alternatives for Control*, American Society for Testing and Materials (ASTM) Invasive Species Conference, April 18-22, 2005, sponsored by ASTM Committee-E47 on Biological Effects and Environmental Fate, Reno, NV. The symposium will focus on supporting the assessment and monitoring of invasive species. Specific topics pertinent to invasive species issues include the identification of standardizations that Committee-E47 might develop to meet technical and regulatory challenges. ASTM is seeking international participation and plans to focus on both terrestrial and aquatic habitats and species. www.astm.org Click on Symposia and Workshops, then Current Call for Papers.
- Annual meeting of the Florida Vegetation Management Association, April 19-21, 2005. P.O. Box 141977, Gainesville, FL 32614-1977.
- 7th Annual Southeast Exotic Pest Plant Council (SE-EPPC) and 3rd Annual Alabama Invasive Plant Council (ALIPC), May 4-6, 2005, Birmingham, Alabama. www.se-eppc.org
- International Workshop: *Biological Invasions in Inland Waters*, May 5–6, 2005, Florence, Italy Contact: Francesca Gherardi, gherardi@dbag.unifi.it – http://labo.univ-poitiers.fr/craynet or http://www.dbag.unifi.it (click on Eventi)
- *No Ivy Day*, May 7, 2005. The Ivy Removal Project is headquartered in Portland, Oregon, but they are looking for partners across the country to "…transform No Ivy Day 2005 into a bicoastal, international punch-out leaving ivy's mat down for the count!" The official motto of the group is "De Vine Intervention." Visit their excellent website at: http://www.noivyleague.com/index.html

A summer youth crew shows off one of their trophies: part of an English ivy vine removed from a tree.

- 20th Annual Symposium, Florida Exotic Pest Plant Council (FLEPPC), May 9-11, 2005, Key West, Florida. www.fleppc.org
- 25th Annual Conference, Florida Native Plant Society (FNPS), May 12–15, 2005, Melbourne, FL, www.fnps.org

Last chance for small grants.

Requests for Proposals for FLEPPC Education and Outreach

Small Grants due March 15th.

See the FLEPPC website for more details: www.fleppc.org

- 2005 AQUATIC WEED CONTROL SHORT COURSE, May 16-20, 2005, Fort Lauderdale, Florida. Aquatic, upland and invasive weed control; aquatic plant identification. A new concurrent session will focus on first time attendees with a morning of equipment calibration training and an afternoon of aquatic and natural area weed control training. Tyler J. Koschnick, University of Florida, IFAS, Center for Aquatic and Invasive Plants, 352/392-5126, FAX: 352/ 392-3462, tjkoschnick@ifas.ufl.edu or http://conference.ifas.ufl.edu/aw/
- 16th Annual Florida Lake Management Society Conference, June 6-9, 2005, Hawk's Cay Resort on Duck Key. Cash prizes for student presenters! flms.net/florida.html
- 45th Annual Meeting of the Aquatic Plant Management Society (APMS), July 10-13, 2005, Paseo del Alamo, Texas. www.apms.org
- Mid-Atlantic EPPC Annual Meeting and Biannual Symposium (co-sponsored by the Morris Arboretum), August 16-17, 2005, Philadelphia, PA. http://www.ma-eppc.org/
- 1st Annual Symposium of the Tennessee Exotic Pest Plant Council, September 8, 2005, Patterson Community Center, Murfreesboro, TN. A morning of speaker sessions and afternoon workshops covering topics such as assessment and monitoring, regional strategies, management plans: homeowners to wilderness areas, and data gaps. Watch for registration information on http://www.tneppc.org/ or contact Pat Parr at 865-576-8123.

Publications:

- Online publication of a new, comprehensive literature review, *"Fire as a Tool for Controlling Nonnative Invasive Plants,"* by Peter M. Rice, University of Montana. The review "focuses on the intentional use of fire, alone or integrated with other methods, to control exotic plants in North America." Approximately 235 citations are noted in the 51-page report that is divided into four sections: Managers' Objectives, Limitations on Tactics, Detailed Case Studies, and References. The review can be read and downloaded at http://www.weedcenter.org/management/tools.htm#burning. The compilation was funded through a grant from the Center for Invasive Plant Management at Montana State University - Bozeman.

continued on page 22

- *Aquatic, Wetland and Invasive Plants in Pen-and-Ink* (DVD). High resolution TIF scans of 175 line drawings that include common and rare, native and non-native species of Florida and the southeastern U.S. IFAS Publication No. DVD-347. $100.00 ifasbooks.ufl.edu 800-226-1764
- *Florida Ethnobotany* by Dr. Daniel F. Austin, CRC Press, Boca Raton, FL. Co-sponsored by the Society for Economic Botany and the Florida Native Plant Society. An incredibly comprehensive documentation of the names and uses of nearly 900 of Florida's plants, with illustrations of more than 500 species. $149.95 www.crcpress.com
- *Woody Plants of the Southeastern United States: A Winter Guide* by R. Lance, University of Georgia Press (2004). Designed for winter use, this taxonomic guide describes approximately 900 plant species by twig, bud, and bark characteristics and features almost 600 illustrations of the trees, shrubs, and woody ground covers that grow in the southeastern U.S. without the aid of cultivation. Includes native and naturalized exotic plant species. $54.95 www.ugapress.org

- *Freshwater Plants in the Southeastern United States* by V. Ramey, University of Florida, IFAS, Center for Aquatic and Invasive Plants (2005), Publ. No. SP-348. A recognition guide for 133 plants, similar in design to a folding road map, laminated with full color photographs and key identifying characteristics. Includes an insert with botanical drawings of approximately 80 of the plants depicted. Folded size is 4-1/4" x 9-3/16", convenient for pockets, glove boxes, knapsacks and hand carrying in the field. $11.95 ifasbooks.ufl.edu 800-226-1764

A short selection of journal articles on invasive plants:

- "*Exotic weed invasion increases the susceptibility of native plants to attack by a biocontrol herbivore*" by T.A. Rand and S.M. Louda, Ecology 85(6):1548-1554. 2004. "This study provides some of the first empirical evidence that invasion by an exotic plant can increase attack of native plants by shared insect herbivores."
- "*Tsetse flies are attracted to the invasive plant* Lantana camara" by Z. Syed and P.M. Guerin, Journal of Insect Physiology 50:43-50. 2004. "In a wind tunnel we show that both foliage and an extract of volatiles from foliage of *L. camara* attract three tsetse spp. from different habitats: *Glossina fuscipes fuscipes* (riverine), *G. brevipalpis* (sylvatic) and *G. pallidipes* (savannah)."
- "*Seed bank ecology of the invasive vine, cats claw creeper* (Macfadyena unguis-cati *(L.) A. Gentry*" by G. Vivian-Smith and F.D. Panella. In Sindel, B.M and S.B. Johnson (editors) Proceedings of the 14th Australian Weeds Conference, pp. 531-534. "Our results suggest that cats claw creeper does not have a persistent seed bank. Persistence of infestations following regular control efforts may be largely due to regeneration from the below-ground tuber bank."

Nodes of Interest

- The Yale Peabody Museum in New Haven, Connecticut is featuring a show called *Landscape Under Siege: Invasive Plants of Connecticut* supplemented by *Invasive Species and the Public Good, The Fletcher Distinguished Lecture Series hosted by the Global Institute of Sustainable Forestry at the Yale School of Forestry and Environmental Studies.* Invaders are identified with botanically accurate watercolor paintings by members of the Greater New York Chapter of the Guild of Natural Science Illustrators, and with herbarium specimens from the Yale Herbarium collections in the Peabody's Division of Botany. The mission is to educate the public about the negative impacts of non-native invasive plants on local habitats. For more information, go to: http://www.peabody.yale.edu/exhibits/ ctinvasives.html
- The *Volunteer Invasives Monitoring Program* is a pilot program to track the threat of invasive non-native plants on six national wildlife refuges in six different states, including one in Florida. The program is a collaborative effort between the National Wildlife Refuge Association, The Nature Conservancy, the US Fish and Wildlife Service and the National Institute of Invasive Species Science of the US Geological Survey. Visit the web site at: http://www.refugenet.org/new-invasives/vimp.html
- Maine is no longer one of the only states in the lower 48 to be free of Eurasian watermilfoil *(Myriophyllum spicatum).* An infestation has been discovered in a 28-acre private gravel quarry. The quarry allows no boating, swimming or fishing so the means of introduction are unknown at this time. A drawdown is underway and treatment options are being considered by the Maine Department of Environmental Protection. For more information, contact Paul Gregory, Maine DEP at Paul.Gregory@maine.gov
- The U.S. Department of Agriculture announced that a Missouri seed company has paid USDA $875 to settle an alleged violation of the Federal Seed Act. Violations included false labeling as to presence of noxious-weed seeds within shipments to Texas and Alabama of tall fescue and wheat. Another fine of $16,425 was paid by a Georgia seed company for violations including false labeling of noxious-weed seeds and their presence in excess of state's limits; presence of prohibited noxious-weed seeds; and failure to show the presence of noxious-weed seeds and the rate of occurrence. The case involved 22 shipments of seeds to Florida, Georgia, Texas, and Kentucky. The Federal Seed Act is a truth-in-labeling law designed to protect farmers and consumers who buy seed. The Agricultural Marketing Service administers the act with the help of state seed officials.
- The National Aeronautics and Space Administration (NASA) has become the 13th Cabinet agency to join the National Invasive Species Council (NISC). NASA says its current work on maintaining the biological integrity of Earth and other solar system bodies along with work with remote

sensing activities of Earth's biotic and abiotic environment from space will make it an invaluable addition to the council. NASA has agreed to make its satellite observations of the Earth, computer modeling and engineering experience available to NISC. The National Invasive Species Council is a cabinet level council that was established by Executive Order of President Bill Clinton in 1999 to provide leadership and to ensure complementary, cost-efficient and effective federal activities regarding invasive species. Council members, in addition to NASA, include three co-chairs: the secretaries of the Interior, Agriculture, Commerce, and the secretaries of State, Defense, Homeland Security, Treasury, Transportation, Health and Human Services, as well as the administrators of the Environmental Protection Agency and the U.S. Agency for International Development, and the U.S Trade Representative. More information on NISC is online at: ww.invasivespecies.gov

- The Southwest Exotic Plant Information Clearinghouse is a cooperative effort among the U.S. Geological Survey, the National Park Service and Northern Arizona University to organize comprehensive information on exotic plant species in the southwest on one web location. Go to http://www.usgs.nau.edu/SWEPIC/
- Visit the Natural Areas Training Academy web site to learn about the Certificate in Natural Areas Management Program, a partnership of The Nature Conservancy (TNC) and the School of Natural Resources and Environment at the University of Florida. The mission of the academy is to provide public and private resource managers with up-to-date and practical information and training for protecting Florida's natural areas. The Certificate in Natural Areas Management is awarded upon completion of a series of five workshops. Go to http://nata.snre.ufl.edu/ for more information.

How much Lygodium…? In an effort to curtail the rampant growth and spread of Old world climbing fern, *Lygodium microphyllum*, the USDA-ARS Invasive Plant Research Laboratory released a lygodium-eating moth, *Austromusotima (*formerly *Cataclysta) camptonozale*, on February 14 from Jonathan Dickinson State Park in Hobe Sound, Florida. In attendance at this highly anticipated event were U.S. Representative E. Clay Shaw, Jr., officials from the USDA-ARS, the Florida Department of Environmental Protection, and the South Florida Water Management District, vegetation management biologists and experts. The caterpillars of the Lygodium moth eat the leaves of the plant, killing smaller plants and reducing the vigor of larger plants. The insect has been fully tested under quarantine conditions and officially approved for release as the first biological control agent targeting Lygodium in Florida.

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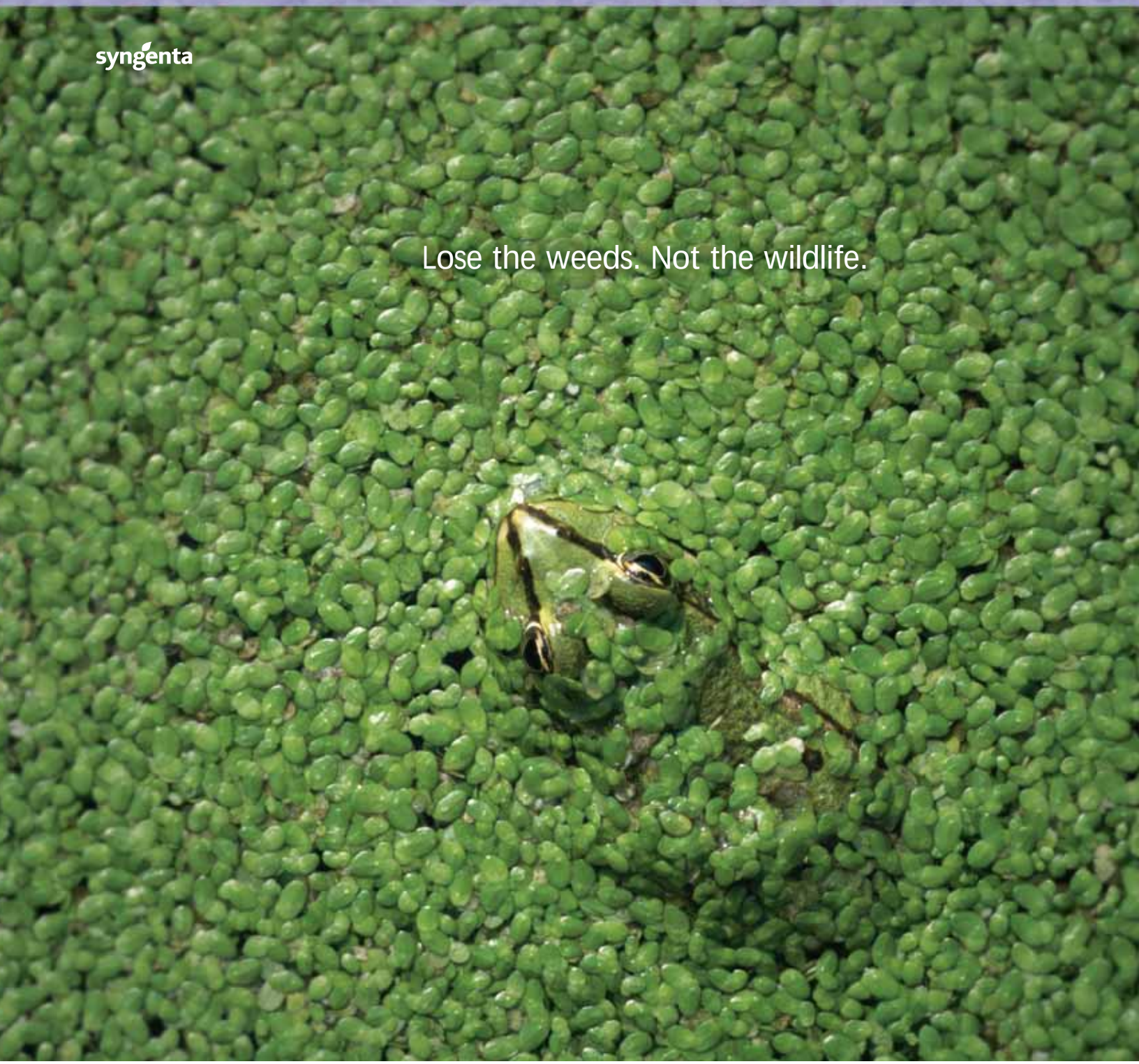

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